

# **REINFORCEKIT® 4D**

# HIGH-PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT

According to ISO 24.817 & ASME PCC-2



# **TABLE OF CONTENTS**

- **1. PRODUCT BROCHURE**
- 2. TECHNICAL DATA SHEET
- 3. PIPE DEFECT REGISTER
- 4. PRODUCT APPLICATIONS
- 5. CASE STUDIES
- 6. PRESS ARTICLES
- 7. REFERENCES LIST



# **1. PRODUCT BROCHURE**

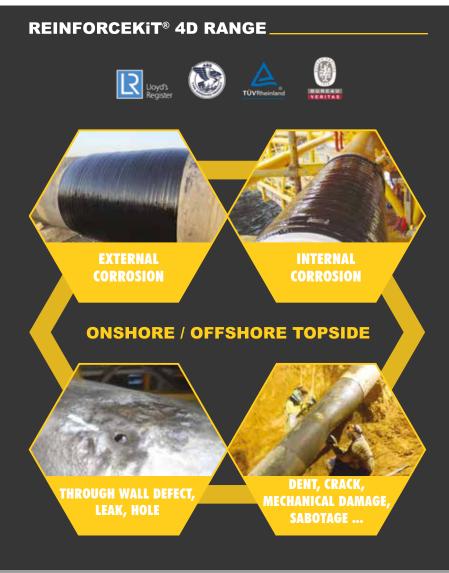


**REINFORCEKIT® 4D (R4D)** is a wet lay-up repair system, wrapped around the pipe to reinforce the damaged area, restore original pipe integrity and prevent further deterioration.



This composite technology, made of Kevlar® tape and bi-component epoxy resin, is a great alternative to metal clamp, welded sleeve and pipe replacement.

3X ENGINEERING (3X) developed its own software to design the repair and define the material requirements according to ISO 24.817 and ASME PCC-2 standards.



## **REINFORCEKIT® 4D MAIN FEATURES & BENEFITS**

- > Emergency Pipeline Repair System (EPRS)
- > Online repair (no loss of production)

> Long-term performance (up to 20-year) lifetime)

- > Designed according to the standards (ISO 24.817 and ASME PCC-2 compliant)
- > Versatile product with a large range of applications (O&G assets, plants, refineries, platforms, FPSO ...)
- > Suitable for transmission and distribution pipelines, piping, pipework ...
- > Suitable for any pipe geometries (straight, elbow, tee) including irregularities (welds ...), without pipe size limitation
- > User-friendly (no hot work, non conductive repair, light product)
- > Premium installation by trained and certified applicators only
- > Traceability using smart tag









Designed as per

ISO 24.817

& ASME PCC-2

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**REINFORCEKIT® 4D IMPLEMENTATION** 

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# COMPOSITE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT

-50°C to +150°C

Oil

Gas

**REINFORCEKIT® 4D** 

Water

High

Any pipe

Any pipe

**COMPOSITE WRAPPING** 

**ONLINE REPAIR** 

1001 ACCESSION

ISO 24.817 and ASME PCC-2 compliant



INNOVATIVE REPAIR SOLUTIONS FOR YOUR INSTALLATIONS

# 2. TECHNICAL DATA SHEET





HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +150°C (+302°F)



# TECHNICAL DATA SHEET

## **REINFORCEKIT® 4D DESCRIPTION**

REINFORCEKIT<sup>®</sup> 4D (R4D) is an advanced permanent composite repair system for pipelines and piping suffering from corrosion defects and mechanical damage. R4D is engineered to restore pipe original integrity without shutdown. It is a non-metallic technical alternative to metal clamps, welded sleeves and pipe replacement. Thoroughly tested by third-party laboratories, R4D is a 3X ENGINEERING (3X) concept which provides the required strength according to ASME B31G, ISO 24.817 and ASME PCC-2 codes and standards.

The original 3X concept is a combination of Kevlar<sup>®</sup> tape and specific epoxy resin. The bidirectional woven high-strength aramid-fiber material provides reinforcement in the hoop and axial directions. The epoxy resin allows binding and transferring loading through the whole composite system.

R4D is a wet lay-up system. It is wrapped helicoidally around the pipe in order to bring the mechanical resistance to the damaged pipe section. The number of layers, determined by

calculation, is linked not only to the pipe pressure, temperature, diameter and thickness but also to the pit depth and length, the steel grade and the pipe location. The repair design and material requirements are provided by 3X software REA after information compilation according to ASME B31G, ISO 24.817 and ASME PCC-2 codes and standards.

## **REINFORCEKIT® 4D FEATURES**

REINFORCEKIT<sup>®</sup> 4D (R4D) is recommended to repair and reinforce pipelines operating at temperature between -50°C (-58°F) up to +150°C (+302°F) subject to external/internal corrosion, leaks (dedicated procedure for live repair), dents and mechanical damages. The system restores the pipe integrity and prevents from further deterioration. This composite sleeve is made of 400 g/m<sup>2</sup> Kevlar® tape and highly-reinforced ceramic epoxy resin. This specific resin composition provides excellent anti-abrasion and chemical features. Even in case of through-wall defect, the fluid is kept inside the pipeline by the composite sleeve allowing restoring line integrity. As per standards, progressive internal corrosion defects repairs performed with R4D should be considered as temporary.

#### USES

- External/Internal Corrosion
- Pitting
- Weld defects
- Cracks
- Through-wall defect
- Dents
- Mechanical damages
- Severe abrasion and erosion
- Suitable for -50°C (-58°F) to +150°C (+302°F)

#### BENEFITS

- Online repair (no shutdown required except if leakage)
- Conform to any shape including welds, elbows and tees
- In accordance with standards
- No overload on corroded pipelines
- Fiber not hazardous for users











HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +55°C (+131°F) Application temperature from +10°C (+50°F) up to +55°C (+131°F)



RESIN SPECIFICATIONS	
Commercial name	R3X55
Chemical family	Epoxy (bi-component)
Color	Black
Mixing ratio by weight	(Part A : Part B) = 2 : 1
Pack size	1.28 kg/set
Solids	100%
VOCs	none
Storage	Between +15°C (+59°F) and +32°C (+90°F) if long-term storage
Shelf life	2 years in unopened containers
Resin consumption*	Kevlar tape 50m/50mm: 2.56kg / 2 parts A + 2 parts B Kevlar tape 50m/100mm: 5.12kg / 4 parts A + 4 parts B

FIBER SPECIFICATIONS	
Fiber nature	Aramid Kevlar <sup>®</sup> 49
Fiber directions towards pipe axis	Hoop/axial (0° / 90°)
Fiber type	Woven type
Tensile strength	2900 MPa (420.5 ksi)
Tensile modulus	110 GPa (15 950 ksi)
Weight per square meter	400 g/m2

COMPOSITE SPECIFICATIONS*							
Type of tape	8020				6040		
Descentance of the sector sector							
Percentage of fiber in volume				Up to 30%	-		
Density	<b>. .</b>		U	<u>cm<sup>3</sup> (78.0</u>			
Laminate thickness		e determi					
Naminal why this larges	F	YI, minimu				s and/or 2r	nm
Nominal ply thickness		7 140- (04		<u>nm* (0.03</u>	/	- (50.040	
Tensile strength in hoop direction	44	7 MPa (64	830 psi)		411 MP	a (59 610	psi)
(ISO 527 or ASTM D3039)	40	0 MD= (40	440 ====			- (05 000	
Tensile strength in axial direction (ISO 527 or ASTM D3039)	13	2 MPa (19	140 psi)		175 MP	a (25 380	psi)
Tensile modulus in hoop direction	20	2.8 GPa (4	750 koj)		24.25 C	Pa (3 520	koi)
(ISO 527 or ASTM D3039)	32	.o GPa (4	750 KSI)		24.25 G	Pa (3 520	KSI)
Tensile modulus in axial direction	8	8 CPa (1	276 kei)		13.0.00	Da (1.880	kei)
(ISO 527 or ASTM D3039)	8.8 GPa (1 276 ksi) 13.0 GPa (1 880 ksi)				NOI)		
Poisson's ratio (ISO 527 or ASTM D3039)		0.23	1			0.12	
Shear modulus (ASTM D5379)		0.20		3 GPa (11:	3 ksi)	0.12	
Resin Shore D hardness (ISO 868 or ASTM D2583)	78 Shore D.						
		Resin			ent: >71 S	hore D	
Lap shear strength (BS EN 1465 or ASTM D3165)				/Pa (2 61			
Cathodic disbondment (ASTM G8)				Passed			
Fatigue test on pipe spool (defect dependent)		>30 000	) cycles (4	0-80% MA	OP) with	70%WTL	
Application temperature					) +55°C (+		
Service temperature		From -50°	C (-58°F)	to +55°C (	(+131°F) -	Fully cure	d
Ultimate Glass transition temperature (ASTM D7426)					ed with pos		
Curing time after job completion:		+10°C	+16°C	+25°C	+32°C	+40°C	+50°C
<ul> <li>Given values could be shorten by using ATEX</li> </ul>		+50°F	+61°F	+77°F	+90°F	+104°F	+122°F
approved heating belts.	Light	2 days	32 hrs	20 hrs	18 hrs	15 hrs	12 hrs
<ul> <li>In case of process shutdown, it is required to post-</li> </ul>	load	2 uuys	021113	201113	101113	101113	121113
cure the composite at temperature superior or equal	Full						
to service temperature.	load	6 days	90 hrs	56 hrs	52 hrs	48 hrs	40 hrs
- Values just given as information.							
Applicable for Through-Wall (Type B) defect	No						



HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +95°C (+203°F) Application temperature from +15°C (+59°F) up to +95°C (+203°F)

**R3X95** 

RESIN SPECIFICATIONS	
Commercial name	R3X95
Chemical family	Epoxy (bi-component)
Color	Black
Mixing ratio by weight	(Part A : Part B) = 100 : 21.2
Pack size	1.3 kg/set
Solids	100%
VOCs	none
Storage	Between +15°C (+59°F) and +32°C (+90°F) if long-term storage
Shelf life	2 years in unopened containers
Resin consumption*	Kevlar tape 50m/50mm: 2.6kg / 2 parts A + 2 parts B
	Kevlar tape 50m/100mm: 5.2kg / 4 parts A + 4 parts B

FIBER SPECIFICATIONS	
Fiber nature	Aramid Kevlar <sup>®</sup> 49
Fiber directions towards pipe axis	Hoop/axial (0° / 90°)
Fiber type	Woven type
Tensile strength	2900 MPa (420.5 ksi)
Tensile modulus	110 GPa (15 950 ksi)
Weight per square meter	400 g/m2

COMPOSITE SPECIFICATIONS*						
Type of tape		8020		6040		
Deveentens of fiber in volume						
Percentage of fiber in volume				to 30%	4. \	
Density	<b>T</b> - 1			(78.0 lb/cu.f		
Laminate thickness			d using calc laminate thi			
Nominal ply thickness		1 .		(0.040 inch		
Tensile strength in hoop direction (ISO 527 or ASTM D3039)	44	0 MPa (63 8	20 psi)	310	MPa (44 97	0 psi)
Tensile strength in axial direction (ISO 527 or ASTM D3039)	14	9 MPa (21 6	10 psi)	157	MPa (22 77	0 psi)
Tensile modulus in hoop direction (ISO 527 or ASTM D3039)	28	3.3 GPa (4 1	00 ksi)	21.6 GPa (3 130 ksi)		
Tensile modulus in axial direction (ISO 527 or ASTM D3039)	9.	9.5 GPa (1 380 ksi) 13.1 GPa (1 900 ksi)			0 ksi)	
Poisson's ratio (ISO 527 or ASTM D3039)	0.14 0.13					
Shear modulus (ASTM D5379)			1.16 GP	<sup>p</sup> a (168 ksi)		
Resin Shore D hardness (ISO 868 or ASTM D2583)	82 Shore D, Resin hardness requirement: >74 Shore D					
Lap shear strength (BS EN 1465 or ASTM D3165)				a (1 870 psi)		
Cathodic disbondment (ASTM G8)				assed		
Fatigue test on pipe spool (defect dependent)		>30 000 c	ycles (40-80	% MAOP) v	vith 70%WT	L
Application temperature			15°C (+59°F			
Service temperature			(-58°F) to +9			red
Ultimate Glass transition temperature (ASTM D7426)			-239°F) – Fu			
Curing time after job completion:		+15°C	+20°C	+30°C	+40°C	+70°C
Given values could be shorten by using ATEX		+59°F	+68°F	+86°F	+104°F	+158°F
approved heating belts.	L					
<ul> <li>In case of process shutdown, it is required to post-</li> </ul>	Light	36 hrs	24 hrs	8 hrs	5 hrs	4 hrs
cure the composite at temperature superior or equal	load					
to service temperature.	Full	96 hrs	48 hrs	32 hrs	30 hrs	24 hrs
- Values just given as information.	load come come come come					
Applicable for Through-Wall (Type B) defect	Under condition					



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HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +110°C (+230°F) Application temperature from +70°C (+158°F) up to +110°C (+230°F)



RESIN SPECIFICATIONS	
Commercial name	R3X110
Chemical family	Epoxy (bi-component)
Color	Black
Mixing ratio by weight	(Part A : Part B) = 4.66 : 1
Pack size	1.04 kg/set
Solids	100%
VOCs	none
Storage	Between +15°C (+59°F) and +32°C (+90°F) if long-term storage
Shelf life	2 years in unopened containers
Resin consumption*	Kevlar tape 50m/50mm: 3.12kg / 3 parts A + 3 parts B Kevlar tape 50m/100mm: 5.20kg / 5 parts A + 5 parts B

FIBER SPECIFICATIONS	
Fiber nature	Aramid Kevlar <sup>®</sup> 49
Fiber directions towards pipe axis	Hoop/axial (0° / 90°)
Fiber type	Woven type
Tensile strength	2900 MPa (420.5 ksi)
Tensile modulus	110 GPa (15 950 ksi)
Weight per square meter	400 g/m2

COMPOSITE SPECIFICATIONS*				
Type of tape	8020		6040	
Percentage of fiber in volume	Up to 30%			
Density			78.0 lb/cu.ft.)	
Laminate thickness	To be deterr		lations according	to standards
			kness is 2 plies ar	
Nominal ply thickness		0.77 mm* (	0.030 inch)	
Tensile strength in hoop direction	458 MPa (	66 420 psi)	359 MPa (	52 070 psi)
(ISO 527 or ASTM D3039)		• •		
Tensile strength in axial direction	112 MPa (	16 240 psi)	169 MPa (	24 510 psi)
(ISO 527 or ASTM D3039)				
Tensile modulus in hoop direction	31.8 GPa	(4 610 ksi)	22.5 GPa	(3 260 ksi)
(ISO 527 or ASTM D3039)				
Tensile modulus in axial direction	7.9 GPa (	1 145 ksi)	13.4 GPa	(1 940 ksi)
(ISO 527 or ASTM D3039)				
Poisson's ratio (ISO 527 or ASTM D3039)	0.5		-	11
Shear modulus (ASTM D5379)	1.1 GPa (160 ksi)			
Resin Shore D hardness (ISO 868 or ASTM D2583)	80 Shore D,			
	Resin hardness requirement: >73 Shore D			
Lap shear strength (BS EN 1465 or ASTM D3165)		,	2 170 psi)	
Cathodic disbondment (ASTM G8)			sed	
Fatigue test on pipe spool (defect dependent)			6 MAOP) with 709	
Application temperature			) to +110°C (+230	
Ormital temperature	If I <sup>°</sup> pipe	<+70°C (+158°F)	), heating device i	needed
Service temperature			0°C (+230°F) - Fu	
			and service temp ntegrity may be at	
Ultimate Glass transition temperature (ASTM D7426)			y cured with post-	
Curing time after job completion:	+150			
- Given values could be shorten by using ATEX		+70°C +158°F	+90°C +194°F	+110°C +230°F
approved heating belts.		+100°F	+194°F	+230°F
- In case of process shutdown, it is required to post-	Light load	10 hrs	7 hrs	5 hrs
cure the composite at temperature superior or equal	Light load	101115	7 1115	5115
to service temperature.				
<ul> <li>Values just given as information.</li> </ul>	Full load	24 hrs	14 hrs	10 hrs
Applicable for Through-Wall (Type B) defect	No			
Applicable for Through-wall (Type D) delect		IN		



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HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +130°C (+266°F) Application temperature from +70°C (+158°F) up to +130°C (+266°F)



RESIN SPECIFICATIONS	
Commercial name	R3X130
Chemical family	Epoxy (bi-component)
Color	Transparent Yellow
Mixing ratio by weight	(Part A : Part B) = 3.37 : 1
Pack size	1.25 kg/set
Solids	100%
VOCs	none
Storage	Between +15°C (+59°F) and +32°C (+90°F) if long-term storage
Shelf life	2 years in unopened containers
Resin consumption*	Kevlar tape 50m/50mm: 1.25kg / 1 part A + 1 part B Kevlar tape 50m/100mm: 2.50kg / 2 parts A + 2 parts B

FIBER SPECIFICATIONS	
Fiber nature	Aramid Kevlar <sup>®</sup> 49
Fiber directions towards pipe axis	Hoop/axial (0° / 90°)
Fiber type	Woven type
Tensile strength	2900 MPa (420.5 ksi)
Tensile modulus	110 GPa (15 950 ksi)
Weight per square meter	400 g/m2

COMPOSITE SPECIFICATIONS*					
Type of tape	80	20	60	40	
Percentage of fiber in volume	Up to 30%				
Density		1.15g/cm <sup>3</sup> (7			
Laminate thickness	To bo dotor	mined using calcu		to otondordo	
		num laminate thic			
Nominal ply thickness	1 11, 111111	0.76 mm* (			
Tensile strength in hoop direction	432 MPa (	62 650 psi)		52 940 psi)	
(ISO 527 or ASTM D3039)	452 WI a (	02 000 psi)	505 Wi a (	52 540 psi)	
Tensile strength in axial direction	90 MPa (1	3 050 psi)	183 MPa (	26 540 psi)	
(ISO 527 or ASTM D3039)	00 111 4 (1	0 000 poly			
Tensile modulus in hoop direction	32.9 GPa	(4 770 ksi)	23 GPa (	3 340 ksi)	
(ISO 527 or ASTM D3039)	02.0 0. 4	(11101101)	20 0. 4 (	o o i o i i o i i o i j	
Tensile modulus in axial direction	7.7 GPa (	1 120 ksi)	14.4 GPa	(2 090 ksi)	
(ISO 527 or ASTM D3039)	Ì	,		· · ·	
Poisson's ratio (ISO 527 or ASTM D3039)	0.	0.39 0.11			
Shear modulus (ASTM D5379)	1.15 GPa (167 ksi)				
Resin Shore D hardness (ISO 868 or ASTM D2583)	79 Shore D,				
	Resin hardness requirement: >73 Shore D				
Lap shear strength (BS EN 1465 or ASTM D3165)	14.2 MPa (2 060 psi)				
Cathodic disbondment (ASTM G8)		Pas	sed		
Fatigue test on pipe spool (defect dependent)	>30 0	00 cycles (40-80%	6 MAOP) with 709	%WTL	
Application temperature		m +70°C (+158°F			
		,<+70°C (+158°F)			
Service temperature		°C (-58°F) to +13			
		ween application			
	than 1	00°C, the repair in	ntegrity may be af	fected.	
Ultimate Glass transition temperature (ASTM D7426)	+150°	C (+302°F) – Full	y cured with post-	curing	
Curing time after job completion:		+70°C	+90°C	+110°C	
<ul> <li>Given values could be shorten by using ATEX</li> </ul>		+158°F	+194°F	+230°F	
approved heating belts In case of process shutdown, it is required to post-					
- In case of process shutdown, it is required to post- cure the composite at temperature superior or equal	Light load	24 hrs	10 hrs	5 hrs	
to service temperature.	3	-			
- Values just given as information.					
	Full load	36 hrs	20 hrs	10 hrs	
Applicable for Through Wall (Type P) defect					
Applicable for Through-Wall (Type B) defect	No				



HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +70°C (+158°F) Application temperature from +10°C (+50°F) up to +70°C (+158°F)

**R3X70+** 

RESIN SPECIFICATIONS	
Commercial name	R3X70+
Chemical family	Epoxy (bi-component)
Color	Black or Grey
Mixing ratio by weight	(Part A : Part B) = 6.8 : 1
Pack size	1.28 kg/set
Solids	100%
VOCs	none
Storage	Between +15°C (+59°F) and +32°C (+90°F) if long-term storage
Shelf life	2 years in unopened containers
Resin consumption*	Kevlar tape 50m/50mm: 3.84kg / 3 parts A + 3 parts B Kevlar tape 50m/100mm: 7.68kg / 6 parts A + 6 parts B

FIBER SPECIFICATIONS	
Fiber nature	Aramid Kevlar <sup>®</sup> 49
Fiber directions towards pipe axis	Hoop/axial (0° / 90°)
Fiber type	Woven type
Tensile strength	2900 MPa (420.5 ksi)
Tensile modulus	110 GPa (15 950 ksi)
Weight per square meter	400 g/m2

COMPOSITE SPECIFICATIONS*							
Type of tape	8020 6040						
Percentage of fiber in volume		Up to 30%					
Density				cm <sup>3</sup> (94.9			
Laminate thickness	Tob	e determir				na to stand	lards
		/I, minimu					
Nominal ply thickness		.,		m* (0.041			
Tensile strength in hoop direction	420	0 MPa (61			- /	a (45 550	psi)
(ISO 527 or ASTM D3039)		- (-					
Tensile strength in axial direction	10	6 MPa (15	500 psi)		147 MPa	a (21 600	psi)
(ISO 527 or ASTM D3039)							. ,
Tensile modulus in hoop direction	29	.6 GPa (4	300 ksi)		22.5 GF	Pa (3 300 l	ksi)
(ISO 527 or ASTM D3039)							
Tensile modulus in axial direction	ç	) GPa (1 3	00 ksi)		14.4 GF	Pa (2 110 l	<si)< th=""></si)<>
(ISO 527 or ASTM D3039)							
Poisson's ratio (ISO 527 or ASTM D3039)	0.41 0.14						
Shear modulus (ASTM D5379)	1.65 GPa (242 ksi)						
Resin Shore D hardness (ISO 868 or ASTM D2583)	83 Shore D,						
	Resin hardness requirement: >76 Shore D						
Lap shear strength (BS EN 1465 or ASTM D3165)	12.5 MPa (1 810 psi)						
Cathodic disbondment (ASTM G8)	Passed						
Fatigue test on pipe spool (defect dependent) Application temperature	>30 000 cycles (40-80% MAOP) with 70%WTL						
Service temperature	From +10°C (+50°F) up to +70°C (+158°F)			aat			
Service temperature	From -50°C (-58°F) to +70°C (+158°F) – Type A defect From -50°C (-58°F) to +60°C (+140°F) – Type B defect						
Ultimate Glass transition temperature (ASTM D7426)	+90°C (+194°F) – Fully cured with post-curing			501			
Curing time after job completion:		+10°C	+16°C	+25°C	+32°C	+40°C	+50°C
- Given values could be shorten by using ATEX		+50°F	+61°F	+23 C +77°F	+90°F	+40 C +104°F	+122°F
approved heating belts.	Light	1001			1001		1122 1
<ul> <li>In case of process shutdown, it is required to post-</li> </ul>	load	3 days	36 hrs	30 hrs	24 hrs	16 hrs	8 hrs
cure the composite at temperature superior or equal							
to service temperature.	Full	6 days	72 hrs	60 hrs	48 hrs	32 hrs	24 hrs
<ul> <li>Values just given as information.</li> </ul>	load						
Resistance to pH	From 3 to 12						
Chemical resistance	Excellent (check chemical resistance chart for more information)			on)			
Applicable for Through-Wall (Type B) defect	Yes						
				100			



# $(\mathbf{R})$

HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +150°C (+302°F) Application temperature from +20°C (+68°F) up to +90°C (+194°F)

R3X150+

RESIN SPECIFICATIONS	
Commercial name	R3X150+
Chemical family	Epoxy (bi-component)
Color	Grey or Blue
Mixing ratio by weight	(Part A : Part B) = 8.4 : 1
Pack size	1,5 kg/set
Solids	100%
VOCs	none
Storage	Between +15°C (+59°F) and +32°C (+90°F) if long-term storage
Shelf life	2 years in unopened containers
Resin consumption*	Kevlar tape 50m/50mm: 3kg / 2 parts A + 2 parts B Kevlar tape 50m/100mm: 6kg / 4 parts A + 4 parts B

FIBER SPECIFICATIONS	
Fiber nature	Aramid Kevlar <sup>®</sup> 49
Fiber directions towards pipe axis	Hoop/axial (0° / 90°)
Fiber type	Woven type
Tensile strength	2900 MPa (420.5 ksi)
Tensile modulus	110 GPa (15 950 ksi)
Weight per square meter	400 g/m2

COMPOSITE SPECIFICATIONS*						
Type of tape		8020			6040	
Percentage of fiber in volume	Up to 30%					
Density		1		94.9 lb/cu.ft	)	
Laminate thickness	Tobe	determined				ndarde
		minimum la				
Nominal ply thickness		minimum is		.041 inch)		
Tensile strength in hoop direction	344	MPa (49 890	1-		MPa (40 70	) nei)
(ISO 527 or ASTM D3039)		``	• •			• /
Tensile strength in axial direction (ISO 527 or ASTM D3039)	127	MPa (18 420	) psi)	140	MPa (20 57	) psi)
Tensile modulus in hoop direction (ISO 527 or ASTM D3039)	26.9	GPa (3 900	) ksi)	19.6	GPa (2 880	) ksi)
Tensile modulus in axial direction (ISO 527 or ASTM D3039)	8.3	GPa (1 200	ksi)	12.2	GPa (1 790	) ksi)
Poisson's ratio (ISO 527 or ASTM D3039)		0.26			0.12	
Shear modulus (ASTM D5379)	1.35 GPa (196 ksi)					
Resin Shore D hardness (ISO 868 or ASTM D2583)	87 Shore D,					
		Resin hai		irement: >8 <sup>-</sup>	1 Shore D	
Lap shear strength (BS EN 1465 or ASTM D3165)	15.8 MPa (2 290 psi)					
Cathodic disbondment (ASTM G8)	Passed					
Fatigue test on pipe spool (defect dependent)	>30 000 cycles (40-80% MAOP) with 70%WTL				-	
Application temperature	From +20°C (+68°F) to +90°C (+194°F)					
	If T° <sub>pipe</sub> <+20°C (+68°F), heating device needed			1		
Service temperature	From -50°C (-58°F) to +150°C (+302°F) – Type A defect					
	From -50°C (-58°F) to +140°C (+284°F) – Type B defect					
Ultimate Glass transition temperature (ASTM D7426)		+170°C (+3	<u>38°F) – Full</u>	y cured with	post-curing	1
Curing time after job completion:		+20°C	+25°C	+40°C	+60°C	+80°C
- Given values could be shorten by using ATEX		+68°F	+77°F	+104°F	+140°F	+176°F
approved heating belts.	Light	2 days	24 hrs	14 hrs	12 hrs	8 hrs
<ul> <li>In case of process shutdown, it is required to post- ourse the composite at temperature superior or organ</li> </ul>	load	2 uays	241113	141113	121113	01113
cure the composite at temperature superior or equal to service temperature.		0.1	70.1	10.1	00.1	
- Values just given as information.	Full load	6 days	72 hrs	48 hrs	32 hrs	24 hrs
Resistance to pH		I	From	3 to 12		
•						
Chemical resistance	Excellent (check chemical resistance chart for more information)			ion)		
Applicable for Through-Wall (Type B) defect	Yes					



HIGH PERFORMANCE COMPOSITE REPAIR SOLUTION FOR PIPE REINFORCEMENT Service temperature from-50°C (-58°F) up to +150°C (+302°F)



## **APPLICATION NOTES**

- **SURFACE PREPARATION** Proper surface preparation is critical to the long-term performance of the composite. All rust, mill scale, corrosion products and foreign matter must be removed from the surface by a combination of solvent washing and bristle blasting or abrasive blasting. After surface preparation, roughness should achieve a minimum of 60µm and match with SA 2 ½ or ST3 standards. Then the surface must be cleaned and rinsed using an adequate solvent which evaporates leaving no film residue.
- APPLICATION Check atmospheric conditions before job start (T<sub>Dew point</sub> +3°C<T<sub>Support</sub>; 85%RH). If the pipe presents some pitted or corroded areas, specific filler must be used to fill pits and reshape the pipe. Apply a uniform layer of resin on the whole surface. The Kevlar<sup>®</sup> tape is then impregnated and wrapped helicoidally over the pipe. Application instructions are provided to technicians during 3X training course. Apply a protective coating as per company standards and local pipe environment (UV, swamp, etc).

# SAFETY Each applicator should read and understand the Material Safety Data Sheets (MSDS) and installation procedure before using 3X products.

WARRANTY DISCLAIMER Every reasonable effort is made to ensure the technical information and recommendations of this data sheet are true and accurate to the best of our knowledge at the date of issuance. However, improvements being continuously implemented to 3X products, this information is subject to change without notice. Please contact your 3X distributor for the last updated product specifications. This 3X technical datasheet warrants the quality of this product when used according to directions. User shall determine suitability of the product for use and assumes all risk.



# **3. PIPE DEFECT REGISTER**





# **Pipe Defect Register (PDR)**

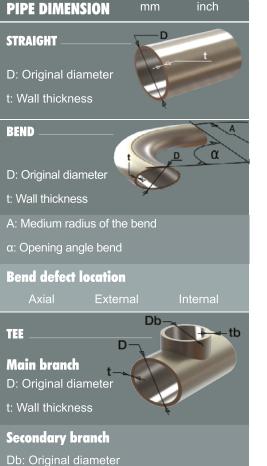
3X distributor

Contact details

Client

Project

Defect ref.



## **PIPE INFORMATION**

Grade:

## Other:

#### CONNECTION

Seamless (1.0)..... Electric Resistance Weld (1.0).. Electric Flash Weld (1.0)..... Electric Fusion (Arc) Weld / Spiral Weld (0.8).... Furnace Butt Weld / Continuous Weld (0.6)..... (Double) Submerged Arc Weld (1.0).... Laser Beam Weld (1.0).....

#### FLUID

Oil
Gas
Water
Chemical product
If the fluid is chemical, specify its nature

#### **FLUID SYSTEM COMPONENT**

Pipeline	
Piping	
Riser	
ENVIRONMENT	
Buried	
Offshore Subsea	
Offshore top side	

DESIGN	

According to the ASME B31.4 & ASME B31.8				
Class 2	Class 3	Class 4		
0,6	0,5	0,4		
	Class 2	Class 2 Class 3		

PRESSURE	Psi	Bar	MPa	
Pipe design pi (only for informa				
Pipe operating	g pressur	е		

Repair design pressure

**Repair Installation** pressure (plive)

#### °F °C TEMPERATURE

Pipe design temp. (only for information)

Pipe operating temp. (only for information)

Max.

Repair design temp.

Repair installation temp.

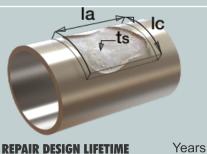
Min.

## **PIPE DEFECT**

/!\

tb: Wall thickness

DEFECT TYPE	External	Internal
Metal loss		
Through-wall		
Crack		
Dent		
CALCULATION C	HOICE	
ISO 24.817		
ASME PCC-2.		



Yes No

#### **PIPE ENVIRONMENT AND REPORTS**

In order to determine the repair technology, this document has to be fulfilled accurately. All missing information will affect the design, quality and standard acceptance and will be treated making assumptions. We will not be responsible for data input. We will only accept signed forms. The person fulfilling this form assumes full responsability

<b>DEFECT DIMENSIONS</b>	mm	inch
la: Defect axial length		
Lc: Defect circumferent	ial length	
ts: Minimum residual wal	II thickness	
DEFECT ORIGIN		
Corrosion		
Abrasion / Erosion		
Impact		

COMMENTS

Full name:

Signature & company stamp

Date : / 1

# 4. PRODUCT APPLICATIONS





# SUITABLE FOR VARIOUS PIPE GEOMETRIES AND DEFECTS

# **SENVIRONMENT**

**ONSHORE – OFFSHORE TOPSIDE** 

# **PIPE DIAMETER**

NO LIMITATION

# SERVICE TEMPERATURE

FROM -50°C TO +150°C (-58°F TO +302°F)

# **FLUID**

OIL – GAS – WATER



# **PIPE GEOMETRIES**







## RISER (TOPSIDE)

# **PIPE DEFECTS**



**EXTERNAL CORROSION / PITTING** 



**INTERNAL CORROSION / ABRASION / EROSION** 

# **PIPE DEFECTS**

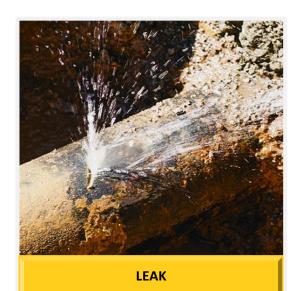


HOLE / THROUGH-WALL DEFECT





MECHANICAL DAMAGE / DENT



# **5. CASE STUDIES**







DETAILS

LOCATION **3X SOLUTION** 

DEFECT TYPES Mechanical protection - 19 risers From 8" to 20" gas risers, straight line, max. operating temp. 70°C, calculated pressure 60 bars

Qatar, Offshore **REINFORCEKIT® 4D** 

**OVERVIEW** 

The aim of the job, performed in October 2022 by 3X ENGINEERING (3X) was to protect (mechanical protection + impact resistance) 19 risers (from 8" to 20" OD) on their splash zones and thus prevent further deterioration of the risers. To do that, it was decided to



Fig. 1: Risers to be protected - overview



Fig. 2: Surface preparation completed



Fig. 3: R3X95 application (step 1)



Fig. 4: Composite wrapping completed



protect the risers areas using 3X composite solution REINFORCEKIT® 4D.





According to ISO 24.817 standard and 3X calculations, it was decided to apply 6 layers of REINFORCEKIT® 4D (using R3X95 resin) on each riser to protect them from impacts and corrosion issues.

Surface preparations were completed using sandblasting to remove coating and create a good surface roughness (superior to 60µm Rz) and ensure a good bonding between the steel pipes and the composite solution. Then hygrometric conditions were checked and the whole prepared surfaces were cleaned with air blower.

The composite applications were then completed following the main stages mentioned below (the procedure was the same for the 19 risers):

1/ One layer of R3X95 resin was firstly applied on the prepared surface to ensure the good impregnation of the first tape layer.

21 Composite wrapping was then completed using Kevlar® tape impregnated with R3X95 resin. Six layers were applied on each riser with a repair length between 7220mm and 9200mm.

A total of over 175m repair length using REINFORCEKIT® 4D product was installed on the 19 risers.

31 Last layer of R3X95 resin was applied all over the wrappings as finalization stage and id plate was installed for traceability.

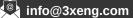
4/ Eight hours after, coating was applied on the composite protection.



# RESULTS

Samples of resin were taken during each tape impregnation for quality control and hardness measurements were performed and validated on site and in 3X offices.

The 19 risers are now protected with REINFORCEKIT® 4D from impacts and corrosion issues that could affect their mechanical resistance. The design life for each riser for this composite protection is 20 years.







DEFECT TYPES DETAILS

LOCATION 3X SOLUTION Internal corrosion 42" oil pipeline , buried, design pressure 14 bars, repair design temp. 20°C France

REINFORCEKIT® 4D



Fig. 1: Overview of the buried pipe to be repaired



Fig. 2: Isolated working area



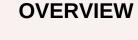
Fig. 3: Metallic plate fixed with filler and ratchet belts



Fig. 4: Last layer of R3X70+ application over composite wrapping



Fig. 5: Composite wrapping repair completed + ID plate



The objective of the repair, carried out in February 2022 by **3X ENGINEERING (3X)** and its local distributor **TSI** was to reinforce a buried 42" oil pipeline suffering from internal corrosion. To restore pipe integrity and prevent further deterioration, it was decided to repair the defected area using **REINFORCEKIT® 4D**.

# SCOPE OF WORK

According to ISO 24.817 standard, 3X calculations and client requirements, it was decided to apply **REINFORCEKIT®** 4D using **R3X70+ resin.** 18 layers of composite were determined to reinforce the corroded area.

Because of the cold temperatures outside, the working area was isolated and equipped with a dehumidifier and heating system in order to keep the optimal conditions for the composite application.

Surface preparation was completed with grit blasting to get a good surface roughness (superior to  $60\mu m$  Rz) and ensure a good bonding between the steel pipe and the composite repair. Hygrometric conditions were checked and the surface was cleaned with acetone.

The composite repair was then completed as below:

**1/ F3X8 filler** was applied on the defected area before metallic plate application to smooth the shape and facilitate metallic plate installation.

**2/ Metallic plate** (previously prepared and cleaned) was fixed on the defected area using **F3XS1** (specific filler with very good mechanical properties for sealing leaks) and rachet belts. Ratchet belts were removed after filler curing.

**3**/ One layer of **R3X70+ resin** was applied on the defected area to ensure a good wetting of the composite wrapping with the steel pipe.

4/ Composite wrapping was completed using Kevlar® tape impregnated with R3X70+ resin ==> <u>18 layers installed for a total repair length of 870mm.</u>

5/ Finishing stage ==> last layer of R3X70+ resin was applied all over the repair and id plate was installed for traceability.

# RESULTS

Due to the low temperatures outside, the isolated working area remained in place 2 days after job completion to ensure the good resin polymerisation. Hardness measurements were then performed and concluded the good achievement of this repair using REINFORCEKIT® 4D product. As recommended by 3X specialists, the client should apply a coating to protect the repair before closing the excavation. The design life for this composite reinforcement is planned for 10 years.



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DEFECT TYPES DETAILS

LOCATION 3X SOLUTION Internal corrosion on 3 valves Onshore, Oil, design pressure from 105 to 180 psi, design temp. 76.7°C

Kingdom of Saudi Arabia REINFORCEKIT® 4D



Fig. 1: Valve to be reinforced



after surface preparation



Fig. 3: Filler application



Fig. 4: Reinforcement completed + ID plate



Fig. 5: Overview of final result



The objective of the repair, carried out in October 2021 by **3X ENGINEERING (3X)** and its local distributor **WISKOTS** was to reinforce 3 valves with ball geometry suffering from internal corrosion. To restore valve integrity and prevent further deterioration, it was decided to repair the defected areas using **REINFORCEKIT® 4D**.

# SCOPE OF WORK

According to ASME PCC-2 standard and 3X calculations, it was decided to apply **REINFORCEKIT® 4D** using **R3X150+ resin (specifically dedicated to internal and external corrosion at high temperature).** From 6 to 8 layers of composite were determined to reinforce the valves.

Surface preparation was completed with gritblasting to get a good surface cleanliness roughness (superior to  $60\mu m Rz$ ) and ensure a good bonding between the steel and the composite. Hygrometric conditions were checked and approved and the prepared areas were cleaned with acetone.

The composite repairs were then completed following below stages (application procedure is the same for the 3 valves to be reinforced).

**1/ F3XCOMB filler** application on the defected areas to avoid sharp angles and reshape the valve before reinforcement.

**2/ F3XS1 filler** application to impregnate the surface and ensure good wetting and perfect impregnation of Kevlar® tape on the corroded areas.

3/ Composite covering using 300mm width Kevlar® tape impregnated with F3XS1 filler (1 layer) on internal corrosion areas.

4/ Composite reinforcement using 100mm width Kevlar® tape impregnated with R3X150+ resin (for high temperature). The overlap is made by "L" patches on the complete circumference of the valves (depending on the valve and the level of corrosion, between 6 and 8 layers were applied).

51 Finishing stage with id plate installation for traceability.

# RESULTS

Hardness measurements validated the good curing of the applied products and concluded the good completion of the valve reinforcements.

#### The design life for these reinforcements is 20 years.

This job was quite complicated because of the specific valve geometry but was perfectly performed and will enable the sytem to operate efficiently and safely.

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DEFECT TYPES DETAILS

LOCATION 3X SOLUTION Internal and external corrosion 6" WAG line , Offshore topside, design pressure 347 bars, max operating temp. 38°C

Angola, FPSO REINFORCEKiT® 4D



Fig. 1: Line to be fixed



Fig. 2: Surface preparation completed



Fig. 3: F3XS1 filler application



Fig. 4: R3X70+ resin application

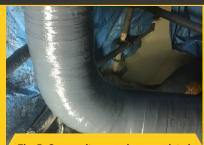


Fig. 5: Composite wrapping completed

# SCOPE OF WORK

decided to repair the defected areas using REINFORCEKiT® 4D, approved by ABS.

**OVERVIEW** 

The objective of the repair, carried out in August 2021 by **3X ENGINEERING (3X)** and its local distributor 3A SERVICES was to reinforce a 6" gas line suffering from internal and external corrosion. The defected area is located above the flange and the corrosion expanded circumferentially on approx. 1.8m. External corrosion is notified on 3 areas: on the straight line above the bend, on the bend and on the straight line between the bend and the flange. To restore pipe integrity and prevent further deterioration, it was

According to ASME PCC-2 standard and 3X calculations, it was decided to apply **REINFORCEKIT®** 4D using **R3X70+ resin (specifically dedicated to internal and external corrosion at high temperature).** 30 layers of composite were determined to reinforce the straight line above the bend, 36 layers for the bend and 48 layers for the straight line near the flange.

Surface preparation was completed with sandblasting and Bristle Blaster $\mbox{\sc machine to}$  get a good surface roughness (superior to 60 $\mu$ m Rz) and ensure a good bonding between the steel pipe and the composite repair. Hygrometric conditions were checked and the surface was cleaned with acetone.

The composite wrapping repairs were then completed following below stages (application procedure is the same for the 3 areas to be reinforced).

**1/ F3XS1 filler** application on the defected areas (straight lines and bend) to reshape the pipe.

2/ One layer of **R3X70+ resin** application on the defected areas (same as above) to protect the prepared surfaces from corrosion.

3/ Composite wrapping was completed using Kevlar® tape impregnated with R3X70+ resin ==> <u>30 layers completed for a total repair length of 815mm for the straight line</u> above the bend / <u>36 layers for a total repair length of 874mm for the bend / <u>48 layers for</u> a total repair length of 703mm for the straight line near the flange.</u>

4/ Finishing stage ==> last layer of **R3X70+ resin** applied all over the repair and **id plate installed for traceability.** 



Hardness measurements were performed and concluded the good achievement of the repairs. The job was quite complicated because of several criteria : high temperature + gas line + pipe geometry but was completed successfully by 3X specialists using REINFORCEKIT® 4D product.

<u>The design life for this composite reinforcement is 10 years ==> ABS APPROVED.</u>







**REINFORCEKIT® 4D.** 

DEFECT TYPES DETAILS

LOCATION **3X SOLUTION**  Internal acidic corrosion (3 defects) 42" gas pipeline, straight line, bend and tee, operating temp. 50°C, design pressure 20 bars

Kazakhstan, Onshore **REINFORCEKIT® 4D** 



Fig. 1: Pipeline to be repaired - overview







Fig. 3: Tee composite wrapping



Fig. 4: Straight lines wrapping



Fig. 5: Job completed - overview

# SCOPE OF WORK

**OVERVIEW** 

The aim of the repair, performed in October 2019 by 3X ENGINEERING (3X) local distributor CASPIAN INTERINDUSTRIAL COMPANY was to reinforce a 42" gas pipeline damaged by 3 internal acidic corrosion defects, leading to hazardous loss of containment in one location. To restore pipe integrity and prevent further deterioration, it was decided to repair the defected areas using 3X composite repair solution

According to ISO 24.817 standard and 3X calculations, it was decided to apply REINFORCEKIT® 4D using R3X70+ resin recommended for internal corrosion. Three damaged areas were identified to be repaired: 2 defected areas on straight lines and 1 defected zone occuring on area made up of bend and tee.

Surface preparation was completed using Bristle Blaster machine to remove remaining coating and create a good surface roughness (superior to  $60\mu m Rz$ ) and ensure a good bonding between the pipe and the composite repair system. Then hygrometric conditions were checked and the surface was degreased and cleaned.

The composite repairs were then completed following the main stages mentioned below (the procedure was the same for the 3 defected areas):

1/ One layer of R3X70+ resin was applied on the whole prepared surfaces to ensure the good impregnation of the first tape layer.

2/ Composite wrapping was then completed using Kevlar® tape impregnated with R3X70+ resin. The repair design relies on the occurrence of maximum through-wall defect of 20mm x 20mm.

- Defect No. 1 bend and tee ==> 6 layers were applied on the tee (2000mm) and 6 layers also applied on the bend (3000mm) with additional layers applied on the leak area (total of 18 layers for 600mm).
- Defect No. 2 straight line ==> 6 layers were applied for a total length of 500mm.
- Defect No. 3 straight line ==> 6 layers were applied for a total length of 2500mm.

31 Last layer of R3X70+ resin was applied all over the repairs as finalization stage and id plate was installed over each reinforcement for traceability.



Samples of resin were taken during each tape impregnation for quality control and hardness measurements were performed 72 hours after job completion and concluded this successful repair using REINFORCEKiT® 4D product.

Congratulations to our distributor for this excellent job mixing several geometries and big diameter.

info@3xeng.com

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DEFECT TYPE DETAILS

#### DEFECT TYPES External corrosion (3 defects)

- sweepolet: max op T° 35°C, design pressure 9 bars - 6" riser: max op T° 95°C, design pressure 220 bars

- 12" bended pipe: max op T° 70°C, design pressure 19 bars

LOCATION 3X SOLUTION Qatar, Halul Island REINFORCEKiT® 4D



Fig. 1: Sweepolet overview



Fig. 2: Sweepolet repair finalized



Fig. 3: Riser wrapping on progress



Fig. 4: Bended pipe wrapping on progress



lines transporting oil (located in Offshore platform) and suffering from external corrosion ==> <u>sweepolet - 6" riser - 12" bended pip</u>e. To restore their integrity and prevent further deterioration, it was decided to repair the

To restore their integrity and prevent further deterioration, it was decided to repair the defected areas using 3X composite repair solution **REINFORCEKIT® 4D**.

**OVERVIEW** 

The objective of the repair, carried out in June 2022 by **3X ENGINEERING (3X)** local distributor **POWER ENGINEERING CORPORATION (PEC)** was to reinforce 3 different

# SCOPE OF WORK

According to ASME PCC-2 standard and 3X calculations, it was decided to apply **REINFORCEKIT® 4D** using **R3X95 resin** (specially used for repairing pipe operating up to 95°C). Four layers of composite were determined to reinforce each defected area.

For the riser, removal of existing wrapping was performed before surface preparation.

Surface preparation was completed using Bristle Blaster machine to get a good surface roughness (superior to  $60\mu m$  Rz) and ensure a good bonding between the steel pipe and the composite repair system. Then hygrometric conditions were checked and the surface was degreased with acetone.

The composite repair was then completed following 4 main stages, as below :

**1/ F3X8 filler** was applied on the defected areas to smooth the shape (this step was not necessary for 6" riser reinforcement).

2/ One layer of **R3X95 resin** was then applied on the defected area to protect the surface from corrosion and ensure a good wetting of the composite wrapping with the steel pipe.

3/ Composite wrapping was completed using Kevlar® tape impregnated with R3X95 resin ==> <u>4 layers were installed for a total repair length of 120mm for sweepolet repair</u>, <u>1300mm for riser repair and 402mm for bended pipe repair</u>.

41 Last layer of R3X95 resin was applied all over the repairs as finishing stage and id plate was installed over each reinforcement for traceability.

# RESULTS

Samples of resin were taken during each tape impregnation for quality control. Hardness measurements were performed 3 days after job completion and concluded the good achievement of these repairs using REINFORCEKiT® 4D product.

Lifetime design for sweepolet and 12" bended pipe is 10 years and 20 years for the 6" riser.

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DETAILS

LOCATION **3X SOLUTION** 

DEFECT TYPES External corrosion (4 defects) 20.9" gas pipeline, straight line, calculated pressure 39 bars, max. op. temp. 20°C

> **Czech Republic, Onshore REINFORCEKIT® 4D**



Fig. 1: Sandblasting in progress



Fig. 3: R3X55 resin layer application (step 2)



Fig. 4: Composite wrapping in progress (step 3)



ID plate (step 4)



The objective of the repair, carried out in July 2022 by 3X ENGINEERING (3X) and its local distributor ORTODROMA was to reinforce a 20.9" gas pipeline suffering from 4 external corrosion defects, situated in 4 different locations (Mnichov, Hory, Tridomi, Chodov). To restore pipe integrity and prevent further deterioration, it was decided to repair the defected areas using 3X composite repair solution REINFORCEKIT® 4D.

# SCOPE OF WORK

According to ASME PCC-2 standard and 3X calculations, it was decided to apply REINFORCEKIT® 4D using R3X55 resin. Four layers of composite were determined to reinforce each defected area.

Surface preparation was completed using sandblasting to get a good surface roughness (superior to 60µm Rz) and ensure a good bonding between the steel pipe and the composite repair system. Then hygrometric conditions were checked and the surface was degreased with acetone.

The composite repair was then completed following 4 main stages, as below (the procedure was the same for the 4 defected areas):

1/ F3X8 filler was applied on the defected area to smooth the shape.

2/ One layer of R3X55 resin was then applied on the defected area (previously delimited) to protect the surface from corrosion and ensure a good wetting of the composite wrapping with the steel pipe.

3/ Composite wrapping was completed using Kevlar® tape impregnated with R3X55 resin ==> <u>4 layers were installed for a total repair length of 1040mm for Mnichov repair</u>, 1900mm for Tridomi repair, 890mm for Hory repair and 3500mm for Chodov one.

41 Last layer of R3X55 resin was applied all over the repair as finishing stage and id plate was installed over each reinforcement for traceability.



Samples of resin were taken during each tape impregnation for quality control. Hardness measurements were performed 2 days after job completion and concluded the good achievement of this repair using REINFORCEKiT® 4D product.

This composite reinforcement is designed for lasting 20 years.

# INNOVATIVE REPAIR SOLUTIONS FOR YOUR INSTALLATIONS





## COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

DEFECT TYPEPipe subjected to compressive stressPIPE DETAILS30" pipe - Operating temperature 45°C - Pressure 600 psiLOCATIONCOLOMBIA3X SOLUTIONREINFORCEKIT® 4D - EC



Figure 1: Pipe to be reinforced

#### **OVERVIEW**

The objective of the job, carried out in 2018 in Colombia by CPSERVICES (3X ENGINEERING (3X) distributor), was to **reinforce and protect a 30**" **pipe subjected to compressive stress** in order to verify if the pipe integrity remains preserved once loads are applied.

# 

Figure 2: Wrapping completed



Figures 3-4: Measurement of inner diameter and initial loading



Figures 5-6: 3,5 tons of loads applied on reinforced pipe

## **SCOPE OF WORK**

Each reinforcement is designed specifically according to the characteristics of the pipe, the operating conditions and the size of the defect. In accordance with ASME PCC-2 standard and 3X repair calculations, 4 layers of **REINFORCEKIT® 4D-EC** were determined to reinforce the pipe.

1/ Before the repair, qualified staff of CPSERVICES inspected and delimited the area to be reinforced.

2/ Surface preparation was carried out by an external contractor using manual-mechanical tools to obtain a good surface roughness (between 60 and 100  $\mu$ m) and thus guarantee the bonding between the steel pipe and the composite.

3/ The surface was cleaned with ethanol and the hygrometric conditions were checked before wrapping process.

4/ Wrapping composite reinforcement covering the delimited area was completed using **Kevlar® tape impregnated with R3X1060 resin** (4 layers with a specific repair length according to the characteristics of the loads to which the 30" pipe would be subjected).

5/ Once wrapping completed, the inner diameter was measured in order to detect any final deformation.

6/ Finally, two external loads (1.75 tons each one) were applied to check the resistance of the pipe.

## RESULTS

The pipe reinforced with **REINFORCEKIT® 4D-EC** was subjected to 3.5 tons of external loads without presenting any type of damage or deformation. The lifetime of this composite reinforcement is 20 years.

# Composite Repair Specialist





## DEFECT TYPE LOCATION **3X SOLUTION**

Corrosion NIGERIA

**PIPE DETAILS** 

16" water line

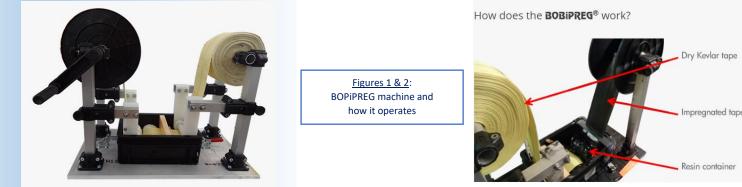
**REINFORCEKIT® 4D-EC using BOBiPREG®** 

#### **OVERVIEW**

The objective of the job, performed in August 2018 by 3X ENGINEERING (3X) and its local distributor SAVIC, was to protect a 16" pipe from aggressive environment on several long sections (for a total of 70-meter length).

#### **SCOPE OF WORK**

The reinforced protection was performed in a yard, prior on-site assembly, using BOBiPREG® machine. This specific machine, designed by 3X, allows a quick and regular impregnation of the Kevlar<sup>®</sup> tape with the resin before application.



This pre-preg system was very convenient for this case because the REINFORCEKIT® 4D-EC application should be carried out as fast as possible. The reinforced protection was performed following 4 stages:

Ourface preparation of the pipe using sandblasting to get at least 60 μm roughness and thus ensure a good bonding between the pipe and the composite.

Kevlar<sup>®</sup> tape impregnated with R3X1060 resin using BOBIPREG<sup>®</sup>.

B Wrapping around the pipe using 3X specific handles to ensure proper tensile strength during application. This device will facilitate and speed-up the wrapping step. Four layers were applied to guarantee an optimal protection.

Finalization of the protection with reference plate positioning for traceability purpose.



Figure 3: Kevlar tape impregnation with resin using BOBiPREG



Figure 4: Composite wrapping on progress using specific handles



Figure 5: Reinforced protection finalized with reference plate installation

#### RESULTS

Initially developed for subsea application, BOBIPREG® machine is proving to be also very efficient in this onshore configuration. This application method added to onsite conditions offer many benefits:

- easier logistic & safer environment (implementation environment performed in a yard rather than a platform).
- efficiency increased & cost effective (the wrapping was performed four times faster than with traditional method).





## COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

DEFECT TYPEExternal corrosion – 4 defectsPIPE DETAILS10" and 12" – Oil lines – design temperature 70°C -<br/>design pressure 40 and 200 barLOCATIONTHE NETHERLANDS – Platform (Offshore on air)3X SOLUTIONREINFORCEKIT® 4D – High Temperature



Fig. 1: Working conditions – View of scaffoldings



Fig. 2: View of the delimited repair area to be wrapped & Example of filler F3X8 application on 12" pipe defect



Fig. 3: Wrapping in progress



Fig. 4: Wrapping completed & Identity plate installed

#### **OVERVIEW**

The objective of the repair, performed in October 2018 by 3X ENGINEERING (3X), was to **repair and reinforce 4 external corrosion defects on 2 straight lines (2 defects situated on the 10" line and 2 defects on the 12" line).** The pipes are located on the top of the bridge of the platform.

#### **SCOPE OF WORK**

Each repair is designed specifically according to the pipe characteristics, the operating conditions and the size of the defect. According to ASME PCC-2 standard and 3X repair calculations, 4 layers of **REINFORCEKIT® 4DHT+**, specifically dedicated to high temperature, were determined to repair each of the 4 defects.

Because of the complex pipes situation, the client provided scaffoldings to perform the repair.

Before starting the composite reinforcement, 3X technicians first recognized and delimited the repair areas with adhesive tape. Surface preparation was completed with grit blasting to get a good surface roughness (between 60 and 100 $\mu$ m) and ensure the bonding between the steel pipes and the composite. The surface was then cleaned using acetone and hygrometric conditions were checked before wrapping procedure.

The composite repair for each defect was performed as follows:

• F3X8 filler application on each defect to give back the initial shape to the pipes.

Wrapping process covering the delimited areas was completed using Kevlar<sup>®</sup> tape impregnated with R3XHT+ resin (4 layers for each defect but with a specific repair length in accordance to defect characteristics → 260mm repair length for both 10" line defects, 457mm and 1060mm for the defects on 12" line).

**8 Reference plate** for traceability purpose was positioned on each repair.

For each repair, samples of **filler F3X8** and **resin R3XHT+** were taken during installation for quality control. After 3X operation, anti-UV coating was applied by the client to protect the repair.

#### RESULTS

The lines suffering from external corrosion were successfully repaired using our **REINFORCEKIT® 4D HT+**. Hardness measurements were performed and concluded the success of the repair. The design life for this composite reinforcement is 10 years.

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# Composite Repair Specialist





## COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

DEFECT TYPE **External corrosion – 4 defects** PIPE DETAILS **24", 20" & 4.5" - Oil line – max. op. temp. 105°C application temp. 60°C - design pressure 10 barg** LOCATION **VIET-NAM – FPSO** 3X SOLUTION **REINFORCEKIT® 4D ECHT (R4D-ECHT) – High Temperature** 



Figure 1: Kevlar<sup>®</sup> strips application (flare scrubber - part No. 1 of 4.5")



Figure 2: Composite wrapping finished (flare scrubber - part No. 2 of 24")



Figures 3 & 4: Composite wrappings finished on heat exchanger (2 defected areas)

#### **OVERVIEW**

The objective of the repair, performed in October 2018 by 3X ENGINEERING (3X) and its local distributor PETROENERTECH, was to repair 4 external corrosion defects on 2 different lines (1 flare scrubber and 1 heat exchanger).

#### **SCOPE OF WORK**

According to ISO 24.817 and 3X repair calculations, 4 layers of **REINFORCEKIT® 4D ECHT**, specifically dedicated to high temperature, have been determined to repair each of the 4 defects.

Surface preparation was completed using Bristle Blaster<sup>®</sup> machine to get a good surface roughness (between 60 and 100 $\mu$ m) and ensure the bonding between the pipe and the composite. Hygrometric conditions were measured and the surface was cleaned using acetone.

The composite repair for the 2 points of the flare scrubber (4.5" & 24") was then performed following several stages:

**• F3X8 filler** application on fitting & vessel to get a smooth geometry.

Surface covered with R3X1080 resin to ensure a good wetting and impregnation of the Kevlar<sup>®</sup> tape.

• Kevlar<sup>®</sup> strips application all around the surface (from the vessel to the straight line) to share the constraints.

<sup>(3)</sup> Wrapping process covering the straight line was completed using **Kevlar® tape impregnated with R3X1080 resin** (4 layers).

• Final protective layer of **R3X1080 resin** was applied all over the repair with reference plate positioning for traceability purpose.

The composite repair for the 2 defects (300x350mm & 5x5mm) situated on heat exchanger (24'' – straight line) was performed following the same stages, except Step 3. The total repair length for these defects were respectively 850mm & 305mm.

## RESULTS

The lines suffering from external corrosion were successfully repaired using our **REINFORCEKIT® 4D ECHT**. The challenge of these repairs was the specific geometries to be repaired added to high temperature application.





# COMPOSITE REPAIR FOR PIPE REINFORCEMENT

DEFECT TYPESExternal corrosion, cracks and dentsPIPE DETAILS20" buried oil pipeline – design temperature 30°C - design<br/>pressure of 78 barLOCATIONFRANCE3X SOLUTIONREINFORCEKIT® 4D EC using BOBIPREG®

## **OVERVIEW**

The objective of the several repairs, carried out in 2019 by 3X ENGINEERING (3X) and its French distributor PLS CONTROLE, was to reinforce a strategic oil pipeline (260 km long) in France suffering from various defects (external corrosion, cracks and dents)

#### **SCOPE OF WORK**

As per ISO 24.817 requirements and 3X repair calculations, between 4 and 32 composite layers of **REINFORCEKIT® 4D EC**, were needed to reinforce the various defects (external corrosion defects, cracks and dents) and restore the original design pressure.

A total of over 100 repairs were performed on the pipeline. This represents approx. 250m in terms of linear repair length.

The largest composite repair performed on this pipeline measured 9,4m (the longitudinal weld was damaged by external corrosion). Almost 2.3km of Kevlar® tape and 230kg of epoxy resin together with 16kg of filler have been used to reinforce the area.

Below are the different steps performed as part of this repair – the procedure was the same for all the repairs performed on the pipeline.

• Surface preparation was made according to 3X requirements to get a good surface roughness (60µm at least) and ensure a good bonding between the steel of the pipe and the composite of the repair. Hygrometric conditions were checked and the surface was cleaned using acetone.

**2 F3X8 filler** was applied over the defect to restore a smooth shape.

S Composite wrapping was then applied using Kevlar<sup>®</sup> tape impregnated with R3X1060 resin  $\rightarrow$  <u>14 layers and 9400mm repair length for the largest repair</u>. To save time and speed-up the wrapping process, the repair was performed using 2 specific tools developped by 3X.

**BOBIPREG® machine**: field-impregnation system that allows a quick and regular Kevlar<sup>®</sup> tape impregnation with resin before wrapping.

**3X handles:** device that ensures constant and controled tape tension during wrapping.

**G Reference plate** was installed for traceability purpose.

For each repair, samples of filler and resin were taken during application for quality control.

#### RESULTS

Hardness measurements performed after polymerization confirmed the good performance of the repairs. **Repair lifetime: 20 years for external corrosion defects and dents.** 



Fig. 1: Overview of the line to be repaired



Fig. 2-3: Filler application over the defect area



Fig. 4: Field-impregnation machine developed by 3X Fig.5: Wrapping in progress using 3X handles



Fig. 6: Wrapping completed and measurement of the repair





# COMPOSITE REPAIR FOR PIP REINFORCEMEN

ording to ISO 24.817 & ASME PCC

DEFECT TYPE External corrosion at weld connection PIPE DETAILS 12" gas line - Operating temperature: ambient (20°C) -Pressure 64 bars LOCATION **AUSTRIA – Aerial pipeline** 3X SOLUTION REINFORCEKIT® 4D - EC



Fig. 1: Surface Preparation using Bristle Blaster®



Fig. 2: F3X8 filler application



Fig. 3: Composite wrapping on progress



Fig. 4: Repair overview with ID plate

## **OVERVIEW**

The objective of the job, carried out in June 2019 in Austria, was to restore the pipe integrity of a 12" gas line suffering from external corrosion at weld connection. The access to the defect was complicated due to the height of the line. The aerial line is situated on a bridge crossing the Danube river.

#### **SCOPE OF WORK**

Each repair is designed specifically according to the characteristics of the pipe, the operating conditions and the size of the defect. According to ISO 24.817 standard and 3X ENGINEERING (3X) repair calculations, 4 layers of **REINFORCEKIT® 4D-EC** were determined to reinforce the straight line.

The complicated pipe location (aerial) required Rope Access Work.

Before starting the reinforcement, the coating was removed each side of the weld to have enough length for composite application. Surface preparation was then completed using Bristle Blaster® machine to get a good surface state and surface profile. Finally, the whole prepared surface was cleaned with acetone and roughness test and hygrometric measures were performed to ensure that all the conditions were satisfying before composite application.

The composite repair was then performed following several steps:

1/ F3X8 filler application on weld and defect to reshape the pipe.

2/ R3X1060 resin application on the whole surface to protect it from corrosion.

3/ Wrapping process using Kevlar® tape impregnated with R3X1060 resin > 4 layers completed for a total repair length of 400mm.

4/ Finalization of the repair. R3X1060 resin application over the repair to ensure good wetting of the fibers and good visual aspect and identification plate application for traceability purpose.

Hardness measurements on resin and filler samples were performed 10 days after job completion to check the good curing and validate the repair.

## RESULTS

The project was effectively planned and executed by 3X specialists. This job demonstrated the capacity and adaptability of 3X technicians to work on specific conditions such as aerial work with rope access. This composite repair will extend the lifetime of the pipe while awaiting its replacement (design lifetime: 1 year, as per client requirement).

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# COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

 DEFECT TYPES
 Internal corrosion & hole

 PIPE DETAILS
 8" Tee – Water line – operating temperature 60°C - operating pressure <1 bar</td>

 LOCATION
 OMAN

 3X SOLUTION
 REINFORCEKIT® 4D – High Temperature



Fig. 1: View of tee with through wall defect



Fig. 2-3: Leak sealed with metallic plate and F3XS1



Fig. 4-5: Wrapping in progress



Fig. 6: Wrapping completed (12 layers) & ID plate installed

#### **OVERVIEW**

The objective of the repair, performed in August 2019 by 3X ENGINEERING (3X) and its local distributor SYNERGY, was to **reinforce 2 tees of 8**" **suffering from internal corrosion and through wall defect.** 

#### **SCOPE OF WORK**

Calculations using 3X software were performed to define the minimum thickness and length necessary to give back the full integrity of the pipe, (according to the design pressure and temperature). Following client's request, it was decided to design the repair according to no standard, to reduce the number of layers. In these conditions, 3X advised to apply a minimum of 12 layers of **REINFORCEKIT® 4D HT+** (specifically dedicated to high temperature) to reinforce the tee with through wall defect and 8 layers for the one suffering from internal corrosion.

Due to through wall defect, the client shutdown and flushed the line in order to apply the composite on the leak.

Before starting the tee reinforcement, surface preparation was completed with grit blasting to get a good surface roughness and ensure the bonding between the steel pipe and the composite. Surface profile evaluation was performed to confirm the roughness was superior to  $60\mu m$ . The surface was then cleaned using acetone and hygrometric conditions were checked before wrapping procedure (steps described below).

• F3XS1 filler with metallic plate was applied on through wall defect to seal the leak (this step was not necessary for internal defect).

O Wrapping process covering the delimited areas was completed using Kevlar<sup>®</sup> tape impregnated with R3XHT+ resin (12 layers for hole defect and 8 layers for internal defect → both of them with 600mm repair length).

**8 Reference plate** was installed on each repair for traceability purpose.

For each repair, samples of filler and resin were taken during application for quality control.

#### RESULTS

This job was a great challenge because of the several complicated data: tee geometry + hole defect + high temperature. Despite these difficulties the 2 lines were successfully repaired using our **REINFORCEKIT® 4D HT+**.





# COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

DEFECT TYPES	External corrosion – 6 defects
PIPE DETAILS	2" & 6" straight line, elbow, pipe on support and flange –
	hydrocarbon gas – operating temperature 80°C -
	operating pressure <12 bar
LOCATION	MALAYSIA – Puteri Platform
<b>3X SOLUTION</b>	REINFORCEKiT® 4D – High Temperature



Fig. 1-2: Straight line reinforcement (before/after)



Fig. 3-4: Elbow reinforcement (before/after)



Fig. 5-6: Pipe on support reinforcement (before/after)



**Fig. 7-8**: Flange reinforcement (before/after)

## **OVERVIEW**

The objective of the repair, performed in October 2019 by 3X ENGINEERING (3X) local distributor IN-SITU, was to reinforce 6 areas suffering from existing external corrosion and prevent from any potential internal corrosion.

#### **SCOPE OF WORK**

Calculations using 3X software were performed to define the minimum thickness and length necessary to give back the full integrity of the pipe, (according to the design pressure and temperature).

Following client's request, it was decided to design the repair according to ISO 24.817. In these conditions, 3X advised to apply a minimum of 2 layers of **REINFORCEKIT® 4D HT+ (specifically dedicated to high temperature)** to reinforce the straight line, elbow, pipe on support and flange suffering from external corrosion.

IN-SITU specialists applied the composite **online**.

Before starting the 6 reinforcements, surface preparation was completed with grit blasting to get a good surface roughness and ensure the bonding between the steel pipe and the composite. Surface profile evaluation was performed to confirm the roughness was superior to  $60\mu$ m. The surface was then cleaned using acetone and hygrometric conditions were checked before wrapping procedure (steps described below – for each reinforcement).

**• F3X8 filler** was applied on the pipe.

❷ Wrapping process covering the delimited areas was completed using Kevlar<sup>®</sup> tape impregnated with R3XHT+ resin (2 layers for each defect → from 188mm up to 1085mm repair length).

**8 Reference plate** was installed on each repair for traceability purpose.

For each repair, samples of filler and resin were taken during application for quality control.

#### RESULTS

The 6 areas were successfully repaired using our **REINFORCEKIT® 4D HT+**. The challenge of these reinforcements was to repair online several geometries at high temperature.





Scaffolding

levels with

welds

## COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

DEFECT TYPES Cracks PIPE DETAILS MDEA Regenerator column - 264" – MDEA / Acid Gas – max op. temperature 90°C - design pressure 1 bar LOCATION LIBYA 3X SOLUTION REINFORCEKIT® 4D – High Temperature

### OVERVIEW

The objective of the repair, carried out end of December 2019 by 3X ENGINEERING (3X) and its local distributor AL MAIDA, was to **reinforce 3** circumferential welds suffering from cracks, situated on a huge column.

#### **SCOPE OF WORK**

According to ISO 24.817 and 3X repair calculations, 4 composite layers of **REINFORCEKIT® 4D HT+ (specifically dedicated to high temperature)** were determined to reinforce the defects.

Scaffoldings and surface preparation were already managed before 3X team arrival. The surface preparation was made according to 3X requirements to get a good surface roughness and ensure a good bonding between the steel of the column and the composite of the repair. Upon arrival, 3X specialists checked the surface profile and the hygrometric conditions and cleaned the surface using acetone before starting the wrapping procedure (steps described below – the procedure is the same for the 3 welds to be reinforced).

• F3XS1 filler was applied on the weld to smooth the shape and improve the Kevlar<sup>®</sup> tape fitting on the column.

**R3XHT+ resin** was applied on the surface to ensure the perfect impregnation of the Kevlar<sup>®</sup> tape.

S Composite wrapping was completed using Kevlar<sup>®</sup> tape impregnated with R3XHT+ resin  $\rightarrow$  <u>4 layers and 1270mm repair length for each defect.</u> During the process, tape impregnation was checked on both sides to ensure the expected performance.

<sup>(2)</sup> Finalization of the repair. A layer of **R3XHT+** was applied all over the repair to ensure good wetting and improve the visual aspect. **Reference plate** was installed on each repair for traceability purpose.

For each repair, samples of filler and resin were taken during application for quality control.

#### RESULTS

Hardness measurements were performed 3 days after job completion and concluded the good achievement of the repairs. This project was challenging because of the large column diameter and the time frame for completing the job. The column was successfully reinforced on the weakest areas and is now protected from leaking issues.

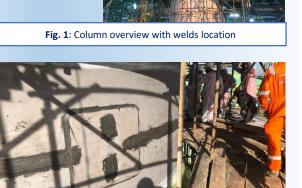


Fig. 2: F3XS1 application on weld



Fig. 3-4-5 : Wrapping in progress



Fig. 6: Wrapping completed (4 layers)

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# COMPOSITE REPAIR FOR PIPE REINFORCEMENT

DEFECT TYPESLeaks and welding defectsPIPE DETAILS32" column – Vapor with Glycol – max op. temperature<br/>60°C - design pressure 42 barLOCATIONIRAQ3X SOLUTIONREINFORCEKIT® 4D – High Temperature



The objective of the repair, performed in January 2020 by 3X ENGINEERING (3X) local distributor GULFSTAR, was to reinforce the line suffering from severe internal corrosion and leading to through wall defects ( $\rightarrow$  12 leaks).

#### **SCOPE OF WORK**

According to ASME PCC-2 and 3X repair calculations, 6 composite layers of **REINFORCEKIT® 4D HT+ (specifically dedicated to high temperature)** were determined to reinforce the damaged area with leaks.

Before starting the repair, surface preparation was completed with grit blasting. A test was then conducted on different locations of the column to confirm the surface roughness was made according to 3X requirements (between 60 and  $100\mu$ m).

Hygrometric conditions were checked and the whole prepared surface was cleaned with acetone before starting the wrapping reinforcement.

The composite repair was then performed following the steps described below:

• F3XS1 filler (epoxy filler with high mechanical properties and chemical resistance) was applied on the leaks to plug them. F3X8 filler was preferred to be applied around the welded joint to smooth the shape and improve the Kevlar<sup>®</sup> tape fitting on the column.

**R3XHT+ resin** was applied on the surface to ensure good wetting and the perfect impregnation of the Kevlar<sup>®</sup> tape.

**6** Composite wrapping was completed using **Kevlar® tape impregnated** with R3XHT+ resin  $\rightarrow$  <u>6 layers and 3500mm total repair length.</u>

<sup>(2)</sup> Finalization of the repair. A layer of **R3XHT+** was applied all over the repair to ensure good wetting and improve the visual aspect. **Reference plate** was installed for traceability purpose.

Samples of filler and resin were taken during application for quality control.

#### RESULTS

Hardness measurements were performed 2 days after job completion and concluded the good achievement of the reinforcement. This job was challenging because of the quantity of leaks to be plugged. The column was successfully repaired on the sensitive area and is now protected from leaking issues.



Fig. 1-2: Column overview - View of the defects

Fig. 3: Wrapping in progress



Fig. 4: Wrapping completed (6 layers) with ID plate

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## COMPOSITE REPAIR FOR PIPE REINFORCEMENT According to ISO 24.817 & ASME PCC-2

Figure 1: Pipe spool A overview



Figure 2: Surface preparation on progress using Bristle Blaster



Figure 3: R4D composite wrapping on progress



Figure 4: Repair overview (pipe spool A)

DEFECTS TYPE	5 defects of internal corrosion
PIPE DETAILS	8" pipe spools -gas line – max. op. temp. 40°C – op.
	pressure 81 bars
LOCATION	QATAR, Ras Laffan treatment plant
<b>3X SOLUTION</b>	REINFORCEKIT <sup>®</sup> 4D (R4D)

#### **OVERVIEW**

The objective of the repair, performed end of August, beginning of September 2020 by 3X ENGINEERING (3X) local distributor PEC, was to **reinforce two 8" pipe spools suffering from internal damages**  $\rightarrow$  pipe spool A damaged by 3 defects + pipe spool B with 2 defects.

#### SCOPE OF WORK

The job was carried out on 2 different pipe spools (both with same details) using **R4D**. Below is firstly described the repair of pipe spool A damaged in 3 locations (3.8mm, 5mm and 7mm metal loss).

Before starting the repair, surface preparation was completed with Bristle Blaster pneumatic machine (ATEX approved) to get a good surface roughness and ensure the bonding between the pipe spool and the composite. Surface profile evaluation was performed to confirm the roughness was superior to  $60\mu m$ . Hygrometric conditions were checked and the whole prepared surface was cleaned with acetone.

The composite wrapping reinforcement was then performed as follows. These steps are the same ones for the 2 defects near the flanges (to reinforce the middle area defected, no metallic plate was necessary).

• Metallic plate (previously prepared to ensure a good bonding with the substrate) was installed using **F3XS1 filler** on the defected area and fastened with ratchet belts for good tightening.

Impregnation of the surface with R3XHT+ resin to ensure good wetting and impregnation of the Kevlar<sup>®</sup> tape.

Skevlar<sup>®</sup> tape impregnated with R3XHT+ resin and wrapped around the pipe. According to ISO 24.817 and 3X repair calculations, 86 layers of R4D have been determined to reinforce the 2 defects situated on the extremities of the pipe spool, near the flanges. Only 6 layers were needed to reinforce the middle area for a total repair length of 1433mm.

Finalization of the repair with reference plate positioning for traceability purpose and validation of the repair using hardness measurements.

Process repair was the same to reinforce the pipe spool B damaged by 2 internal defects: 86 layers for defect 1 near the flange (5.82mm metal loss) and 6 layers for defect 2 (7.9mm metal loss) for a total repair length of 1350mm.

#### RESULTS

This project was a great challenge due to the pipe spools geometry (i.e. defects near to the flange area) but has been successfully completed on time despite international COVID-19 pandemic and all the safety measures and constraints associated.

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AND - 53%

DEFECTS TYPEinternal corrosion defect + 3 holesPIPE DETAILS10" spool – water line – max. op. temp. 40°C – op.<br/>pressure 9 bars – application temp. 130°CLOCATIONQATAR3X SOLUTIONREINFORCEKIT® 4D (R4D)

## OVERVIEW

The objective of the test, performed in November 2020, by 3X ENGINEERING (3X) local distributor PEC, was to **reinforce 10" spool suffering from internal corrosion defect and 3 holes**. This test was required by the client to qualify our **R4D** composite system before performing the physical wrapping on site.

#### **SCOPE OF WORK**

Before starting the test, the spool was inspected, climatic conditions were checked, surface preparation was performed using sand blasting machine and surface profile was evaluated. Heating element process was then performed by a third party to preheat the specific area to be repaired at 130°C during minimum of 4 hours for application and 10 hours for full curing.

The repair length was measured, surface cleaning using acetone and hygrometric tests were performed before composite wrapping.

The reinforcement was then performed as follows. These steps are the same ones for the 3 holes. For internal corrosion defect, no metallic plate was necessary (step 1 not applicable).

• Metallic plates (previously prepared to ensure a good bonding with the substrate) were installed using **F3XS1 filler** on the defected areas and fastened with ratchet belts for good tightening. One metallic plate 100x95mm dimensions for 50mm hole and 2 metallic plates 31x24mm dimensions for 8mm pinholes. This step did not require any specific curing time.

Impregnation of the surface with **3X specific resin** to ensure good wetting and impregnation of the Kevlar<sup>®</sup> tape.

Kevlar<sup>®</sup> tape impregnated with **3X specific resin** and wrapped around the pipe. According to **ISO 24.817** and 3X repair calculations, 42 layers of **R4D** were determined to reinforce defected area for a <u>total repair length</u> of 703mm.

**4** Finalization of the repair with reference plate positioning for traceability purpose.

Twelve hours of curing load between 107°C and 135°C were necessary for the complete polymerisation of the composite wrapping system to provide full mechanical characteristics before hydrotest.

#### RESULTS

**REINFORCEKIT® 4D** composite system efficiently passed the hydrotest at 9 bars for 2h and 50mn. No leak was observed and concluded the successful mockup test. This mockup project was a great challenge due to the application at 130°C and the several internal and hole defects. **DNV GL inspection report certified our R4D composite system**.

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Figure 2: R4D composite wrapping in progress (step 3)



Figure 3: Repair overview with ID plate (step 4)



Figure 4: Hydrotest system overview





Fig. 1: Example of straight line wrapped with R4D



Fig. 2: Section of straight line with irregularity perfectly wrapped with R4D



Fig. 3: Elbow reinforcement – R4D wrapping on progress



Fig. 4: Tee reinforcement – R4D wrapping on progress

DEFECT TYPESExternal corrosion and holePIPES DETAILS18", 22", 24", 30" and 36" pipelines – oil and gas –<br/>temperature 70°C - design pressure from 3 to 17barsLOCATIONRajasthan, WEST INDIA<br/>REINFORCEKIT® 4D3X SOLUTIONREINFORCEKIT® 4DTotal project of<br/>scom repair length !!

OVERVIEW

The objective of the repairs, started in January 2021 by 3X INDIA, is to reinforce several pipelines of various diameters (from 18" to 36") and geometries (straight line, elbow and tee) in Rajasthan region (west India) suffering from external corrosion or hole defects.

#### **SCOPE OF WORK**

According to ASME PCC-2 requirements and 3X design repair calculations, between 4 and 12 composite layers of **REINFORCEKIT®** 4D, are needed to reinforce the various defects (external corrosion and hole) and restore the original pipelines integrity.

A total of around 850m repair length will be achieved to completely restore the client's assets. This represents approximately 150 km of Kevlar<sup>®</sup> tape and almost 17 tons of 3X bi-component epoxy resin.

In one month, 80 meters have been already wrapped on the 36" pipeline. For this particular project, up to 16 technicians are involved and will be deployed for the next 24 months.

To increase the productivity of this huge project, the application team was divided in 3 sub-teams. One team is dedicated to the pipe cleaning and coating removal, the second one conducts the surface preparation and the last one proceeds with composite wrapping.

Below are the different steps performed for the 36" pipeline reinforcement affected by external corrosion:

• Surface preparation was made according to 3X requirements to get a good surface roughness (60µm at least) and ensure a good bonding between the steel of the pipe and the composite of the repair. Hygrometric conditions were checked and the surface was cleaned using acetone.

**2 3X filler** was applied over the defects to restore a smooth shape.

S Composite wrapping was then applied using Kevlar<sup>®</sup> tape impregnated with R3X110 resin (dedicated for high temperature)  $\rightarrow$  <u>4 layers (design pressure is 3bars) were applied for a total of 80m repair length.</u>

Or Reference plate was installed for traceability purpose.

Samples of filler and resin were taken during application for quality control.

#### RESULTS

This is just the beginning of this fantastic project. **Repair design lifetime: 10 years.** The quality of the first wrappings done and the good hardness measurements already performed predict a coming success.





DEFECT TYPES Internal corrosion pittings PIPE DETAILS <sup>3</sup>/<sub>4</sub> straight piping lines – oil – design temp. 74°C – design pressure 144 barg LOCATION QATAR - Offshore 3X SOLUTION REINFORCEKIT® 4D – High Temperature



Fig. 1: Piping area to be repaired



Fig. 2: Filler and bended plate applied on defected area



Fig. 3: Wrapping on progress



Fig. 4: Repair overview with ID plate

#### **OVERVIEW**

The objective of the repair, performed in February 2021 by 3X ENGINEERING (3X) local distributor POWER ENGINEERING CORPORATION (PEC), was to **reinforce 2 areas suffering from internal corrosion pitting defects.** 

#### **SCOPE OF WORK**

Calculations using 3X software and according to ASME PCC-2 were performed to define the design of the repair. 3X and PEC advised to apply 14 layers of **REINFORCEKIT® 4D** to reinforce both piping lines suffering from internal corrosion defects (10mm defect length).

Before starting the composite reinforcements, surface preparation was completed with grit blasting to get a good surface roughness and ensure the bonding between the pipe and the composite. Surface profile evaluation was performed to confirm the roughness was superior to  $60\mu m$ . The surface was then cleaned using acetone and hygrometric conditions were checked before wrapping procedure (steps described below are the same for each reinforcement).

• Metallic plate (previously sandblasted and bended to fit with the geometry of the damaged area) covered with **3X specific filler** was applied on the defected area and fixed using fastened belts. Excess of filler was used to further smooth the edges of the plate. Climatic conditions were checked before moving on composite wrapping.

Wrapping process to reinforce the defected area (previously covered with epoxy resin to ensure good wetting and impregnation of the tape) was completed using Kevlar<sup>®</sup> tape (specific size tape for small pipe diameter) impregnated with 3X high-temperature resin → a total of 14 layers was applied for 180mm repair length.

• Last layer of epoxy resin was applied all over the repair and reference plate was installed on each repair for traceability purpose.

For each repair, samples of filler and resin were taken during application for quality control.

#### RESULTS

The 2 piping lines were successfully repaired using **REINFORCEKIT® 4D.** composite solution (repair lifetime: 2 years). This project was quite complicated due to the <sup>3</sup>/<sub>4</sub> spools geometry and difficult accessibility to perform the repair but was completed on time as per the schedule required by the client. All the COVID-19 safety measures were correctly respected.







DEFECT TYPES178 joint sections suffering from internal damagesPIPE DETAILS2inch piping spools- Sour Water- design temp. 85°C-<br/>design pressure 30.5 bargLOCATIONQATAR - Onshore Treatment Plant3X SOLUTIONREINFORCEKIT® 4D

#### **OVERVIEW**

The objective of the repair, carried out at the beginning of March 2021 by PEC team (Power Engineering Corp. / Alqodara Alhandaseya Co), 3X ENGINEERING (3X) local distributor was to reinforce piping spools areas suffering from internal damages.

#### **SCOPE OF WORK**

Calculations using **3X** software and according to **ISO 24.817:2017** were performed to define the design of the repair. **PEC** advised to apply 6 layers for straight line, 8 layers for bend, 8 layers for flange, 8 layers for reducer & 12 layers for tee sections with **REINFORCEKIT® 4D** (**R4D**).

Surface preparation was completed by **PEC** team, using Bristle Blaster machine, in order to get a good surface roughness (superior to  $60\mu$ m Rz) and ensure the bonding between the substrate and the composite system. Hygrometric conditions were checked and the surface was cleaned and degreased with acetone (steps described below – the procedure was the same for the second piping spool to be reinforced).

• F3XS1 ceramic anti-abrasion filler were applied over the defected weld joint. A minimum of 3mm thickness of ceramic filler F3XS1 was applied over each joint section. Climatic conditions were checked before moving on composite wrapping.

Our Wrapping process to reinforce the defected area (previously covered with epoxy resin to ensure good wetting and impregnation of the tape) was completed using Kevlar® tape (i.e.: specific size tape for small pipe diameter) impregnated with 3X specific epoxy resin.

• Last layer of epoxy resin was applied all over each repair and reference plate was installed for traceability purpose.

For each repair, samples of filler and resin were taken during application for quality control.

→ 178 joint sections were successfully completed using R4D composite system in 4 weeks by 1 composite specialist and 4 applicators. This job represents over 35m repair length.

#### RESULTS

The 3 piping lines were successfully repaired using **R4D** composite solution (i.e.: 2-year repair lifetime). This project was quite complicated due to the total numbers of spools to be wrapped and the difficult accessibility to perform the repair but was completed on time as per the schedule required by the client. All the COVID-19 safety measures were correctly respected.



Fig. 1: Filler applied on defected joint area Fig. 2: Piping repaired with R4D



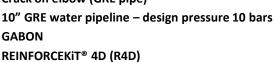
Fig. 3: Complex piping section repaired with R4D



Fig. 4: Another complex piping repair overview completed with ID plate for traceability

For more information about our technology and products, visit our website <u>www.pec-qatar.com</u> or send us an e-mail at <u>info@pec-qatar.com</u>

- TYPE OF DEFECT :
- PIPE DETAILS :
- LOCATION :
- 3X PRODUCT :
- Crack on elbow (GRE pipe)







The objective of the repair performed in December 2016 by 3X local exclusive distributor FRIEDLANDER was to **repair a 10" GRE pipe damaged by a crack.** 

#### SCOPE OF WORK

- After calculations using 3X software R.E.A, 16 layers have been determined to perform the repair.

- Prior wrapping, surface preparation was performed with sandpaper to allow the resin to adhere on the pipe surface.

- Climatic conditions have been checked using hygrometer and the surface has been cleaned and degreased with acetone.

- Composite repair has been performed following 2 main stages:

**1/** F3X8 filler application on the whole surface to be treated in order to plug the defect and rebuild the surface.

2/ Wrapping process was then started using Kevlar<sup>®</sup> and R3X5 resin
 → 16 layers of composite over 960mm were applicated.

- Identification plate has been positioned on the pipe for traceability process.

- Hardness measurements have been performed 72 hours after job completion and the values were superior to the minimal requirements  $\rightarrow$  composite is well polymerized and operational. Pressure can be applied.

#### <u>RESULTS</u>

This job has been successfully managed by our local distributor following 3X procedures. The pipe has been quickly repaired using our REINFORCEKIT<sup>®</sup> 4D, despite the pipe material (GRE).

This proves the capabilities of our partners all around the world, to use and implement 3X products even with specific characteristics.



View of the elbow and leak point prior repair



Climatic conditions measurements and surface preparation



Mastic application and wrapping process with Kevlar® tape and resin



View of the elbow after wrapping and id plate positioning



View of the repair completed and hardness measurements

- TYPE OF DEFECT :
- PIPE DETAILS :
- LOCATION :
- 3X PRODUCT :

Internal corrosion

44" ballast water line - max. operating temp.  $25^{\circ}C$  – design press. 6 barg

EGYPT (Ain Sokhna) REINFORCEKIT<sup>®</sup> 4D (R4D)

#### OVERVIEW

The objective was to reinforce a 44" ballast line and encapsulate 2 flanges of a vessel, damaged by internal corrosion (79% metal loss).

#### SCOPE OF WORK

- After calculations and Finite Elements Analysis (FEA), 8 layers have been determined to perform the reinforcement.

- In consultation with the client, we have decided to extend the length of the repair from 310mm to 4000mm to cover all the pipe (from under the flange, below the deck, to the upper deck). Prior to 3X intervention, coating was removed on the section to be repaired.

- Surface preparation was then completed by 3X team, using Bristle Blaster machine, to get a good surface roughness (superior to  $60\mu m$ ) and ensure the bonding between the steel pipe and the composite. Climatic conditions have been checked and the surface has been cleaned and degreased with Acetone.

- The composite repair has been performed following 6 main stages:

1/ F3XS1 filler application on flanges and deck weld.

**2/** R3X5 resin application (1 layer) on the whole pipe surface to protect it from corrosion.

**3/** Reinforcement process was then started on the deck weld using Kevlar<sup>®</sup> strips impregnated with R3X5 resin  $\rightarrow$  70 strips were necessary to make 1 pass all around the pipe (i.e. 2 layers). This step was repeated 4 times to reach the 8 layers.

**4/** F3XCOMB filler application to encapsulate the 2 flanges and reshape their profile to facilitate composite application.

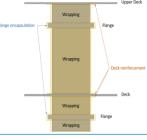
**5/** Same reinforcement process was completed on flanges using Kevlar<sup>®</sup> strips and R3X5 resin  $\rightarrow$  87 strips applied for 1 pass (i.e. 2 layers). This step was repeated 4 times to reach the 8 layers.

**6/** Wrapping process covering the total surface (i.e. straight part of the pipe and flanges) was finally completed using Kevlar<sup>®</sup> tape and R3X5 resin.

- Last layer of R3X5 resin was applied on the whole repair and identification plate for traceability has been positioned on the pipe. Hardness measurements have been performed 3 days after job completion.

#### <u>RESULTS</u>

The 44" ballast line suffering from internal corrosion was successfully repaired using REINFORCEKIT® 4D. The total length of the repair was 4m. A special thanks to client team who helped us to work in the best conditions.





Design of the repair

Surface preparation



Composite repair steps





• TYPE OF DEFECT :

LOCATION :

Crack on tee

• PIPE DETAILS :

56" Gas pipeline - max. operating temp. 80°C – design pressure 90 barg IRAN

- 3X PRODUCT :
- **REINFORCEKIT® 4D (R4D)**

#### **OVERVIEW**

The objective of the repair performed in March 2017 by 3X ENGINEERING and its local exclusive distributor TAVANA PIPELINE ENGINEERING was to reinforce a 56" pipe damaged by a longitudinal crack.

#### SCOPE OF WORK

- After calculations and Finite Elements Analysis (FEA), 8 layers have been determined to perform the repair.

- Because of the specific geometry of the pipe, it has been decided in accordance with the client to extend the repair length from 1.17m to 2.4m to cover all the tee section. Prior to 3X intervention sandblasting was completed to get a good surface roughness (100micron surface profile was measured).

- Before wrapping, climatic conditions have been checked and the surface has been cleaned and degreased.

- The wrapping repair has been performed following several stages:

**1/** F3X8 filler application to shape the welding joint and the crack.

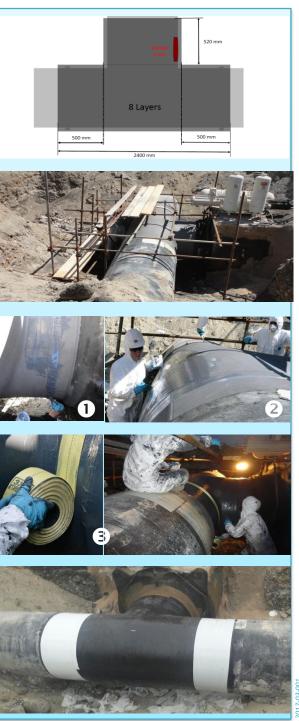
**2/** Two first layers with R3X5 resin were applied on the tee in order to cover the 3 parts of the pipe.

**3/** Wrapping process was then started on the straight part using Kevlar<sup>®</sup> and R3X1060 resin  $\rightarrow$  6 layers of composite over 2.4m were applicated. On the branch 8 layers were implemented to secure the defected area.

- Identification plate for traceability has been positioned on the pipe. Hardness measurements have been performed 3 days after job completion.

#### **RESULTS**

Thanks to the efficient collaboration between 3X and its local distributor, the pipe have been quickly and successfully repaired using our REINFORCEKIT<sup>®</sup> 4D, despite the geometry and pipe diameter complexity.





• TYPE OF DEFECT :

LOCATION :

Severe external corrosion spots & leaking defect

• PIPE DETAILS :

20" Gas pipeline - max. operating temp. 60°C – design pressure 172 barg IRAN REINFORCEKIT 4D (R4D)

• 3X PRODUCT :

#### OVERVIEW

The objective of the repair performed in August 2015 by 3X ENGINEERING and its local exclusive distributor TAVANA PIPELINE ENGINEERING was to reinforce and stop corrosion on localized area of the pipe (several external corrosion spots and one 1mm diameter hole).

#### SCOPE OF WORK

- After calculations and Finite Elements Analysis (FEA), 68 layers have been determined to perform the repair.

- Because of the leaking defect the repair has been performed offline. An initial sandblasting has been made prior 3X intervention to get a good surface roughness (75-micron surface profile).

- Before wrapping, climatic conditions have been checked and the surface has been cleaned and degreased.

- The wrapping repair has been performed following several stages:

**1/** Special filler (F3XS1) application to rebuild the surface.

**2/** Metallic steel plate (with filler), fixed with straps during curing time, installed over the defected area.

**3/** Second filler application performed to ensure the proper impregnation of the first layer.

**4/** Wrapping using Kevlar and R3X1080 resin. 68 layers of composite (over 88cm) were applicated to reinforce the pipe i.e. 34 passes (50% overlap).

- Identification plate for traceability has been positioned on the pipe. Curing time of the composite system required 50°C during 3 days. This curing process has been initiated with heating blanket during 72 hours.

#### RESULTS

Thanks to the efficient collaboration between 3X and its local distributor, the pitted areas have been repaired using our REINFORCEKIT 4D-ECHT and the pipeline is now protected from external corrosion. The pipe integrity has been restored and the pipeline has been pressurized successfully back up to 153 barg.





- LOCATION:
- DATE OF PROJECT:
- PIPE:
- SWEEPOLET :
- TYPE OF DEFECT:
- NOMINAL PRESSURE:
- TEMPERATURE:
- 3X SOLUTION:

Meximieux (FRANCE) July 2014 32" OD (X52, t=7.92mm) 1" OD & 2" OD Sweepolet defected welding joints 50 bar 20°C REINFORCEKIT 4D



REPAIR PERFORMED BY OUR LOCAL DISTRIBUTOR

#### OVERVIEW

Two defects were found on sweepolet welding joints due to bad molten metal using ultrasonic gauge.

#### SCOPE OF WORK

The whole repair was done according to the proprietary 3X finite elements calculation software. Fifty six (56) layers of composite for the first sweepolet (96% wall thickness loss) and twenty (20) layers for the second sweepolet (67% wall thickness loss) were found necessary to reinforce the pipeline. Surface preparation was made using sandblasting device. Pipeline was repressurized just after surface preparation up to operational pressure in order to minimize production loss.

F3X8 filler (3X) was applied at the sweepolet welding joints.

As this pipeline operates between ambient and 60°C temperatures, a combination of R4D-IC and R4D-EC kits were applied.

Aramide tape was impregnated with R3X5 resin, then with R3X1060, and helicoïdally wrapped with 50% tape overlap.

Curing time of 72 hours was necessary to get a fully functional repair.

#### **RESULTS**

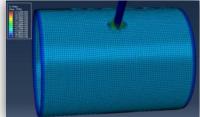
On this special case 3X ENGINEERING has demonstrated once again its efficiency and competency in defected sweepolet and welding joints reinforcement (onshore & offshore).

For more information, please contact us at : 3X Engineering - 9 Avenue Albert II - 98000 Monaco Phone : +377 92 05 79 81- Fax : +377 92 05 72 71 E-mail: info@3xeng.com - www.3xengineering.com

3X ENGINEERING Range of Products

















- TYPE OF DEFECT :
- PIPE SIZE :
- NOMINAL PRESSURE :
- PIPE TEMPERATURE :
- LOCATION :
- 3X PRODUCT :
- YEAR OF PROJECT :
- Dent, Gouges & Leak 24" OD (API 5L Grade B, t=8.1mm) 12.66 bar 60°C Martinique REINFORCEKIT 4D (R4D) April 2014





## Overview

One onshore transfer 24" pipeline was damaged by an excavator which caused both one large dent and a leak. The pipeline reinforcement was performed in April 2014 by 3X ENGINEERING (3X) team.

#### SCOPE OF WORK

The whole repair was done according to the proprietary 3X finite elements calculation programme. Twenty (20) layers of composite were found necessary to reinforce the pipeline.

The pipe was fully flooded with water. The leak sealing was done by using arc welding.

F3X8 filler (3X) was applied at the welding area. The dent and its gouges were also filled in with this filler.

As this pipeline operates between ambient and 60°C temperature, the R4D-IC kits were used.

Aramide tape was impregnated with R3X5 resin (3X) and helically wrapped with 50% tape overlap.

Curing time of 72 hours was done prior to hydrotest at 10 bar pressure.

#### RESULTS

On this quite special case 3X ENGINEERING has demonstrated once again its efficiency and competency in damaged pipeline repairs and particularly in the particular case of very severe dents with gouges (onshore & offshore).

Our on-site pro-active support allowed a restarting of the pipeline without removing the damaged pipe.

For more information, please contact us at : 3X Engineering - 9 Avenue Albert II - 98000 Monaco Phone : +377 92 05 79 81- Fax : +377 92 05 72 71 E-mail: info@3xeng.com - www.3xengineering.com

3X ENGINEERING Range of Products









3X CASE STUDY - 2014-05-001





# 6. PRESS ARTICLES





Laurette Cuiret, 3X ENGINEERING, Monaco, discusses pipeline repair using composite solutions.

nitially introduced in the aerospace industry, the efficiency of composites has been widely proved in various markets, especially in the oil and gas sector. Composite wrap for pipeline rehabilitation offers many advantages compared to pipeline replacement or steel sleeve installation. Because of their mechanical properties, composites are able to offer a solid solution with long-term guarantee (up to 20 years) and relative low cost compared to other methods. This repair technique is quick and can be installed without shutdown. Therefore, choosing to use a composite repair system is not only a fast and reliable solution, but also a cost-effective option for companies as it will minimise production loss. For over 25 years, 3X ENGINEERING has developed a large range of composite products for pipeline rehabilitation and has performed many successful composite repairs all over the world. Not only does 3X manufacture and commercialise its own products, it also offers a complete integrated service, from the design of the repair to onsite installation. The company provides highly qualified engineers and technicians to perform and supervise repair operations. Today, represented by over 40 distributors all around the world, 3X is able to quickly operate onshore and offshore to reinforce and rehabilitate pipelines suffering from various defects, such as external and internal corrosion, dents, cracks, leaks, weld defects etc. 3X will propose the adapted solution to reinforce and extend the life of a damaged pipe, taking into account the defect characteristics and the environment. For this reason, the 3X research and development (R&D) team has developed a complete range of products dedicated to this application, called REINFORCEKIT® 4D (R4D). 3X products have been going through rigorous qualification and testing programmes to ensure they are in meeting performance objectives in accordance with international standards. All products' capabilities are certified by third party, such as ABS, Bureau Veritas, TUV, Lloyd's Register etc., and over 10 patents are pending or approved worldwide.

#### Composite repair solution for lasting pipe reinforcement

Designed according to ISO/TS 24.817 and ASME PCC-2 international standards, R4D is a wet lay-up system wrapped helicoidally around the pipe in order to bring the mechanical resistance to the damaged pipe section. Made of Kevlar® tape and specific epoxy resin, this solution will restore pipe original integrity and prevent from further deterioration.

This technology can be applied online, except if it is a through wall defect. This is one of the main benefits of this solution because it avoids costly shutdowns and production losses. In case of leakage, the production must be temporarily decreased or stopped.

R4D can be used for operating temperatures ranging from -50°C to 150°C (-58°F to 302°F). It can be installed on all kinds of pipe geometry (straight, oval, elbow, tee etc.), transporting most common fluids (oil and water) and gas on all pipe diameters and in all environments (onshore, offshore and subsea).

The repair is designed for a lifetime of 20 years. A good surface preparation prior to wrapping and a proper installation by trained and certified applicators are essential to guarantee the long-term of the repair.



Figure 1. R4D wrapping in progress.

#### Iran: pipeline repair with leaking defect

The objective of the repair, performed in August 2015 by 3X and its local exclusive distributor, was to reinforce and stop external corrosion on localised area of the pipe (several external corrosion spots plus one 1 mm dia. hole).

After analysis of the corrosion extent and geometry, calculations and finite elements analysis (FEA) were performed, concluding that 68 layers were needed to perform the repair and restore full operating pressure.

Because of the leak, the repair was performed after pipeline shutdown and depressurisation. An initial grit blasting was performed prior to the composite application, in order to get a good surface roughness (75 µm anchor profile).

Before composite wrapping, dew point and ambient temperature were checked and the surface was cleaned and degreased. The wrapping repair was performed as per the following steps:

- Special filler (F3X51) application to rebuild the surface to its original shape.
- Metallic steel plate (with filler), fixed with straps during curing time, installed over the defective area.
- Second filler application performed to ensure the proper impregnation of the first layer.
- Wrapping using Kevlar and R3X1080 epoxy resin. 68 layers of composite (over 0.88 m in length) were applied to reinforce the pipe, i.e. 34 passes with 50% overlap.

Identification plate for traceability was positioned on the pipe. Curing time of the composite system required 50°C during three days. This curing process was initiated with heating blanket during 72 hrs.

Thanks to the efficient collaboration between 3X and its local distributor, the corroded area was repaired using R4D and the pipeline is now protected from external corrosion. The pipe's integrity was restored and the pipeline was successfully returned to service at 153 barg operating pressure.

#### Specific solution for subsea application

Loss of production due to subsea repair operations can cost millions of dollars per day in lost revenue. As a result, online composite pipeline repair is an attractive option for operators, and is often preferred since it yields considerable flexibility and is highly efficient. That is the reason why more and more requests coming in recent years concerns the rehabilitation of subsea pipes.

To satisfy this growing demand, the 3X R&D department has developed R4D Subsea (R4D-S): Based on R4D technology (as described above) and using Kevlar tape and ceramic reinforced subsea curing epoxy resin, R4D-S can repair and reinforce pipe operating at temperatures from 5 - 50°C (41 - 122°F). It applies to both external and internal corrosion, dents and leaks (provided it has completely stopped prior to composite application) in underwater environments.

Even if this technology is very attractive, it is technically challenging, as applying composite products in a subsea environment needs to be performed with highly qualified staff and specially designed equipment. To this purpose, 3X technicians and engineers are trained and certified to work offshore. For subsea repair requiring divers to perform the composite wrapping, 3X provides subsea operation supervision and co-ordination of technical repair divers (including saturation divers). The company developed a range of subsea tools to apply the composite repair in controlled conditions. These specific tools (i.e. BOBiPREG® – a unit designed to perform a good, regular and quick impregnation of the Kevlar tape with the resin before immersion) will guarantee the performance of the repair.



Figure 2. View of the finalised composite repair in Iran.



Figure 3. R4D-S reinforcement.



Figure 4. BOB/WRAP - 3X subsea repair machine.

3X has performed several risers' repairs and reinforcements. in various countries. In the last few years, their experience and know-how in subsea repair (including deepwater) has been steadily increasing with successful repairs performed in India, Vietnam, Colombia, UAE, Nigeria, Iran, Saudi Arabia etc.

#### Nigeria: subsea pipeline repair

In September 2016, an important subsea job was completed for a major oil and gas company in Nigeria. The objective of the repair job was to restore a damaged subsea pipe section over 2.5 m long due to dent defect, which was located in 16 m water depth with zero visibility.

After FEA, it was determined that 50 composite layers of R4D-S were needed to achieve the reinforcement, designed for five years life. Underwater, several preliminary operations (such as sediments excavation, removal of concrete and corrosion coating, identification of the surface to be wrapped etc.) were performed before grit blasting, which was needed to obtain the required surface roughness (60 µm minimum anchor profile). Wrapping reinforcement was then performed as follows:

- A print of the dent was taken in order to confirm calculations and design, as well as manufacture the appropriate composite rigid plate, acting as mold.
- Primer (P3X32) was applied on the defect using a dispensing gun, to restore the pipe shape and provide a good adhesion of the composite materials.
- Five rigid composite plates covered with F3XSS filler were positioned over the dent and strongly fixed with ratchet belts during the three hours curing time.
- Kevlar tape pre-impregnated with R3X1050-S resin (using BOBiPREG) was then wrapped around the pipe with 82 Kevlar rolls necessary to cover the dent with the composite thickness needed.
- Finally, a neoprene soft cover was applied to protect the repair from fouling.

Zero injury, schedule respected and repair according to design concluded this successful job.

#### Looking to the future

3X is now focusing its energy to develop high technical solutions for repairing pipes in extreme conditions of deep offshore.

This ambitious project is the result of a close partnership between 3X and big players in the petroleum industry. 3X had already developed a specific subsea machine called BOBiWRAP\*, aimed at applying composite products with divers in an efficient and repeatable manner. The company is now working on adapting this machine to the deepwater environment.

The company keeps exploring new technologies to continuously improve the quality of its products and services, and to develop new repair solutions.

# COMPOSITE URAP VACINE

Jean-François Ribet, 3X ENGINEERING, Monaco, shows how composite

wrapping was used to repair a topside line experiencing damaging internal corrosion on <u>a North Sea platform</u>.

geing offshore platforms face numerous problems with their topside lines today. Due to the harsh offshore conditions, external and internal corrosion are common problems. In addition, due to normal (and sometimes inadvertent) operations, they are also subjected to dents and cracks, which are other types of defects identified in oil and gas operations. In the worst case scenario, these may lead to through wall defects and Despite these issues – which can be critical – the platforms need to produce continuously, and shutdown is rarely an option; if it must happen it can only be for a very short time according to the pipes and to their functions.



Figure 1. R4D composite repair wrapping in subsea environment.



**Figure 2.** Energy release rate – qualification of R4D system at high temperature.



Figure 3. Hole defect overview.

3X ENGINEERING (3X) specialises in maintenance solutions for the oil and gas industry, including leak sealing systems, anti-corrosion products and composite repairs to restore pipe integrity and for structural matters.

REINFORCEKIT<sup>®</sup> 4D (R4D) is a permanent composite repair system for pipelines and piping experiencing corrosion-related defects and mechanical damage. Made of an epoxy resin and bi-directional woven high-strength Kevlar<sup>®</sup> aramid-fibre material, the system is a non-metallic technical alternative to metal clamps, welded sleeves and pipe replacement. Thoroughly tested by third-party laboratories, it can restore pipe integrity in compliance with applicable standards such as ISO 24.817 and ASME PCC-2.

R4D composite is applicable in environments ranging from onshore transmission pipelines and refinery piping to offshore piping, risers and even sealines. The company has over 30 years of experience in composite repair for pipe and pipework repairs, with a particular focus on subsea composite repair. Several R&D projects intended to expand the limits of composite repair are ongoing, such as online leak sealing, high-temperature solutions or deep subsea repair.

#### **Case study**

3X and its partner in the North Sea were asked to repair a pipe on an offshore platform that had a substantial hole due to internal corrosion. The damaged area was located on a 4 in. pipe near a flange.

The challenge was to implement a solution that took into consideration the harsh environment, the damaged state of the old pipe section and the considerable size of the hole. It was thus decided to install R4D to seal the leakage and reinforce the damaged area. A condition of the intervention was to install the composite repair at an ambient temperature (during shutdown of the line), which was more or less 20 °C; after the repair, the line would operate again at 70 °C.

A defect assessment was provided and calculations using the company's REA software program made it possible to propose a technical offer and a repair design that complied with the ISO 24.817 standard. Once the go-ahead was given by the client, the job could start.

A surface preparation was made in order to achieve a good surface state and surface profile. This preparation made it possible to remove rust and obtain a sufficient roughness to ensure good bonding between the steel and the composite. It was performed with a Bristle Blaster® machine.

A roughness test surface profile evaluation was carried out to check the quality of the blasting. A test was conducted across different locations of the pipe. Using a roughness comparator, it was established by 3X that the roughness was acceptable and superior to  $60 \ \mu m$ .

Before applying the resin, it was important to make sure that the hygrometric conditions were satisfying. Tests were carried out using a calibrated hygrometer.

The company's requirements, in terms of climatic conditions, are:

- Dew point at least 3°C below the pipe surface temperature (ΔT>3°C).
- Moisture lower than 85% relative humidity (RH).
- Surface temperature superior to 10°C.

The whole prepared surface was then cleaned with acetone and white rags in order to remove any residual

contaminants, such as dust or grease, from the carbon steel substrate.

The first step of the proper repair was to apply the filler with a plate to cover the hole for leak sealing purposes. The filler was selected according to its high mechanical properties and chemical resistance.

The second step was the application of the chemical-resistant epoxy resin on the prepared surface to transfer the loading from the piping to the composite sleeve.

The third step was the application of the Kevlar roll on the wet surface. It was wrapped helicoidally around the straight pipe with 50% covering with continuous tape impregnation. The wrapping on the straight part started from one edge with a turnaround for the first lap to prevent any sliding of the tape. After that, the tape was shifted to obtain a 50% overlap of the previous layer. The wrapping job was made by applying a regular tensile strength. When the pipe was fully covered by the impregnated tape, the first pass was achieved. The wrapping had to be continued to the other sides and so on and so forth.

Once the tape was positioned on the pipe, it was immediately impregnated with 3X resin and wrapping continued.

The final step was to apply a final layer of resin all over the repair to ensure good wetting of the fibres and give a good surface aspect. To finalise the repair, an identification plate was applied on the composite, enabling traceability of the repair. Eventually the curing was followed up by hardness (shore D)



Figure 4. Repair overview with ID plate installed for traceability.

testing and a job report was issued to the end user for their records.

#### Conclusion

Despite the striking features of the defect, it was repaired successfully. The company can now also perform hole repair online through its FIXOKiT<sup>®</sup> engineering solution.





## The way ahead for composite repair

VINCENT RIBOULEAU, Sales Manager Middle East at 3X ENGINEERING, speaks about pipeline repair using composite solutions.

Composite repair is now established in the oil and gas industry. How can you simply describe the key features and benefits of this technology? Indeed, our clients are using REINFORCEKIT® 4D, our composite wrapping solution, for three simple reasons. The first one is the wide type of defects which can be reinforced, such as external or internal corrosion. hole, crack but also dent or weld



defect. The second reason is the advantage in terms of application, in different environments onshore, offshore or even subsea. The last one is for cost impact. Almost all our repairs are done online and under pressure. In case of shutdown for a hole reinforcement the shutdown is very limited, with in any case a simple logistics base.

What are the new challenges for a company like 3X ENGINEERING? Each repair is a challenge in itself. As we are complying with ISO 24.817 or ASME PCC-2, we are considering each single repair as unique with its own specifications. However, 3X ENGINEERING considers that the most

challenging activity remains subsea in harsh environment with limited time of application to reduce to the maximum the cost of implementation. We have given the priority in our technical development to Innovation. Today we have specific tools for subsea application, we have some partnerships with top ranking oil companies such as TOTAL and Equinor and EPCs such as Saipem for the development and the application of our composite solutions in deep sea and cold environments.

You are talking about innovation. How is it impacting your activity?

Innovation is the key word of our company. We have developed unique solutions to seal pipe leaks online with STOPKIT® or TANKIT® for tank repair. Then we have enlarged the application of composite subsea with severe defects like the repair we made in Middle East on a 32" pipe suffering from leaking cracks at 80 bar and 70-metre depth. Deep sea is our next step but we are going even further soon with an intelligent repair: a communicating tape with impressive features in the application and data collection during the life cycle of the repair.

Stand: 9338





# References List

**REINFORCEKIT<sup>®</sup> 4D** 



#### Pipe repair and reinforcement

#### This references list includes all the applications made by 3X ENGINEERING Monaco but not the exhaustive list of our Worldwide Distributors

				8X ENGINEERING Monaco but not the exhaustive list		LC - 12/20
Dates	Countries	Clients	Application areas	Line & Tank References	Type of defects	Performed by 3X Monaco/ 3X Distributor
				2022		
November-22	Poland	PKN ORLEN Group	Onshore	20" gas line	External corrosion	3X Distributor
November-22	VIETNAM	North Oil Company	Onshore	JA WHP: 12" Water Injection; 12" Wet Crude; 18" Wet Gas; 8" Gas Lift. Coating System.	External coating system	3X Distributor
November-22	VIETNAM	North Oil Company	Onshore	KA WHP: 10" Water Injection; 10" Wet Crude; 18" Wet Gas; 8" Gas Lift; 8" WAG. Coating System.	External coating system	3X Distributor
November-22	VIETNAM	North Oil Company	Onshore	GE-CPP: 12" Water Injection; 12" Wet Crude; 18" Wet Gas; 8" Gas Lift; 10" Water Injection; 10" Wet Crude; 18" Wet Gas; 8" Gas Lift; 8" WAG; 20" Wet Gas Pipeline. Coating	External coating system	3X Distributor
November-22	INDONESIA	Pertamina Gas Negara	Onshore	System. 8" gas line	External corrosion	3X Distributor
November-22 November-22	MALAYSIA MALAYSIA	PCMSB PCMSB	Onshore	1 1/2" pipe	External Corrosion External Corrosion	3X Distributor 3X Distributor
October-22	Poland	GAZ SYSTEM S.A.	Onshore	2"pipe 8" gas line	External corrosion	3X Distributor
October-22	VIETNAM	BSR	Onshore	Total 75 defect including straight, bend, tee from 0.75" to 12" External corrosion, temperature from 50°C to 130°C, from 1 Barg to 230 Bargs.	External corrosion	3X Distributor
October-22 October-22	VIETNAM UAE	KNOC TABREED	Offshore Onshore	18 inch Gas Export Riser 48" Chilled Water Line	External corrosion Through Wall Defect	3X Distributor 3X Distributor
October-22	INDONESIA	Pertamina Hulu Rokan Zone 4	Onshore	28" gas line	Internal Corrosion (6 points)	3X Distributor
October-22	MALAYSIA	Pendopo Field PCMSB	Onshore	1 1/2" pipe	External Corrosion	3X Distributor
October-22 October-22	MALAYSIA	PCMSB	Onshore	2"pipe	External Corrosion	3X Distributor
September-22	INDONESIA	PHE OSES	Subsea	18" gas line	External corrosion	3X Distributor
September-22	MALAYSIA	ABF	Onshore	1" pipe	External Corrosion	3X Distributor
September-22 September-22	Nigeria Nigeria	EXXON MOBIL EXXON MOBIL	Offshore topside Offshore topside	3"-HL-TO36-030-F03 S 2"- ME-T075-102-JO1	External Corrosion/Leak External Corrosion/Leak	3X Distributor 3X Distributor
September-22	Nigeria	EXXON MOBIL	Offshore topside	2" Separator Deadlegs (16# defect points)	Leak	3X Distributor
September-22	SAUDI ARABIA	ARAMCO	Onshore	6'' elbow	Leak	3X Distributor
September-22	QATAR	QPDJ	Subsea	8" Subsea pipeline	Internal Corrosion	3X Monaco / 3X Distributor
September-22 September-22	UAE KUWAIT	TABREED KOC	Onshore Onshore	48"	Leak Internal Corrosion	3X Distributor 3X Distributor
August-22	Poland	PSG Sp. z o.o.	Onshore	12" gas line	Weld leak	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 02	Offshore	Vent line of gaslift header	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 03	Offshore	Flowline of well 10PL	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 04	Offshore	6" gaslift line before SDV-0610	External corrosion	3X Distributor 3X Distributor
August-22 August-22	VIETNAM	PVEP Block 01 & 05 PVEP Block 01 & 06	Offshore Offshore	Insulated FWS line after MPFM 6" gaslift line near SDV 0610	External corrosion External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 07	Offshore	3" gaslift line before and after 80VC-0622	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 08	Offshore	6" gaslift riser	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 09	Offshore	2" gaslift injection line	External corrosion	3X Distributor
August-22 August-22	VIETNAM	PVEP Block 01 & 10 PVEP Block 01 & 11	Offshore Offshore	2" gaslift injection line 2" gaslift injection line	External corrosion External corrosion	3X Distributor 3X Distributor
August-22	VIETNAM	PVEP Block 01 & 12	Offshore	Utility gas line	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 13	Offshore	Utility gas line	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 14	Offshore	10" FWS Riser	External corrosion	3X Distributor
August-22	VIETNAM	PVEP Block 01 & 15 EXXON MOBIL	Offshore Offshore topside	2" gaslift to vent header 1"-PW-HU27-001-B03	External corrosion External Corrosion	3X Distributor 3X Distributor
August-22 August-22	Nigeria Nigeria	EXXON MOBIL	Offshore topside Offshore topside	3"-HL-TO36-086-D03	External Corrosion/Leak	3X Distributor
August-22	Nigeria	EXXON MOBIL	Offshore topside	3"-ME-TO75-145-J01	External Corrosion/Leak	3X Distributor
August-22	Nigeria	EXXON MOBIL	Offshore topside	2"-ME-TO75-026-J01	External Corrosion/Leak	3X Distributor
August-22	Nigeria Nigeria	EXXON MOBIL EXXON MOBIL	Offshore topside	2"-ME-T075-031-J01	External Corrosion/Leak	3X Distributor 3X Distributor
August-22 August-22	Nigeria	EXXON MOBIL EXXON MOBIL	Offshore topside Offshore topside	2"-ME-TO75-162-J01 2"-ME-TO75-144-J01	External Corrosion/Leak External Corrosion/Leak	3X Distributor
August-22	Nigeria	EXXON MOBIL	Offshore topside	6"-ME-TO75-145-J01	External Corrosion	3X Distributor
July-22	VIETNAM	HLHV	Offshore	8" gas lift riser FPSO	External corrosion	3X Distributor
July-22	VIETNAM	HLHV	Offshore	6" Gas lift riser H1	External corrosion	3X Distributor 3X Distributor
July-22 July-22	VIETNAM	HLHV HLHV	Offshore Offshore	8" Water injection riser H1-H4, H1-HST 6" Gas lift riser No.1	External corrosion External corrosion	3X Distributor 3X Distributor
July-22	VIETNAM	HLHV	Offshore	8" water injection pipe riser No.2	External corrosion	3X Distributor
July-22	VIETNAM	HLHV	Offshore	16" production riser No.3	External corrosion	3X Distributor
July-22 July-22	VIETNAM	HLHV HLHV	Offshore Offshore	6" Gas lift riser No.1 8" Water injection riser No.2	External corrosion External corrosion	3X Distributor 3X Distributor
July-22 July-22	VIETNAM	HLHV	Offshore	12" Production riser No.3	External corrosion	3X Distributor
July-22	MALAYSIA	MLNG	Onshore	1 1/2" pipe	External Corrosion	3X Distributor
July-22	MALAYSIA	OCIM	Onshore	16" x 2" pipe	Leak	3X Distributor
July-22	Nigeria	EXXON MOBIL EXXON MOBIL	Offshore topside	6"-DO-HU71-030-B49H 3"-HG-TO31-027-B03	Crack Leak	3X Distributor
July-22 July-22	Nigeria Nigeria	EXXON MOBIL EXXON MOBIL	Offshore topside Offshore topside	3"-HG-T031-027-B03 C04C10"	Leak	3X Distributor 3X Distributor
July-22	Nigeria	EXXON MOBIL	Offshore topside	2*-ME-TO75-030-J01	Leak	3X Distributor
July-22	Nigeria	EXXON MOBIL	Offshore topside	2"-ME-TO75-006-H01	Leak	3X Distributor
July-22	Nigeria	EXXON MOBIL	Offshore topside	3"-CD-TO28-014-B03	Leak	3X Distributor
July-22 July-22	Nigeria Nigeria	EXXON MOBIL EXXON MOBIL	Offshore topside Offshore topside	3"-HL-HU27-044-B03 24"-HL-TO20-035-B03	Leak	3X Distributor 3X Distributor
July-22	Nigeria	EXXON MOBIL	Offshore topside	4"-ME-HU75-004-B01	Leak	3X Distributor
July-22	Venezuela	CHEVRON-PDVSA	Onshore	14'' elbow	Internal Corrosion	3X Distributor
July-22	Venezuela	CHEVRON-PDVSA	Onshore	10''	Leak (next to tee)	3X Distributor
July-22 July-22	Venezuela Venezuela	PDVSA PDVSA	Onshore Onshore	30 <sup></sup> 30 <sup></sup>	External Corrosion External Corrosion	3X Distributor 3X Distributor
July-22 July-22	Venezuela	PDVSA PDVSA	Onshore	42''	External Corrosion External Corrosion	3X Distributor 3X Distributor
July-22 July-22	SAUDI ARABIA	ARAMCO	Onshore	42 6" and 30" Piping	Leak	3X Distributor
July-22	Kazakhstan	KPO	Onshore	10"-DH-05002-EJ	Internal corrosion	3X Distributor
June-22	MALAYSIA	MLNG	Onshore	3-05000-DH-518/519/520/521-8"-EJ 3/4" pipe	External Corrosion	3X Distributor
June-22	MALAYSIA	MLNG	Onshore	1/2" pipe	External Corrosion	3X Distributor
June-22	MALAYSIA	MLNG	Onshore	1/2" pipe	External Corrosion	3X Distributor
June-22	MALAYSIA	OCIM	Onshore	6" X 3/4" pipe	External Corrosion	3X Distributor
June-22	MALAYSIA COLOMBIA	MLNG	Onshore	2" x 1" pipe	External Corrosion	3X Distributor
June-22	COLOMBIA	CENIT	Onshore	6"	External Corrosion External Corrosion	3X Distributor 3X Distributor
June-22	COLOMBIA					

# 7. REFERENCES LIST



June-22	Vietnam	HLHVJOC	Offshore Topside	38inch Riser	External Corrosion	3X Distributor
June-22	Kazakhstan	КРО	Onshore	KATS-AT-5310-RW-206-0200-A21 -Terminal Atyrau	Internal corrosion	3X Distributor
June-22	QATAR	TOTAL ENERGIES	Offshore topside	6" Oil Riser	External corrosion	3X Distributor
June-22 June-22	QATAR QATAR	TOTAL ENERGIES TOTAL ENERGIES	Offshore topside Offshore topside	12" oil line 3/4" Oil pipe	External corrosion External corrosion	3X Distributor 3X Distributor
June-22	KUWAIT	KOC	Onshore	24" LP Separator Oil Line GC 30 (32 meters lenght)	Internal corrosion	3X Distributor
June-22 June-22	NIGERIA	TOTAL TOTAL	OFFSHORE OFFSHORE	REPAIR POINT 3 2*-SH-10311-B511 REPAIR POINT 4 16*-SH-10311-B511	EXTERNAL CORROSION EXTERNAL CORROSION	3X Distributor 3X Distributor
June-22	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 5 10-R-4010B	EXTERNAL CORROSION	3X Distributor
June-22	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 6 16 "AMP-ODP1 PIPELINE RISER	EXTERNAL CORROSION	3X Distributor
May-22	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 1 20"IG 2287B511	EXTERNAL CORROSION	3X Distributor 3X Distributor
May-22 May-22	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 2 20"IG 2287B511 REPAIR POINT 3 20"IG 2287B511	EXTERNAL CORROSION EXTERNAL CORROSION	3X Distributor 3X Distributor
May-22	MALAYSIA	PCSB	Offshore	2* pipe	External Corrosion	3X Distributor
May-22 May-22	MALAYSIA MALAYSIA	PCSB MLNG	Offshore Onshore	2" pipe 1" pipe	External Corrosion External Corrosion	3X Distributor 3X Distributor
May-22	MALAYSIA	OCIM	Onshore	1 1/2" X 8" pipe	Leak	3X Distributor
May-22 May-22	MALAYSIA Venezuela	MLNG CHEVRON-PDVSA	Onshore	6" x 3/4" pipe 42 straight pipeline	External Corrosion	3X Distributor 3X Distributor
May-22	COLOMBIA	HOCOL	Onshore	12"	External corrosion	3X Distributor
May-22 May-22	COLOMBIA COLOMBIA	CENIT	Onshore	8" 6"	External corrosion External corrosion	3X Distributor 3X Distributor
May-22 May-22	COLOMBIA	CENIT	Onshore	10"	External corrosion	3X Distributor
May-22	COLOMBIA	ECOPETROL	Onshore	8"	External corrosion	3X Distributor
May-22 May-22	COLOMBIA	CENIT	Onshore Onshore	6" 10"	External corrosion External corrosion	3X Distributor 3X Distributor
May-22	KUWAIT	KOC	Onshore	30" Crude Oil Line CR-183 ( 30 meters lenght)	Internal corrosion	3X Distributor
April-22 April-22	MALAYSIA MALAYSIA	MLNG MLNG	Onshore Onshore	1* pipe 1/2* pipe	External Corrosion External Corrosion	3X Distributor 3X Distributor
April-22	MALAYSIA	MLNG	Onshore	1* pipe	External Corrosion	3X Distributor
April-22 April-22	Venezuela COLOMBIA	CHEVRON-PDVSA CENIT	Onshore	48" pipe and 2" TEE 8"	Internal corrosion	3X Distributor 3X Distributor
April-22 April-22	COLOMBIA	CENIT	Onshore	8° 6*	External corrosion External corrosion	3X Distributor 3X Distributor
April-22	Kazakhstan	КРО	Onshore	30-4100-DH-5021-0600-EJ (6"-DH-5021-EJ)	Internal corrosion	3X Distributor
April-22	KUWAIT	КОС	Onshore	24" HP116 Gas Pipeline	Internal corrosion	3X Distributor
April-22 March-22	QATAR UAE	QATARGAS DEWA	Onshore Onshore	28" Gas Pipe 24" Gas Line	External corrosion Weld Reinforcement	3X Distributor 3X Distributor
March-22	MALAYSIA	MLNG	Onshore	1/2" pipe	External Corrosion	3X Distributor
March-22 March-22	Venezuela Bangladesh	CHEVRON-PDVSA EXCELERATE ENERGY	Onshore Subsea	14'' elbow 3,5" Umbelical	Internal corrosion Leak	3X Distributor 3X Distributor
March-22	Kazakhstan	КРО	Onshore	4 " - Piping Process	Internal corrosion	3X Distributor
March-22 March-22	Kazakhstan SAUDI ARABIA	KPO ARAMCO	Onshore Onshore	18 " - Piping Process 6" 10" cooling water line	Internal corrosion External corrosion	3X Distributor 3X Distributor
March-22	IRAQ	BGC (Shell)	Onshore	20" oil line	Leak	3X Distributor
February-22 February-22	Indonesia MALAYSIA	Pertamina Gas CSA MLNG	Onshore Onshore	8" gas line 2"pipe	External corrosion (35 points) External Corrosion	3X Distributor 3X Distributor
February-22	MALAYSIA	MLNG	Onshore	6" pipe	External Corrosion	3X Distributor
February-22 February-22	MALAYSIA MALAYSIA	MLNG PCMSB	Onshore Onshore	1/2" pipe 3/4" pipe	External Corrosion External Corrosion	3X Distributor 3X Distributor
Feb-22	Peru	PETROTAL	Onshore	6" - (Elbow-90°)	Internal corrosion	3X Distributor
Feb-22 Feb-22	Venezuela Egypt	CHEVRON-PDVSA AMAPETCO	Onshore Onshore	14 <sup>11</sup> elbow 16" Pipe	Internal corrosion Internal corrosion / Leakage	3X Distributor 3X Distributor
Feb-22	Kazakhstan	KPO	Onshore	10 " - Piping Process	Internal corrosion	3X Distributor
Feb-22 Feb-22	IRAQ Taiwan	BGC (Shell) CPC	Onshore	14" Oil Pipeline 16" Gas line	Leak External corrosion	3X Distributor 3X Distributor
January-22	MALAYSIA	MLNG	Onshore Onshore	1/2" pipe	External Corrosion	3X Distributor
January-22 January-22	MALAYSIA MALAYSIA	MLNG MLNG	Onshore Onshore	1* pipe 1/2*pipe	External Corrosion External Corrosion	3X Distributor 3X Distributor
01/01/2022	COLOMBIA	ECOPETROL	Onshore	10"	External corrosion	3X Distributor
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December-21 December-21	ALGERIA Angola	GRTG TOTAL	Onshore Offshore	10" gas line Various lines / GIRASSOL	External corrosion External corrosion	3X Distributor 3X / 3A Services
Dec-20 December-21	Iraq Malaysia	BGC (Shell)	Onshore Onshore	40" Pipe line 12" x 1" tee pipe	External corrosion External corrosion	3X Distributor 3X Distributor
December-21	Malaysia	Petronas Dagangan Berhad Malaysia LNG Sdn Bhd	Onshore	1 " X 5 points & 1 1/2" x 2 points	External corrosion	3X Distributor
December-21 December-21	Malaysia Malaysia	Malaysia LNG Sdn Bhd Malaysia LNG Sdn Bhd	Onshore Onshore	6" pipe 2" elbow pipe	External corrosion External corrosion	3X Distributor 3X Distributor
December-21 December-21	Malaysia FRANCE	Asean Bintulu Fertilizer Sdn Bhd TRAPIL	Onshore Onshore	10" pipe 20" oil line	External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor
December-21	FRANCE	SPMR	Onshore	16" oil line	External corrosion	3X Distributor
December-21 December-21	Vietnam Vietnam	Thang Long JOC Thang Long JOC	Offshore - Hai Su Trang platform Offshore - Hai Su Trang platform	10 inch production riser 80oC 10 inch production riser 30oC	External corrosion External corrosion	3X Distributor 3X Distributor
December-21 November-21	Egypt COLOMBIA	DAPETCO HOCOL	Onshore Onshore	10* / 12" ELBOW 4*	Internal corrosion / Leakage External corrosion	3X Distributor 3X Distributor
November-21 November-21	Malaysia Malaysia	Malaysia LNG Sdn Bhd Malaysia LNG Sdn Bhd	Onshore Onshore	2" Elbow + Straight pipe 1-1/2" pipe	External corrosion External corrosion	3X Distributor 3X Distributor
November-21 November-21	Malaysia Angola	Malaysia LNG Sdn Bhd OPS/SBM	Onshore Offshore topside	6" straight pipe TEG Flash vessel	External corrosion Internal corrosion / Leaks	3X Distributor 3X / 3A Services
November-21 November-21	Egypt Malaysia	SUMED Malaysia LNG Sdn Bhd	Onshore Onshore	12" Elbow WATER RUN OFF 1" Elbow pipe	Internal corrosion / Leakage External corrosion	3X Distributor 3X Distributor
October-21	Angola	TOTAL	Offshore	Various lines / PAZFLOR	External corrosion	3X / 3A Services
October-21 October-21	Angola Malaysia	OPS/SBM Petronas Carigali Sdn Bhd	Offshore Offshore	20-WP-F241208-01C25 14" pipe	External corrosion Weld Joint	3X / 3A Services 3X Distributor
October-21 October-21	Malaysia Malaysia	Malaysia LNG Sdn Bhd Malaysia LNG Sdn Bhd	Onshore Onshore	3/4" pipe 2" x 3/4" reducer	External corrosion External Corrosion	3X Distributor 3X Distributor
October-21 October-21	Malaysia Malaysia	Malaysia LNG Sdn Bhd Malaysia LNG Sdn Bhd	Onshore Onshore	2° pipe 8° pipe	External corrosion External corrosion	3X Distributor 3X Distributor
September-21 September-21	SAUDI ARABIA Malaysia	ARAMCO Marin Sejagat Sdn Bhd	Offshore Offshore	UA Corroded Valves 2",18" & 20" straight pipe	Internal Corrosion External corrosion	3X Distributor 3X Distributor
September-21	Vietnam	HLHV JOC	Offshore	- 30" Conductor of wells, above from splash zone,	External corrosion	3X Distributor
September-21	Vietnam	HLHV JOC	Offshore	10m/Conductor, Total: 6 Conductors.     - 30" Conductor of wells, above from splash zone,     10m/Conductor Total: 7 Conductors	External corrosion	3X Distributor
				10m/Conductor, Total: 7 Conductors. - H1-H4 gas lift riser, 1m length		
September-21	Vietnam	HLHV JOC	Offshore	<ul> <li>H4-H1 Production Riser, 1m length</li> <li>30" Conductor of wells, above from splash zone,</li> </ul>	External corrosion	3X Distributor
September-21	Angola	OPS/SBM	Offshore topside	10m/Conductor, Total: 5 Conductors. 8"-PL-T62028 & 8"-PL-T62029	Internal corrosion / Holes/ pinholes	3X / 3A Services
September-21 September-21	Angola Angola Angola	OPS/SBM OPS/SBM	Offshore topside Offshore topside	12"-PL-T62025 10-WI-T26034-25C02	Internal corrosion / Leaks Internal corrosion / Leaks	3X / 3A Services 3X / 3A Services
August-21	Vietnam	PVEP POC	Subsea	Dai Hung 02 Platform	Leak defect on casing 20inch	3X Distributor
August-21 August-21	Angola Angola	OPS/SBM OPS/SBM	Offshore topside Offshore topside	14-WI 8*-CZ-T26537-01S01	Internal corrosion / Leaks Internal corrosion / Leak defect	3X / 3A Services 3X / 3A Services
August-21 August-21	Angola Angola	OPS/SBM OPS/SBM	Offshore topside Offshore topside	10"-CZ-T26537-01S01 6*-WI-M26004-25C02	Internal corrosion / Leaks External corrossion	3X / 3A Services 3X / 3A Services
August-21	NIGERIA	TOTAL	Piping Reinforcement - Offshore	FSO UNITY OML 100	External and Internal Corrosion - 16 repair points	3X Distributor
August-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 1 12"IG 2287 B511 REPAIR POINT 2 8"FS 1501 B511	External Corrosion	3X Distributor 3X Distributor
August-21 August-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 3 8"FS 1501 B511	Internal Corrosion Internal Corrosion	3X Distributor
August-21 August-21	NIGERIA	TOTAL TOTAL	OFFSHORE OFFSHORE	REPAIR POINT 7 8"FS 1501 B511 REPAIR POINT 9 8"FS 1501 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 11 8"FS 1501 B511	Internal Corrosion	3X Distributor
August-21 August-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 16 "IG2283 B511	Internal Corrosion	3X Distributor

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August-21 August-21	NIGERIA	TOTAL TOTAL	OFFSHORE OFFSHORE	REPAIR POINT 34 12"IG 2223 B511 REPAIR POINT 36 12"IG 2223 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
August-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 37 16"IG 2261 B511	External Corrosion	3X Distributor
August-21 August-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 41 AREA 7 FSO REPAIR POINT 42 10"FS 2021 B51	External Corrosion External Corrosion	3X Distributor 3X Distributor
August-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 43 12"IG 2222 B511	External Corrosion	3X Distributor
August-21 August-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 57 12"IG 2223 B511 REPAIR POINT 58 12"IG 2222 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
August-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 59 12"IG 2223 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 1 16"IG2261 B511 REPAIR POINT 2 16"IG2261 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 3 16"IG2261 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE OFFSHORE	REPAIR POINT 7 16"IG2262 B511 REPAIR POINT 9 16"IG2263 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 11 16"IG2277 B511	Internal Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 16 16"IG2276 B511 REPAIR POINT 34 12"IG2283 B511	Internal Corrosion External Corrosion	3X Distributor 3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 34 12 102203 B511 REPAIR POINT 36 12 10 2203 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 37 12"IG 2284 B511 REPAIR POINT 41 12"IG 2287 B511	External Corrosion Internal Corrosion	3X Distributor 3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 41 12 10 2287 B511 REPAIR POINT 42 12"IG 2287 B511	Internal Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 43 12"IG 2287 B511 REPAIR POINT 57 16"IG 2200 B511	Internal Corrosion External Corrosion	3X Distributor 3X Distributor
July-21 July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 57 16 IG 2200 B511 REPAIR POINT 58 12"IG 2222 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE OFFSHORE	REPAIR POINT 59 12"IG 2223 B511 REPAIR POINT 124 8"FS 1505 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
July-21 July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 124 8 FS 1505 B511 REPAIR POINT 125 8 FS 1505 B511	External Corrosion	3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 137 8°FS 1501 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE	REPAIR POINT 138 8"FS 1501 B511 REPAIR POINT 139 8"FS 1501 B511	External Corrosion External Corrosion	3X Distributor 3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 140 8"FS 1501 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL TOTAL	OFFSHORE OFFSHORE	REPAIR POINT 141 8" FS 1501 B511 REPAIR POINT 142 8"FS 1501 B511	External Corrosion Internal Corrosion	3X Distributor 3X Distributor
July-21	NIGERIA	TOTAL	OFFSHORE	REPAIR POINT 143 8"FS 1501 B511	External Corrosion	3X Distributor
July-21 July-21	NIGERIA	TOTAL	OFFSHORE Piping Reinforcement - Offshore	REPAIR POINT 146 8"FS 1501 B511 FSO UNITY OML 100	Internal Corrosion External and Internal Corrosion - 26 repair points	3X Distributor 3X Distributor
July-21	Egypt	SUMED	Onshore	12" Elbow WATER RUN OFF	Internal corrosion / Leakage	3X / 3X Distributor
				-11 defects on 11 pipeline 2 inch		
Jul-21	Vietnam	PVEP Block 01&02	WHP Ruby A	<ul> <li>defect on 6inch pipeline</li> <li>defect on flange 10inch</li> </ul>	External corrosion	3X Distributor
Jul-21	KUWAIT	KUWAIT OIL COMPANY (KOC)	Pipe Reinforcement- Onshore	30" HP063 Gas Line (8 locations)	External Corrosion	3X Distributor
Jun-21 June-21	IRAQ Malaysia	BGC (Shell) Serba Dinamik Sdn Bhd	Onshore Onshore	8"pipe 1" pipe	External Corrosion Thinning	3X Distributor 3X Distributor
July-21	Malaysia Malaysia	Asean Bintulu Fertilizer Sdn Bhd	Onshore	2" pipe	Thinning Thinning	3X Distributor 3X Distributor
July-21 July-21	Malaysia Malaysia	Asean Bintulu Fertilizer Sdn Bhd Malaysia LNG Sdn Bhd	Onshore Onshore	3" pipe 4" pipe	Pinhole	3X Distributor 3X Distributor
June-21	Malaysia	HENGYUAN REFINING COMPANY	Elbow & Straight Pipe-Onshore	2 location or 6 sch 40 pipe (Loc 5 & 6) Tot leak points of "Un EKW pipe water line" at PKPE	External corrosion	3X Distributor
June-21	Malaysia	BUD	Straight Pipe-Onshore	Bloot	External corrosion	3X Distributor
Jun-21 Jun-21	Ivory Coast Ivory Coast	Petroci Cl11 SIR	Piping reinforcement - onshore Piping reinforcement - onshore	16 different points Rollerkit + Reinforce kit Through hole Repair 42'	Prevention Through Hole Repair	3X Distributor 3X Distributor
Jun-21	Iraq	Basra Gas Co. HENGYUAN REFINING COMPANY	Kaz Plant	8" Gasoline condensate line-98bar 1-1/2" x 1" reducer	external defect due to corrosion	3X Distributor
May-21 May-21	Malaysia Malaysia	HENGTUAN REFINING COMPANY	Reducer-Onshore	2 úhits of 2^ pipe at LOC Lo K & ZOC	External corrosion External corrosion	3X Distributor 3X Distributor
May-21 May-21	Malaysia	HENGYUAN REFINING COMPANY	Straight Pipe-Onshore Straight Pipe-Onshore	1 units of 1/2" pipe (LOC 93B) at	External corrosion	3X Distributor
May-21	Indonesia	Pertagas	Underground Pipeline	V-470 to E-474 8" Gas Line	External corrosion	3X Distributor
April-21 April-21	Vietnam Malaysia	VietsovPetro Serba Dinamik Sdn Bhd	Amanda FPSO- Offshore Onshore	34 defects on deck 3/4" pipe	External corrosion Pinhole and Thinning	3X Distributor 3X Distributor
April-21	Malaysia	BASF PETRONAS CHEMICALS SDN	Straight Pipe-Onshore	2" straight pipe at BDO plant	External corrosion	3X Distributor
April-21	Malaysia	BHD HENGTUAN REFINING COMPANY	Straight Pipe-Onshore	9 units of 2" pipe at V-101, CD 1	External corrosion	3X Distributor
April-21	Malaysia	PRPC UTILITIES & FACILITIES SDN	Straight Pipe-Onshore	2 locations of 3900-3A (10" 150#), PRPC Plant.	External corrosion	3X Distributor
	walaysia	BHD PRPC UTILITIES & FACILITIES SDN	Straight Pipe-Onshore	2 locations of 3900-3A (10 150#), PRPC Plant. 1 location of	External corrosion	3X Distributor
April-21	Malaysia	BHD	Straight Pipe-Onshore	3900-06C (10" 150#), PRPC Plant.	External corrosion	3X Distributor
Apr-21	Roumania	STIZO NUCLEAR	Onshore	42" pipe Plant/Location : GPP 5/6, Butane Product Tank, T 5/6-	Internal Corrosion	3X Monaco/ 3X Distributor
March-21	Malaysia	PETRONAS GAS BERHAD PETRONAS CHEMICALS	Straight Pipe-Onshore	0710 8 8 8	External corrosion	3X Distributor
March-21	Malaysia	ETHYLENE SDN BHD	Elbow Pipe-Onshore	1"elbow pipe at ET-0-V-401,PCESB	External corrosion	3X Distributor
March-21	Malaysia	HENGYUAN REFINING COMPANY BERHAD	Elbow Pipe-Onshore	2 units of 1" elbow (LOC 2) & %" tee (LOC 5) E-7302, LRCC plant.	External corrosion	3X Distributor
Mar-21	FRANCE	CCMP HENGYUAN REFINING COMPANY	Pipe reinforcement - onshore	12" oil line 2 unit of 1/2" pipe at C-451 (Loc K2 & K5)	External corrosion	3X Distributor
February-21	Malaysia	HENGTUAN REPHNING COMPANY	Straight Pipe-Onshore	1 ag 1: 1 unit 672 pipe at 532 in LRCC	External corrosion	3X Distributor
February-21	Malaysia	HENGYUAN REFINING COMPANY	Straight Pipe-Onshore	1 unit of 4" x 2" TEE pipe at C-451	External corrosion	3X Distributor
February-21	Malaysia	BERHAD	Tee Pipe-Onshore	(Loc 45-LZA-012) Plat 2 plant.	External corrosion	3X Distributor
Feb-21 Feb-21	Ivory Coast Iraq	Petroci Cl11 Basra Gas Co.	Piping reinforcement - onshore NGL Plant- de Sulfurization	35 different points Rollerkit + Reinforce kit 4and 6 inch Nozzles on NRNGL 4100-V22	External corrosion (Electrolisis) through wall structural inforcement	3X Distributor 3X Distributor
January-21	Malaysia	PETRONAS GAS BERHAD	Tee Pipe-Onshore	3/4" tee pipe leak at GPP4/LTSU/400, LTSU- 1901L(BB), PGB-GPK.	External corrosion	3X Distributor
Januan : 04	Malaysia	PETRONAS GAS BERHAD	Tee Pipe-Onshore	Plant/Area/Unit : GPP1 / UTILITY / 100	External corrosion	3X Distributor
January-21						
January 21	IRAQ	BGC (Shell)	Onshore	Two nozzles N3&N5 6"	External Corrosion + hole	3X Distributor
			-	2020		
Dec-20	Indonesia	Pertamina Hulu Mahakam	Underground Pipeline	Various Line	External	3X Distributor
200-20	ioono3ld		choorground i theiltite	Tag 1: 1 unit of 2" straight pipe at C-650	LAGHIG	SA Distributur
Dec-20	Malaysia	HENGYUAN REFINING COMPANY BERHAD	Straight, Reducer & Elbow Pipe-Onshore	(65HY02) at HRC PD plant.	External corrosion	3X Distributor
Dec-20	Malaysia		Tee, Elbow & Straight Pipe-Onshore	Tag 2: 1 unit of 2" x 1" reducer at E-652 Tag 1: 1" elbow,straignt & tee pipe teak at V-501, IBL	External corrosion	3X Distributor
Dec-20	UAE	DEWA	Pipe reinforcement - Onshore	24" oil line	External and Internal corrosion	3X Distributor
Dec-20	-		Onshore	Buried Oil Pipeline	several repairs (cracks, dents, ext corrosion)	3X Distributor
	France	TOTAL		3"-4" hot water		3X Monaco
Dec-20 Dec-20	France France NORWAY	TOTAL VEOLIA ARCHER	Hot water line- treatment plant TOPSITE PIPES+TANKS	3"-4" hot water Reparation of external corrosion on degasser tank	online leak repair & external corrosion Holes+ external corrosion	3X Monaco 3X Distributor
Dec-20	France	VEOLIA	Hot water line- treatment plant	3"-4" hot water Reparation of external corrosion on degasser tank 50-3390-AM-044-12-A18	online leak repair & external corrosion	
Dec-20 Dec-20 Dec-20 Dec-20	France NORWAY Kazakhstan Kazakhstan	VEOLIA ARCHER KPO KPO	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank 50-3390-AM-044-12-A18 50-210A-PO-040-3"-B11	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Dec-20	France NORWAY Kazakhstan Kazakhstan Kazakhstan	VEOLIA ARCHER KPO	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank 50-3390-AM-044-12-A18	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Dec-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Kazakhstan Malaysia	VEOLIA ARCHER KPO KPO HENGTUAIN KEPINING CUMPANT HENGTUAIN REPINING CUMPANT	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore	Reparation of external corrosion on degasser tank           50-3380-AM-044-12-A18           50-210A-PC-040-3"-B11           50-210A-PC-041-3"-B11           1 um or or x > z respiper arcu > z           2 vmit or s X > z respice arcu > z	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Dec-20	France NORWAY Kazakhstan Kazakhstan Kazakhstan	VEOLIA ARCHER KPO KPO HENGTUJAN KEPINING COMPANT	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank           50-3360-AM-044-12-A18           50-210A-PO-040-3"-B11           50-210A-PO-041-3"-B11           1 mm of a x 2 rep pipe at cu z	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Kazakhstan Malaysia Malaysia Kazakhstan	VEOLIA ARCHER KPO KPO RENOTOAR REPRINTS COMPART HENGTUAR REPRINTS COMPART PETROMAS CHEMICALS FILMO ALC COMPANY PETROMAS CHEMICALS	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee, Elbow & Straight Pipe-Onshore Pipe reinforcement	Reparation of external corrosion on degasser tank 50-3390-AM-044-12-A18           50-210A-PO-040-3**B11           50-210A-PO-041-3**B11           1000 of 510-200-041-3**B11           1000 of 5*S163pH 566 340**YOAr           ** 2 pipe ar Er-0-62-31**PARET0Art (Mage 3) at DESE           50-210C-PO-040-3**B11	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Malaysia Malaysia Malaysia Kazakhstan Kazakhstan	VEOLIA ARCHER KPO KPO NENGTOAN REPRING COMPANT HENGTOAN REPRING COMPANT PETRORS SCHEMICALS FTRORS SCHEMICALS KPO KPO	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee, Elbow & Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank           50-3360-AM-044-12-A18           50-210A-PO-040-3"-B11           50-210A-PO-041-3"-B11           1 unit of a % 2 rele pipe at CU 2           2 time 6 af % straight right state           *2 pipe ar in-ot-5.071 + krk: PTV-str           50-210C-PO-040-3"-B11           300-30N.040-09.00	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan	VEOLIA ARCHER KPO KPO HEINGTUAN REPRING COMPANT HEINGTUAN REPRING COMPANT PETRORSKÖHRMIGAN KPO KPO KPO	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee, Elbow & Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank           50-3360-AM-044-12-A18           50-210A-PO-040-3"-B11           50-210A-PO-041-3"-B11           1 unit of a V 2 Teep per at CU 2           2 third of a Stratger transmission           "2 "pipe arter-of-Stratger transmission"           50-210C-PO-040-3"-B11           300-30N-040-3"-B11           300-30N-040-09-00           60-5620-WW-510-6-A11	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Malaysia Malaysia Malaysia Kazakhstan Kazakhstan	VEOLIA ARCHER KPO KPO NENGTOAN REPRING COMPANT HENGTOAN REPRING COMPANT PETRORS SCHEMICALS FTRORS SCHEMICALS KPO KPO	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee, Elbow & Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank           50-3360-AM-044-12-A18           50-210A-PO-040-3"-B11           50-210A-PO-041-3"-B11           1 unit of a % 2 rele pipe at CU 2           2 time 6 af % straight right state           *2 pipe ar in-ot-5.071 + krk: PTV-str           50-210C-PO-040-3"-B11           300-30N.040-09.00	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan	VEOLIA ARCHER KPO KPO HEINGTUAN REPRING COMPANT HEINGTUAN REPRING COMPANT PETRORSKÖHRMIGAN KPO KPO KPO	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee, Elbow & Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank           50-3360-AM-044-12-A18           50-210A-PO-040-3"-B11           50-210A-PO-041-3"-B11           1 unit of a V 2 Teep per at CU 2           2 third of a Stratger transmission           "2 "pipe arter-of-Stratger transmission"           50-210C-PO-040-3"-B11           300-30N-040-3"-B11           300-30N-040-09-00           60-5620-WW-510-6-A11	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan France	VEOLIA ARCHER KPO KPO RENOTDAR REPRINTO COMPART HENGTUAR REPRINTO COMPART PETROVIS CHEMICALS FENDER SCHEMICALS KPO KPO GEOSTOCK	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	Reparation of external corrosion on degasser tank 50-3390-AM-044-12-A18           50-210A-PO-040-3*-B11           50-210A-PO-041-3*-B11           1000 0510-870-041-3*-B11           1000 05 - 327-166 pp8 at U0 2           2 hp6 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PAR-164 PM Nhn           ** 2 pp8 at the C5_207 PM Nhn           ** 2 pm Nhn           50-210C-P0-040-3*-B11           300:30N.040.09.00           80-5620-WW -510-6-A11           20* chemical product	online leak repair & external corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion	3X Distributor 3X Distributor
Dec-20 Dec-20 Dec-20 Dec-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20 Nov-20	France NORWAY Kazakhstan Kazakhstan Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan France Qatar	VEOLIA ARCHER KPO KPO HENGTUAR REPRING COMPART HENGTUAR REPRING COMPART PETRORISCHEMICALS END AVE COMPART PETRORISCHEMICALS KPO KPO GEOSTOCK QATAR SHELL GTL LTD HENGYUAN REFINING COMPANY	Hot water line- treatment plant TOPSITE PIPES+TANKS Pipe reinforcement Pipe reinforcement Teo Pipe-Onshore Straight & Teo Pipe-Onshore Straight & Teo Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe line reinforcement Pipe line reinforcement Pipe line reinforcement Pipe line reinforcement - onshore	Reparation of external corrosion on degasser tank           50-3360-AM-044-12-A18           50-210A-PO-040-3"-B11           50-210A-PO-041-3"-B11           1 Unit Of 8 - X 2 Tep pipe at CU 2           2 Unit Of 8 - Staffyr tipe and CU 2           2 Unit Of 8 - Staffyr tipe at CU 2           2 Unit Of 8 - Staffyr tipe at CU 2           2 Unit Of 8 - Staffyr tipe at CU 2           2 Unit Of 8 - Staffyr tipe at CU 2           2 Unit Of 8 - Staffyr tipe at CU 2           2 Unit Of 8 - Staffyr tipe at CU 2           300.30N.040.09.00           60-5620-WW-S10-6-A11           20' chemical product           10'' oil line           2 unit of 4' elbow at E-107 A-J	online leak repair & seternal corrosion Holes+ external corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion External corrosion Internal corrosion Internal corrosion External corrosion	3X Distributor 3X Distributor

Regist-20         Russis         Entery         Tark cachone         3400/internal repair/olivator         applying articorrosion cosing         34X Distributor           July-20         Malysia         PETROMS CHARDAS POLYETHYLENE SON BHD         Ebox & Straight Ppe-Ontone         Tay 1: How & 37 Done and a PE-O-G30         Estend corrosion         33X Distributor           July-20         Malysia         PETROMS CHARDAS POLYETHYLENE SON BHD         Ebox & Straight Ppe-Ontone         Tay 1: How & 37 Done and a PE-O-G30         Estend corrosion         33X Distributor           July-20         Malysia         PETRONS CAS BERHAD         Marual Bard         Areal/Cashing PE-O-C101A Pers: Marual Bard         Estend corrosion         33X Distributor           July-20         Malysia         PETRONS CAS BERHAD         Marual Bard         Areal/Cashing Pers: Marual Bard         Estend corrosion         33X Distributor           July-20         Malysia         PETRONS CAS BERHAD         Marual Bard         Areal/Cashing Pers: Marual Bard         Areal/Cashing Pers: Marual Bard         3X Distributor           July-20         Malysia         PETRONS CAS BERHAD         Marual Bard         Areal/Cashing Pers: Marual Bard         Areal/Cashing Pers: Marual Bard         3X Distributor           July-20         Malysia         PETRONS CAS BERHAD         Tere Pers Areal/Cashing Pers: Marual Bard         Areal/Cashing	Dots         None         Product Stream         More Transform         Disc Transform <thdisc th="" transform<=""></thdisc>							
OLD B         Description         Description of the function of the	OND         Marge         Number of the scale starts of the scale	Oct-20	Malaysia		Elbow & Straight Pipe-Onshore	Tag 2: 3/4" valve leak at E-0-P-634AB, Area SRU Tag 3: 2" elbow leak at PE-0-V-006, Area 1 SRU Tag 4: 2"elbow & tee pipe leak at PE-0-V-004, Area 1 RSU Tag 5: 1" elbow pipe leak at PE-1-V-131, Area 2 PPU1	External corrosion	3X Distributor
Dots         Name         Filter Science         111 Eff Science         Name         Science         9 0 00000           0x00         Name         HIRSY WORKS         Name         Science         S	Gold         Holgs         Fight Particular States Control         Holgs Particular States Control         Holgs Particular States Particular States Particular Partecologe Partecology Particular Partecology Particular Partecolo	Oct-20	Malaysia		Straight Pipe-Onshore	header for location 2X/2Y, 3BX, 4AX/4AY, 5AY, 6X &	External corrosion	3X Distributor
Dots         Dots         Provide Margo common         Provide Control Control         Provide Control Control Control         Provide Control Control         Provide Control Contro Control Cont	Construction         Description         Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	Oct-20	Malaysia	BERHAD	Straight Pipe-Onshore		External corrosion	3X Distributor
Construction         Loss Sugge Processors         Loss Sugge Processors <thloss< td=""><td>Social         Name         Proceeding Telescope         P</td><td>Oct-20</td><td>Malaysia</td><td>HENGYUAN REFINING COMPANY</td><td>Nozzle Pipe-Onshore</td><td>2" &amp; 3/4" - 63008-3136 outlet from</td><td>External corrosion</td><td>3X Distributor</td></thloss<>	Social         Name         Proceeding Telescope         P	Oct-20	Malaysia	HENGYUAN REFINING COMPANY	Nozzle Pipe-Onshore	2" & 3/4" - 63008-3136 outlet from	External corrosion	3X Distributor
Docs         Line         Intervention         Intervention <th< td=""><td>Data         Data         Description         <thdescription< th="">         Description         <thdescripti< td=""><td>Oct-20</td><td>Malaysia</td><td></td><td>Elbow Pipe-Onshore</td><td></td><td>External corrosion</td><td>3X Distributor</td></thdescripti<></thdescription<></td></th<>	Data         Data         Description         Description <thdescription< th="">         Description         <thdescripti< td=""><td>Oct-20</td><td>Malaysia</td><td></td><td>Elbow Pipe-Onshore</td><td></td><td>External corrosion</td><td>3X Distributor</td></thdescripti<></thdescription<>	Oct-20	Malaysia		Elbow Pipe-Onshore		External corrosion	3X Distributor
Book         Eventment         Personal contract         Description         Eventment         Description           0003         Contract         BOS         Personal contract         Discretion	DADE         Number         Proceedings         DADE         South Market South         Proceedings         Proceedings           DADE         Kalakata         PM         Proceedings         South Kalakata         Proceedings         Proceedings </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Book         Southam         800         Provide status         International         International           Column         Column         Column         Column         Status         Status         Status           Column         Column         Column         Column         Status         Status         Status           Column         Column         Column         Column         Status         Status         Status           Column         Column         Column         Column         Status         Status <td>Open Endpaired         Participant         Participant</td> <td></td> <td>,</td> <td>DEDUAD</td> <td></td> <td>1 unit of 2" ollow at C 650, UBC BD Blant</td> <td></td> <td></td>	Open Endpaired         Participant		,	DEDUAD		1 unit of 2" ollow at C 650, UBC BD Blant		
CODE         Structure         Proceedings         Pr	Output         Perspectation         Section Section         Interaction         Nonlinear           05/80         Interact         PDIA         Barratoria         Barratoria         Barratoria         Barratoria           05/80         Interact         PDIA         Barratoria							
Octor         Flora         Ottor         Souto (Prist         Sout	OLD         From         WTX         Oxate         From the forward         Analysis         Analysis         District         District           CAU         U.S.         PERSON CREATE         From Soc Create							
0.003         NC         PREMIND         0.004         The addresses         Heat addresses         Heat addresses         Josh All           0630         VM         DDF.	Dots         Tree         PRODUCTION         Owner         The streament         The target servers         Its Instrum           0.001         Margin         FURCAS CIRENCE UNTER         The production         The target servers         The	Oct-20	NORWAY	KCA DEUTAG	Offshore	6" piping bend	leak	3X Distributor
OCC         UNIC         SOLATION EXEMPLATER         Programment union         Y/C in sime         Exemplanement         31 Centers           097:000         Monyon         PETROMA EXEMPLATER         The Proc Output         Non-Transmission Union         32 Centers         33 Centers         33 Centers           097:000         Monyon         PETROMA EXEMPLATERS         The Proc Output         Centers         0 Centers         33 Centers           097:000         Monyon         PETROMA EXEMPLATERS         Development         Centers         0 Centers         33 Centers           097:000         Monyon         PETROMA EXEMPLATERS         Development         Centers         0 Centers         33 Centers           097:000         Factoria         PETROMA EXEMPLATERS         Petropetropetropetropetropetropetropetrop	Code         U.C.         Display Holds of LINET         Programment control         Strict Control         Promotion         Strict Control           upp2301         Madpit         FTETSON COLLS STITE SOL BIO         The Top Control Control         The Top Control         Strict Control         Stricontrol         Strict Control	Oct-20	France	TOTAL	Onshore	Buried Oil Pipeline	several repairs (cracks, dents, ext corrosion)	3X Distributor
Part 200         Margare         Proceeding of the part of th	Description         Process (Construction)         Description (Construction)         Description (Construction)         Description (Construction)         Model (Construction) <t< td=""><td>Oct-20</td><td>RDC</td><td>PERENCO</td><td>Onshore</td><td>Tank reinforcement</td><td>Holes &amp; external corrosion</td><td>3X Distributor</td></t<>	Oct-20	RDC	PERENCO	Onshore	Tank reinforcement	Holes & external corrosion	3X Distributor
Implex Div         Marginel         Private Division         The Pace-Durine         Pace During Part (Part)         Burnel consister         33 Destroy           94:2020         Marginel         Personal Sol Selecture         The Pace-Durine         Part Pace Pace Part (Part)         Burnel consister         33 Destroy           94:2020         Marginel         Personal Sol Selecture         Part Pace Pace Pace Pace Pace Pace Pace Pace	Bigs 20         Margin bit Motion Bit Property Program Property Proper	Oct-20	UAE	DOLPHIN ENERGY LIMITED	Piping reinforcement - onshore	30" Gas Line	External corrosion	3X Distributor
spp 200         Maging         PERFORMATION         Boor Rejectable         Junch** allow af which 100         Description         All control         All contro         All contro </td <td>app:200         Mage         Manual Mathematical Stream         Analysis of Application         Particle Stream         Stream<td>sept-2020</td><td>Malaysia</td><td>SDN BHD</td><td>Tee Pipe-Onshore</td><td>Area/Location : FV-2761 V-2519 CUI 2" Hydrogen Line</td><td>External corrosion</td><td>3X Distributor</td></td>	app:200         Mage         Manual Mathematical Stream         Analysis of Application         Particle Stream         Stream <td>sept-2020</td> <td>Malaysia</td> <td>SDN BHD</td> <td>Tee Pipe-Onshore</td> <td>Area/Location : FV-2761 V-2519 CUI 2" Hydrogen Line</td> <td>External corrosion</td> <td>3X Distributor</td>	sept-2020	Malaysia	SDN BHD	Tee Pipe-Onshore	Area/Location : FV-2761 V-2519 CUI 2" Hydrogen Line	External corrosion	3X Distributor
app. 200         Madeque         Protectionment         An Vehicle Structure         An	cmpc/cmit         Material	sept-2020	Malaysia		Elbow Pipe-Onshore	2 unit of 3" elbow at 4"-P1081-1108	External corrosion	3X Distributor
State         Low Solution         Difference         Low Solution         Difference         Difference           State         Difference         State         State         Difference         State	Biology         Biology         Biology         Description         Description <thdescription< th="">         Descremoscription         <thd< td=""><td></td><td></td><td>PETRONAS GAS BERHAD</td><td></td><td></td><td></td><td></td></thd<></thdescription<>			PETRONAS GAS BERHAD				
Image 200         Neural Note         Pipe restruction         Bit 200-000-001         Piend control         Bit 200-000-001           Seg 200         Solar         POULINE DERRY         Pipe restruction         Fig. 200         Note 200-000-000-000         Pipe restruction         Pipe restruction         Bit 200-000-000-000         Strong         Strong <td< td=""><td>emptod         Evolution         900         Proventment         Southink (MA)         Head control         Southink (MA)           042300         0200         0200         0200         020000         020000         020000         020000         020000         020000         020000         020000         020000         020000         020000         020000         0200000         0200000         0200000         0200000         0200000         0200000         02000000         02000000         020000000         020000000         020000000         020000000         0200000000         0200000000         0200000000         0200000000         0200000000         02000000000000         02000000000         02</td><td></td><td></td><td>DEDUAD</td><td></td><td>4" allow at V 254 to flare, HBC BD Blant</td><td></td><td></td></td<>	emptod         Evolution         900         Proventment         Southink (MA)         Head control         Southink (MA)           042300         0200         0200         0200         020000         020000         020000         020000         020000         020000         020000         020000         020000         020000         020000         020000         0200000         0200000         0200000         0200000         0200000         0200000         02000000         02000000         020000000         020000000         020000000         020000000         0200000000         0200000000         0200000000         0200000000         0200000000         02000000000000         02000000000         02			DEDUAD		4" allow at V 254 to flare, HBC BD Blant		
Insection         Dear Department of the Program information and the Program information and the Program information of the Program informating and Program information of the Program information of the Pro	met.500         Gale         Double Restart         Page and company         Page a							
med.200         Monthem Emergence         Outdragrade Profile         If Gas Law         Extend         35 Distribution           seed.200         May Cont         PEXTORT         Othows         35 proj.         Robit         35 Distribution           seed.200         May Cont         PEXTORT         Othows         35 proj.         Robit         35 Distribution           seed.200         Robit         SBUR         periodical         21 bitsribution         35 Distribution         35 Distribution <td< td=""><td>Spectrolin         Monosania         Processes de la Serie de</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Spectrolin         Monosania         Processes de la Serie de							
rep:320         CRONIX         MP Present 4.a.         Pper inforcement - manuer         ONIX0 parkin         Dots         33 Statutor           rep:320         Rusia         SBUR         previoubne         21/mministries (CAS         Heared contraction         33 Contraction           rep:320         Rusia         SBUR         previoubne         21/mministries (CAS         Heared contraction         33 Contraction           rep:321         Makingia         HERDYMAN HERMING COMMINY         Elson (Procenting)         Set of 47 and run ministries (CAS)         Heared contraction         33 Contraction           Augent23         Makingia         PETRONA CONTRACKS at Temp Contraction         Temp Contraction Contraction         32 Contraction         32 Contraction           Augent23         Makingia         PETRONA CONTRACKS at Temp Contraction         Temp Contraction         32 Contraction         33 Contraction           Augent23         Makingia         PETRONA CONTRACKS at Temp Contraction         Temp Contraction         32 Contraction         33 Contraction           Augent23         Makingia         PETRONA CONTRACKS at Temp Contraction         Temp Contraction         32 Contraction         33 Contraction           Augent23         Makingia         PETRONA CONTRACKS at Temp Contraction         Temp Contraction         32 Contraction         33 Co	Spg 202         CROITA         MP Present La.A.         Pipe endracement - andreg         DND gas ine         Date         33.0 Statular           seg 202         R.S.D.         SBUR         pipe conductors         2 Statular	sept-2020	Indonesia	Perusahaan Gas Negara	Underground Pipeline	-	External	3X Distributor
Institution         Control parts         Control parts         Control parts         Control parts           886-2020         Russis         SBUR         pps/structure         210mm/ straight law GAS         Hereal controls         32 Detticater           Augus 20         Malayia         HERMAN BERNING CONTROL         Elsen Pro-Drahom         53.01 of 2 dets was water         Elsen Pro-Drahom         33 Detticater         33 Detticater           Augus 20         Malayia         HERMAN BESNING CONTROL         Elsen Pro-Drahom         Statel of 2 dets was water         Elsen Pro-Drahom         33 Detticater         33 Detticater           Augus 20         Malayia         HERMAN BESNING CONTROL         The 2 dets Pro-Drahom         Free and structure	Instruction         Control Section         Control Section         Control Section         Control Section           1992-200         Rosts         SBUR         ppolarization         Control Section         Control Section           1992-200         Rosts         SBUR         ppolarization         Control Section         Control Section         Control Section           1992-200         Maguia         PERCONS CONTROL SECTION         Elson Rep Calues         Control Section         St Debtody           1992-201         Maguia         PERCONS CONTROL SECTION         Elson Rep Calues         Type Calues         Elson Rep Calues         St Debtody           1992-201         Maguia         PERCONS CONTROL SECTION         Type Calues         Type Calues         Elson Rep Calues         St Debtody           1992-201         Maguia         PERCONS CONTROL SECTION         Maguia         PERCONS CONTROL SECTION         St Debtody           1992-201         Maguia         PERCONS CONTROL SECTION         Maguia         PERCONS CONTROL SECTION         St Debtody           1992-201         Maguia         PERCONS CONTROL SECTION         Maguia         PERCONS CONTROL SECTION         St Debtody           1992-201         Maguia         PERCONS CONTROL SECTION         Maguia         PERCONS CONTROL SECTION         S	sept-2020	Ivory Coast	FOXTROT	Offshore	3" piping	Hole	3X Distributor
sec.400         Russia         SBUR         ppl/values         377/straget inv GAS         Internal contraction         332 Database           August 20         Malaysia         PENDYUM EERNAG COMPANY EERNAG         Elsev Fige-Onlines         5 und 7 discus uses         Elseved contraction         33 Database           August 20         Malaysia         PENDYUM EERNAG COMPANY EERNAG COMPANY         Elseve Fige-Onlines         Fige-Onlines         Elseved contraction         33 Database           August 20         Malaysia         PETRORAG COMPANY         Elseved contraction         32 Database         33 Database           August 20         Malaysia         PETRORAG COMPANY         Elseved contraction         32 Database         33 Database           August 20         Malaysia         PETRORAG COMPANY         Elseved contraction         32 Database           August 20         Malaysia         PETRORAG COMPANY         Elseved contraction         33 Database         33 Database           August 20         Malaysia         PETRORAG         Oalidian         August 20         <	mpt         Build         Indust         Build         Industa         Status	sept-2020	CROATIA	IMP Promont d.o.o.	Pipe reinforcement - onshore	DN100 gas line	Dent	3X Distributor
August 0         Matry is         MENCIUM REPUND CONFORM BERMO         Ebox Pipe Onloce         Stat of 7 down 4 dor wind a confusion         Extension         XX Darkbarz           August 00         PETRONAS CHERCAS ET COLOR         PETRONAS CHERCAS ET COLOR         Ebox Fire Pipe Onloce         To 2 34 Fire Pipe Onloce         Extension         XX Darkbarz           August 00         Makysia         PETRONAS CHERCAS ET COLOR         Ebox Fire Pipe Onloce         To 2 34 Fire Pipe Onloce         Extension         XX Darkbarz           August 00         Makysia         PETRONAS CHERCAS ET COLOR         Extension         XX Darkbarz           August 00         Makysia         PETRONAS CHERCAS ET COLOR         The Pipe Onloce         To 2 34 First Pipe Onloce         XX Darkbarz           August 00         Makysia         PETRONAS CHERCAS ET COLOR         Marchan Controline         XX Darkbarz           August 01         PETRONAS CHERCAS ET COLOR         Marchan Controline         XX Darkbarz         XX Darkbarz           August 02         Makysia         PETRONAS CHERCAS ET COLOR         Marchan Controline         XX Darkbarz           August 02         Reside         Ensity         To a ord First Reside         XX Darkbarz           August 02         Reside         Ensity         To a ord First Reside         XX Darkbarz	Huge 50         Matry 60         HEIOT LINE REFERENCE COMPARY END ALL         Elsen / Pue Outroe         Start of case as our ward for get VUL (PUE PUE)         Elsen / Pue Outroe         Start of case as our ward for get VUL (PUE PUE)         Elsen / Pue Outroe         Start of case as our ward for get VUL (PUE PUE)         Elsen / Pue Outroe         Start of case as our ward for get VUL (PUE PUE)           Augus 50         Mary 10         PETROAL CHEMOL 31         Elsen / Star / Start outroe         Elsen / A Bale As outroe         Start of case as our ward for get VUL (PUE PUE)         Elsen / A Bale As outroe         Start of case as our ward for get VUL (PUE PUE)         Elsen / A Bale As outroe         Start outroe	sept-2020	Russia	SIBUR	pipe/onshore	219mm/ straight line/ GAS	Internal corrosion	3X Distributor
Production         Management         Extend Products of Head Conf.         Conference on Head Conference         Conference on Head Conference         Confen	Appendix         Manyani         BERMAD         Calify Processing         Calify Processing         Control of the processing         Contro of the procesing <thcontro of="" processing<="" th="" the=""></thcontro>	sept-2020	Russia	SIBUR	pipe/onshore	377/straight line/ GAS	Internal corrosion	3X Distributor
Adget 30         Makysis         PETRONAS CREMICLS         Etons, Bridget 3. The Ondors         Top: 17: 12: 12: 000 MC cell for CL MARS. Type         Example 10: 10: 10: 10: 10: 10: 10: 10: 10: 10:	August 20         Malaysis         PETROMA CREACLAS Entropy of the August 20         Factor Status 20         Factor Status 20         Status	August-20	Malaysia		Elbow Pipe-Onshore		External corrosion	3X Distributor
Image: Instruction state carbon in the processing of the procesesing of the processing of the processing of the pro	August 20         PETRONS CREMENT 2000         PETRONS CREMENT 2000         PETRONS CREMENT 2000         State Tar Type Destore         Petrons 2000         State Tar Type Destore         State Ta	August-20	Malaysia	PETRONAS CHEMICALS	Elbow, Straight & Tee-Onshore	Tag 1: 2" elbow at C-201/1-202, IBL Area 3	External corrosion	3X Distributor
Image: 20         Manysis         PETRONA GAS BERMAD         Manual Band         Table 24 page 120         Manual Contain         Association of the State Page Advance         Estimation of the State Page Advance           August 20         Makysis         Petrona MAN         Balaget Attar Page Advance         Estimation of the State Page Advance         Estimation on State Page Advance         Estimation of the StateP	Andread         Terrorison Sam Burner         Terrorison Sam Burner <thterrorison< td=""><td></td><td>-</td><td>PETRONAS CHEMICALS MTBE</td><td></td><td>PDH plant,PCMTBE</td><td></td><td>3X Distributor</td></thterrorison<>		-	PETRONAS CHEMICALS MTBE		PDH plant,PCMTBE		3X Distributor
PADD200         Interflue Procession Control         Database         Analyzing approximation         Entities and approximation         Control         Control <thcontrol< th="">         Control         Control</thcontrol<>	Changeod         Meter Control Control Control         Data State 2 (pp. 444 (SQC + not.)         Data State 2 (not.)         Data State							
mog.acto         France         NAVAL GRUP Matrix Nationals         Subsolute         condensity         protection         33. Monitor           mag.acto         Perconst         Perconst         Perconst         Ensity         Tark varbors         34.00 international statute         supplied articorrestion costing         33.00 bittleburg           august-20         Rustin         Addit Polymetall         Coding to set         internat registricut and transfer set of the Perconst costing         33.00 bittleburg           July-20         Matingin         PERTONAS CREMEALS POLVETHYLENE SON BHD         Ebork & Single Pop-Control         To 1: 1: through pop effect of the PER-I-ADD transfer and the Perconst of the Percons	Jungstöl         France         NVAL GROUP / Nutrie Nutries National         Sature inter         Conference         Bastrick         Jungstöl         Ausstöl         Ausstöl </td <td></td> <td></td> <td>HENGTUAN REFINING COMPANT</td> <td></td> <td></td> <td></td> <td></td>			HENGTUAN REFINING COMPANT				
magani-Do         Ivery Cost         PETROCI         Officers         6"same         Lesk A setting constant         320 Dembed/strakt Mensor           auguni-Do         Russin         AGMK Polymetall         Coding tower         internal regativation, acid         applying articorrosion coding         3.X Dembed/strakt           July-20         Malayia         PETRONAS CHEMICALS POLYTEHYLERE SDN BHD         Elone & Smight Pop-Onthore         Tag 1: 1" stores of 12P-14-00         Tag 1: 1" stores of 12P-05-00         Elone & Smight Pop-Onthore         Tag 1: 1" stores of 12P-05-00         Elone & Smight Pop-Onthore         Tag 1: 1" stores of 12P-05-00         Elone & Smight Pop-Onthore         Tag 1: 1" stores of 12P-05-00         Elone & Smight Pop-Onthore         Tag 1: 1" stores of 12P-05-00         Elone & Smight Pop-Onthore         Tag 1: 1" stores of 12P-05-00         Elone & Smight Pop-Onthore         AvesPlantEcgipment: 13B/07-00         Elone & Smight Pop-Onthore         AvesPlantEcgipment: 13B/07-00         Elone & Smight Pop-Onthore         AvesPlantEcgipment: 2-0         Internal controsion         3X Detributor           July-20         Malayia         PETRONAS SAS BERMO         Narad Band         AvesPlantEcgipment: 13B/07-00         Elone & Smight Pop-Onthore         AvesPlantEcgipment: 2-0         Internal controsion         3X Detributor           July-20         Malayia         PETRONAS SAS BERMO         Smight Pop-Onthore         11P-14P-050-00	Analysis         PETROIA         Officer         6" op for         Lak A device consol         XX Dender/XX Money           august 32         Rustin         Enviry         Tax cohorn         3300'term (rpac)/stater         applying information conting         3X Denthour           august 32         Rustin         ADMR Polymental         Coding town         Interd inpativistics, scill         applying information conting         3X Denthour           ably:20         Malaysin         PETRONAS GORBECKS, DEENW & Stright Pipe-Onstroe         Tag 1: radow & FD-0 end at FE-1.4-00         Exerce 1000's         SX Denthour           ably:20         Malaysin         PETRONAS GORBERHAD         Maruar Brind         Tag 1: radow & FD-0 end at FE-1.4-00         Exerce 1000's         SX Denthour           ably:20         Malaysin         PETRONAS GORBERHAD         Maruar Brind         Tag 1: radow & FD-0 end on         SX Denthour         SX Denthour           ably:20         Malaysin         PETRONAS GORBERHAD         Maruar Brind         Analysin for the FD-0 end on state for the					2" x 4" Too pipe at E 456 Diet 2 HBC DD Dient confidential		
august-20         Russin         AGMK Polymetall         Coding tower         internal repair/water, acid         applying articorosion coding         3.X Distributor           July-20         Matayaia         PETRONAS CHEMICALS POLYETHYLENE SON BHD         Elson & Straight Pop-Onshore         Tag 1: 11 elson & 3 (ToesCol)         Elson A Straight Pop-Onshore         Tag 1: 11 elson & Straight Pop-Col         Straight Pop are DC-CO-CO         Elson A Straight Pop-Onshore         Tag 1: 11 elson & Straight Pop are DC-CO-CO         Elson A Straight Pop-Onshore         Straight Pop are DC-CO-CO         Elson A Straight Pop-Onshore         Tag 1: 11 elson & St ToesCol         Elson A Straight Pop-Onshore         Straight Pop are DC-CO-CO         Elson A Straight Pop-Onshore         AveaPartEcgionmert C-101A Pop: Elson Bard         Elson A Straight Pop-Onshore         AveaPartEcgionmert C-101A Pop: Elson Bard         Elson A Straight Pop-Onshore         AveaPartEcgionmert C-101A Pop: Elson Bard         Elson A Straight Pop-Onshore         AveaPartEcgionmert C-101A Pop are DC-Pop Are DC-	agast-20         Rusia         ADM: Peymental         Coding town         iterant repairwater, acid         applying anticircular coming         XX Datibular           July-20         Matysia         PETRONAG CHEMICALS         Ebox & Snight Ppa-Onshore         Tag. 11 regite pair #0.6-2.00         Ebox & Snight Ppa-Onshore         Tag. 11 regite pair #0.6-2.00         Ebox & Snight Ppa-Onshore         Tag. 11 regite pair #0.6-2.00         Ebox #0 minute pair #0.6-2.00         Ebox #0.0		Ivory Coast			8" gas riser		3X Distributor/3X Monaco
July 20         Malaysia         PETRONAS CHEBRICALS POLTETINCENE SON BID         Ebow & Straight Pge-Onshore         Tag 1: 1* stoken & 4 Done and et FE - R - 400 Tag 2: 1* staging as # E6 - 63.00         Esternal corrosion         3X Distributor           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         ArraPler/Equipment 3: 0: 1, 1         Esternal corrosion         3X Distributor           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         ArraPler/Equipment 3: 0: 1, 1         Esternal corrosion         3X Distributor           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         ArraPler/Equipment 3: 10: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0	July 20         Matysia         PETROMA DESIGNAS POLYETHYLERS SON BIO         Ebox & Braght Pipe Charlos         Tur 1 alone & Polo 400 Tur 1 alone	august-20	Russia	Enisey	Tank onshore	3400/internal repair/oil,water	applying anticorrosion coating	3X Distributor
July 20         Malaysia         PETRONAS CHEBRICALS POLTETINCENE SON BID         Ebow & Straight Pge-Onshore         Tag 1: 1* stoken & 4 Done and et FE - R - 400 Tag 2: 1* staging as # E6 - 63.00         Esternal corrosion         3X Distributor           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         ArraPler/Equipment 3: 0: 1, 1         Esternal corrosion         3X Distributor           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         ArraPler/Equipment 3: 0: 1, 1         Esternal corrosion         3X Distributor           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         ArraPler/Equipment 3: 10: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0	July 20         Matysia         PETROMA DESIGNAS POLYETHYLERS SON BIO         Ebox & Braght Pipe Charlos         Tur 1 alone & Polo 400 Tur 1 alone	august-20	Russia	AGMK Polymetali	Cooling tower	internal repair/water, acid	applying anticorrosion coating	3X Distributor
July 20         Matysia         PETRONAS GAS BERHAD         Manual Band         1 locators at PGB-GPK.         AreaProtEquation: Utility(PP-1, DPC): 2001(80)         Extend consisten         3X Distributor           July 20         Matysia         PETRONAS GAS BERHAD         Manual Band         Manual Band         Extend Consisten         3X Distributor           July 20         Matysia         PETRONAS PENAPISAN (TERROGAMU) SIN BID         Ebox 4 Straight Ppe-Onstore         Area Conston Pitter         1 internal Consisten         3X Distributor           July 20         Matysia         PETRONAS PENAPISAN (TERROGAMU) SIN BID         Ebox 4 Straight Ppe-Onstore         Area Conston Pitter         1 internal consisten         3X Distributor           July 20         Matysia         PETRONAS CAS BERHAD         Straight Ppe-Onstore         1 'internal consisten         3X Distributor           July 20         Matysia         PPU TORGENTING STATE STRAID         Straight Ppe-Onstore         1 's a straight Ppe-Onstore         1 's a straight Ppe-Onstore         1 's a straight Ppe-Onstore         3X Distributor           July 20         Matysia         NPO         Ppe reinforcement         150.OFC.040.01.06         Internal constoin         3X Distributor           July 20         Kazahstatin         KPO         Ppe reinforcement         10'-FH-7000-B01.82 -OF30.0F         Internal constoin<	July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         I Vacations # PDG-PK.           July 20         Malaysia         PETRONAS GAS BERHAD         Manual Band         Advantable Explorest (100)         Extend a Constant         St Distributor           July 20         Malaysia         PETRONAS PENAPESAN (TERENDONE) Storest (100)         Extend a Constant         St Distributor           July 20         Malaysia         PETRONAS DENAPESAN (TERENDONE) Storest (100)         Extend a Constant         St Distributor           July 20         Malaysia         PETRONAS DISTORM REPRETATION REPRETATION CONFERENCE (100)         Nation of the Stars (100)         St Distributor           July 20         Malaysia         PETRONAS DISTORM REPRETATION REP	-		PETRONAS CHEMICALS	-	Tag 1: 1" elbow & 3" Dome end at PE-1-R-400		
July-20         Malaysia         (TERENGCANU) SIN BHD         Ebox & Straight Re-Onshore         Aread.coation/Flar: BT-2         Internal corrosion         3X Distributor           July-20         Malaysia         PERVTOWS VERSING-UP         Nozzle-Onshore         11 the pipe 87 Storethy         Internal corrosion         3X Distributor           July-20         Malaysia         PERVTOWS VERSING-UP         To a type Chatore         11 the pipe 87 Storethy         External corrosion         3X Distributor           July-20         Malaysia         POLYEOMAND Stare Stare and corrosion         3X Distributor         3X Distributor           July-20         Malaysia         POLYEOMAND Stare Stare and corrosion         3X Distributor         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         100-PL 40:10:00         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10'-FH-7005-B01 & 2'-DR-3637.0F         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         2'' DEG line (E-309)         Internal corrosion         3X Distributor           July-20         France         TOTAL         CROATIA         IMP Promort d.o.o.         Pipe reinforcement - onshore	July-20         Malaysia         (TERROGANU, SON BED)         Elsow & Straght Pipe-Orabore         Aread coston/Pian: BT.2         Internal constain         3X betributor           July-20         Malaysia         retrovides' Chemicas         The provides' Chemicas         3X Destruture         3X Destruture         3X Destruture           July-20         Malaysia         retrovides' Chemicas         The provides' Chemicas         3X Destruture         3X Destruture           July-20         Malaysia         retrovides' Chemicas         The provides' Chemicas         3X Destruture         3X Destruture           July-20         Malaysia         retrovides' Chemicas         1'the provide State         3X Destruture         3X Destruture           July-20         Malaysia         retrovides' Chemicas         1'the provide State         3X Destruture           July-20         Kazahstain         KPO         Pipe reinforcement         10:-FI-2005 Dit 8 2-0R-9837-0F         Internal constain         3X Destruture           July-20         Kazahstain         KPO         Pipe reinforcement         2'DEG Inte (E-309)         Internal constain         3X Destruture           July-20         Kazahstain         KPO         Pipe reinforcement - controle         DMODG Dit 16'D Pipe Internal constain         3X Destruture           July-20			POLYETHYLENE SDN BHD	• •	rag 2: 1 straight pipe at PE=0=0=030		
July 20         Head STROM PERMAN COUNT WITH MARK COUNT WITH THE CONSTRUCT OF THE PROFENSION OF THE PROFEN	July-20         Matingtia         PETROFERENTIAL CONVERTMENT Convert         Nazzle-Oratore         Internal Controloging - Internal Contro	July-20	Malaysia			1 locations at PGB-GPK. Area/Ptant/Equipment : Utility/GPP-1, DPCU- 2001E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion	External corrosion	3X Distributor
July-20         Malaysia         PETROMSS/CHEMPLARY         Tee Pipe-Onshore         1* tee pipe 8: "dome and at Pe1-18-400, PCPS8         External corrosion         3X Distributor           July-20         Malaysia         POLYERXNUE FALSE         Straight 8: Tee Pipe-Onshore         1* tee pipe 8: "dome and at Pe1-18-400, PCPS8         External corrosion         3X Distributor           July-20         Malaysia         PPTROMAS GAS BERHAD         Straight Pipe-Onshore         1* straight pipe Straight Pipe-Onshore         1* straight pipe Straight Pipe-Onshore         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         150.PC.040.01.06         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10*.FH-7005-E01 8: 2*.DR-3637.OF         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10*.FH-7005-E01 8: 2*.DR-3637.OF         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10*.FH-7005-E01 8: 2*.DR-3637.OF         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         0.DIV.FH-F         3X Distributor           July-20	July-20         Mutsysia         PE ROUGS CHEBUCAS         The Pape Control         11 to pape A 30 performance         23 Destributir           July-20         Matsysia         POL ROUGS CHEBUCAS         Singlit A Ten Pape Control         143 US 40 performance         24 and 20 performance         33 Destributir           July-20         Matsysia         PETROMS PERFORM         Singlit A Ten Pape Control         143 US 40 performance         24 and 20 performance         34 Destributir           July-20         Kazabistan         NPO         Pape reinforcement         50.P.P.040.01.06         Internal controlon         32 Destributir           July-20         Kazabistan         NPO         Pape reinforcement         10:P-H-7005-801 & 2: OP.3637.0F         Internal controlon         32 Destributir           July-20         Kazabistan         NPO         Pape reinforcement         20:P-H-7005-801 & 2: OP.3637.0F         Internal controlon         32 Destributir           July-20         Kazabistan         NPO         Pape reinforcement         20:PER-1005-801 & 2: OP.3637.0F         Internal controlon         32 Destributir           July-20         France         TOTAL         Onatore         Dettofia Papine         Second Papine         Second Papine         32 Destributir           July-20         France         TOTAL         Onator			PETRONAS GAS BERHAD PETRONAS PENAPISAN	Manual Band	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature: 150°C		
July-20         Malaysia         Dot vertwor Event extra Bun         Straight & les Pipe-Orshore         The number of the straight pipe of Shore         Attractivate straight of the Shore         Attractractivate straight of the Shore	July-20     Malaysia     not-settude part of the Pet-Onshore     24 stagil part of the Pet-Onshore     34 stagil	July-20	Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD	Manual Band Elbow & Straight Pipe-Onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2001E(BB) Naraest Equipment :0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2	Internal corrosion	3X Distributor
July-20         Kazakhstan         KPO         Pipe reinforcement         150.0FC.40.01.06         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         50.1P.040.01.00         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10"-FH-7005-B01.8 2"-DR-3837-0F         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         2" DEG line (E-309)         Internal corrosion         3X Distributor           July-20         CROATLA         IMP Promott d.o.o.         Pipe reinforcement - orshore         DM100 gas line         External corrosion         3X Distributor           July-20         France         TOTAL         Onshore         Buried Di Pipeline         several repairs (Crass, dents, ext corrosion)         3X Mostributor           July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         corridential         protection         3X Mostributor           July-20         Rassia         GASPROM Nett         Tark buried         200mrinitemal repair/ol         4 through wall defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         36" Su	July-20         Kszakhstan         KPO         Pipe reinforcement         150.QFC.040.01.05         Internal corresion         3X. Distributor           July-20         Kszakhstan         KPO         Pipe reinforcement         50.IP.040.01.00         Internal corresion         3X. Distributor           July-20         Kszakhstan         KPO         Pipe reinforcement         10°.H-1/20.5837.0F         Internal corresion         3X. Distributor           July-20         Kszakhstan         KPO         Pipe reinforcement         2′.DEG line (E-30)         Internal corresion         3X. Distributor           July-20         CROAT1A         IMP Promont d.o.o.         Pipe reinforcement - orabore         DN100 gas line         External corresion         3X. Distributor           July-20         France         TOTAL         Orabore         Buried OI Pipeline         several rejairs (cracks, dents, ecorresion)         3X. Distributor           July-20         Russia         GASPRON Met         Tark buried         3200mm/internal regair/oil         4 through yail defects         3X. Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16°.OI Pipeline         Leak and External Corresion         3X. Distributor           July-20         NGKRIA         EXAMCO         Substant         16°.OI Pipeline </td <td>July-20 July-20</td> <td>Malaysia Malaysia</td> <td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENOTUAN REFINING COMPANY PETROMAS ÜHEMINGLAS</td> <td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore</td> <td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 fund ror vessils v-550 toolsy facrining fund to restant with fundamental - 2 fullow at Afferman</td> <td>Internal corrosion</td> <td>3X Distributor 3X Distributor</td>	July-20 July-20	Malaysia Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENOTUAN REFINING COMPANY PETROMAS ÜHEMINGLAS	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 fund ror vessils v-550 toolsy facrining fund to restant with fundamental - 2 fullow at Afferman	Internal corrosion	3X Distributor 3X Distributor
July-20         Kazakhstan         KPO         Pipe reinforcement         50.IP.040.01.00         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10"-FH-7005-801.8.2"-DR-3637-0F         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         2" DEG line (E-309)         Internal corrosion         3X Distributor           July-20         CROATIA         IMP Promont d.o.o.         Pipe reinforcement - onshore         DN100 gas line         External corrosion         3X Distributor           July-20         France         TOTAL         Onshore         Burled OI Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           July-20         France         NVAL ACROUP / Marine Nationale         Subsea line         confidential         protection         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16" OI Pipeline         Leak and External Defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         36" Subsea         16" Subsea         16" Subsea         16" OI Pipeline         Leak and External Defects         3X Distributor           July-20         NORWAY <td>July-20         Kazakhstan         KPO         Pipe reinforcement         50.IP 040.01.00         Internal corresion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10°-FH-7005-B01 &amp; 2-DR-9337-0F         Internal corresion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         2' DEG line (E-309)         Internal corresion         3X Distributor           July-20         KRaskhstan         KPO         Pipe reinforcement         DN100 gas line         External corresion         3X Distributor           July-20         France         XAXL GROUP / Marine Nationale         Subsea line         Confidential         protection         3X Distributor           July-20         France         XAXL GROUP / Marine Nationale         Subsea line         Confidential         protection         3X Distributor           July-20         Rusia         GASPROM Mett         Tark build         3200mm/netrenal registric (crack, dents, ent corresion         3X Distributor           July-20         SALDI ARABIA         ARAMCO         Onshore         11° OI Pipeline         Leak and External Defects         3X Distributor           July-20         NOREKIA         EQUINOR (Statoll)         Piping reinforcement- onshore         12' Polyduci line</td> <td>July-20 July-20 July-20</td> <td>Malaysia Malaysia Malaysia</td> <td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REFINING CUMPANY PETRORIAS CHEMICALS PELFKOKAS CHEMICALS</td> <td>Manual Band Elbow &amp; Straight Pipe-Onshore Nazzle-Onshore Tee Pipe-Onshore</td> <td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(B6) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 "Unit or vessiti v-sb: 0-000 / patenting freed - 1284 cm or vessiti v-sb: 0-000 / patenting freed - 1284 cm or vessiti v-sb: 0-000 / patenting</td> <td>Internal corrosion Internal corrosion External corrosion</td> <td>3X Distributor 3X Distributor 3X Distributor</td>	July-20         Kazakhstan         KPO         Pipe reinforcement         50.IP 040.01.00         Internal corresion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         10°-FH-7005-B01 & 2-DR-9337-0F         Internal corresion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         2' DEG line (E-309)         Internal corresion         3X Distributor           July-20         KRaskhstan         KPO         Pipe reinforcement         DN100 gas line         External corresion         3X Distributor           July-20         France         XAXL GROUP / Marine Nationale         Subsea line         Confidential         protection         3X Distributor           July-20         France         XAXL GROUP / Marine Nationale         Subsea line         Confidential         protection         3X Distributor           July-20         Rusia         GASPROM Mett         Tark build         3200mm/netrenal registric (crack, dents, ent corresion         3X Distributor           July-20         SALDI ARABIA         ARAMCO         Onshore         11° OI Pipeline         Leak and External Defects         3X Distributor           July-20         NOREKIA         EQUINOR (Statoll)         Piping reinforcement- onshore         12' Polyduci line	July-20 July-20 July-20	Malaysia Malaysia Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REFINING CUMPANY PETRORIAS CHEMICALS PELFKOKAS CHEMICALS	Manual Band Elbow & Straight Pipe-Onshore Nazzle-Onshore Tee Pipe-Onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(B6) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 "Unit or vessiti v-sb: 0-000 / patenting freed - 1284 cm or vessiti v-sb: 0-000 / patenting freed - 1284 cm or vessiti v-sb: 0-000 / patenting	Internal corrosion Internal corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor
July-20         Kazakhstan         KPO         Pipe reinforcement         10"-FH-7005-B01.8.2"-DR-3637-0F         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Pipe reinforcement         2" DEG line (E-309)         Internal corrosion         3X Distributor           July-20         CROATIA         IMP Promont d.o.o.         Pipe reinforcement         2" DEG line (E-309)         Internal corrosion         3X Distributor           July-20         France         TOTAL         Onshore         Buried OI Pipeline         Several repairs (cracks, dents, ext corrosion)         3X Distributor           July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         confidential         protection         3X Moraco           July-20         Russia         GASPROM Nett         Tank buried         3200mm/internal repair/oI         4 through wall detects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16" OI Pipeline         Lask and External Defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         445" Subsea OI Pipeline         Lask and External Defects         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- di	July-20         Kazakhstan         KPO         Ppe reinforcement         10"-FH-7005-801.6 2"-DR-3637-0F         Internal corrosion         3X Distributor           July-20         Kazakhstan         KPO         Ppe reinforcement         2" DEG line (E-309)         Internal corrosion         3X Distributor           July-20         CROATIA         IMP Promont d.o.o.         Ppe reinforcement - orshore         DN100 gas line         External corrosion         3X Distributor           July-20         France         TOTAL         Orshore         Buinet OI Ppeline         several regains (cracks, detris, ext corrosion)         3X Distributor           July-20         Russia         GASPROM Nett         Tark buried         3200mm/internal regainal         4 through wal defects         3X Distributor           July-20         Russia         GASPROM Nett         Tark buried         3200mm/internal regainal         4 through wal defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         48" Subsea OI Ppeline         Eaternal Corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statiol)         Pping reinforcement- offshore         12p olyduzt line         Eaternal corrosion         3X Distributor / Moraco           July-20         NORWAY         EQUINOR (Statiol)	July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REFINING CUMPANT PETROARS VARENICALS POLYECTIAL ENG END BHD DOLYECTIAL ENG END BHD PETRONAS GAS BERHAD	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2001E(BB) Naraet Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 1 'Utility of ve530 toddy Banding 1'teo pipe & 3' dome end at PE-1-R-400, PCPSB 1980 : 3' dome end at Tank B	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
July-20         Kazakhstan         KPO         Pipe reinforcement         2' DEG line (E-309)         Internal corrosion         3X Distributor           July-20         CROATIA         IMP Promont d.o.o.         Pipe reinforcement - onshore         DN100 gas line         External corrosion         3X Distributor           July-20         France         TOTAL         Onshore         Burled OI Pipeline         several repairs (cracks, dens, ext corrosion)         3X Distributor           July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         corroline in a corroline in a corrosion         3X Monaco           July-20         SAUDI RABIA         ARAMCO         Onshore         16' OI Pipeline         External corrosion         3X Distributor           July-20         SAUDI RABIA         ARAMCO         Onshore         12' polyduct line         External corrosion         3X Distributor           July-20         SAUDI RABIA         ARAMCO         Subsea         48' Subsea OI Pipeline         Leak and External Derion         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12' polyduct line         External corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoii)         Piping reinforcement - offshore	July-20         Kazakhstan         KPO         Pipe reinforcement         2° EG line (E-309)         Internal corrosion         3X Distributor           July-20         France         TOTAL         Ornshore         Burled OI Pipeline         several repairs (cracks, dents, est corosion)         3X Distributor           July-20         France         NAVAL GROUP/ Marine Nationale         Subsea line         confidential         protection         3X Monaco           July-20         Russia         GRSPROM Neft         Trank burled         32000mm/Internal regarial         4 through wall defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Ornshore         16° OI Pipeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Ornshore         12° polydict line         External corrosion         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Pping reinforcement - ofshore         12° polydict line         External corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Pping reinforcement - ofshore         topside platform- tank         external corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Pping reinforcement - ofs	July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR KEPINING COMPANY PETRONKS CHARMALSIN DOLVECTIVAL CHARMALSIN DOLVECTIVAL CHARMALSIN PETRONAS GAS BERNAD KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(B6) Nearest Equipment : 0-101A Prior: External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'ufm or vess? V-s30 wody Spacening (1'teo pipe & 3' dome end at PT-1:5-47/1 1'teo pipe & 3' dome end at PT-1:5-47/1 Tool : 10-10-10-10-10-10-10-10-10-10-10-10-10-1	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
July-20         CROATIA         IMP Promont d.o.o.         Pipe reinforcement - onshore         DN100 gas line         External corrosion         3X Distributor           July-20         France         TOTAL         Onshore         Burled Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         confidential         protection         3X Monatoo           July-20         Russia         GASPROM Neht         Tark buried         3200mm/internal repair/oil         4 through wail defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16' Oil Pipeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Ossbesa         448' Subsea Oil Pipeline         Leak and External Defects         3X Distributor           July-20         OLOLOMBIA         EXXON MOBIL         Subsea         36' Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement offshore         topside platform- pipe         several defects - holes and external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUI	July-20         CROATIA         IMP Promont d.o.o.         Pipe reinforcement - orshore         DN100 gas line         External corrosion         3X Distributor           July-20         France         NAVAL GROUP / Marine Nationale         Subsain in         confidential         protaction         3X Distributor           July-20         Russia         GRAPROM Net         Tank buried         S200mm/internal repair/oil         4 through wall defects         3X Montbur           July-20         SAUDI ARABIA         ARAMCO         Onshore         16° OI Pipeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16° OI Pipeline         External corrosion         3X Distributor           July-20         COLUMBIA         ECOPETROL S.A         Piping reinforcement- onshore         12° polyduct line         External corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoi)         Piping reinforcement- offshore         topaids platform: tink         external corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoi)         Piping reinforcement- offshore         topaids platform: tink         external corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoi)         Pi	July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REPINING COMPANY PETRONKS CHEMICALS PETRONKS CHEMICALS PETRONAS GAS BERHAD PETRONAS GAS BERHAD KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzie-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment: Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment: 0-101A Pipe: Manual Band Defect: External Corrosion Max Operating Temperature: 150°C Area/Location/Plant: BT-2 1'0fm or vessfl v-5b box/5 / Astornal 1'teo pipe & 3' dome end at PE-1-5-40/12 1'teo pipe & 3' dome end at PE-1-5-40/12 To -1-10* endet best at some 1 4' straight pipe at Te-1-5-47/11 To -0-10* some at an at Te-1-5-47/11 To -0-10* some	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
July-20         France         TOTAL         Onshore         Burled Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         confidential         protection         3X Monacoo           July-20         Russia         GASPROM Neft         Tark burled         3200mm/internal repair/oil         4 through wail defects         3X Monacoo           July-20         SAUDI ARABIA         ARAMCO         Onshore         16' Oil Pipeline         External Defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         448" Subsea Oil Pipeline         Leak and External Defects         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- pipe         several defects         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- off	July-20         France         TOTAL         Onshore         Burled OI Ppeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           July-20         France         NAVAL GROUP / Marrine Nationale         Subsea line         confidential         protection         3X Distributor           July-20         Russia         GASPRON Neth         Tark burled         3200m/intermant repairs (cracks, dents, ext corrosion)         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16" OI Ppeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         48" Subsea OI Ppeline         Leak and External Defects         3X Distributor           July-20         SUBGRIA         EXCOM MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- dishore         topside platform: tank         external corrosion         3X Distributor / Moraco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- dishore         topside platform: tank         external corrosion         3X Distributor / Moraco           July-20         NORWAY         EQUINOR (Statoil) <t< td=""><td>July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20</td><td>Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan</td><td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR HEFINING CUMPANT PETRONAS CAS BERHAD DOL VETRUX ENE EDN BUD PETRONAS GAS BERHAD KPO KPO KPO</td><td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement</td><td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2010[EB] Nearest Equipment : 0-101A Pope :: External Corrosion Max Operating Temperature. 159°C Area/Location/Plant : BT-2 1/16 or vess® v-c.ab cody patching 11 teo pipe &amp; 3° dome end at PE-1-R-400, PCPSB 189 1: 3.4* res pipe at PE-1-R-400, PCPSB 199 2: 3.4* results at Tank B 150.OFC.040.01.06 50.IP.040.01.00 10°-FH-7005-B01 &amp; 2*-DR-3637-0F</td><td>Internal corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion</td><td>3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor</td></t<>	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR HEFINING CUMPANT PETRONAS CAS BERHAD DOL VETRUX ENE EDN BUD PETRONAS GAS BERHAD KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2010[EB] Nearest Equipment : 0-101A Pope :: External Corrosion Max Operating Temperature. 159°C Area/Location/Plant : BT-2 1/16 or vess® v-c.ab cody patching 11 teo pipe & 3° dome end at PE-1-R-400, PCPSB 189 1: 3.4* res pipe at PE-1-R-400, PCPSB 199 2: 3.4* results at Tank B 150.OFC.040.01.06 50.IP.040.01.00 10°-FH-7005-B01 & 2*-DR-3637-0F	Internal corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         confidential         protection         3X Monaco           July-20         Russia         GASPCON Neft         Tark buried         3200mm/internal repair/oil         4 through wait defects         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Onshore         16" OII Pipeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         448" Subsea OII Pipeline         Leak and External Defects         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12" polyduct line         External corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoi)         Piping reinforcement - onshore         12" polyduct line         Cark and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoi)         Piping reinforcement - offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoi)         Subsea         38" Gasing Subsea         Heles         33 Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoi)	July-20         France         NAVAL GROUP / Marine Nationale         Subsea line         confidential         protection         3X Monaco           July-20         Russia         GASPROM Nett         Tark buried         3200nm/internal repair/oil         4 through wait defects         3X Distributor           July-20         SAUDI ARABIA         ARANCO         Onshore         16''O IPpeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARANCO         Subsea         48''Subsea OIP Pipeline         Leak and External Corrosion         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         112' polyduct line         External corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement-offshore         topside platform- pipe         several defects: holes and external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         36''C Classa         Holes         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         36''C VI Pigeline         External corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Subse	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR HEFINING CUMPANT PETRONAS CAS BERHAD POLYCTUNI ENE EDN BUD PETRONAS GAS BERHAD KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011(EB) Nearest Equipment : O-101A Prpe : Manual Band Defet : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400, POPSB 1 <sup>1</sup> /ten pripe & 3° dome end at PE-1-R-400,	Internal corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
July-20         SAUDI ARABIA         ARAMCO         Onshore         16° OI Pipeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         46° Subsea         19° OI Pipeline         Leak and External Defects         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12° polyucit line         External corrosion         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         36° Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement offshore         topside platform- pipe         several defects - holes and external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- tark         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         38° Casing Subsea         Holes         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Subsea         36° OI Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         <	July-20         SAUDI ARABIA         ARAMCO         Onshore         16" OI Pipeline         External corrosion         3X Distributor           July-20         SAUDI ARABIA         ARAMCO         Subsea         46" Subsea OI Pipeline         Leak and External Defects         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12" polyduct line         External corrosion         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement - offshore         topside platform- pipe         several defects - holes and external corrosion         3X Distributor // Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement - offshore         topside platform- tank         external corrosion         3X Distributor // Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         36" OI Pipeline         External corrosion         3X Distributor           July-20         INDIA         HPCL         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REPINING CUMPANY PETRONKS CHEMICALS PETRONKS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO IMP Promont d.o.o.	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 1'uff or vessfl v-5b uody fastoring 'store 1: 384 res upper at PE-15-84 1'tee pipe & 3' dome end at PE-15-84 1'te	Internal corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
July-20         SAUDI ARABIA         ARAMCO         Subsea         48" Subsea OI Pipeline         Leak and External Defects         33X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12" polyduct line         External corrosion         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- pipe         several defects - holes and external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         38" Casing Subsea         Holes         3X Distributor / Monaco           July-20         INDIA         HPCL         Offshore Subsea         36" Call Pipeline         External corrosion         3X Distributor           July-20	July-20         SAUDI ARABIA         ARAMCO         Subsea         48° Subsea Oil Pipeline         Leak and External Defacts         3X Distributor           July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12° polyduct line         External corrosion         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         38° Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoli)         Subsea         36° Oil Pipeline         External corrosion         3X Distributor/ SMonaco           July-20         INDIA         HPCL         Offshore Subsea         16° Gas Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16° Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAX1	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR KEFINING CUMPANT PETRONAS GAS BERHAD NPO YCTUNI ENE EDN DUD PETRONAS GAS BERHAD KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Onshore Onshore Subsea line	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011(EB) Nearest Equipment : 0-101A Pope : Manual Band Defect : External Corrosion Max Operating Temperature. 159°C Area/Location/Plant : BT-2 1/0 for vess® v-cbu cody patching 11 teo pipe & 3° dome end at PE-1-R-400, PCPSB 180 1:30 cmc - 40 PE-1-R-400, PCPSB 180 1:30 cmc - 40 PE-1-R-400, PCPSB 150 CFC.040.01.06 50.IP.040.01.00 10°-FH-7005-B01 & 2°-DR-3637-0F 2° DEG line (E-309) DN100 gas line Buried Oil Pipeline confidential	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion several repairs (cracks, dents, ext corrosion) protection	3X Distributor 3X Distributor
July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12" polyduct line         External corrosion         3X Distributor           July-20         NIGERIA         EXX0 MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- pipe         several defets- holes and external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         38" Casing Subsea         Holes         3X Distributor / Monaco           July-20         INDIA         HPCL         Offshore Subsea         36" OI Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         Malaysia         HENGYUAN REFINING COMPANY         Reducer	July-20         COLOMBIA         ECOPETROL S.A         Piping reinforcement - onshore         12' polyduct line         External corrosion         3X Distributor           July-20         NIGERIA         EXXON MOBIL         Subsea         36' Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- pipe         several defects- holes and external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoli)         Subsea         38' Coll Pipeline         External corrosion         3X Distributor/ Monaco           July-20         INDIA         HPCL         Offshore Subsea         36' Oll Pipeline         External corrosion         3X Distributor/ Monaco           July-20         VIETNAM         PVGAS         Offshore Subsea         36' Oll Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24' & 8.28' piping         Leak         3X Distributor           July-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD </td <td>July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20</td> <td>Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia</td> <td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REPTINING COMPANY PETRONAS CHEMICALS PETRONAS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft</td> <td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight &amp; Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea line Tank buried</td> <td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'ufen yre &amp; 3' dome end at Pi-1-5-40/ 1'tee pipe &amp; 3' dome end at Pip</td> <td>Internal corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) protection 4 through wal defects</td> <td>3X Distributor 3X Distributor</td>	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REPTINING COMPANY PETRONAS CHEMICALS PETRONAS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea line Tank buried	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'ufen yre & 3' dome end at Pi-1-5-40/ 1'tee pipe & 3' dome end at Pip	Internal corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) protection 4 through wal defects	3X Distributor 3X Distributor
July-20         NIGERIA         EXXON MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- pipe         several defects- holes and external corrosion         3X Distributor           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- pipe         several defects- holes and external corrosion         3X Distributor/ Monaco           July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor/ Monaco           July-20         NORWAY         EQUINOR (Statoli)         Subsea         38" Casing Subsea         Holes         3X Distributor/3X Monaco           July-20         NIA         HPCL         Offshore Subsea         36" OI Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24" & 28" piping         Leek         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY	July-20         NIGERIA         EXXON MOBIL         Subsea         36" Subsea Line         Crack and plastic deformation         3X Distributor           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside plaform- pipe         several defects- holes and external corrosion         3X Distributor // Monaco           July-20         NORWAY         EQUINOR (Statoil)         Piping reinforcement- offshore         topside plaform- tank         external corrosion         3X Distributor // Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         36" Casing Subsea         Heles         3X Distributor // Monaco           July-20         NORWAY         EQUINOR (Statoil)         Subsea         36" OIP Pipeline         External corrosion         3X Distributor           July-20         INDIA         HPCL         Offshore Subsea         36" OIP Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24" & 28" piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY PERVINASCHEMICALS         Reducer-Onshore         1 unit of % 2" reducer to Tee pipe-Onshore         I unit of % 2" reducer to Tee pipe-Onshore         I unit of % 2" reducer to tee pipe tenervindscut chemicals         SX Distributor<	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REFINING COMPANY PETRONAS GAS BERHAD POLYKOWS CHEMICALS POLYKOWS CHEMICALS POLYKOWS CHEMICALS POLYKOWS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Ree Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea line Tank buried Onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : C+101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 169°C Area(Location/Plant : BT-2 +101 at vessfl v-350 uody hatcriftig 11 tee pipe & 3" dome end at PE-15-400, PCPSB 11 tee pipe & 3" dome end at PE-15-407, PCPSB 11 tee pipe & 3" dome end at PE-15-407, PCPSB 130 to 34" terg pipe at Text B 150 oFC G-400, 01.06 50.IP.040,01.00 10"-FIH-7005-B01 & 2"-DR-3637-0F 2" DEG line (E-309) DN100 gas line Buried Oil Pipeline confidential 3200mm/internal repai/oil 16" OI Pipeline	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion several repairs (cracks, dents, ext corrosion) protection 4 through wall delects External cortosion	3X Distributor 3X Distributor
July-20         NORWAY         EQUINOR (Statoli)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor / Monaco           July-20         NORWAY         EQUINOR (Statoli)         Subsea         38" Casing Subsea         Holes         3X Distributor / Monaco           July-20         INDIA         HCL         Offshore Subsea         36" Call Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD         Reducer-Onshore         1 unit of 3" x2" reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERMONS CHEMICALS         Tee Pipe-Onshore         1 apt 1: x40-H1+ 20/100 cation 8. <td>July-20         NORWAY         EQUINOR (Statiol)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor/3X Mnaco           July-20         NORWAY         EQUINOR (Statiol)         Subsea         38° Calling Subsea         Holes         3X Distributor/3X Mnaco           July-20         INDIA         HPCL         Offshore Subsea         38° Calling Subsea         Holes         3X Distributor/3X Mnaco           July-20         INDIA         HPCL         Offshore Subsea         38° Calling Figure         External corrosion         3X Distributor/3X Mnaco           July-20         VIETNAM         PVGAS         Offshore Subsea         36° Callingeline         External corrosion         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24° &amp; 26° piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD         Reducer-Onshore         1 unit of °x 2″ reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERVENXEVERGENDUALS         Tee Pipe-Onshore         1 ag 1: recentration         Hole (Crack)         3X Distributor           June-20         Malaysia         PERVENXEVERGENDUALS         Tee Pipe-Onshore</td> <td>July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20</td> <td>Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA</td> <td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REFINING COMPANY PETRONAS GAS BERHAD NPO YECUNI EWE EDN BUD PETRONAS GAS BERHAD KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO</td> <td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight &amp; Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea line Tank buried Onshore Subsea</td> <td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2010(E)B) Nearest Equipment : 0-101A Prpe : Manual Barn Defect : External Corrosion Max Operating Temperature. 159°C Area/Location/Plant : BT-2 1'0/fbr or vessft v-5x0 tody Patching 1'1 cop tipe &amp; 3' dome end at PE-1-5x07/1 1'2 to pipe &amp; 3' dome end at PE-1-5x07/1 1'2 to pipe &amp; 3' dome end at PE-1-5x07/1 1'30 : Tempe at PE-1-5x07/1 1'30 : Tempe at PE-1-5x07/1 1'30 : Defect at Tank B 150.0FC.040.01.06 50.IP.040.01.00 10'-FH-7005-B01 &amp; 2'-DR-3637-0F 2' DEG line (E-309) DN100 gas line Buried OII Pipeline confidential 3200mm/internal repair/oil 16' OI Pipeline</td> <td>Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion several repairs (cracks, dents, ext corrosion) protection 4 through wall defects External corosion Leak and External Defects</td> <td>3X Distributor 3X Distributor</td>	July-20         NORWAY         EQUINOR (Statiol)         Piping reinforcement- offshore         topside platform- tank         external corrosion         3X Distributor/3X Mnaco           July-20         NORWAY         EQUINOR (Statiol)         Subsea         38° Calling Subsea         Holes         3X Distributor/3X Mnaco           July-20         INDIA         HPCL         Offshore Subsea         38° Calling Subsea         Holes         3X Distributor/3X Mnaco           July-20         INDIA         HPCL         Offshore Subsea         38° Calling Figure         External corrosion         3X Distributor/3X Mnaco           July-20         VIETNAM         PVGAS         Offshore Subsea         36° Callingeline         External corrosion         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24° & 26° piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD         Reducer-Onshore         1 unit of °x 2″ reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERVENXEVERGENDUALS         Tee Pipe-Onshore         1 ag 1: recentration         Hole (Crack)         3X Distributor           June-20         Malaysia         PERVENXEVERGENDUALS         Tee Pipe-Onshore	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REFINING COMPANY PETRONAS GAS BERHAD NPO YECUNI EWE EDN BUD PETRONAS GAS BERHAD KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea line Tank buried Onshore Subsea	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2010(E)B) Nearest Equipment : 0-101A Prpe : Manual Barn Defect : External Corrosion Max Operating Temperature. 159°C Area/Location/Plant : BT-2 1'0/fbr or vessft v-5x0 tody Patching 1'1 cop tipe & 3' dome end at PE-1-5x07/1 1'2 to pipe & 3' dome end at PE-1-5x07/1 1'2 to pipe & 3' dome end at PE-1-5x07/1 1'30 : Tempe at PE-1-5x07/1 1'30 : Tempe at PE-1-5x07/1 1'30 : Defect at Tank B 150.0FC.040.01.06 50.IP.040.01.00 10'-FH-7005-B01 & 2'-DR-3637-0F 2' DEG line (E-309) DN100 gas line Buried OII Pipeline confidential 3200mm/internal repair/oil 16' OI Pipeline	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion several repairs (cracks, dents, ext corrosion) protection 4 through wall defects External corosion Leak and External Defects	3X Distributor 3X Distributor
July-20         NORWAY         EQUINOR (Statol)         Subsea         38° Casing Subsea         Holes         3X Distributor/3X Monaco           July-20         INDIA         HPCL         Offshore Subsea         36° Casing Subsea         Holes         3X Distributor/3X Monaco           July-20         INDIA         HPCL         Offshore Subsea         36° Casing Subsea         Betrinal corrosion         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16° Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24° & 28° piping         Leek         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD         Reducer-Onshore         1 unit of 3' x 2' reducer to Tee pipe 4 F-102 Coation 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1 agit : R40-H1 + 50/100 KB pl6 reducer Normation.         Hole (Crack)         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1 agit : R40-H1 + 50/100 KB pl6 reducer         Hole (Crack)         3X Distributor	July-20         NORWAY         EQUINOR (Statoli)         Subsea         38° Casing Subsea         Holes         3X Distributor/3X Monaco           July-20         INDIA         HPCL         Offshore Subsea         38° Casing Subsea         Holes         3X Distributor/3X Monaco           July-20         INDIA         HPCL         Offshore Subsea         38° Cill Pipeline         External corrosion         3X Distributor/3X Monaco           July-20         VIETNAM         PVGAS         Offshore Subsea         16° Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24° 8.28° piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERIMO         Reducer-Onshore         1 unit of "X 21 reducer to Tee pipe af Fr/102 coins 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERMATASCHEMICALS         Tee Pipe-Onshore         1 ag 1: Tri Stragnitetow at the pipe af Pipe 20 coins 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERMATASCHEMICALS         Tee Pipe-Onshore         1 ag 1: Tri Stragnitetow at the pipe af Pipe 20 coins 8.         External corrosion         3X Distributor           June-20         Moleshian         KCA DEUTIAS <td>July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20</td> <td>Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhst</td> <td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REPINING COMPANY PETRONAS GAS BERHAD POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS PETRONAS GAS BERHAD KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL</td> <td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Ree Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Onshore Subsea line Tank buried Onshore Subsea Piping reinforcement - onshore Subsea</td> <td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : C+101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 169°C Area(Location/Plant : BT-2 1'10°D revest V+350 work) 1'tee pipe &amp; 3' dome end at PE-15-400, PCPSB 1'tee pipe &amp; 3' dome end at PE-15-400, PCPSB 2''DEG line (E-309) DN100 gos line Buried Oil Pipeline 1'tee pipe &amp; 3''dome end at PE-15-400, PCPSB 1'tee pipe &amp; 3''dome end at PE-15-400,</td> <td>Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) rototection 4 through wal delects External corrosion Leak and External Defects External corrosion Crack and plastic deformation</td> <td>3X Distributor 3X Distributor</td>	July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhst	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REPINING COMPANY PETRONAS GAS BERHAD POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS POLYKOWS, SURFANC, RAS PETRONAS GAS BERHAD KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Ree Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Onshore Subsea line Tank buried Onshore Subsea Piping reinforcement - onshore Subsea	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : C+101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 169°C Area(Location/Plant : BT-2 1'10°D revest V+350 work) 1'tee pipe & 3' dome end at PE-15-400, PCPSB 1'tee pipe & 3' dome end at PE-15-400, PCPSB 2''DEG line (E-309) DN100 gos line Buried Oil Pipeline 1'tee pipe & 3''dome end at PE-15-400, PCPSB 1'tee pipe & 3''dome end at PE-15-400,	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) rototection 4 through wal delects External corrosion Leak and External Defects External corrosion Crack and plastic deformation	3X Distributor 3X Distributor
July-20         INDIA         HPCL         Offshore Subsea         36" Of Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         PVGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24" & 28" piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD         Reducer-Onshore         1 unit d'3" x 2" reducer to Tee pipe at F-102 location 8         Internal corrosion         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD CHEMICALS         Tee Pipe-Onshore         1 and d'3" x 2" reducer to Tee pipe at F-102 location 8         Internal corrosion         3X Distributor           June-20         Malaysia         PETROVAS CHEMICALS         Tee Pipe-Onshore         1 agi 1: " red/HT + OUT/00 de pipe of the pipe at PE-1-V340         Hole (Crack)         3X Distributor           June-20         Malaysia         PETROVAS CHEMICALS         Tee Pipe-Onshore         1 agi 1: " red/HT + OUT/00 de pipe of the pipe at PE-1-V340         Extended corrosion         3X Distributor	July-20         INDIA         HPCL         Offshore Subsea         36" OI Pipeline         External corrosion         3X Distributor           July-20         VIETNAM         PYGAS         Offshore Subsea         16" Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24" & 28" piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY (Autor Control and Con	July-20 July-20	Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REFINING COMPANY PETRONAS CALMAN AND AND AND AND AND AND AND AND AND A	Manual Band Elbow & Straight Pipe-Onshore Nazzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea line Tark buried Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2010E(B8) Nearest Equipment : 0-101A Pripe : Manual Barn Max Operating Temperature : 159°C Area/Location/Plant : BT-2 -1'0/fit or vessfl v-6.30 tody Plantning 1'10e pipe & 3' dome end at PE-1-5-97/1 1'20 zime & 3' dome end at PE-1-5-97/1 2' DEG line (E-309) DN100 gas line Buried OI Pipeline Confidential 3200mm/internal repair/oil 16' OI Pipeline 48' Subsea OI Pipeline 12' polyduct line 36' Subsea Une	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion several repairs (cracks, dents, ext corrosion) protection 4 through wall defects External corrosion Leak and External Defects External corrosion Crack and plastic deformation several defects- holes and external corrosion	3X Distributor 3X Distributor
July-20         VIETNAM         PVGAS         Offshore Subsea         16' Gas Pipeline         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24'' & 28' piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY BERHADICALS         Reducer-Onshore         1 unit of 3'' x 2'' reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1 agi 1:: R40-H1 + 3U/10U as pipe at periods by mortimation.         Hele (Crack)         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1 agi 1:: R40-H1 + 3U/10U as pipe at periods by mortimation.         Hele (Crack)         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1 agi 1:: R40-H1 + 3U/10U as pipe at periods by an etc-1-V-34U         Extended to a 3X Distributor	July-20         VIETNAM         PVGAS         Offshore Subsea         16° Gas Pipelne         Dent         3X Distributor           July-20         ANGOLA         OPS         FPSO SAXI         24° 8.28° piping         Leak         3X Distributor           June-20         Malaysia         HENGYUAN REFINING COMPANY PETROVARS CHEMICALS         Reducer-Onshore         1 unit of 'x 2' reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PETROVARS CHEMICALS         Tee Pipe-Onshore         1 a) 1: Roof H14 SUTU OS Byte Boow Information.         Hole (Crack)         3X Distributor           June-20         Malaysia         PETROVARS CHEMICALS         Tee Pipe-Onshore         1 a) 1: Roof H14 SUTU OS Byte Boow Information.         Hole (Crack)         3X Distributor           June-20         Malaysia         PORTOVARS CHEMICALS         Tee Pipe-Onshore         1 a) 1: Roof H14 SUTU OS Byte Boow Representation and the O & Sea External corrosion         3X Distributor           June-20         NORWAY         KCA DEUTAG         TOPSITE PIPES+TANKS         Reparation of holes on 3 topsite pipes-separation tank         Holes evoternal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         30-2200-005-FN4'-804         Internal corrosion         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA COLOMBIA NIGERIA NORWAY NORWAY	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REFINING CUMPANY PETRONKS CHEMICALS PETRONKS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil)	Manual Band Elbow & Straight Pipe-Onshore Nozzie-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement - onshore Subsea line Tark burled Onshore Subsea Piping reinforcement - ofshore Piping reinforcem	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'10° for vessfl v-5b wob/ placenting 1'10° pipe & 3' dome end at Pie-1-5-40, PCPSB 1'10° pipe & 3' dome end at Pie-1-5-40, PCPSB 1'10° pipe & 3' dome end at Pie-1-5-40, PCPSB 1'10° pipe at Ten-15-47/11 To-0-14 statistic at some 1 4' straight pipe at Tank B 150.0FC.40.01.06 50.IP.040.01.00 10°-FH-7005-B01 & 2'-DR-3637-0F 2' DEG line (E-309) DN100 gas line Buried OIP Pipeline 16' DI Pipeline 16' DI Pipeline 16' DI Pipeline 16' DI Pipeline 16' DI Pipeline 16' Subsea OIP Pipeline 10' Subsea Une 10' Subsea Line 10' Side platform- tipe topside platform- tank	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation several defects holes and external corrosion external corrosion	3X Distributor 3X Distributor / Monaco
June-20         Malaysia         HENGYUAN REFINING COMPANY PERCURAS CHEMICALS         Reducer-Onshore         1 unit of 3" x 2" reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1ag 1: 1 red/h1+ s/ur100 as per detox information.         Hele (Crack)         3X Distributor           June-20         Malaysia         PETRUMAS CHEMICALS         Tee Pipe-Onshore         1ag 1: 1 red/h1+ s/ur100 as per detox information.         Hele (Crack)         3X Distributor	June-20         Malaysia         HENGYUAN REFINING COMPANY BERHAD         Reducer-Onshore         1 unit of 3' x 2' reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERVANZ CHEMICALS         Tee Pipe-Onshore         Tag 1: reducer to Tee pipe at F-102 location 8.         Internal corrosion         3X Distributor           June-20         Malaysia         PERVANZ CHEMICALS         Tee Pipe-Onshore         Tag 1: reducer to Tee pipe at F-102 location 8.         Hole (Crack)         3X Distributor           June-20         Malaysia         PO         Straight & Tee Pipe-Onshore         Tag 1: reducer to Tee pipe at F-102 location 8.         External corrosion         3X Distributor           June-20         Kazakhstan         KPO         PIPE ST-TANKS         Reparation of holes on 3 topsite pipes-separation tank         Holes + external corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-201A-RC-039-67-410         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         30-220-00s-FN-4'-B04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         1'-PW-0009-A04         Internal corrosion <td< td=""><td>July-20 July-2</td><td>Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhst</td><td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REFINING COMPANY PETRONAS GAS WAEMICALS POLYKOWS, SURFANCALS POLYKOWS, SURFANCALS POLYKOWS, SURFANCALS PETRONAS GAS BERHAD KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil)</td><td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Ree Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Piping reinforcement - ofshore Piping reinforcement - ofshore Piping reinforcement - ofshore Piping reinforcement - ofshore Piping reinforcement - ofshore</td><td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2501E(BB) Nearest Equipment : C-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 160°C Area/Location/Plant : BT-2 Truft or vessfl v-c3b wob/ \$Paterting 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe &amp; 2' DEG line (E-309) DN100 gas line Buried Oil Pipeline 16' Oil Pipeline 16' Oil Pipeline 16' Oil Pipeline 16' Subsea Oil Pipeline 12' polydout line 36' Subsea Line topside platform- tank 38' Casing Subsea</td><td>Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) Protection 4 through wall delects External corrosion Leak and External Defects External corrosion Crack and plastic deformation several defects- holes and external corrosion external corrosion</td><td>3X Distributor 3X Distributor</td></td<>	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhst	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAN REFINING COMPANY PETRONAS GAS WAEMICALS POLYKOWS, SURFANCALS POLYKOWS, SURFANCALS POLYKOWS, SURFANCALS PETRONAS GAS BERHAD KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil)	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Ree Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Piping reinforcement - ofshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2501E(BB) Nearest Equipment : C-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 160°C Area/Location/Plant : BT-2 Truft or vessfl v-c3b wob/ \$Paterting 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 3' dome end at Pie-1-5-400, PCPSB 1 tee pipe & 2' DEG line (E-309) DN100 gas line Buried Oil Pipeline 16' Oil Pipeline 16' Oil Pipeline 16' Oil Pipeline 16' Subsea Oil Pipeline 12' polydout line 36' Subsea Line topside platform- tank 38' Casing Subsea	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) Protection 4 through wall delects External corrosion Leak and External Defects External corrosion Crack and plastic deformation several defects- holes and external corrosion external corrosion	3X Distributor 3X Distributor
June-20         Malaysia         BERHAD         Reducer-Onsinve         pipe at F-102 location 8.         Internal contision         3A Distributor           June-20         Malaysia         PETRONAS CHEMICALS         Tee Pipe-Onshore         1ag 1: read-H1 + sur/tou as per deaw information.         Hole (Crack)         3X Distributor           June-20         Malaysia         PETRONAS CHEMICALS         Tee Pipe-Onshore         1ag 1: rstragmentows tee pipe at PE-1-v-340         Hole (Crack)         3X Distributor	June-20         Mataysia         BERHAD (Mataysia)         Reduction (Mataysia)         Reduction (Mataysia)         Pier (Mataysia)         BERHAD (Mataysia)         Reduction (Mataysia)         Pier (Mataysia)         Pier (Mataysia)         Reduction (Mataysia)         Pier (Mataysia)         Straight & Toe Pie-Onshore         Tag in (Mataysia)         Pier (Mataysia)	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NGRERIA NORWAY NORWAY INDIA	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR KEPINING CUMPANT PETRONAS CAS BERHAD NOV SETUNI CALE ENN DUN POL YETUNI CALE ENN DUN POL YETUNI CALE ENN DUN NEPO KPO KPO KPO MP Promott d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ECOPETROL S.A ECXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) HPCL	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Subsea Offshore Subsea	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011(EB) Nearest Equipment : Or101A PFB : Manual Band Defect : Submal Corrosion Max Operating Temperature: 15°C Area/Location/Plant : BT-2 10°L or vessil v-ski cody patching 11°Leo pipe & contrast cody patching 11°LEO patching at cody patching 11°LEO patching at cody patching 21°DEC line (E-309) DN100 gas line Burled Oil Pipeline 12°DA/duct line 32°C Subsea Line 10°G Pipeline 12°DA/duct line 33°C Subsea Line 10°G Pipeline	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion Several repairs (cracks, dents, ext corrosion) rototection 4 through wal delects External corrosion Leak and External Defects External corrosion Crack and plastic deformation several defects-holes and external corrosion Retarnal corrosion Holes External corrosion	3X Distributor 3X Distributor/ 3X Distributor
June-20 Malaysia PETRONAS CHEMICALS Tee Pipe-Onshore 1ag 1: R40-H1 + 50/10/ as per below information. Hole (Crack) 3X Distributor	June-20         Malaysia         PE IRORAS CHEMICALS         Tee Pipe-Onshore         180 11 * 1378 for the Bow information.         Hole (Crack)         3X Distributor           June-20         Malaysia         Der KANAS CFEMICALS         Straight & Tee Pipe-Onshore         180 11 * 1378 for the Construct Straight A Tee Pipe-Onshore         180 11 * 1378 for the Construct Straight A Tee Pipe-Onshore         180 11 * 1378 for the Construct Straight A Tee Pipe-Onshore         3X Distributor           June-20         NORWAY         KCA DEUTAG         TOPSITE PIPES+TANKS         Reparation of holes on 3 topsite pipes-separation tak         Holes+ external corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-210A-RG-039-6*-A10         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         30-2200-005-FN-4*-B04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         1'-PW-0009-A04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-VV-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-VV-01         In	July-20 July-20	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NIGERIA NORWAY NORWAY NORWAY INDIA VIETNAM	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REPINING CUMPANY PETRONAS GAS BERHAD PETRONAS GAS BERHAD KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO COPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Sta	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Subsea Piping reinforcement- onshore Subsea Piping reinforcement- offshore Piping reinforcement- offshore Subsea Offshore Subsea Offshore Subsea	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2201E(BB) Nearest Equipment : Ch10A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 169°C Area/Location/Plant : BT-2 Truft or vessfl v-cb3 toxof Plantering 1 tee pipe & 3' dome end at P1-1-5-30'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 3' dome end at P1-1-5-40'C, DCPCB 1 tee pipe & 1-15-1-5-40'C, DCPCB 1 tee pipe & 1-15-1-5-40'C, DCPCB 1 tee pipe & 1-15-1-5-40'C, DCPCB 2 'DEG line (E-309) DN100 gas line Buried Oil Pipeline 1 te' Di Pipeline 1 te' Di Pipeline 1 tes pipe & platform : pipe topside platform : pipe topside platform : tank 3 at' Casing Subsea 3 te' Oil Pipeline 1 te' 'Gas Pipeline 1 te' 'Gas Pipeline	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Several repairs (cracks, dents, ext corrosion) protection A through wal defects External corrosion Leak and External Defects External corrosion Grack and plastic deformation Several defects- holes and external corrosion Holes External corrosion External corrosion	3X Distributor 3X Distributor
	June-20         NORWAY         KCA DEUTAG         Straight & 16 e Pre-Ursike         Town - 24th Straight & 16 e Pre-Ursike & Reparation for 0.6 c. g.sc.         Extended corrosion         3X Distributor           June-20         NORWAY         KCA DEUTAG         TOPSITE PIPES-TANKS         Reparation foldes on 3 topsite pipes-separation task         Holes+ external corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-210A-RG-039-6"-A10         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         30-2200-005-FN-4"-B04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         1"-PW-0009-A04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-VW-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-VW-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-341A-RG-021-2"-C11         Internal corrosion         3X Distributor	July-20 July-20	Malaysia Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France France Russia SAUDI ARABIA COLOMBIA NIGERIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAN REFINING COMPANY PETRONÁS CAMEMICALS PETRONÁS CAMEMICALS KPO KPO KPO KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Subsea Piping reinforcement - ofshore Subsea Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011[EB] Nearest Equipment : Or101A Prpe : Manual Band Defect : External Corrosion Max Operating Temperature: 15°C Area/Location/Plant : BT-2 1'ther pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr PCPSB 1'teo pres & 3' dome end at PE-1-R-400 pr 1'teo pres & 3' dome end at PE-1-R-400 pr 1'teo pres & 3' dome end at PE-1-R-400 pr 1'teo pression & 3' dome end at PE-1-R-400 pr 2' DEG line (E-309) DN100 gas line Buried OI Pipeline 16' OI Pipeline 16' OI Pipeline 16' OI Pipeline 16' Gas Pipeline 16' Gas Pipeline 24'' & 28'' piping 1 unit of 3'' 22' reducer to Tee pipe at F-102 boaton 8.	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation Several defects External corrosion Crack and external corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation Several defects holes and external corrosion Holes External corrosion Dent Leak	3X Distributor 3X Distributor
	June-20         Kazakhstan         KPO         Pipe reinforcement         50-210A-RG-039-6"-A10         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         30-2200-005-FN-4"-B04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         1'-PW-0009-A04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         05-562-WV-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-WV-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-WV-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-341A-RG-021-2"-C11         Internal corrosion         3X Distributor	July-20 July-20	Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA VIGERIA NORWAY NORWAY NORWAY INDIA VIETNAM ANGOLA Malaysia Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAN REFINING COMPANY PETRONAS CAMERAD PETRONAS CAMERAD PETRONAS GAS BERHAD KPO KPO KPO KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Onshore Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Piping reinforcement - onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Piping reinforcement - offshore Subsea Piping reinforcement - offshore Piping reinforcement - offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Tee Pipe-Onshore	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(B6) Nearest Equipment : 0-101A Pro: Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'uft or vessft v-s3/bit odf planting front : 1'sternal of vessft v-s3/bit odf planting front : 1'sternal of vessft v-s3/bit odf planting front : 1'sternal vessft v-s3/bit odf planting 1'sternal vessft v-s3/bit odf planting 1'sternal vessft v-s3/bit odf planting 1'sternal vessft v-s3/bit odf planting 1'sternal vessft v-s3/bit odf v-s3/bit odf 10'-FH-7005-B01 & 2'-DR-3637-0F 2' DEG line (E-309) DN100 gas line Burted Oli Plantine 0'-GOI Plantine 10'-GOI Plantine 10'-GOI Plantine 10'-GOI Plantine 12' polyduct line 12' casing Subsea 36'' Oli Plantine 16'' Gas Plantine 17'' Gas Plantine 16''' Gas Plantine 16'''' Gas Plantine 16'''' Gas Plantine 16''''''''''''''	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion several repairs (cracks, dents, ext corrosion) protection 4 through wall defects External corrosion Leak and External Defects External corrosion Crack and plastic deformation several defects- holes and external corrosion external corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Dent Leak Internal corrosion	3X Distributor 3X Distributor
	June-20         Kazakhstan         KPO         Pipe reinforcement         30-2200-005-FN-4*-804         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         1*-PW-0009-A04         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         65-582-VW-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         60-582-VW-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-341A-RG-021-2*-C11         Internal corrosion         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France France Russia SAUDI ARABIA SAUDI AR	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR KEPTINIS PETRONÁS CHÉMICALS PETRONÁS CHÉMICALS PETRONÁS CHÉMICALS PETRONÁS CAÉMAND KPO KPO KPO KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzie-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement - onshore Subsea Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore	1 locations at PGB-GPK.           Area/Plant/Equipment: Utility/GPP-1, DPCU-2901E(BB)           Nearest Equipment: 0:101A           Pipe: Manual Band           Defect: External Corrosion           Max Operating Temperature: 150°C           Area/Detailog Temperature: 150°C           Area/Location/Plant: BT-2           1'ufm or vessitiv v-six over 50°C           Area/Location/Plant: BT-2           1'at orget pipe at Te-1-5-24771           Too         10°C FD-040.01.06           50.IP.040.01.00           10°-FH-7005-B01 & 2°-DR-3637-0F           2° DEG line (E-309)           DN100 gas line           Buried OI Pipeline           3200mm/internal repair/oil           16° OI Pipeline           48° Subsee Line           10° Chyle pipeline           12° polyduct line           36°	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Leak and External Defects External corrosion Leak and External Defects External corrosion External corrosion Holes External corrosion Holes External corrosion Holes Leak Internal corrosion Leak Internal corrosion Holes External corrosion External corrosion Holes External corrosion External corrosion External corrosion Holes External corrosion External corrosion Holes External corrosion External corrosion External corrosion Holes External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion External corro	3X Distributor 3X Distributor
June-20 Kazakhstan KPO Pipe reinforcement 30-2200-005-FN-4*-B04 Internal corrosion 3X Distributor	June-20         Kazakhstan         KPO         Pipe reinforcement         60-562-VW-01         Internal corrosion         3X Distributor           June-20         Kazakhstan         KPO         Pipe reinforcement         50-341A-RG-021-2"-C11         Internal corrosion         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NIGERIA NORWAY NORWAY INDIA VIETNAM ANGOLA Malaysia Malaysia Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REFINING CUMPANY PETRONAS GAS BERHAD PETRONAS GAS BERHAD PETRONAS GAS BERHAD KPO KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoi	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea Ine Tank buried Onshore Subsea Piping reinforcement-ofshore Piping reinforcement-ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducar-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Staight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Constraight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore St	1 locations at PGB-GPK.           Area/Plant/Equipment : Utility/GPP-1, DPCU- 2201E(BB)           Nearest Equipment : C-101A           Pipe : Manual Band           Defect : External Corrosion           Max Operating Temperature: 150°C           Area/Location/Plant : BT-2           "Unit or vested v-sb) to obj Asternitg"           11 tem pipe & doff Asternitg"           12 tem pipe at vested v-sb) to obj Asternitg"           12 tem pipe & doff Asternitg"           12 tem pipe at Vested v-sb) temperature: 150°C           12 tem pipe & doff Asternitg"           14 straight pipe at Tank B           150.0 FC c40.00.10.6           10 "-FH-7005-B01 & 2"-DR-3637-0F           2" DEG line (E-309)           DN100 gas line           Buried OIl Pipeline           16" OI Pipeline           16" OI Pipeline           12" polyduct line           36" Subsea Line           10" OI Pipeline           16" Gas Pipeline <td>Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Cack and External Defects External corrosion Crack and plastic deformation Several defects-holes and external corrosion Crack and plastic deformation Several defects-holes and external corrosion External corrosion External corrosion External corrosion Holes External corrosion Leak Internal corrosion Hole (Crack) External corrosion Hole(Crack)</td> <td>3X Distributor 3X Distributor</td>	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Cack and External Defects External corrosion Crack and plastic deformation Several defects-holes and external corrosion Crack and plastic deformation Several defects-holes and external corrosion External corrosion External corrosion External corrosion Holes External corrosion Leak Internal corrosion Hole (Crack) External corrosion Hole(Crack)	3X Distributor 3X Distributor
	June-20         Kazakhstan         KPO         Pipe reinforcement         50-341A-RG-021-2"-C11         Internal corrosion         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA NORWAY NORWAY INDIA Malaysia Malaysia Malaysia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAN REFINING COMPANY PETRONAS CAS BERHAD PETRONAS CAS BERHAD PETRONAS GAS BERHAD KPO KPO KPO KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Piping reinforcement Subsea Piping reinforcement - onshore Subsea Piping reinforcement - offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'ufm ar vessft v-s50 wob/ parcming feature : Arean Council - 14 1'teo pipe & 3' dome end at PE-1-5-400, PCPSB 1'teo pipe & 3' dome end at PE-1-5-400, PCPSB 2'DEG line (E-309) DN100 gas line Buried OI Pipeline 2'DEG line (E-309) DN100 gas line Buried OI Pipeline 1'te' polyduct line 3'SOUtese Line 1'teo pipe at F-102 location 8. 3'S' OI Pipeline 1'te' structure stree resonant Cn C F- 686 Reparation of holes on 3 topsite pipes-separation tank 50-210A-RG 039-6'-A10 30-2200-005-F-N4'-E04	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Internal corrosion External corrosion External corrosion Crack and plastic deformation several repairs (cracks, dents, ext corrosion) Profection 4 through wall defects External corrosion Leak and External Defects External corrosion Holes External corrosion Leak Internal corrosion Holes External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Holes External corrosion Holes External corrosion Internal corrosion Holes External corrosion Holes External corrosion Internal corrosion	3X Distributor 3X Distributor
		July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Malaysia Malaysia Malaysia NORWAY Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR KEPINING CUMPANT PELRONGS CHEMICALS POLYECTUM EAUE ENN BUD POLYECTUM EAUE ENN BUD POLYECTUM EAUE ENN BUD POLYECTUM EAUE ENN BUD KPO KPO IMP Promott d.o.O. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) HPCL PYGAS OPS HENGYUAN REFINING COMPANY BERHAD PERVIAS CHEMICALS PERVARS CHEMICALS PERVARS CHEMICALS PERVIANS CHEMICALS PERVARS CHEMIC	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement - onshore Subsea Ine Tank buried Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore Subsea FFSO SAXI Reducer-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK.           Area/Plant/Equipment : Utility/GPP-1, DPCU- 2201E(BB)           Nearest Equipment : CriotA Pipe : Manual Band           Defect : External Corrosion           Max Operating Temperature: 150°C           Area/Location/Plant : BT-2           "Uff or vest81 v-450 wobf \$katemits"           11 tempipe & down and the statement of the	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Crack and External Defects External corrosion Crack and plastic deformation Several defects-holes and external corrosion Crack and plastic deformation Several defects-holes and external corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Hole(Crack) External corrosion Hole(Crack) External corrosion Hole(Crack) External corrosion Holes+external corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor
	June-20 FRANCE TOTAL/GEOSEL Pipe reinforcement- onshore 20" oil line Internal / External corrosion 3X Monaco	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA NORWAY NORWAY NORWAY Malaysia Malaysia Malaysia NORWAY Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REFINING COMPANY PETRONAS CHEMBACK POLYCOUS ENE EDN BUD PETRONAS GAS BERHAD KPO KPO IMP Promot d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoi	Manual Band Elbow & Straight Pipe-Onshore Nozzie-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement - onshore Onshore Subsea Piping reinforcement - onshore Piping reinforcement - ofshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FFSO SAXI Reducer-Onshore Tee Pipe-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011E(B8) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 159°C Area/Location/Plant : BT-2 1'01/07 or vess® v-sbu cody Plantening 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 3' dome end at Pie-1-S-400, PCPSB 1'10 op lpe & 1'10 op lpe line Confidential 3200mm/internal repair/oll 1'10' Op lpeline Confidential 3200mm/internal repair/oll 1'10' Op lpeline 1'10' op lpeline 1'10	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Several repairs (cracks, dents, ext corrosion) Profection 4 through wal defects External corrosion Leak and External Defects External corrosion Crack and plastic deformation several defects-holes and external corrosion External corrosion Leak Dent Leak Internal corrosion Holes External corrosion Internal corosion Internal corrosion Internal corrosion Internal corrosi	3X Distributor
June-20 EDVICE I UTAL / GEOSEL Pipe reinforcement- onshore 20" oil line Internal / External corrosion 3X Monaco		July-20 July-2	Malaysia Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France France France Russia SAUDI ARABIA COLOMBIA NIGERIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REFINING COMPANY PETRONAS CHEMBACK POLYCOUS ENE EDN BUD PETRONAS GAS BERHAD KPO KPO IMP Promot d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoi	Manual Band Elbow & Straight Pipe-Onshore Nozzie-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement - onshore Subsea line Tark burled Onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pre: Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'utility oversity v-solution of plant 1'toe pipe & 3' dome end at PT-1-5-87/1 1'toe pipe & 3' dome end at PT-1-5-87/1 2' DEG line (E-309) DN100 gas line Buried OI Pipeline 10' -GPI Pipeline 10' -GPI Pipeline 10' Gas Pi	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Holes-external corrosion Internal corrosion Holes-external corrosion Internal corrosion Holes-external corrosion Internal corrosion Holes-external corrosion Internal cor	3X Distributor 3X Distributor
June-20         FRANCE         TOTAL / GEOSEL         Pipe reinforcement- onshore         20" oil line         Internal / External corrosion         3X Monaco           June-20         France         TOTAL         Onshore         Buried Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor	June-20 France TOTAL Onshore Buried Oil Pipeline several repairs (cracks, dents, ext corrosion) 3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NORWAY ANGOLA Malaysia Malaysia Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REPINING CUMPANY PETRONKS CHEMICALS PETRONKS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) HPCL PVGAS OPS HENGYUAN REFINING COMPANY PETRONAS CHEMICALS PERVINAS CHEMICALS DI VETIOL PARIA KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piper reinforcement - onshore Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FFSO SAXI Reducer-Onshore Tee Pipe-Pinshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee Pipe reinforcement Pipe re	1 locations at PGB-GPK.           Area/Plant/Equipment : Utility/GPP-1, DPCU- 2201E(BB)           Nearest Equipment : C-101A           Pipe : Manual Band           Defect : External Corrosion           Max Operating Temperature: 150°C           Area/Location/Plant : BT-2           "Unit or vessitiv -450 work / Starting"           11 tee pipe & 3" dome end at PE-1-R-400, PCPSB           11 tee pipe & 3" dome end at PE-1-R-400, PCPSB           12 teo pipe & 3" dome end at PE-1-R-400, PCPSB           13 teo pipe & 3" dome end at PE-1-R-400, PCPSB           150, OFC, 040, 01.06           50, OFC, 040, 01.06           50, OFC, 040, 01.06           10"-FH-7005-B01 & 2"-DR-3637-0F           2" DEG line (E-309)           DN100 gas line           Buried OIl Pipeline           48" Subsea OIl Pipeline           12" polyduct line           36" Oll Pipeline           12" polyduct line           36" Casing Subsea           36" Casing Subsea           36" Oll Pipeline           16" Gas Pipeline <t< td=""><td>Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Crack and External Defects External corrosion Crack and plastic deformation Several defects - holes and external corrosion External corrosion External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Hole(Crack) External corrosion Hole(Crack) External corrosion Internal corrosion Intern</td><td>3X Distributor 3X Distributor</td></t<>	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Crack and External Defects External corrosion Crack and plastic deformation Several defects - holes and external corrosion External corrosion External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Hole(Crack) External corrosion Hole(Crack) External corrosion Internal corrosion Intern	3X Distributor 3X Distributor
June-20         France         TOTAL         Onshore         Buried Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28" Gas Line         External         3X Distributor	June-20 Indonesia Transportasi Gas Indonesia Underground Pipeline 28' Gas Line External 3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA COLOMBIA NIGERIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan Kazakhstan Kazakhstan Kazakhstan FRANCE France Indonesia	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REFINING COMPANY PETRONAS CAS BERHAD PETRONAS CAS BERHAD PETRONAS GAS BERHAD KPO KPO KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) EQUIN	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Subsea Piping reinforcement - offshore Subsea Piping reinforcement - offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee Pipe-Onshore Tee Pipe-Onshore Pipe reinforcement Pip	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0:101A Pipe: Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'0/mt or vessft v-s50 wob/ pacenting 1'100 pipe & 3' dome end at PE-1-5-400, PCPSB 1'100 pipe at Te-1-5-87/11 Too. 1'100 pipe at Te-1-5-87/11 1'100 pipe at Te-1-5-87/11 2' DEG line (E-309) DN100 gas line Buried OI Pipeline 1'2' polyduct line 3200mm/internal repair/oil 1'100 Pipeline 1'2' polyduct line 36' OI Pipeline 1'2' polyduct line 36' OI Pipeline 1'10' pipe at Te-102 location 8. 36' OI Pipeline 1'1'1 Stradgrt, advoce to Tee pipe at F-102 location 8. Reparation of holes on 3 topite pipes-separation tark 50-210A-RG-039-6'-A10 30-2200-005-F-N4'-804 1'1-9V-0009-A04 60-562-VW-01 50-34 HA-RG-021-2'-C11 20' oi line Buried OI Pipeline	Internal corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion External corrosion Crack and plastic deformation External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Internal corrosion Internal corrosion Internal corrosion Holes External corrosion Internal corrosion External repairs (cracks, dents, ed corrosion External repairs (cracks, dents, ed corrosion External repairs (cracks, dents, ed corrosion) External corrosion External repairs (cracks, dents, ed corrosion) External corrosion External repairs (cracks, dents, ed corrosion) External corrosion External External corrosion External corrosion External External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External External corrosion External External External Corrosion External External E	3X Distributor 3X Distributor
June-20         France         TOTAL         Onshore         Buried Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28" Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16" pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor	June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28' Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16' pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR KEPINING COMPANY PETRONAS CAS BERHAD NOV SCTUAR CALL SPON POLYCTUAR CALL SPON KPO KPO KPO KPO MP Promott d.o.O. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) HPCL PYGAS OPS HENGYUAN REFINING COMPANY BERHAD PETRONAS CAMPANY BERHAD PETRONAS CAMPANY BERHAD PETRONAS CAMPANY KPO KPO KPO KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea Ine Tank buried Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FFSO SAXI Reducar-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee Pipe reinforcement Pipe	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011(EB) Nearest Equipment : Or101A PFB : Manual Band Defect : External Corrosion Max Operating Temperature: 15°C Area/Location/Plant : BT-2 'Unit or vessifi v-skit cody Fatching 'I teo pipe & cody metry and PFE-1-Story PCPSB 'I teo pipe & cody metry and PFE-1-Story 1 Tom 2- UPL tendent store at some 1 Tom 2- UPL tendent store at some 1 - 4° straight pipe at Tank B 150.0FC.040.01.06 50.IP.040.01.00 10°-FH-7005-B01 & 2'-DR-3637-0F Z' DEG line (E-309) DN100 gas line Burled Oil Pipeline 16° OI Pipeline 16° OI Pipeline 16° OI Pipeline 12° clyduct line 38° Subsea Dia 38° Casing Subsea 38° OI Pipeline 16° Gas Pipeline 16° Gas Pipeline 16° Cas Pipeline 10° Cas Casing Subsea 10° Cas Casing Subsea	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Crack and External Defects External corrosion Crack and plastic deformation External corrosion Holes External corrosion External corrosion External corrosion External corrosion External corrosion Holes External corrosion External corrosion External corrosion External corrosion Holes External corrosion Exte	3X Distributor 3X Distributor
June-20         France         TOTAL         Onshore         Burled Oil Ppeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           June-20         Indonesia         Transportasi Gas Indonesia         Underground Ppeline         28° Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16° pipeline         Subsea dentit MP 9.9.970         Subsea dentit MP 9.9.970         Subsea dentit MP 9.9.970         Subsea dentit MP 9.9.970         3X Distributor           June-20         CROATIA         Feromihind.o.o./Crodux plin d.o.         Pipe reinforcement - onshore         DN400 gas line         External corrosion         3X Distributor	June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28' Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16' pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor           June-20         CROATIA         Feromithind.o.o./Crodux plin d.o.o.         Pipe reinforcement - onshore         DN400 gas line         External corrosion         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REFINING COMPANY PETRONAS GAS BERHAD KPO KPO KPO IMP Promot d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ARAMCO BECOPETROL S.A ECOPETROL S.A ECOPETROL S.A ECOPETROL S.A ECOPETROL S.A PERVINAS CHEMICALS PERVINAS CHE	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore S	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(B8) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 159°C Area/Location/Plant : BT-2 1'01/01 or vessift v-sixt rody Fatching 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 1'S-1'S-1'S-1'S-1'S-1'S-1'S-1'S-1'S-1'S-	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion Several repairs (cracks, dents, ext corrosion) Leak and External Defects External corrosion Crack and plastic deformation several defects- holes and external corrosion Internal corrosion Holes External corrosion Holes External corrosion Holes External corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosio	3X Distributor
	June-20 France TOTAL Onshore Buried Oil Pinaline several repairs (pracke dante art corresion) 3V Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NORWAY ANGOLA Malaysia Malaysia Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REPINING CUMPANY PETRONKS CHEMICALS PETRONKS CHEMICALS PETRONAS GAS BERHAD KPO KPO KPO KPO KPO MP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) HPCL PVGAS OPS HENGYUAN REFINING COMPANY PETRONAS CHEMICALS PERVINAS CHEMICALS DI VETIOL PARIA KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piper reinforcement - onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FFSO SAXI Reducer-Onshore Tee Pipe-Pinshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee Pipe-Subsea Piping reinforcement Pipe reinforcement P	1 locations at PGB-GPK.           Area/Plant/Equipment : Utility/GPP-1, DPCU- 2201E(BB)           Nearest Equipment : C-101A           Pipe : Manual Band           Defect : External Corrosion           Max Operating Temperature: 150°C           Area/Location/Plant : BT-2           "Unit or vessitiv -450 work / Starting"           11 tee pipe & 3" dome end at PE-1-R-400, PCPSB           11 tee pipe & 3" dome end at PE-1-R-400, PCPSB           12 teo pipe & 3" dome end at PE-1-R-400, PCPSB           13 teo pipe & 3" dome end at PE-1-R-400, PCPSB           150, OFC, 040, 01.06           50, OFC, 040, 01.06           50, OFC, 040, 01.06           10"-FH-7005-B01 & 2"-DR-3637-0F           2" DEG line (E-309)           DN100 gas line           Buried OIl Pipeline           48" Subsea OIl Pipeline           12" polyduct line           36" Oll Pipeline           12" polyduct line           36" Casing Subsea           36" Casing Subsea           36" Oll Pipeline           16" Gas Pipeline <t< td=""><td>Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Crack and External Defects External corrosion Crack and plastic deformation Several defects - holes and external corrosion External corrosion External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Hole(Crack) External corrosion Hole(Crack) External corrosion Internal corrosion Intern</td><td>3X Distributor 3X Distributor</td></t<>	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Crack and External Defects External corrosion Crack and plastic deformation Several defects - holes and external corrosion External corrosion External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Hole(Crack) External corrosion Hole(Crack) External corrosion Internal corrosion Intern	3X Distributor 3X Distributor
June-20 France TOTAL Onshore Buried Oil Pipeline several repairs (cracks, dents, ext corrosion) 3X Distributor		July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REFINING COMPANY PETRONAS CAS BERHAD NPO YCTUAL ENE EDN BUD PETRONAS GAS BERHAD KPO KPO IMP Promot d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ARAMCO ARAMCO BECOPETROL S.A ECOPETROL S.A ECOPETROL S.A ECOPETROL S.A PERVIANS CHEMICALS PERVIANS CHEMICALS	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FFSO SAXI Reduzer-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore ToPSITE PIPES+TANKS Pipe reinforcement P	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2011E(B8) Nearest Equipment : 0-101A Pipe : Manual Bard Defect : External Corrosion Max Operating Temperature : 159°C Area/Location/Plant : BT-2 1'0167 ur vessft v-530 tody Plantening 1'100 pipe & 3' dome end at Pre-1'5-9°C 1'109 pipe at Pre-1'5-9°C 2' DEG line (E-309) DN100 gas line Buried OI Pipeline Confidential 3200mm/internal repair/oil 16' OI Pipeline 16' OI Pipeline 16' Gas P	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion Several repairs (cracks, dents, ext corrosion) External corrosion Crack and plastic deformation Several repairs External corrosion Holes External corrosion Holes External corrosion Holes External corrosion Internal Corrosi	3X Distributor 3X Distributor
June-20         France         TOTAL         Onshore         Buried Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28" Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16" pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor	June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28' Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16' pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CCROATIA France France Russia SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA SAUDI ARABIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAR REFINING COMPANY PETRONAS CAS BERHAD PETRONAS CAS BERHAD PETRONAS GAS BERHAD KPO KPO KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) EQUIN	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Onshore Subsea Ine Tank buried Onshore Subsea Piping reinforcement - onshore Subsea Piping reinforcement - onshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Tee Pipe reinforcement Pipe	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0:101A Pipe: Manual Band Defect : External Corrosion Max Operating Temperature : 150°C Area/Location/Plant : BT-2 1'0/mt or vessft v-s50 wob/ pacenting 1'100 pipe & 3' dome end at PE-1-5-400, PCPSB 1'100 pipe at Te-1-5-87/11 Too. 1'100 pipe at Te-1-5-87/11 1'100 pipe at Te-1-5-87/11 2' DEG line (E-309) DN100 gas line Buried OI Pipeline 1'2' polyduct line 3200mm/internal repair/oil 1'100 Pipeline 1'2' polyduct line 36' OI Pipeline 1'2' polyduct line 36' OI Pipeline 1'10' pipe at Te-102 location 8. 36' OI Pipeline 1'1'1 Stradgrt, advoce to Tee pipe at F-102 location 8. Reparation of holes on 3 topite pipes-separation tark 50-210A-RG-039-6'-A10 30-2200-005-F-N4'-804 1'1-9V-0009-A04 60-562-VW-01 50-34 HA-RG-021-2'-C11 20' oi line Buried OI Pipeline	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion External corrosion External corrosion External corrosion Holes External corrosion Holes External corrosion Internal corrosion Holes-external corrosion Internal corrosion Internal corrosion Holes corrosion Holes corrosion Internal corrosion External repairs (cracks, dents, ed corrosion External corrosion External repairs (cracks, dents, ed corrosion External corrosion Ex	3X Distributor 3X Distributor
June-20         France         TOTAL         Onshore         Burled Oil Ppeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           June-20         Indonesia         Transportasi Gas Indonesia         Underground Ppeline         28° Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16° pipeline         Subsea denti MP 9.9.970         Subsea denti MP 3.9.170         Subsea 1.9.	June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28' Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16' pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor           June-20         CROATIA         Feromithind.o.o./Crodux plin d.o.o.         Pipe reinforcement - onshore         DN400 gas line         External corrosion         3X Distributor	July-20 July-2	Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Kazakhstan	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD HENGTUAR REFINING COMPANY PETRONAS GAS BERHAD KPO KPO KPO IMP Promot d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ARAMCO ARAMCO ARAMCO ARAMCO BECOPETROL S.A ECOPETROL S.A ECOPETROL S.A ECOPETROL S.A ECOPETROL S.A PERVINAS CHEMICALS PERVINAS CHE	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement - onshore Subsea Piping reinforcement - ofshore Piping reinforcement - ofshore Subsea Offshore S	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(B8) Nearest Equipment : 0-101A Pipe : Manual Band Defect : External Corrosion Max Operating Temperature : 159°C Area/Location/Plant : BT-2 1'01/01 or vessift v-sixt rody Fatching 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 3' dome end at Pie-1-S-400, PCPSB 1'10 or pipe & 1'S-1'S-1'S-1'S-1'S-1'S-1'S-1'S-1'S-1'S-	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion Several repairs (cracks, dents, ext corrosion) Leak and External Defects External corrosion Crack and plastic deformation several defects- holes and external corrosion Internal corrosion Holes External corrosion Holes External corrosion Holes External corrosion Internal corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosio	3X Distributor
June-20         France         TOTAL         Onshore         Buried Oil Pipeline         several repairs (cracks, dents, ext corrosion)         3X Distributor           June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28' Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea - Reinforcement of 16' pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor           June-20         CROATIA         Ferominind.o.o./Crodux plin d.o.o.         Pipe reinforcement - onshore         DN400 gas line         External         3X Distributor	June-20         Indonesia         Transportasi Gas Indonesia         Underground Pipeline         28' Gas Line         External         3X Distributor           June-20         Vietnam         PV GAS         Subsea Reinforcement of 16' pipeline         Subsea dent KP 39.970         Subsea dent         3X Distributor           June-20         CROATIA         Feromihind.o.o./Crodux plin.d.o.         Pipe reinforcement - onshore         DN400 gas line         External corrosion         3X Distributor           June-20         Brazil         Naturgy (Gas Fenosa)         Pipe reinforcement - ONSHORE         4 repairs in 6' gas line         External corrosion         3X Distributor <td>July-20 July-2</td> <td>Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA COLOMBIA NIGERIA NIGERIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Malaysia Malay</td> <td>PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAN REFINING COMPANY PETRONÁS CABERNA PETRONÁS CABERNA PETRONÁS CABERNA PETRONÁS CABERNA PETRONÁS CABERNA KPO KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) BERHAD PETRONAS CHEMICALS PERVÁNSIS FAMICALS PERVÁNSIS FAMICALS KPO KPO KPO KPO KPO KPO KPO KPO</td> <td>Manual Band Elbow &amp; Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight &amp; Tee Pipe-Onshore Straight &amp; Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement Subsea Piping reinforcement - onshore Subsea Piping reinforcement - offshore Subsea Piping reinforcement - offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Tee Pipe-Onshore Tee Pipe-Onshore Straight &amp; Tee Pipe-Onshore Pipe reinforcement Pipe</td> <td>1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe: Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 1'01/07 volsel/volsel/Second/Plant : BT-2 2' DEG line (E-309) DN100 gas line Buried OI Pipeline 2'DEG line (E-309) DN100 gas line Buried OI Pipeline 12' polyduct line 3200mm/internal repai/toil 16'O I Pipeline 12' polyduct line 36' OLI Pipeline 12' polyduct line 36' OLI Pipeline 16' Gas Pipeline 16' Gas Pipeline 16' Gas Pipeline 193 1: X-4714-501000 Sap Breson Moranaton. 193 1: X-57140; Second X tes pipe at PC-1-V-304 60-652/VV-01 50-34/1A-RG-021-2'-C11 20' oil line DN400 gas line 4 'repairs in 6' gas line 4 'repairs in 6' gas line 4 'repairs in 6' gas line</td> <td>Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion Holes External corrosion Holes:external corrosion Holes:external corrosion Holes:external corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External</td> <td>3X Distributor 3X Distributor</td>	July-20 July-2	Malaysia Malaysia Malaysia Malaysia Kazakhstan Kazakhstan Kazakhstan Kazakhstan CROATIA France France Russia SAUDI ARABIA COLOMBIA NIGERIA NIGERIA NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY NORWAY Malaysia Malay	PETRONAS GAS BERHAD PETRONAS PENAPISAN (TERENGGANU) SDN BHD THENGTUAN REFINING COMPANY PETRONÁS CABERNA PETRONÁS CABERNA PETRONÁS CABERNA PETRONÁS CABERNA PETRONÁS CABERNA KPO KPO KPO KPO KPO IMP Promont d.o.o. TOTAL NAVAL GROUP / Marine Nationale GASPROM Neft ARAMCO ECOPETROL S.A EXXON MOBIL EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) EQUINOR (Statoil) BERHAD PETRONAS CHEMICALS PERVÁNSIS FAMICALS PERVÁNSIS FAMICALS KPO KPO KPO KPO KPO KPO KPO KPO	Manual Band Elbow & Straight Pipe-Onshore Nozzle-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement Subsea Piping reinforcement - onshore Subsea Piping reinforcement - offshore Subsea Piping reinforcement - offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea Offshore Subsea FPSO SAXI Reducer-Onshore Tee Pipe-Onshore Tee Pipe-Onshore Straight & Tee Pipe-Onshore Pipe reinforcement Pipe	1 locations at PGB-GPK. Area/Plant/Equipment : Utility/GPP-1, DPCU- 2901E(BB) Nearest Equipment : 0-101A Pipe: Manual Band Defect : External Corrosion Max Operating Temperature: 150°C Area/Location/Plant : BT-2 1'01/07 volsel/volsel/Second/Plant : BT-2 2' DEG line (E-309) DN100 gas line Buried OI Pipeline 2'DEG line (E-309) DN100 gas line Buried OI Pipeline 12' polyduct line 3200mm/internal repai/toil 16'O I Pipeline 12' polyduct line 36' OLI Pipeline 12' polyduct line 36' OLI Pipeline 16' Gas Pipeline 16' Gas Pipeline 16' Gas Pipeline 193 1: X-4714-501000 Sap Breson Moranaton. 193 1: X-57140; Second X tes pipe at PC-1-V-304 60-652/VV-01 50-34/1A-RG-021-2'-C11 20' oil line DN400 gas line 4 'repairs in 6' gas line 4 'repairs in 6' gas line 4 'repairs in 6' gas line	Internal corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion Crack and plastic deformation External corrosion Holes External corrosion Holes:external corrosion Holes:external corrosion Holes:external corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External	3X Distributor 3X Distributor

June-20 June-20	COLOMBIA	ECOPETROL S.A SHELL BGC	Piping reinforcement - onshore Onshore	16" hydrocarbon line Nozzle	External corrosion Leak	3X Distributor 3X Distributor
May-20	Malaysia	PETRONAS CHEMICALS	Elbow & Straight Pipe-Onshore	1" Elbow,1" Straight pipe & 3" Dome end at PCPSB	External corrosion	3X Distributor
May-20	Malaysia	POLYETHYLENE SDN BHD PETRONAS CHEMICALS MTBE	Elbow-Onshore	plant. 3/4" Elbow at PCMTBE.	External corrosion	3X Distributor
May-20	Malaysia	SDN BHD PETRONAS CHEMICALS POLYETHYLENE SDN BHD	Elbow & Straight Pipe-Onshore	2" Straight & Elbow pipe at IBL Area 4, PCESB.	External corrosion	3X Distributor
May-20	Malavsia	PETRONAS CHEMICALS	Elbow & Straight Pipe-Onshore	2" & 4" Pipe for PARETO A1 (Phase 4) at PCESB.	External corrosion	3X Distributor
May-20	Malaysia	HENGTUAN REFINING COMPANY	Nozzle Pipe-Onshore	Location: C-156, Location 210 (remaining wall	Internal corrosion	3X Distributor
May-20	Malaysia		Elbow, Straight & Tee-Onshore	Tag 1: 3/4 <sup>th</sup> Silfaight Bipe at SiLENCER.	External corrosion	3X Distributor
May-20	Kazakhstan	KPO KPO	Pipe reinforcement	50-364A-FL-011-3/4"-A11	Weld defect	3X Distributor
May-20 May-20	Kazakhstan Kazakhstan	KPO	Pipe reinforcement Pipe reinforcement	50-364B-RG-016-20"-C11 (1" branch) 6" DH-5021-F.I	Internal corrosion	3X Distributor 3X Distributor
May-20 May-20	Kazakhstan	KPO	Pipe reinforcement	60-0000-GY-034-8"-A13	Internal corrosion	3X Distributor
May-20	Kazakhstan	KPO	Pipe reinforcement	50-210D-RG-011-8"-A11	Internal corrosion	3X Distributor
May-20	COLOMBIA	ECOPETROL S.A	Piping reinforcement - onshore	10" polyduct line	External corrosion	3X Distributor
May-20 May-20	COLOMBIA	ECOPETROL S.A ECOPETROL S.A	Piping reinforcement - onshore Piping reinforcement - onshore	10" polyduct line 20" water suction line	Internal corrosion External corrosion	3X Distributor 3X Distributor
May-20	France	TOTAL	Onshore	Buried Oil Pipeline	several repairs (cracks, dents, ext corrosion)	3X Distributor
May-20	COLOMBIA	PERENCO OIL AND GAS	Piping reinforcement - onshore	3,5" blast Joint	Internal corrosion	3X Distributor
April-20	Malaysia	PETRONAS CHEMICALS POLYETHYLENE (M) SDN BHD PETRONAS CHEMICALS	Elbow, Straight & Tee-Onshore	1", 2", 3/4" pipe at PCPSB plant	Internal corrosion	3X Distributor
April-20 April-20	Malaysia Malaysia	ETHYLENE SDN BHD HENGYUAN REFINING COMPANY	Elbow, Straight & Tee-Onshore Elbow-Onshore	1",1/2"3/4" & 4" pipe at PCESB plant. 4 unit 4" elbow at V-7101, LRCC Plant.	Internal corrosion	3X Distributor 3X Distributor
April-20	Malaysia	BERHAD HENGYUAN REFINING COMPANY	Nozzle-Onshore & Tee-Onshore	C-104 at CD 1, HRC PD Plant	Internal corrosion	3X Distributor
April-20 April-20	Malaysia	PETRONAS CARIGALI SDN BHD	Straight Pipe-Onshore	2" Straight pipe at PCSB, Bekok C Platform.	External corrosion	3X Distributor
April-20	Malaysia	PETRONAS CHEMICALS	Elbow & Straight Pipe-Onshore	2",1",3/4" Straight & Elbow pipe at PCESB plant.	External corrosion	3X Distributor
April-20	Kazakhstan	KPO	Pipe reinforcement	50-364A/B/C-FL-010-3/4"-C11	Weld defect	3X Distributor
April-20	France	ELENGY	Tank leak sealing	24" online leak sealing and reinforcement	leak	3X Monaco
April-20 Apr-20	France Vietnam	ELENGY HLHV	Tank leak sealing Offshore - Flange reinforcement	6" online leak selaing and reinforcement Riser No1 to no 12 (12 flange)	leak External corrosion	3X Monaco 3X Distributor
Apr-20	Vietnam	HLHV	Offshore - Clamp reinforcement	Riser No1 to no 12 (12 rlange) Riser No1 to no 12 (12 clamp)	External corrosion	3X Distributor
Apr-20	Vietnam	HLHV	Offshore - Conductor coating	No 3 to No 6 (6 conductor, 2 part)	External corrosion	3X Distributor
April-20	COLOMBIA	OCENSA. Central Pipeline S.A	Piping reinforcement - onshore	36" pipeline	External loads	3X Distributor
April-20	QATAR	QP	SUBSEA	48" Subsea Oil Pipeline	Double Dent	3X Distributor/3X Monaco
March-20	Malaysia	PETRONAS CHEMICALS	Straight Pipe-Onshore	3-AL-34004-31070 (V-34-03), NOZZLE N4 3" Straight	Internal corrosion	3X Distributor
March-20	Malaysia	FERTILISER (KEDAH) SDN BHD PETRONAS CHEMICALS	Straight & Elbow Pipe-Onshore	Pipe. Tag 1: 1/2" Tee Pipe at UT-0-1-603,OBL Area 4	External corrosion	3X Distributor
March-20	Malaysia	MALAYSIAN REFINING COMPANY	Tee-Onshore	2 locations, /sin tee pipe c/w surface	External corrosion	3X Distributor
March-20	Malaysia	HENGTUAN REFINING COMPANT	Elbow-Onshore	4 unit 4 elbow at E-1/3FT (19730F4307	Internal corrosion	3X Distributor
March-20	Kazakhstan	KPO	Pipe reinforcement	5-362A/B/C-RG-002-16"-B11	Internal corrosion	3X Distributor
March-20 March-20	Indonesia Switzerland	Perusahaan Gas Negara HYDRO EXPLOITATION	Underground Pipeline Piping reinforcement- onshore	24" Gas Line 14" Water line	External Internal corrosion	3X Distributor 3X Monaco
March-20 March-20	COLOMBIA	PERENCO OIL AND GAS	Piping reinforcement - onshore	6" pipeline	External corrosion	3X Distributor
March-20	COLOMBIA	PERENCO COLOMBIA LIMITED	Piping reinforcement - onshore	4" pipeline - 4 defects	External corrosion	3X Distributor
March-20	COLOMBIA	PERENCO COLOMBIA LIMITED	Piping reinforcement - onshore	8 y 4" pipeline - 2 defects	External corrosion	3X Distributor
March-20 March-20	COLOMBIA COLOMBIA	PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED	Piping reinforcement - onshore Rining reinforcement - onshore	8" pipeline - 3 defects	External corrosion	3X Distributor
March-20 March-20	COLOMBIA COLOMBIA	PERENCO COLOMBIA LIMITED	Piping reinforcement - onshore Piping reinforcement - onshore	4" pipeline - 2 defects 6 y 3" pipeline	External corrosion External corrosion	3X Distributor 3X Distributor
March-20	COLOMBIA	OCENSA. Central Pipeline S.A	Piping reinforcement - onshore	36" pipeline	External loads	3X Distributor
March-20	COLOMBIA	OCENSA. Central Pipeline S.A	Piping reinforcement - onshore	30* pipeline	External loads	3X Distributor
March-20	COLOMBIA	ECOPETROL	Elbow Piping reinforcement - onshore	16" line	External corrosion	3X Distributor
March-20	COLOMBIA	PERENCO COLOMBIA LIMITED	Piping reinforcement - onshore	6" pipeline - 3 defects	External corrosion	3X Distributor
March-20	France	TOTAL	Onshore	Buried Oil Pipeline	several repairs (cracks, dents, ext corrosion)	3X Distributor
March-20	COLOMBIA	PERENCO COLOMBIA LIMITED	Piping reinforcement - onshore	8 y 6" pipeline 1. 80-P-G1-6A 4" 1 66 Pipe (P2Y) WELL A-28 Internal	External corrosion	3X Distributor
Feb-20 Feb-20	Malaysia	PETRONAS CARIGALI SDN BHD	Tee Pipe-Onshore	1. P-1-AUA-60-60421-ET-Loc 1 1" Straight	Internal corrosion Internal corrosion	3X Distributor
Feb-20	Malaysia	PETRONAS CHEMICALS MTBE				3X Distributor
	Malaysia Kazakhstan	PETRONAS CHEMICALS MTBE	Straight Pipe-Onshore Pipe reinforcement	2 EH 1 AOA 61 60421 ET Los 1 4" Straight 50-210 AB-PO-067/063-10"-A13	Internal corrosion	3X Distributor 3X Distributor
Feb-20		PETRONAS CHEMICALS MTBE CON DUD KPO KPO	Straight Pipe-Onshore	2 EU 1 AOA 61 60424 ET Los 1 4" Straight 50-210 AB-PO-067/063-10"-A13 60-0000-DW-084-2"-A37		3X Distributor 3X Distributor
Feb-20 Feb-20	Kazakhstan Kazakhstan France	KPO CFT GAZ	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing	2 EU 4 AOA 64 60434 ET Loc 4 4" Streight 50-210 AB-PO-067/06310"-A13 60-0000-DW-084-2"-A37 Emergency gas online teak sealing in nazaroous	Internal corrosion Internal corrosion several Leaks	3X Distributor 3X Distributor 3X Monaco
Feb-20 Feb-20 Feb-20	Kazakhstan Kazakhstan France COLOMBIA	PETRONAS CHEMICALS MIBE SPA DUD KPO KPO CFT GAZ GROUP STORK - MASA STORK	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing smal weld buildup piping reinforcement - ons	2 EU 4 AOA 62 FORAL ET Los 41° Charleb 50-210 AB-PO-067/063-10"-A13 60-0000-DW-084-2"-A37 Emergency gas online leak sealing in hazaroous conditional and a sealing in hazaroous and the sealing and a	Internal corrosion Internal corrosion several Leaks External corrosion	3X Distributor 3X Distributor 3X Monaco 3X Distributor
Feb-20 Feb-20	Kazakhstan Kazakhstan France	KPO CFT GAZ	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing	2 EU 4 AOA 64 60434 ET Loc 4 4" Streight 50-210 AB-PO-067/06310"-A13 60-0000-DW-084-2"-A37 Emergency gas online teak sealing in nazaroous	Internal corrosion Internal corrosion several Leaks	3X Distributor 3X Distributor 3X Monaco
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS UHEMICALS MIBE KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rmal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore	2         EU LADA 61 600/11 ET Los 41* Stabul           50-210 AB-PO-670/63-01*-A13         60-0000-DW-084-2*-A37           Emergency gas onnie teak sealing in nazaroous         500/000-DW-084-2*-A37           Emergency gas	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rnal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore	P EVEX.004.PC-067005-10°-A13           60-2000-DW-084-2°-A37           Emergency gas omme was searing in hazardous           80-0000-DW-084-2°-A37           Emergency gas omme was searing in hazardous           80'-polyduct line           12.° Pipeline           10.° aqueduct           6' pipeline           4' pipeline	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA France	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore	PLI AND AL AND AT LOS 4.7 Events     50-210 AB-PO-GR08A-10°-A13     60-0000-DW-084-2°-A37     Emergency gas onner teas seams in nazaroous     8° polyduct line     12 ' Ppeline     10 '' aqueduct     6° pipeline     4° pipeline     20'' Buried Oil Pipeline	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects 100 repairs (cracks, dents, ext corrosion)	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rnal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore	P EVEX.004.PC-067005-10°-A13           60-2000-DW-084-2°-A37           Emergency gas omme was searing in hazardous           80-0000-DW-084-2°-A37           Emergency gas omme was searing in hazardous           80'-polyduct line           12.° Pipeline           10.° aqueduct           6' pipeline           4' pipeline	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OIL AND GAS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing smal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Offshore Toppide Bend Piping reinforcement - onshore Piping reinforcement - onshore	PLI A DA EL BRAT ET Les Les Yestebel     So-210 DA EPO-GRIVAS-10°-A13     E0-0000-DW-094.2°-A37     Emergency gas onner eax stants en hazaroous         al polyduct line         12 ' Pipeline         10 '' aqueduct         6' pipeline         20'' Buried Oil Pipeline         20'' Buried Oil Pipeline         Piping Repair         6' polyduct line         12 '' aqueduct line	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OLI AND GAS PERENCO OLI AND GAS PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OLI AND GAS PERENCO OLI AND GAS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rmal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore	P. H.L. ADA. EL. BORTA ET. Los L. I.º. Subatilitation           50-210 AB-PO-6070-83-10°-A13           60-0000-DW-094-2°-A37           Emergency gas omme lease samang en hazardous           additional additexted additexted additional additional additionadditexted addit	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Noraco 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OIL AND GAS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing smal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Offshore Toppide Bend Piping reinforcement - onshore Piping reinforcement - onshore	PLI A DA EL BRAT ET Les Les Yestebel     So-210 DA EPO-GRIVAS-10°-A13     E0-0000-DW-094.2°-A37     Emergency gas onner eax stants en hazaroous         al polyduct line         12 ' Pipeline         10 '' aqueduct         6' pipeline         20'' Buried Oil Pipeline         20'' Buried Oil Pipeline         Piping Repair         6' polyduct line         12 '' aqueduct line	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20 Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irrnal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore	PLI AND AL ROLLET Les Les Yearbails     So-210 AB-PO-GR/03-10°-A13     GO-0000-DW-084-2°-A37     Emergency gas omme new seeming in hazardous     actions     B' polyduct Ine     12 ° Pipeline     10 ° aqueduct     6' pipeline     Piping Repair     6' polyduct Ine     12 ° aqueduct     6' pipeline     12 ° pipeline     12 ° pipeline     13 ° apueduct     6' pipeline     13 ° apueduct Ine     13 ° apueduct Ine     13 ° apueduct Ine     13 ° pipeline     14 ° pipeline     15 ° pipeline     15 ° pipeline     16 ° pipeline     16 ° pipeline     16 ° pipeline     17 ° apueduct Ine     18 ° apueduct     6° pipeline     18 ° pipeline     18 ° pipeline     19 ° pipeline     19 ° pipeline     10 ° apueduct     10 ° pipeline	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects 100 repairs (cracks, dents, ext corrosion) External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Noraco 3X Noraco 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO COLOMBIA LIMITED OCENSA. Central Pipeline S.A OPS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing smal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Ofishore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore	P. H.L. ADA EL GORALET LISE LET Subject         50-210 AB-PO-GR/053-10°-A13         60-0000-DW-084-2°-A37         Emergency gas omme least seeining in Nazardous         60-0000-DW-084-2°-A37         Emergency gas omme least seeining in Nazardous         610 'a queduct line         10 'a queduct         6' pipeline         20' Buried OI Pipeline         Piping Repair         6' pipeline         36' pipeline         36' pipeline         36' pipeline         36' pipeline	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-20           Jan-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irrnal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore	PLI AND AL ROLLET Les Les Yearbails     So-210 AB-PO-GR/03-10°-A13     GO-0000-DW-084-2°-A37     Emergency gas omme new seeming in hazardous     actions     B' polyduct Ine     12 ° Pipeline     10 ° aqueduct     6' pipeline     Piping Repair     6' polyduct Ine     12 ° aqueduct     6' pipeline     12 ° pipeline     12 ° pipeline     13 ° apueduct     6' pipeline     13 ° apueduct Ine     13 ° apueduct Ine     13 ° apueduct Ine     13 ° pipeline     14 ° pipeline     15 ° pipeline     15 ° pipeline     16 ° pipeline     16 ° pipeline     16 ° pipeline     17 ° apueduct Ine     18 ° apueduct     6° pipeline     18 ° pipeline     18 ° pipeline     19 ° pipeline     19 ° pipeline     10 ° apueduct     10 ° pipeline	Internal corrosion Internal corrosion several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects 100 repairs (cracks, dents, ext corrosion) External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Noraco 3X Noraco 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PERENCO COLOMBIA LIMITED OCENSA. CONDIA JANG AS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED OCENSA. Central Pipeline S.A OPS SHELL BGC	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rmal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore	PLI A AG AL BOYL ET Les Le TRUBAN 50-210 AB-PO-GR/03-10-A13 60-0000-DW-084-2-A37 Emergency gas omme was seeing an nazardous sections B' polyduct line 12 " Pipeline 10" aqueduct 6" pipeline 20" Burled OI Pipeline Piping Repair 6" pipeline 36" pipeline 36" pipeline 36" pipeline 36" Column 2019 2019 2019	Internal corrosion Internal corrosion Several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OL AND GAS PERENCO OL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OL AND GAS PERENCO OL AND GAS PERENCO OL AND GAS OPS SHELL BGC	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinfo	P. H. 4 AG & E. BORZI ET. Les L. 4: Buckat.           50-210 AB-PO-6070-83-10°-A13         60-0000-000-084-2°-A37           Emergency gas comme was seeining in nazardous         80-0000-000-084-2°-A37           Emergency gas comme was seeining in nazardous         80-000-000-084-2°-A37           Emergency gas comme was seeining in nazardous         80-000-084-084-084-084-084-084-084-084-0	Internal corrosion Internal corrosion Several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion Internal corrosion Leak Several Leaks Internal corrosion & Leak	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS SHELL BGC OPS SHELL BGC	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irrail weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside	PLI A AG AL BOYL FT. Les Les Buddet     So-210 AB-PO-667063-10°-A13     60-0000-0W-084-2°-A37     Emergency gas comme was seeining in hazardous     around the automation of the application of the ap	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 2 defects External corrosion - 2 defects I00 repairs (cracks, dents, ext corrosion) External corrosion Internal corrosion Leak Several Leaks Internal corrosion & Leak Internal corrosion & Leak	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA C	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OL AND GAS PERENCO OL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO OL AND GAS PERENCO COLOMBIA LIMITED OCENSA. Central Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside	P. H. 4 AG & E. BORZI ET. Les. 4: # Subject           50-210 AB-PO-66703-10"-A13           60-0000-DW-084-2"-A37           Emergency gas comme was seeining in nazardous           8" polyduct line           12" Pipeline           0" aqueduct           6" pipeline           4" pipeline           20" Burled OI Pipeline           Piping Repair           6" pipeline           12" aqueduct           6" pipeline           12" aqueduct           6" pipeline           20" Burled OI Pipeline           12" aqueduct           6" pipeline           12" aqueduct           6" pipeline           36" pipeline           36" pipeline           36" pipeline           36" pipeline           36" pipeline           30" Colum           20 OD1 0           34"-FS-21204-B51           16" ODP-AMQ RISER LINE           16" ODP-AMQ RISER LINE	Internal corrosion Internal corrosion Several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion Internal corrosion External corrosion & Leak Internal corrosion & Leak External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA. Contral Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing Irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside	P. H. 4 AG & E. BORAT ET. Les. 4 : # Subject           50-210 AB-PO-66703-10"-A13           60-0000-0W-084-2"-A37           Emergency gas domine lease seeing in hazardous           8' polyduct line           12 " Pipeline           6' pipeline           4" pipeline           20" Burled OI Pipeline           Piping Repair           6' polyduct line           12 " aqueduct           6' polyduct line           12 " aqueduct           6' polyduct line           12 " aqueduct           6' pipeline           36' pipeline           36' pipeline           36' pipeline           36' pipeline           36' pipeline           37' Colum           20 Of Dapressurization Line (2'-FS-21204-B51)           34'-FS-21204-B51           16' ODP-AMQ RISER LINE IPN-SH-103-15-D511           24'ODP FSO EXPORT LINE IPN-SH-103-10-B511	Internal corrosion Internal corrosion Several Leaks External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA C	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OL AND GAS PERENCO OL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO OL AND GAS PERENCO COLOMBIA LIMITED OCENSA. Central Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside	P. H. 4 AG & E. BORZI ET. Les. 4: # Subject           50-210 AB-PO-66703-10"-A13           60-0000-DW-084-2"-A37           Emergency gas comme was seeining in nazardous           8" polyduct line           12" Pipeline           0" aqueduct           6" pipeline           4" pipeline           20" Burled OI Pipeline           Piping Repair           6" pipeline           12" aqueduct           6" pipeline           12" aqueduct           6" pipeline           20" Burled OI Pipeline           12" aqueduct           6" pipeline           12" aqueduct           6" pipeline           36" pipeline           36" pipeline           36" pipeline           36" pipeline           36" pipeline           30" Colum           20 OD1 0           34"-FS-21204-B51           16" ODP-AMQ RISER LINE           16" ODP-AMQ RISER LINE	Internal corrosion Internal corrosion Several Leaks External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion Internal corrosion External corrosion & Leak Internal corrosion & Leak External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA. Contral Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing Irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside	P. H. 4 AG & E. BORAT ET. Les. 4 : # Subject           50-210 AB-PO-66703-10"-A13           60-0000-0W-084-2"-A37           Emergency gas domine lease seeing in hazardous           8' polyduct line           12 " Pipeline           6' pipeline           4" pipeline           20" Burled OI Pipeline           Piping Repair           6' polyduct line           12 " aqueduct           6' polyduct line           12 " aqueduct           6' polyduct line           12 " aqueduct           6' pipeline           36' pipeline           36' pipeline           36' pipeline           36' pipeline           36' pipeline           37' Colum           20 Of Dapressurization Line (2'-FS-21204-B51)           34'-FS-21204-B51           16' ODP-AMQ RISER LINE IPN-SH-103-15-D511           24'ODP FSO EXPORT LINE IPN-SH-103-10-B511	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion & Leak Internal corrosion & Leak External corrosion Extern	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-21           Jan-20           Jan-21           Jan-20           Jan-21           Jan-21           Jan-22           Jan-21           Jan-22           Jan-20           Jan-21           Jan-22           Jan-20           Jan-21           December-19           December-19           December-19           December-19	Kazakhstan Kazakhstan France COLOMBIA BIA SCOLOMBIA BIA SCOLOMBIA COLOMBIA COLOMBIA COLOMBIA BIA SCOLOMBI	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OL AND GAS PERENCO OL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PERENCO OL AND GAS PERENCO OL AND GAS PERENCO OL AND GAS PERENCO OL AND GAS PERENCO COLOMBIA LIMITED OCENSA. Central Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa)	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Above ground pipeline Pipe reinforcement - ONSHORE	P. H. 4 AG & E. BORT ET. Les. 4 :: Research           50-210 AB-PO-6070-83-10°-A13           60-0000-0W-084-2°-A37           Emergency gas comme was seeining in nazardous           8° polyduct line           12° Pipeline           0° aqueduct           6° pipeline           4° pipeline           20° Burled OI Pipeline           Piping Repair           6° pipeline           6° pipeline           12° aqueduct           6° pipeline           12° aqueduct           6° pipeline           36° pipeline           20° Burled OI Pipeline           6° pipeline           36° pipeline           30° Colum           20 ODD Depressurization Line (2°-FS-21204-B51)           34'-FS-21204-B51           16° ODP-AMQ RISER LINE IPN-SH-103-15-D511           24'ODP FSO EXPORT LINE IPN-SH-103-10-B511           16° Gas Line           6' gas line	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects External corrosion - 2 defects I00 repairs (cracks, dents, ext corrosion) External corrosion & Leak Internal corrosion & Leak Internal corrosion External corrosion External corrosion External corrosion External corrosion Corrosion External corrosion Exter	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           December-19           December-19           December-19           December-19           December-19           December-19	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COL	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS NHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rinal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinfo	P. H. 4 AG 41 end/1 ET Les 1 4* Budakt           50/210 AB-PO-60703-10*A13           60-0000-0W-084-2*A37           Emergency gas comme was seeining in nazardous           8* polyduct line           12* Pipeline           0° aqueduct           6* pipeline           20* Burled OI Pipeline           Piping Repair           6* pipeline           12* aqueduct           6* pipeline           20* Burled OI Pipeline           Piping Repair           6* pipeline           36* pipeline           36* pipeline           20* Burled OI Pipeline           9           6* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           30* Colum           20 ODD 10           34*-FS-21204-B511           16* ODP-AMQ RISER LINE IPN-SH-103-15-D511           24* ODP FSO EXPORT LINE IPN-SH-103-10-B511           16* Gas Line	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion & Leak Internal corrosion & Leak External corrosion Extern	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           December-19           December-19           December-19           December-19           Decenber-19           Dec-19           Dec-19	Kazakhstan Kazakhstan France COLOMBIA C	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA CONSTANTE OPS SHELL BGC OPS SHELL BGC TOTAL CONSHORE	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing Irrail weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement Nozzle	- PLI A AG AL BOYL ET Les Li * Businest           50-210 AB-PO-GR/03-10*A13           60-0000-DW-084-2*A37           Emergency gis omme leas sening in Nazardous           80-0000-DW-084-2*A37           Emergency gis omme leas sening in Nazardous           6° polydiuct line           10° a queduct           6° polydiuct line           12° aqueduct           6° pipeline           30° Dyduct line           12° aqueduct           6° pipeline           30° Colum           20'DED           20'OFD 1 Depressurization Line (2°-FS-21204-B51)           34'-FS-21204-B51           16' ODP-AMQ RISER LINE IPN-SH-103-10-B511           21'ODP FSO EXPORT LINE IPN-SH-103-10-B511           16' Gas Line           6' gas line           7'meyter Tank with 2 leaks           2' Nazzle 20 location Das Island           20' Elipsold DI-MsHed Head	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 2 defects External corrosion - 2 defects I00 repairs (cracks, dents, ext corrosion) External corrosion External Ex	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           December-19           December-19           December-19           December-19           Decenber-19           Dec-19	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA COL	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS NHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement	- PLI + AG & E. BORT ET. Les. 4 : # Subset           50:210 AB-PO-60708:310*A13           60-0000-0W-084:2*A37           Emergency gas omme was seeining in nazardous           80:2000 - 0W-084:2*A37           Emergency gas omme was seeining in nazardous           80:2000 - 0W-084:2*A37           Emergency gas omme was seeining in nazardous           80:2000 - 0W-084:2*A37           Emergency gas omme was seeining in nazardous           80:2000 - 0W-084:2*A37           Emergency gas omme was seeining in nazardous           80:2000 - 0W-084:2*A37           Emergency gas omme was seeining in nazardous           6" pipeline           4" pipeline           10" aqueduct           6" pipeline           10" aqueduct           6" pipeline           36" pipeline           30" Colum           20 Oct10 9           2" OFD 1 Depressurization Line (2"-FS-21204-B511           36" ODP-AMQ RISER LINE IPN-SH-103-10-B511           16" ODP-AMQ RISER LINE IPN-SH-103-10-B511           16" Gas Line           6" gas line	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects External corrosion - 3 defects I00 repairs (crack, dents, ext corrosion) External corrosion External Ketmal corrosion External Corrosion External External External Corrosion External External Corrosion External Corrosion External Corrosion External External Corrosion External Corrosion External External Corrosion External External External External External External	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           December-19           December-19           Dec-19           Dec-19           Dec-19           November-19	Kazakhstan Kazakhstan France COLOMBIA C	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PERENCO COLOMBIA LIMITED OCENSA COLOMBIA LIMITED	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement Nozzle Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement	- PLI + AGA EL BORAT ET Les Li * Burbast           50/210 AB-PO-GR/03-10*A13           60-0000-0W-084-2*A37           Emergency gas omme pass seeing an nazardous           activation           12 * Ppeline           12 * Ppeline           6' polyduct line           20* Buried OI Ppeline           4'' pipeline           20* Buried OI Ppeline           Piping Repair           6'' pipeline           12 * aqueduct           6'' pipeline           12 * aqueduct           6'' pipeline           12 * aqueduct           6'' pipeline           38'' pipeline           39'' Court           2'' OFD 1 Depressurization Line (2''FS-21204-B51)           16'' ODP FSO EXPORT LINE [PN-SH-103-15-D511           16'' Gas line           6'' gas line           7''merter Tank with 2 leaks           2'' Nozzle 20 Location Das Island           20' Elipsoidal Dished Head           50-210 AB-PO-46/7063-10''-A13	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion E	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           Jan-21           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           Jan-20           December-19           December-19           Dece-19           Dec-19           Dec-19           Dec-19           November-19           October-19	Kazakhstan Kazakhstan France COLOMBIA C	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO OIL AND GAS SHELL BGC OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING ADNOC C NG ADNOC CNSHORE KPO	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement Pipe reinforcement Pipe reinforcement	- PLI + AGA EL BORZI ET Les Les Busidad           50/210 AB-PO-607/08/3-10*/413           60-0000-0W-084-2*-A37           Emergency gas comme was seeining in hazardous           8* polyduct line           12* Pipeline           10* aqueduct           6* pipeline           4* pipeline           20* Burled OI Pipeline           Piping Repair           6* pipeline           6* pipeline           20* Burled OI Pipeline           Piping Repair           6* pipeline           6* pipeline           36* pipeline           20* Burled OI Pipeline           9           6* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           37* Colum           20 Octato S           20* OFD 1 Depressurization Line (2* FS-21204-B51)           34* FS-21204-B51           36* OPAMQ RISER LINE IPN-SH-103-15-D511           24* ODP FSO EXPORT LINE IPN-SH-103-16-D511           16* Gas Line           6* gas line           7* meyter Tank with 2 leaks           2* Norder 2* 20 location Das Istand           20* Eliposidal Dished He	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects External corrosion - 2 defects 100 repairs (cracks, dents, ext corrosion) External corrosion & Leak Internal corrosion & Leak Internal corrosion & Leak External corrosion External	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           December-19           December-19           Dec-19           Dec-19           Dec-19           November-19	Kazakhstan Kazakhstan France COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA France MALAYSIA COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED TOTAL PETRONAS OFFSHORE GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS NHUT MILLION CONSINCE KPO KPO KPO	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing irral weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement Nozzle Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement	- PLI + AGA EL BORAT ET Les La Subatit 50-210 AB-PO-66703-10*-A13           60-0000-0W-084-2*-A37           Emergency gas omme was seeing an nazardous sendence           80-0000-0W-084-2*-A37           Emergency gas omme was seeing an nazardous de polyduct line           10* aqueduct           6* pipeline           10* aqueduct           6* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           38* pipeline           38* pipeline           39* colum           20* Colum           20* ODE 10           34*-FS-21204-B511           34*-FS-21204-B511           16* ODP-AMQ RISER LINE           16* Gas Line           6* gas line           7* mozie 20 location Das Island           20* Elipsoidad Dished Head           50-210 AB-PO-67003-10*-A13	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion E	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           December-19           December-19           December-19           Dece-19           Dec-19           Dec-19           Dec-19           Dec-19           Dec-19           Dectober-19           October-19           October-19           Dectober-19	Kazakhstan Kazakhstan France COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA. Contral Pipeline S.A OPS SHELL BGC OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING ADNOC LING ADNOC LING ADNOC ING ADNOC ING ADNOC ING KPO KPO KPO	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing real weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Onshore Offshore Topside Emergency online reinforcement - onshore Piping reinforcement - onshore Trans reinforcement Pipe r	- PLY AGA 44.600/11 FT.16-14-15 Notation           50-210 AB-PO-667/08-10*-A13           60-0000-0W-084-2*-A37           Emergency gas comme was seeining in nazardous           8* polyduct line           12* Pipeline           0* aqueduct           6* polyduct line           20* Burled OI Pipeline           Piping Repair           6* polyduct line           12* aqueduct           6* pipeline           20* Burled OI Pipeline           Piping Repair           6* pipeline           12* aqueduct           6* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           37* ORUM           20 Out 10           20* Out 10           37* Orburt           20* Opt 10           90* Post 20* Colum           20* OD 10           90* Source           20* OD 11           90* Source           20* OD 11           90* Source           90* Source           20* Colum           20* Colum           90* Source           9* gas line           7* more <tr< td=""><td>Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects I00 repairs (cracks, dents, ext corrosion) External corrosion External Several Leaks Several Leaks External corrosion External Several corrosion External Corrosion External Several corrosion External Corrosion External Corrosion External Corrosion Internal corrosion Interna</td><td>3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor</td></tr<>	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects I00 repairs (cracks, dents, ext corrosion) External corrosion External Several Leaks Several Leaks External corrosion External Several corrosion External Corrosion External Several corrosion External Corrosion External Corrosion External Corrosion Internal corrosion Interna	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 December-19 December-19 December-19 December-19 December-19 Decenber-19 Dece-19 Decenber-19 October-19 October-19	Kazakhstan Kazakhstan France COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO COL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA CONTAL PERENCO COLOMBIA LIMITED OCENSA. Contral Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING ADNOC LING ADNOC LING ADNOC CING ADNOC CING ADNOC CING KPO KPO KPO KPO KPO KPO KPO	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rinal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement Nazzle Pipe reinforcement Pipe reinforcement	- Di La Ana Astessi Lett Les Les Balandi           50-210 AB-PO-667063-10"-A13           60-0000-DW-084-2"-A37           Emergency gis omme leas searing in nazardous           8           9           10" aqueduct           6" pipeline           10" aqueduct           6" pipeline           4" pipeline           20" Buried OI Pipeline           10" aqueduct           6" pipeline           12" aqueduct           6" pipeline           12" aqueduct           6" pipeline           38" pipeline           38" pipeline           38" pipeline           39" Colum           20" Buried OI Pipeline           38" pipeline           38" pipeline           38" pipeline           39" Colum           20" ODD 1 Depressurization Line (2"-FS-21204-B51)           34"-FS-21204-B51           16" ODP-AMQ RISER LINE IPN-SH-103-15-D511           24" ODP FSO EXPORT LINE IPN-SH-103-10-B511           16" Gas Line           6" gas line           7meyter Tank with 2 leaks           2" Nozzle 20 location Das Island           20" Elipsold DIshed Head           50-210 AB-PO-067083-10"-A13	Internal corrosion Internal corrosion Internal corrosion External corrosion Internal corrosion Hole Internal corrosion Hole Internal corrosion Hole Internal corrosion External External External corrosion External	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Feb-20           Jan-20           December-19           December-19           December-19           Dece-19           Dec-19           Dec-19           Dec-19           Dec-19           Dec-19           Dectober-19           October-19           October-19           Dectober-19	Kazakhstan Kazakhstan France COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO OIL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA. Contral Pipeline S.A OPS SHELL BGC OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING ADNOC LING ADNOC LING ADNOC ING ADNOC ING ADNOC ING KPO KPO KPO	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing real weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Onshore Offshore Topside Emergency online reinforcement - onshore Piping reinforcement - onshore Trans reinforcement Pipe r	- PLY AGA 44.600/11 FT.16-14-15 Notation           50-210 AB-PO-667/08-10*-A13           60-0000-0W-084-2*-A37           Emergency gas comme was seeining in nazardous           8* polyduct line           12* Pipeline           0* aqueduct           6* polyduct line           20* Burled OI Pipeline           Piping Repair           6* polyduct line           12* aqueduct           6* pipeline           20* Burled OI Pipeline           Piping Repair           6* pipeline           12* aqueduct           6* pipeline           36* pipeline           36* pipeline           36* pipeline           36* pipeline           37* ORUM           20 Out 10           20* Out 10           37* Orburt           20* Opt 10           90* Post 20* Colum           20* OD 10           90* Source           20* OD 11           90* Source           20* OD 11           90* Source           90* Source           20* Colum           20* Colum           90* Source           9* gas line           7* more <tr< td=""><td>Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 2 defects External corrosion Form hole, 3rm hole and severe external corrosion External Smm hole, 3rm hole and severe external corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corr</td><td>3X Distributor 3X Monaco 3X Distributor 3X Distributor</td></tr<>	Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion - 2 defects External corrosion Form hole, 3rm hole and severe external corrosion External Smm hole, 3rm hole and severe external corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corrosion External Smm hole, 3rm hole and severe external Corr	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Feb-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 Jan-20 December-19 December-19 December-19 December-19 December-19 Decenber-19 Dece-19 Decenber-19 October-19 October-19	Kazakhstan Kazakhstan France COLOMBIA NIGERIA	PETRONAS CHEMICALS MIBE KPO KPO CFT GAZ GROUP STORK - MASA STORK PERENCO OIL AND GAS PERENCO COL AND GAS PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED PERENCO COLOMBIA LIMITED OCENSA CONTAL PERENCO COLOMBIA LIMITED OCENSA. Contral Pipeline S.A OPS SHELL BGC TOTAL TOTAL TOTAL TOTAL TOTAL Perusahaan Gas Negara Naturgy (Gas Fenosa) ADNOC LING ADNOC LING ADNOC LING ADNOC CING ADNOC CING ADNOC CING KPO KPO KPO KPO KPO KPO KPO	Straight Pipe-Onshore Pipe reinforcement Pipe reinforcement Emergency online leak sealing rinal weld buildup piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Onshore Offshore Topside Bend Piping reinforcement - onshore Piping reinforcement - onshore Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Offshore Topside Pipe reinforcement - ONSHORE Tank reinforcement Nazzle Pipe reinforcement Pipe reinforcement	- Di La Ana Astessi Lett Les Les Balandi           50-210 AB-PO-667063-10"-A13           60-0000-DW-084-2"-A37           Emergency gis omme leas searing in nazardous           8           9           10" aqueduct           6" pipeline           10" aqueduct           6" pipeline           4" pipeline           20" Buried OI Pipeline           10" aqueduct           6" pipeline           12" aqueduct           6" pipeline           12" aqueduct           6" pipeline           38" pipeline           38" pipeline           38" pipeline           39" Colum           20" Buried OI Pipeline           38" pipeline           38" pipeline           38" pipeline           39" Colum           20" ODD 1 Depressurization Line (2"-FS-21204-B51)           34"-FS-21204-B51           16" ODP-AMQ RISER LINE IPN-SH-103-15-D511           24" ODP FSO EXPORT LINE IPN-SH-103-10-B511           16" Gas Line           6" gas line           7meyter Tank with 2 leaks           2" Nozzle 20 location Das Island           20" Elipsold DIshed Head           50-210 AB-PO-067083-10"-A13	Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion - 3 defects External corrosion - 3 defects External corrosion - 3 defects Internal corrosion External corrosion & Leak Internal corrosion & Leak Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Fitemal corrosion External corrosion External corrosion Fitemal corrosion Fi	3X Distributor 3X Distributor 3X Monaco 3X Distributor 3X Distributor

0 1 1 10	Kazakhstan Kazakhstan	КРО	Pipe reinforcement	50-210 AB-PO-067/067-10"-A13	Internal corrosion	3X Distributor
September-19 September-19	Brazil	KPO CENPES Petrobras & UERJ	Pipe reinforcement Tests repair - ONSHORE	3*-DR-6301-E01 16 Pipe spools for certifications tests (6 of 12* water line and 10 of 6* water line)	Internal corrosion 16 Repairs over Repair over 50mm hole (6 with Clamp and 10 with PU reinforcement)	3X Distributor 3X Distributor
September 19	SAUDI ARABIA	ARAMCO	Abqaiq Plant	8" Straight Line	External Defect Hole Scenario	3X Distributor
September 19	SAUDI ARABIA SAUDI ARABIA	ARAMCO	Abqaiq Plant	36" Straight Line	External Defect Hole Scenario External Defect Hole Scenario	3X Distributor 3X Distributor
September 19 September 19	SAUDI ARABIA	ARANCO	Abqaiq Plant Abqaiq Plant	42" Straight Line 1,5" Straight Line	External Defect Hole Scenario	3X Distributor
September 19	SAUDI ARABIA	ARAMCO	Abqaiq Plant	8" Straight Line	External Defect Hole Scenario	3X Distributor
Aug-19	Kazakhstan	KPO	Pipe reinforcement	50-210 A/B-PO-067-10"-A13	Internal corrosion	3X Distributor
Aug-19 Aug-19	Kazakhstan Indonesia	KPO PT Pertamina Gas	Pipe reinforcement Underground Pipeline	3-12000-HG-509-4"- B15 24" Gas Line	Internal corrosion Dent	3X Distributor 3X Distributor
Aug-19 Aug-19	Indonesia	Perusahaan Gas Negara	Above ground pipeline	6" Gas Line	External	3X Distributor
August-19	FRANCE	TOTAL	Onshore buried	12" ligne essence / gasoil - 13 réparations	External corrosion	3X Distributor
August-19	Perú	Terminales del Perú Terminales del Perú	TDP-EL CALLAO TDP-CHICLAYO	TANK LINES	EXTERNAL AND INTERNAL CORROSION EXTERNAL AND INTERNAL CORROSION	3X Distributor 3X Distributor
August-19 August-19	Perú FRANCE	TOTAL	Straight Line Buried - onshore	DOCK 12" Line Benzine / gasoil - 13 repairs	External corrosion	3X Monaco/3X Distributor
Jul-19	Indonesia	Perusahaan Gas Negara	Underground Pipeline	16" Gas Line	External	3X Distributor
July 19	OMAN	CCED PERENCO /CASANARE	Onshore	8" Water Line Tee - 2 repairs	Internal corrosion & Leak	3X Distributor
July-19 July-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	4" Línea de crudo / aguas asociadas 4" Línea de crudo	Corrosión externa Corrosión externa	3X Distributor 3X Distributor
July-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	2" Línea de gas	Corrosión externa	3X Distributor
July-19	COLOMBIA	ECOPETROL	Refuerzo en Tee - onshore	16" Línea de crudo	Pérdida de material por daño mecánico	3X Distributor
July-19 July-19	COLOMBIA	ECOPETROL PERENCO / GUANDO	Refuerzo sobre tubería - onshore Refuerzo sobre casing- onshore	36" Línea de crudo 9" Casing	Corrosión externa Corrosión externa	3X Distributor 3X Distributor
July-19	COLOMBIA	OCENSA	Refuerzo sobre tubería - onshore	30" Línea de crudo	Corrosión externa	3X Distributor
July-19	Malaysia	HENGYUAN REFINING COMPANY	Elbow-Onshore	2" elbow at Loc B, P455A	Internal corrosion	3X Distributor
luk 10	Malavaia	BERHAD HENGYUAN REFINING COMPANY	Elbow-Onshore	2/4" albow at Los C. B4554	Internal correction	3X Distributor
July-19	Malaysia	BERHAD HENGYUAN REFINING COMPANY		3/4" elbow at Loc C, P455A	Internal corrosion	
July-19	Malaysia	BERHAD	Elbow-Onshore	2" elbow at Loc A, P455A	Internal corrosion	3X Distributor
July-19	Malaysia	HENGYUAN REFINING COMPANY BERHAD	Straight Pipe-Onshore	1-1/2" pipe at bypass line 01-F-122 LOC 3, CD 1	Internal corrosion	3X Distributor
July-19	Malaysia	HENGYUAN REFINING COMPANY BERHAD	Straight Pipe-Onshore	Tag 1:3" nozzle (Loc 1&3) and 1 unit of 2" nozzle (Loc 2) at C-104 Tapping Header, CD1 Tag 2 : 4" x 2" reducer at C-104, CD 1	Internal corrosion	3X Distributor
June-19	Ukraine	Ukrnafta	Straight Pipe-Onshore	8" pipeline - Fluid: Oil	Internal corrosion+Leak	3X Distributor
June-19	Perú	Terminales del Perú	TDP-SALAVERRY	TERMINAL ADJACENT TO PUMP PATIO	EXTERNAL AND INTERNAL CORROSION	3X Distributor
June-19 June-19	COLOMBIA	PERENCO /CASANARE PERENCO /CASANARE	Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	6" Línea de crudo 6" Línea de crudo	Corrosión externa Corrosión externa	3X Distributor 3X Distributor
June-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	6" Línea de crudo	Corrosión externa	3X Distributor
June-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	2" Línea de gas	Corrosión externa	3X Distributor
June-19 June-19	COLOMBIA	PERENCO /CASANARE OCENSA	Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	4" Línea de crudo 30" Línea de crudo	Corrosión externa Abolladura	3X Distributor 3X Distributor
June-19	Kazakhstan	KPO	Pipe reinforcement	60-5620-WW-112-4-A11	Internal corrosion	3X Distributor
June-19	Kazakhstan	KPO	Pipe reinforcement	70-2300-FL-001-042*-A11 (Bent)	Internal corrosion+Leak	3X Distributor
June-19	Malaysia	HENGYUAN REFINING COMPANY BERHAD	Straight Pipe-Onshore	4" pipe lines at K-261B, CD2 plant (location A-V268A)	Internal corrosion	3X Distributor
June-19	Malaysia	HENGYUAN REFINING COMPANY	Straight Pipe-Onshore	1/2" pipe at nozzle K1, V-151	Internal corrosion	3X Distributor
June-19	Malaysia	BERHAD HENGYUAN REFINING COMPANY	Straight Pipe-Onshore	2" joint to 4" level bridle (15LRC015-T01),	Internal corrosion	3X Distributor
		BERHAD		V-151 6* Oil Line (10). 8* Oil Line (1). 16* Oil Line (2). 6* Oil		
June-19	PERÚ	Terminales de Perú (TDP)	Piping reinforcement - onshore	Line (1), 3 * Code (1). 4* Code (1)	External / Internal Corrosion	3X Distributor
June-19 June-19	QATAR	TOTAL	Elbow Offshore Topside Offshore Topside	2 X 2" Elbow 8" AFD -ODD EXPORT RISER	Internal corrosion External corrosion	3X Distributor 3X Distributor
June-19	NIGERIA	TOTAL	Offshore Topside	2" IMD CLOSE DRAIN LINE	External corrosion	3X Distributor
May-19	Indonesia	Perusahaan Gas Negara (PGN)	External pipe, pitting corrosion. Onshore	16" Gas Pipe Line	External corrosion	3X Distributor
May-19	Viet-Nam	HOANG LONG JOC	Riser reinforcement - offshore on air	6" gas line (H1-WHP/Riser No.1 )	External corrosion	3X Distributor
May-19	Viet-Nam	HOANG LONG JOC	Riser reinforcement - offshore on air	8" water line (H1-WHP/Riser No.2)	External corrosion	3X Distributor
May-19 May-19	Viet-Nam			16" Oil line (H1-WHP/Riser No.3)	External corrosion	
May-19	Viet-Nam	HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Riser reinforcement - offshore on air		External corrosion	3X Distributor 3X Distributor
	Viet-Nam Viet-Nam	HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4)	External corrosion	3X Distributor
Mav-19	Viet-Nam	HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4 )	External corrosion	3X Distributor 3X Distributor
May-19 May-19		HOANG LONG JOC	Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4)		3X Distributor
May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Riser reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4 ) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.7)	External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
May-19 May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.7) 10" Oil line (H1-WHP/Riser No.8)	External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Riser reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4 ) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.7)	External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.11)	External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.7) 10" Oil line (H1-WHP/Riser No.9) 10" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.11) 6" gas line (H1-WHP/Riser No.12)	External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.11)	External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC OCENSA	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.7) 10" Oil line (H1-WHP/Riser No.9) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.10) 8" gas line (H1-WHP/Riser No.12) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Line ad crudo	External corrosion External corrosion Refuterzo sobre carga externa	3X Distributor 3X Distributor
May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA	Riser reinforcement - offshore on air Pipeliner reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4 ) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.3) 10" Oill line (H1-WHP/Riser No.3) 10" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3)	External corrosion External corrosion Refuerzo sobre carga externa Aboliadura	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam	HOANG LONG JOC HOANG LONG JOC OCENSA	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.7) 10" Oil line (H1-WHP/Riser No.9) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.10) 8" gas line (H1-WHP/Riser No.12) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Line ad crudo	External corrosion External corrosion Refuterzo sobre carga externa	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam CoLOMBIA COLOMBIA COLOMBIA Kazakhstan	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA KPO	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4 ) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.3) 10" Oill line (H1-WHP/Riser No.3) 10" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 16" Oill line (H4-	External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Refuerzo sobre carga externa Internal corrosion	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA Kazakhstan	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO/CASANARE OCENSA KPO KPO	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia -	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.9) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.10) 6" gas line (H1-WHP/Riser No.11) 6" gas line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Linea de crudo 36" Linea de crudo 30" Linea de crudo 30	External corrosion External corrosion Refuerzo sobre carga externa Aboltadura Corrosion externa Refuerzo sobre carga externa Internal corrosion Internal corrosion	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam CoLOMBIA COLOMBIA COLOMBIA Kazakhstan	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA KPO	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4 ) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.3) 10" Oill line (H1-WHP/Riser No.3) 10" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 16" Oill line (H4-	External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Refuerzo sobre carga externa Internal corrosion	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 April-19 Apri-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO /CASANARE VPO KPO KPO KPO PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.10) 6" gas line (H1-WHP/Riser No.11) 6" gas line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Linea de crudo 36" Linea de crudo 36" Linea de crudo 50-562-VW-01 (25 nozzles) 50-214C-FL-013-3"-A11 8" Linea de gas	External corrosion External corrosion Refuerzo sobre carga externa Aboltadura Corrosion externa Refuerzo sobre carga externa Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 Apri-19 Apri-19 Apri-19 Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA Kazakhstan Kazakhstan COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO/CASANARE OCENSA KPO KPO KPO KPO KPO KPO KOJ PERENCO/CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.6) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.8) 16" Oill line (H1-WHP/Riser No.3) 16" Oil line (H1-WHP/Riser No.3) 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 50-214C-FL-01-33"-At11 8" Linea de crudo 31" Linea de crudo	External corrosion External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Internal corrosion Internal corrosion Internal corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion externa	3X Distributor 3X Distributor
May-19           April-19           April-19           April-19           Apr-19           Apr-19           Apr-19           Apr-19           Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLCMBIA COLCMBIA COLCMBIA COLCMBIA COLCMBIA COLCMBIA COLCMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO /CASANARE VPO KPO KPO KPO PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.8) 10" Oill line (H1-WHP/Riser No.9) 16" Oill line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 16" Oill line (H4-	External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Internal corrosion Internal corrosion Internal corrosion Corrosion Corrosion External Corrosion Corrosion Corrosion External	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 Apri-19 Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA Kazakhstan Kazakhstan COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO /CASANARE OCENSA KPO KPO KPO PERENCO /GLANARE PERENCO /GLANARE PERENCO /GLANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.6) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.8) 16" Oill line (H1-WHP/Riser No.3) 16" Oil line (H1-WHP/Riser No.3) 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 50-214C-FL-01-33"-At11 8" Linea de crudo 31" Linea de crudo	External corrosion External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Internal corrosion Internal corrosion Internal corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion externa	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.7) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16"	External corrosion Refuerzo sobre carga externa Abolladura Corrosion externa	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 Apri-19 Apri-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA VERENCO /CASANARE PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.11) 6" gas line (H1-WHP/Riser No.12) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Linea de crudo 36" Linea de crudo 30" Linea de crudo 30" Linea de crudo 8" Linea de gas 8" Linea de gas 8" Linea de gas 4" Linea de gas	External corrosion Corrosion externa Corrosion Internal corrosion Internal corrosion Internal corrosion Corrosion externa Corrosion Corrosion externa Corrosion Corrosion External Corrosion Corrosion External Corrosion External Corrosion Corrosion External Corrosion Corosion Corrosion Corosion Corrosion Corosion Corrosion Corosi	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.7) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.9) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16"	External corrosion Refuerzo sobre carga externa Abolladura Corrosion externa	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19 Apr-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO/CASANARE OCENSA KPO KPO KPO PERENCO/CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Pipe reinforcement Pipe reinforcement Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.5) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.7) 10" Oill line (H1-WHP/Riser No.8) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H1-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 16" Oill line (H4-WHP/Riser No.3) 30" Linea de crudo 30" Linea de crudo 31"	External corrosion External corrosion Refuerzo sobre carga externa Aboliadura Corrosion externa Internal corrosion Internal corrosion Internal corrosion Internal corrosion Corrosion externa Corrosion externa	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 Apr-1	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA PERENCO/CASANARE OCENSA KPO KPO KPO PERENCO/CASANARE	Riser reinforcement - offshore on air Pipeliner reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onsh	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oll line (H1-WHP/Riser No.6) 10" Oll line (H1-WHP/Riser No.7) 10" Oll line (H1-WHP/Riser No.8) 110" Oll line (H1-WHP/Riser No.8) 110" Oll line (H1-WHP/Riser No.9) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H4-WHP/Riser No.3) 16" OLL and Gas 4" Linea de rudo 16" ODP-MO RISER LINE [IPN-SH-103-10-B511] 24'ODP-KO RISER LINE [IPN-SH-103-10-B511]	External corrosion External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Refuerzo sobre carga externa Internal corrosion Internal corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion External corrosion Internal corrosion	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 Apr-1	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE PERENCO /GLASANARE PERENCO /GLASANARE PERENCO /GLASANARE PERENCO /GLASANARE PERENCO /GLASANARE PERENCO /GLASANARE OCENSA TOTAL TOTAL TOTAL TOTAL HENOYUAN REFINING COMPANY BERINAD	Riser reinforcement - offshore on air Pipeliner reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onsh	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 11" Oil line (H1-WHP/Riser No.3) 16" Oil line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 10" Linea de crudo 16" Oil line (H4-WHP/Riser No.3) 10" Oil A' Linea de crudo 16" Oil A' Linea de gas 36" Linea de crudo 16" Oil A' Linea de gas 36" Linea de de crudo 16" Oil A' Linea de de crudo 16" Oil A' Linea de de crudo 11" Oil A' S' Linea de crudo 11" Oil A' S' Linea de crudo 12" Oil A' Linea de de crudo 14" Linea de de crudo 14	External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Refuerzo sobre carga externa Aboliadura Corrosion externa Refuerzo sobre carga externa Internal corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion External corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor
May-19           Apri-19           Apri-19           Apri-19           Apr-19           Apri19           Apri19           Apri19           Apri19           Apri19           Apri19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLCOMBIA NIGERIA MIA SIGERIA NIGERIA MIA SIGERIA NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oll line (H1-WHP/Riser No.6) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 16" Oll line (H1-WHP/Riser No.9) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H4-WHP/Riser No.3) 16" Ol	External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion externa Corrosion externa Corrosion externa Corrosion externa Corrosion External External Corrosion External Ext	3X Distributor 3X Distributor
May-19           April-19           April-19           Apr-19           April-19           April-19           March-19           March-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA NIGERIA Malaysia NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA KPO KPO KPO PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL HENGYUAN REFINING COMPANY BERHAD TOTAL	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería -	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Cill line (H4-WHP/Riser No.3) 16	External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Refuerzo sobre carga externa Internal corrosion Internal corrosion Internal Corrosion Corrosion externa Corrosion External corrosion Internal corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Internal co	3X Distributor 3X Distributor
May-19           Apri-19           Apri-19           Apri-19           Apr-19           Apri19           Apri19           Apri19           Apri19           Apri19           Apri19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLCOMBIA NIGERIA MIA SIGERIA NIGERIA MIA SIGERIA NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" water line (H1-WHP/Riser No.5) 10" Oll line (H1-WHP/Riser No.6) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 16" Oll line (H1-WHP/Riser No.9) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H4-WHP/Riser No.3) 16" Ol	External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion externa Corrosion externa Corrosion externa Corrosion externa Corrosion External External Corrosion External Ext	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 April-19 Apr	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA Malaysia NIGERIA NIGERIA NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA KPO KPO KPO KPO PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL TOTAL HENGYUAN REFINING COMPANY BERHAD TOTAL TOTAL PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16"	External corrosion Refuerzo softe carga externa Aboladura Corrosión externa Corrosión externa Corrosión externa Corrosión externa Corrosión External Corrosion External Corrosion External Corrosion External Corrosion External Corrosion External Corrosión External Corrosión External Corrosión External Corrosion External E	3X Distributor 3X Distributor
May-19           Apri-19           April-19           April-19           Apri-19           Apr-19           April-19           March-19           March-19           March-19           March-19           March-19      <	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE DOCENSA TOTAL TOTAL TOTAL PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Elbow-Onshore Elbow-Onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 16" Oil line (H1-WHP/Riser No.3) 16" Oil line (H1-WHP/Riser No.3) 16" Oil line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 31" Linea de gas 33" Linea de crudo 34" Linea de gas 34" Linea de crudo 11" ODP-AMO RISER LINE IPN-SH-103-10-DSH1 24" ODP -AMO RISER LINE IPN-SH-103-10-DSH1 24" ODP -AMO RISER LINE IPN-SH-103-10-DSH1 24" Linea de gas 34" Linea de crudo 34" Linea de crudo	External corrosion Refuerzo sobre carga externa Aboltadura Corrosion externa Corrosion External corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion External corrosion Internal corrosion Internal corrosion Corrosion Corrosion Corrosion Corrosion Corrosion Corrosion Corrosion Corosion Corrosion Corosion Corrosion Corosi	3X Distributor 3X Distributor
May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 May-19 April-19 April-19 April-19 Apr	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA Malaysia NIGERIA NIGERIA NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA KPO KPO KPO KPO PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL TOTAL HENGYUAN REFINING COMPANY BERHAD TOTAL TOTAL PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16"	External corrosion Refuerzo softe carga externa Aboladura Corrosión externa Corrosión externa Corrosión externa Corrosión externa Corrosión External Corrosion External Corrosion External Corrosion External Corrosion External Corrosion External Corrosión External Corrosión External Corrosión External Corrosion External E	3X Distributor 3X Distributor
May-19           Apri-19           April-19           April-19           Apr-19           March-19           March-19           March-19           March-19           March-19           March-19           March-19           March-19           March-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA Malaysia Malaysia NIGERIA NIGERIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE OCCL HOCOL HOCOL HOCOL HOCOL HOCOL HOCOL HOCOL PERENCO/CASANARE OCENSA TOTAL TOTAL TOTAL TOTAL PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE PERENCO/CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore Elbow-Onshore Elbow-Onshore Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.4) 10" water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 16" Oil line (H1-WHP/Riser No.10) 8" water line (H1-WHP/Riser No.3) 16" Oil line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 30" Linea de crudo 31" Linea de crudo 34" Linea de gas 34" Linea de crudo 11" ODP-AMQ RISER LINE IPN-SH-103-10-DS11 24" ODP FSO EXPORT LINE IPN-SH-103-10-DS11 24" ODP -AMQ RISER LINE IPN-SH-103-10-DS11 24" Linea de gas 34" Linea de crudo 34" Linea de crudo	External corrosion Returzo sobre carga externa Aboltadura Corrosion externa Corrosion Corrosion externa Corrosion External Corrosion Corrosin Corrosin C	3X Distributor 3X Distributor
May-19           Apri-19           Apri-19           Apri-19           Apr-19           Apr-19           Apr-19           Apr-19           Apr-19           Apr-19           Apr-19           Apr-19           Apr-19           Apri-19           March-19           March-19           March-19           March-19           March-19           March-19           March-19           March-19           March-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL PERENCO /CASANARE PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oll line (H1-WHP/Riser No.6) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 11" Oll line (H1-WHP/Riser No.3) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H4-WHP/Riser No.3) 16" Clinea de crudo 30" Linea de crudo 30" Linea de crudo 31" Linea de crudo 31" Linea de gas 31" Linea de gas 34" Linea de crudo 11" ODP-MAR URSER LINE: [PN-SH-103-10-B511 1 unt of 3" Sch 40 Bobwa T1-7503 drain line, LRCC plant 2" OFD 1 Depressurization Line (2"-FS-21204-B51) 34" -FS-21204-B51 2" Linea de crudo 3" Linea de crudo	External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion External Corrosion Corrosion External Corrosion Corrosion External Corrosion External Corrosion Corrosion External External External External External External External External Externa	3X Distributor 3X Distributor
May-19           April-19           April-19           Apr-19           March-19	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA NPP PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL TOTAL TOTAL PERENCO /CASANARE PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tubería - onshore Refuerzo sobre tubería - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.5) 10" Oil line (H1-WHP/Riser No.6) 10" Oil line (H1-WHP/Riser No.8) 10" Oil line (H1-WHP/Riser No.8) 16" Oil line (H1-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Linea de crudo 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 16" Oil line (H4-WHP/Riser No.3) 10" Oil line (H4-WHP	External corrosion External corrosion Refuerzo sobre carga externa Aboltadura Corrosión externa Corrosión interna Corrosión interna Corrosión interna Corrosión interna Corrosión interna Corrosión externa Corrosión externa Corrosión interna Corrosión interna Corrosión externa Corrosión externa Corrosión interna Corrosión externa Corrosión externa	3X Distributor 3X Distributor
May-19           Apr-19           April-19           Apr-19           March-19           March-19 <td>Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA</td> <td>HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL PERENCO /CASANARE PERENCO /CASANARE</td> <td>Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore</td> <td>8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oll line (H1-WHP/Riser No.6) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 11" Oll line (H1-WHP/Riser No.3) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H4-WHP/Riser No.3) 16" Clinea de crudo 30" Linea de crudo 30" Linea de crudo 31" Linea de crudo 31" Linea de gas 31" Linea de gas 34" Linea de crudo 11" ODP-MAR URSER LINE: [PN-SH-103-10-B511 1 unt of 3" Sch 40 Bobwa T1-7503 drain line, LRCC plant 2" OFD 1 Depressurization Line (2"-FS-21204-B51) 34" -FS-21204-B51 2" Linea de crudo 3" Linea de crudo</td> <td>External corrosion External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion External Corrosion Corrosion External Corrosion Corrosion External Corrosion External Corrosion Corrosion External External External External External External External External Externa</td> <td>3X Distributor 3X Distributor</td>	Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam Viet-Nam COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA	HOANG LONG JOC HOANG LONG JOC OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA OCENSA PERENCO /CASANARE PERENCO /CASANARE PERENCO /CASANARE OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL PERENCO /CASANARE PERENCO /CASANARE	Riser reinforcement - offshore on air Pipeline reinforcement - offshore on air Riser reinforcement - offshore on air Refuerzo sobre tuberia - onshore Refuerzo sobre tuberia - onshore	8" gas line (H1-WHP/Riser No.4) 8" gas line (H1-WHP/Riser No.5) 10" Water line (H1-WHP/Riser No.5) 10" Oll line (H1-WHP/Riser No.6) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 10" Oll line (H1-WHP/Riser No.8) 11" Oll line (H1-WHP/Riser No.3) 16" Oll line (H1-WHP/Riser No.3) 16" Oll line (H4-WHP/Riser No.3) 16" Clinea de crudo 30" Linea de crudo 30" Linea de crudo 31" Linea de crudo 31" Linea de gas 31" Linea de gas 34" Linea de crudo 11" ODP-MAR URSER LINE: [PN-SH-103-10-B511 1 unt of 3" Sch 40 Bobwa T1-7503 drain line, LRCC plant 2" OFD 1 Depressurization Line (2"-FS-21204-B51) 34" -FS-21204-B51 2" Linea de crudo 3" Linea de crudo	External corrosion Refuerzo sobre carga externa Aboladura Corrosion externa Corrosion Internal corrosion Corrosion externa Corrosion externa Corrosion External Corrosion Corrosion External Corrosion Corrosion External Corrosion External Corrosion Corrosion External External External External External External External External Externa	3X Distributor 3X Distributor

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March-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	6" Línea de crudo	Corrosión externa	3X Distributor
March-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	4" Línea de aguas asociadas	Corrosión externa	3X Distributor
March-19	Kazakhstan	KPO	Pipe reinforcement	70-2300-FL-001-042"-A11	Internal corrosion	3X Distributor
14-1 40		Pertamina Hulu Energy Offshore	5 · · · · · · · · · · · · · · · · · · ·		- · · ·	av Distributor
Mar-19	Indonesia	Sout East Sumatra (Prev. CNOOC)	External corrosion pipe, Offshore Platform	6", 12" and 18" gas line	External corrosion	3X Distributor
Mar-19	Russia	SIBUB	pipe/onshore	520mm/tee/GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR	pipe/onshore	520mm/straight line/GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR	pipe/onshore	57mm/bend/GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR				3X Distributor
			pipe/onshore	159mm/ straight line/ GAS	Internal corrosion	
Mar-19	Russia	SIBUR	pipe/onshore	159mm/ straight line/ GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR	pipe/onshore	219mm/ straight line/ GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR	pipe/onshore	219mm/ straight line/ GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR	pipe/onshore	219mm/ straight line/ GAS	Internal corrosion	3X Distributor
Mar-19	Russia	SIBUR	pipe/onshore	325mm/ tee/ GAS	Internal corrosion	3X Distributor
Mar-19	NIGERIA	TOTAL	Piping Reinforcement - Offshore	2" OFD 1 Depressurization Line (2"-FS-21204-B51)	Internal corrosion & Leak	3X Distributor
Mar-19	NIGERIA	TOTAL	Piping Reinforcement - Offshore		Internal corrosion & Leak	3X Distributor
				3/4"-FS-21204-B51		
Feb-19	Kazakhstan	KPO	Pipe reinforcement	60-5620-WW-110-6"-A12	Internal corrosion	3X Distributor 3X Distributor
Feb-19	Kazakhstan	КРО	Pipe reinforcement	60-562-VV-01 ( 31 nozzle)	Internal corrosion+Leak	
Feb-19	PERU	Terminales de Perú (TDP)	Piping reinforcement - onshore	10" Oil Line (5).	External / Internal Corrosion	3X Distributor
February-19	Perú	Terminales del Perú	TDP-EL CALLAO	DOCK 4	EXTERNAL AND INTERNAL CORROSION	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería y codo - onshore	6" Línea de crudo	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	6" Línea de crudo	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	6" Línea de crudo	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	4" Línea de gas	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /GUANDO	Refuerzo sobre tubería - onshore	6" Línea de crudo	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	4" Línea de gas	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	6" Línea de aguas asociadas	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre Tee - onshore	6" Línea de aguas asociadas	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	4" Línea de gas	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	OCENSA	Refuerzo sobre tubería - onshore	30" Línea de crudo	Refuerzo sobre carga externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	4" Línea de crudo / aguas asociadas	Corrosión externa	3X Distributor
Feb-19	COLOMBIA	PERENCO /GUANDO	Refuerzo sobre blast joint- onshore	3,5" Blast joint	Pérdida de material por abrasión	3X Distributor
Feb-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	8" Líena de aguas asociadas	Corrosión externa	3X Distributor
Feb-19 Feb-19		PERENCO /CASANARE	Refuerzo sobre tubería - onshore			3X Distributor 3X Distributor
	COLOMBIA			3" Línea de gas	Corrosión externa	
January-19	Kazakhstan	КРО	Pipe reinforcement	30-3413-C-102A	Internal corrosion	3X Distributor
January-19	Kazakhstan	КРО	Pipe reinforcement	3-12000-HG-509-4"- B15	Internal corrosion	3X Distributor
January-19	COLOMBIA	ECOPETROL	Refuerzo en soldadura - onshore	36" Línea de crudo	Refuerzo en soldadura	3X Distributor
January-19	COLOMBIA	PERENCO /CASANARE	Refuerzo sobre tubería - onshore	6" Línea de aguas asociadas	Corrosión externa	3X Distributor
January-19	COLOMBIA	OCENSA	Pipe reinforcement - Onshore	30" pipeline - Fluid: Oil	Protection against external loads	3X Distributor
January-19	COLOMBIA	OCENSA	Pipe reinforcement - Onshore	36" pipeline - Fluid: Oil	Protection against external loads	3X Distributor
Sandary-13	COLONIDIA	o de litox	ripe remorcement - Onanore	30 pipeline - Tidid. Oli	Totection against external loads	SX Distributor
January-19	Malaysia	HENGYUAN REFINING COMPANY	Straight Pipe-Onshore	3/4" Pipe, 1" pipe & 2" pipe at V-152 at Complex	Internal corrosion	3X Distributor
		BERHAD	• •			
January-19	Malaysia	HENGYUAN REFINING COMPANY	Straight Pipe-Onshore	2" pipe with 47.5mm anchor wrapping at both end for	Internal corrosion	3X Distributor
		BERHAD	• •	L2 & L5 nozzle		
January-19	Malaysia	HENGYUAN REFINING COMPANY	Reducer-Onshore	2" x 1" reducer (K1/K2) at C-156, HRC Plant	Internal corrosion	3X Distributor
-		BERHAD				
			2	2018		
Dec-18	COLOMBIA	REPENCO	Bing reinforgement Onchorg	3.5" coiled tubing	Protection	2X Distributor
Dec-18	COLOMBIA	PERENCO	Pipe reinforcement-Onshore	3,5" coiled tubing	Protection	3X Distributor
Dec-18	COLOMBIA	OCENSA	Pipe reinforcement - Onshore	30" pipeline - Fluid: Oil	Protection against external loads	3X Distributor
Dec-18 Dec-18	COLOMBIA NIGERIA	OCENSA TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore	30" pipeline - Fluid: Oil 16" Stabilized Oil from AMP1 to Export Line at ODP	Protection against external loads External corrosion	3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18	COLOMBIA NIGERIA NIGERIA	OCENSA TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore	30" pipeline - Fluid: Oil	Protection against external loads External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18	COLOMBIA NIGERIA NIGERIA NIGERIA	OCENSA TOTAL TOTAL TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore	30" pipeline - Fluid: Oil 16" Stabilized Oil from AMP1 to Export Line at ODP	Protection against external loads External corrosion	3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18	COLOMBIA NIGERIA NIGERIA NIGERIA	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO	Protection against external loads External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18	COLOMBIA NIGERIA NIGERIA NIGERIA	OCENSA TOTAL TOTAL TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO	Protection against external loads External corrosion External corrosion External corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18	COLOMBIA NIGERIA NIGERIA NIGERIA	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering Piping( 2°-DF-0969	Protection against external loads External corrosion External corrosion External corrosion Internal corrosion & Leak	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Officading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering. Piping( 2°-DF-0969 4° water line 30°-3413-C-302A	Protection against external loads External corrosion External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oil     16° Stabilized Oil from AMP1 to Export Line at ODP     36° Offloading manifold at AKPO FPSO     16° Gas Riser at AKPO FPSO     in line on 32° FSO Export Metering Piping( 2°-DF-0969	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO KPO	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Cas Riser at AKPO FPSO in line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30-3413-C-302A 20-310E-WO-073 50-210 ABC-PO-067-10°-A13	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO KPO CPC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30-3413-C-302A 20-310E-WO-073 50-210 ABC-PO-067-10°-A13 Tank 20 000m3	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Liternal corrosion	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO KPO	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oll 16° Stabilized Oll from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30-3413-C-302A 20-310E-WO-073 50-210 ABC-PO-067-10°-A13 Tank 20 000m3 60-5990-WW-021-4°-A11	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion	3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NiGERIA	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO in line on 32° FSO Export Metering Piping( 2° DF-0969 4° water line 30°-3413-C-302A 20°-310E-WO-073 50°-210 ABC-PO-067-10°-A13 Tank 20 000m3 60°-5900-WW-021-4°-A11 2° OFD 1 Depressing Line	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion	3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO TOTAL CIM	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping Reinforcement - Offshore Orshore - Pipe 42' reinforcement	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Officading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30°-3413-C°-302A 20°-310E-WO-073 50°-210 ABC-PD-067-10°-A13 Tank 20 000m3 60°-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42°	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion External corrosion	3X Distributor 3X Monaco
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12* pipe reinforcement	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO in line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30°-413-C-302A 20°-310-EWO-073 50-210 ABC-P0-067-10°-A13 Tank 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12°	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO TOTAL CIM	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Officading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30°-3413-C°-302A 20°-310E-WO-073 50°-210 ABC-PO-067-10°-A13 Tank 20 000m3 60°-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42°	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion External corrosion	3X Distributor 3X Monaco
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 170 ABC-7020 4° water line 30°-3413-C-302A 20-310E-WO-073 50-210 ABC-P0-067-10°-A13 Tank 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20-310E-WO-073	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO in line on 32° FSO Export Metering Piping( 2°-DF-0969 4° water line 30°-413-C-302A 20°-310-EWO-073 50-210 ABC-P0-067-10°-A13 Tank 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12°	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 170 ABC-7020 4° water line 30°-3413-C-302A 20-310E-WO-073 50-210 ABC-P0-067-10°-A13 Tank 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20-310E-WO-073	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oct-18 Oct-18	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO KPO CPC CPC KPO TOTAL CIM TOTAL KPO Perusahaan Gas Negara (PGN) TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Onshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Diffshore - 12° pipe reinforcement External pipe damage, cause by road construction, Onshore Buried Offshore - 10° and 12° pipe reinforcement	30° pipeline - Fluid: Oil           16° Stabilized Oil from AMP1 to Export Line at ODP           36° Offloading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           in line on 32° FSO Export Metering. Piping( 2°.DF.0969)           4' water line           30° 3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10°-A13           Tank 20 000m3           60-5900-WW-021-4"-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oct-18 Oct-18 Oct-18	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO Perusahaan Gas Negara (PGN) TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement Dips damage, cause by road construction, Onshore Buried Offshore - 10° and 12° pipe reinforcement Pipe reinforcement - Offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering - Piping (2°-DF-0969 4° water line 30-3413-C-302A 20-310E-WO-073 50-210 ABC-PO-067-10°-Ar13 Tark 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20-310E-WO-073 16° Gas Pipe Line 10° and 12° 20° oil line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oct-18 Oct-18 Oct-18 Oct-18	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO Perusahaan Gas Negara (PGN) TOTAL TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - Pipe 42' reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12' pipe reinforcement Difshore - 12' pipe reinforcement Pipe reinforcement Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Officiading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping( 2°-DF-0969           4° water line           30°-3413-C-302A           20°-310E-WO-073           50-210 ABC:PP-067-10°-A13           Tank 20 000m3           60:5900-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°           20° dline           2° ol line	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oct-18 Oct-18 Oct-18	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO Perusahaan Gas Negara (PGN) TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° pipe reinforcement Dipting Reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO n line on 32° FSO Export Metering - Piping (2°-DF-0969 4° water line 30-3413-C-302A 20-310E-WO-073 50-210 ABC-PO-067-10°-Ar13 Tark 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20-310E-WO-073 16° Gas Pipe Line 10° and 12° 20° oil line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Cuu Long JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - Pipe 42' reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12' pipe reinforcement Difshore - 12' pipe reinforcement Pipe reinforcement Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Officiading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping (2°-DF-0969           4° water line           30°-3413-C-302A           20°-310E-WO-073           50-210 ABC-PO-067-10°-A13           Tark 20 000m3           60:5800-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20:310E-WO-073           16° Gas Pipe Line           10° and 12°           20° oli line           2° oil line           2° oil line           2° oil line	Protection against external loads External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion Atternal corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oct-18 Oct-18 Oct-18 Oct-18	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO Perusahaan Gas Negara (PGN) TOTAL TOTAL TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping Reinforcement Offshore - Pipe 42" reinforcement Pipe reinforcement Offshore - 12" pipe reinforcement Pipe reinforcement Offshore - 12" pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Officiading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping( 2°-DF-0969           4° water line           30°-3413-C-302A           20°-310E-WO-073           50-210 ABC:PP-067-10°-A13           Tank 20 000m3           60:5900-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°           20° dline           2° ol line	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL KPO Perusahaan Gas Negara (PGN) TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Pipe reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Pipe reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Pipe failsore Offshore - 10° and 12° pipe reinforcement at Pipe failsore Offshore - 10° and 60° pipe reinforcement at Pipe failsore Offshore - 10° and 60° pipe reinforcement at Pipe failsore Pipe failsore - 10° and 60° pipe reinforcement at Pipe failsore - 10° pipe	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 30° 3413-C° 302A 20° 3016-WO-073 50° 210 ABC-PO-067-10° Ar13 Tark 20 000m3 60° 5300-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20° 3106-WO-073 16° Gas Pipe Line 10° and 12° 20° 31 line 22° 01 line 22° 01 line 24° oil/gas line 4° oil/gas line	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion Reternal corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - 12' pipe reinforcement Pipe reinforcement External pipe damage, cause by road construction, Onshore Buried Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Officiading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping (2°-DF-0969           4° water line           30°-3413-C-302A           20°-310E-WO-073           50-210 ABC-PO-067-10°-A13           Tark 20 000m3           60:5800-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20:310E-WO-073           16° Gas Pipe Line           10° and 12°           20° oli line           2° oil line           2° oil line           2° oil line	Protection against external loads External corrosion External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion Atternal corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO KPO CPC CPC CPC CPC CPC CPC TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU Long JOC CUU Long JOC CUU Long JOC CUU LONG JOC HENGYUAN REFINING COMPANY	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Pipe reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Pipe reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Pipe failsore Offshore - 10° and 12° pipe reinforcement at Pipe failsore Offshore - 10° and 60° pipe reinforcement at Pipe failsore Offshore - 10° and 60° pipe reinforcement at Pipe failsore Pipe failsore - 10° and 60° pipe reinforcement at Pipe failsore - 10° pipe	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Disposed at Arbor AKPO FPSO 16° Gas Disposed at Arbor AKPO FPSO 30° 3413-C-302A 20° 310E-WO-073 50°-210 ABC-PO-067-10°-Ar13 Tank 20 000m3 60° 5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20° 310E-WO-073 16° Gas Pipe Line 10° and 12° 20° 30 line 2° oil line 24° oil/gas line 4° oil/gas line 20° gas/ glycol line	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion Internal corrosion Reternal corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Xazakhstan Vietnam Vietnam Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CCC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUU LONG JOC CUU LONG JOC CUU LONG JOC CUU LONG JOC HENGYUAN REFINING COMPANY BERHAD	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Diping reinforcement - Offshore Piping reinforcement - offshore Subber Offshore - Pipe reinforcement at pize	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 30° 3413-C° 302A 20° 3016-WO-073 50°-210 ABC-PO-067-10° Art3 Tank 20 000m3 60° 5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20° 310E-WO-073 16° Gas Pipe Line 10° and 12° 20° 31 line 24° oil Jine 24° oil Jine 24° oil Jine 24° oil Jine 24° oil Jine 24° oil Jine 24° oil Jine 20° gas/ glycol line 8° propylene line at Neat Jetty, Section5	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Leak Internal corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Vietnam Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CCC KPO CCC CC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Cuu Long JOC Cuu Long JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Offshore - Pipe reinforcement + Dffahre Offshore - Pipe reinforcement at HP fare Scubber	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Disposed at Arbor AKPO FPSO 16° Gas Disposed at Arbor AKPO FPSO 30° 3413-C-302A 20° 310E-WO-073 50°-210 ABC-PO-067-10°-Ar13 Tank 20 000m3 60° 5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20° 310E-WO-073 16° Gas Pipe Line 10° and 12° 20° 30 line 2° oil line 24° oil/gas line 4° oil/gas line 20° gas/ glycol line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Leak Internal corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Vietnam Vietnam Vietnam Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO CPC KPO TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU LONG JOC CUU LONG JOC CUU LONG JOC CUU LONG JOC HENGYUAN REFINING COMPANY BERHAD PETRONAS CHEMICALS MTBE SON BHD	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Piping reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Offshore - Pipe reinforcement at Piping Offshore - Pipe reinforcement at Piping Offshore - 2 defect Pipe reinforcement at Pipe Offshore - 2 defect Pipe reinforcement at mazele of HP flare scubber Offshore - 2 defect Pipe - Onshore Straight Pipe-Onshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Offloading marified at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping (2*-DF-0969           a0: 3413-C: 302A           20: 310E-WO-073           50-210 ABC:PO-067-10°-A13           Tark 20 000m3           60:5800-WW-021-4°-A11           2' OFD 1 Depressing Line           42°           12°           20:310E-WO-073           16° Gas Pipe Line           10° and 12°           20' oli line           2' oli line           2' oli line           20' oli line           20' oli line           20' gas/ glycol line           8' propylene line at Neat Jetty, Section5           1' & 2' (6 locations) pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO CPC KPO CPC KPO CPC CPC KPO CPC CPC KPO CPC CPC KPO CPC CPC KPO CPC CPC CPC CPC CPC CPC CPC CPC CPC C	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - 12' pipe reinforcement Diping Reinforcement Pipe reinforcement Pipe reinforcement Diping reinforcement Diping reinforcement Difshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Offshore - Pipe reinforcement at HP fiare scubber Offshore - 2 defect Pipe reinforcement at Piping reinforcement - offshore Difshore - 2 defect Pipe reinforcement at Piping reinforcement at HP fiare Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement-Onshore	30° pipeline - Fluid: Oil           16° Stabilized Oil from AMP1 to Export Line at ODP           36° Officading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n' in line on 32° FSO Export Metering. Pipingl (2°-DF-0969           4° water line           30° 3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10°-A13           Tank 20 000n3           60-5900-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           12°           20-310E-WO-073           16° Gas Pipe Line           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°           20° oil line           2° oil gas line           20° gas/ glycol line           8° propylene line at Neat Jetty, Section5           1° & 2° (6 locations) pipe at PCMTBE , PDH Plant           36° pipeline - Fluid: Oil	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak External corrosion & Leak External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Angola Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC CPC CPC CPC CPC TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUU Long JOC CUU LONG JOC PETRONAS CHEMICALS MTBE SON BHD ECOPETROL OPS	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° tipe reinforcement Offshore - 12° tipe reinforcement Offshore - 12° tipe reinforcement Diffshore - 12° tipe reinforcement Pipe damage, cause by road construction, Onshore Buried Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement at hP lare scubber Offshore - 10° and 12° pipe reinforcement at heat excluder Offshore - 10° and 12° pipe reinforcement at the lare scubber Offshore - 10° and 12° pipe reinforcement at heat excluder Offshore - 10° and 12° pipe reinforcement at heat scubber Offshore - 10° and 12° pipe reinforcement at heat Straight Pipe-Onshore Piping reinforcement - Offshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil           16' Stabilized Oil from AMP1 to Export Line at ODP           36' Offloading manifold at AKPO FPSO           16' Gas Riser at AKPO FPSO           n line on 32' FSO Export Metering - Piping (2'-DF-0969           a' water line           30' 3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10''-A13           Tark 20 000m3           60-5900-WW-021-4''-A11           2' OFD 1 Depressing Line           42'           12'           20-310E-WO-073           16' Gas Pipe Line           10' and 12'           20' oil line           2' oil/gas line           2' oil/gas line           20' gas/ glycol line           8' pipeline - FDukty Section5           1' & 2' (6 locations) pipe at PCMTBE , PDH Plant           36' pipeline - FNukt) Oil           20' di line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External corrosion External corrosion Internal corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Vietnam Vietnam Vietnam Malaysia COLOMBIA COLOMBIA	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Cuu Long JOC Cuu Long JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement Depe reinforcement - Offshore Onshore - Pipe 42° reinforcement Depe reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Deffshore - 10° and 12° pipe reinforcement Deffshore - 10° and 12° pipe reinforcement at Deffshore Offshore - 2 defect Pipe reinforcement at Pitare Subber Offshore - 2 defect Pipe reinforcement at M Plate Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Offloading marifield at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping (2*-DF-0969           a0: 3413-C-302A           20: 310E-WO-073           50-210 ABC-PO-067-10°-A13           Tark 20 000m3           60:5900-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20:310E-WO-073           16° Gas Pipe Line           10° and 12°           20' oli line           2° oli line           2° oli line           20° aga/ glycol line           8° propylene line at Neat Jetty, Section5           1° & 2° (6 locations) pipe at PCMTBE , PDH Plant           38° pipeline - Fluid: Oli           20° ol line           20° ol line           20° ol line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External Hole External Hole External Hole External corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO CPC KPO CPC KPO CPC KPO CPC CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - 12' pipe reinforcement Diping Reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 20 er einforcement at hP flare scubber Offshore - 2 defet Pipe reinforcement at Diffshore - 2 defet Pipe reinforcement at Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Offloading manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering. Pipingl (2°-DF-0969           4° water line           30° 3413-C-302A           20-310E-WO-073           50-210 ABC:PO-067-10°-A13           Tank 20 000m3           60-5900-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°           20° oli line           2° oli line           2° oli line           20° gas/ glycol line           8° populene ine at Next Jetty, Section5           1° & 2° (6 locations) pipe at PCMTBE , PDH Plant           36° pipeline - Fluid: Oli           20° oil line           36° pipeline - Fluid: Oli           20° oil line           20° oil line           20° oil line           20° oil line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Vietnam Vietnam Vietnam Malaysia COLOMBIA COLOMBIA	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Cuu Long JOC Cuu LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 12° pipe reinforcement Depe reinforcement - Offshore Onshore - Pipe 42° reinforcement Depe reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Deffshore - 10° and 12° pipe reinforcement Deffshore - 10° and 12° pipe reinforcement at Deffshore Offshore - 2 defect Pipe reinforcement at Pitare Subber Offshore - 2 defect Pipe reinforcement at M Plate Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil           16° Stabilized Oil from AMP1 to Export Line at ODP           36° Offloading marified at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering - Piping (2*DF-0969)           a           4° water line           30-3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10°-A13           Tark 20 000m3           60-5300-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°           20° oil line           2° oil line           2° oil line           20° oil kine           20° gas/ glycol line           8° propylene line at Neat Jetty, Section5           1° & 2° (6 locations) pipe at PCMTBE , PDH Plant           38° pipeline - Fluid: Oil           20° oil line           20° oil line           20° oil line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External Hole External Hole External Hole External corrosion External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam Vietnam COLOMBIA Angola Angola Angola France	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL CUL Long JOC CUL LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Difshore - 12' pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli           16° Stabilized Oli from AMP1 to Export Line at ODP           36° Officialing manifold at AKPO FPSO           16° Gas Riser at AKPO FPSO           n line on 32° FSO Export Metering. Pipingl (2°-DF-0969           4° water line           30° 3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10°-A13           Tank 20 000n3           60-5900-WW-021-4°-A11           2° OFD 1 Depressing Line           42°           12°           20-310E-WO-073           16° Gas Pipe Line           10° and 12°           20° 30 line           2° oil line           2° oil line           20° gas/ glycol line           8° pipeline - Fluid: Oli           20° oil line           20° oil line           20° oil line           20° gas/ glycol line           8° pipeline - Fluid: Oli           20° oil line	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion & Leak External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External corrosion Internal corrosion External corrosion External Hole External corrosion External corrosion External corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Cuu Long JOC Cuu LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - 12' pipe reinforcement Diping Reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 20 er einforcement at hP flare scubber Offshore - 2 defet Pipe reinforcement at Diffshore - 2 defet Pipe reinforcement at Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas October 10' Control 10' Control 30' 3413-C: 302A 20: 310E-WO-073 50: 210 ABC-PO-067-10''-A13 Tark 20 000m3 60: 5900-WW-021-4''-A11 2' OFD 1 Depressing Line 42' 12' 20: 310E-WO-073 16' Gas Pipe Line 10'' and 12' 20' oil line 20'' oil line 20'' gas/ giycol line 6'' propylene line at Neat Jetty, Section5 1' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 36'' pipeline - Fluid: Oil 20'' oil line 20'' oil line 10'' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 16'' & 2'' pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA UKRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam Vietnam COLOMBIA Angola Angola Angola France	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL CUL Long JOC CUL LONG JOC	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Difshore - 12' pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 10° Gas One WO-073 50-210 AEC-PO-067-10°-A13 Tank 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20-310E-WO-073 16° Gas Pipe Line 10° and 12° 20° Gil Ine 21° coll Ine 20° gas/ glycol line 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oil 20° Gil Ine 20° Gil Ine 20° Gil Ine 20° Gil Ine 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 1° & 2° pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak Internal corrosion & Leak External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External corrosion Internal corrosion External corrosion External Hole External corrosion External corrosion External corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Sep-18 Sep-18 Sep-18 Sep-18 Sep-18	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Angola Vietnam Vietnam Vietnam Vietnam COLOMBIA Angola Angola Angola France Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC CPC CPC CPC CPC TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU Long JOC CUU LONG JOC PETRONAS CHEMICALS MTBE SON BHD PETRONAS CHEMICALS MTBE SANKYU (M) SDN BHD	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Pipe reinforcement - Offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16'' Gas Riser at AKPO FPSO 16'' Gas Riser at AKPO FPSO 16'' Gas Riser at AKPO FPSO 16'' Cas Riser at AKPO FPSO 10'' Control Control Control Control 30' 3413-C-302A 20'310E-WO-073 50-210 ABC-PO-067-10''-A13 Tank 20 000m3 60-5900-WW-021-4''-A11 2'' OFD 1 Depressing Line 42'' 12'' 20'310E-WO-073 16'' Gas Pipe Line 10'' and 12'' 20' 310E-WO-073 16'' Gas Pipe Line 10'' and 12'' 20'' 30 line 20'' gas/ glycol line 8'' propylene line at Neat Jetty, Section5 1'' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 36'' propylene line 20'' 30 line 1''' & 2'' pipe at PCMTBE , PDH Plant 1'' elbow (line #. 1'' F607/1037-1330YY) at Fare Area, LRCC plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External Hole External Hole External Hole External corrosion External corrosion External corrosion External Hole External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Nov-18           Nov-18           Oct-18           Sep-18           Sep-18           Sep-18	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola France Malaysia Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUL Long JOC CUL LONG JOC DOS COPS COPS COPS COPS COPS COPS COPS CO	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Pite Subber Offshore - 10° and 12° pipe reinforcement at Offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas October 10' AT 30' 3413-C-302A 20'30E-WO-073 50-210 ABC-PO-067-10''A13 Tank 20 000m3 60-590-VWW-021-4''-A11 2' OFD 1 Depressing Line 42'' 12' 20' 310E-WO-073 16' Gas Pipe Line 10'' and 12'' 20' 30 line 21' oil line 22' oil line 21' oil gas line 4' cit/gas line 4' cit/gas line 20' di line 20' oil line 36'' pipeline - Fluid: Oil 20' oil line 4'' oil line 1'' & 2'' pipe at PCMTBE , PDH Plant 1'' & 2'' pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External Hole External Hole External corrosion External Hole External Corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Oct-18           Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola France Malaysia France Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JOC TOTAL PETRONAS CHEMICALS MTBE SON BHD SANKYU (M) SDN BHD GEOSTOCK TOTAL	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - Pipe 42' reinforcement Offshore - Pipe 42' reinforcement Offshore - 12' pipe reinforcement Offshore - 12' pipe reinforcement Offshore - 10' and 12' pipe reinforcement Offshore - Stariet - offshore Piping reinforcement - offshore Offshore - Zeffect Pipe reinforcement at hate exchanger Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Offioading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 18° Control Control Control Control Control 18° Control Control Control 18° Control Control Control 18° Control Control Control 18° Control 18° Control 18° Control Control 18° C	Protection against external loads External corrosion External corrosion Internal corrosion Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak External corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Sep-18 Se	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola France Malaysia Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUL Long JOC CUL LONG JOC DOS COPS COPS COPS COPS COPS COPS COPS CO	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Pite Subber Offshore - 10° and 12° pipe reinforcement at Offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas October 10' AT 30' 3413-C-302A 20'30E-WO-073 50-210 ABC-PO-067-10''A13 Tank 20 000m3 60-590-VWW-021-4''-A11 2' OFD 1 Depressing Line 42'' 12' 20' 310E-WO-073 16' Gas Pipe Line 10'' and 12'' 20' 30 line 21' oil line 22' oil line 21' oil gas line 4' cit/gas line 4' cit/gas line 20' di line 20' oil line 36'' pipeline - Fluid: Oil 20' oil line 4'' oil line 1'' & 2'' pipe at PCMTBE , PDH Plant 1'' & 2'' pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External Hole External Hole External corrosion External Hole External Corrosion External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Oct-18           Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola France Malaysia France Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JOC TOTAL PETRONAS CHEMICALS MTBE SON BHD SANKYU (M) SDN BHD SANKYU (M) SDN BHD	Pipe reinforcement - Onshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Pipe reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Straight Pipe-Onshore Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement - offshore Pipe reinforcement - offshore	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Offioading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 16° Gas Riser at AKPO FPSO 18° Control Control Control Control Control 18° Control Control Control 18° Control Control Control 18° Control Control Control 18° Control 18° Control 18° Control Control 18° C	Protection against external loads External corrosion External corrosion Internal corrosion Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion Leak External corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Corrosion	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Nov-18           Oct-18           Sep-18           Sep-18           Sep-18           Sep-18           Sep-18	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola Angola France Malaysia France Malaysia France Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JOC CUL LONG JOC CUL LONG JOC CUL LONG J	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Piping reinforcement - offshore Offshore - Pipe reinforcement at Pita Straight Pipe-Onshore Straight Pipe-Onshore Pipe reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - Offshore	30° pipeline - Fluid: Oil           16' Stabilized Oil from AMP1 to Export Line at ODP           36' Offloading manifold at AKPO FPSO           16' Gas Riser at AKPO FPSO           n line on 32' FSO Export Metering - Piping (2'-DF-0969           a' water line           30-3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10''-A13           Tank 20 000m3           60-5800-WW-021-4''-A11           2' OFD 1 Depressing Line           42''           12'           20-310E-WO-073           16' Gas Pipe Line           10' and 12'           20' oil line           2' oil line           2' oil line           20' digas line           20' gas/ glycol line           6' propylene line at Neat Jetty. Section5           1' & 2' (6 locations) pipe at PCMTBE , PDH Plant           36' pipeline - Fluid: Oil           20' oil line           4' oil line           20' oil line           4' oil CATBE , PDH Plant           36' pipeline - Fluid: Oil           20' oil line           4' oil line           20' oil line           1' & 2' pipe at PCMTBE , PDH Plant           1' & 2' pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External corrosion External Hole External Corrosion Internal corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Veid defect	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola Angola France Malaysia France NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Offshore - Pipe 42' reinforcement Offshore - 12' pipe reinforcement Offshore - 12' pipe reinforcement Offshore - 12' pipe reinforcement Offshore - 10' and 12' pipe reinforcement Offshore - Pipe reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - offshore Pipe reinforcement - offshore Pipe reinforcement - offshore Piping Reinforcement - Offshore	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 10° In line on 32° FSO Export Metering - Piping( 2°-DF-0969 4° water line 30°-3413-C-302A 20°-310E-WO-073 50°-210 ABC-PO-067-10°-A13 Tank 20 000m3 60°-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20°-310E-WO-073 16° Gas Pipe Line 10° and 12° 20°-310E-WO-073 16° Gas Pipe Line 21° oil line 22° oil line 22° oil line 22° oil line 20° gas/ glycol line 8° propylene line at Neat Jetty, Section5 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oli 20° oil line 4° oil gas 1° & 2° pipe at PCMTBE , PDH Plant 1° & 2° pipe at PCMTBE , PDH Plant 1° & 2° pipe at PCMTBE , PDH Plant 1° to pipe reinforcement 16° Crude Oli Riser Location B 2° 100-PW-501-3828	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion Leak External corrosion External Hole External Corrosion Internal corrosion Leaking defect & external corrosion Severe External corrosion Veid defect Internal corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola Angola France Malaysia France NIGERIA NIGERIA Kazakhstan Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC CPC KPO TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUU Long JOC CUU LONG JOC KINO SANKYU (M) SDN BHD GEOSTOCK TOTAL TOTAL CPC KPO KPO	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° tipe reinforcement Offshore - 12° tipe reinforcement Offshore - 12° tipe reinforcement Diffshore - 12° tipe reinforcement Pipe damage, cause by road construction, Onshore Buried Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement at Pipe Strate Pipe Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - Offshore	30° pipeline - Fluid: Oil           16° Stabilized Oil from AMP1 to Export Line at ODP           36° Offloading manifold at AKPO FPSO           16° Casa Riser at AKPO FPSO           16° Stabilized Oil from AMP1 to Export Line at ODP           36° Offloading manifold at AKPO FPSO           16° Casa Riser at AKPO FPSO           18° Control Contex Contro A	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External corrosion External Hole External Corrosion Internal corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Nov-18           Oct-18           Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola France Malaysia France Malaysia France Malaysia France Malaysia France Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL Cuu Long JOC Cuu LO	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 2 defect Pipe reinforcement at Pite Subber Offshore - 2 defect Pipe reinforcement at Pite Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - Offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas DExport Metering - Piping (2*-DF-0969 4' water line 30-3413-C-302A 20-310E-WO-073 50-210 AEC-PO-067-10''Ar13 Tank 20 000m3 60-590-VWW-021-4''-A11 2' OFD 1 Depressing Line 42' 12' 20-310E-WO-073 16' Gas Pipe Line 10'' and 12' 20' oil line 2'' oil line 2'' oil line 2'' oil gas line 4'' oil/gas line 4'' oil/gas line 20' gas/ glycol line 6'' propylene line at Neat Jetty. Section5 1'' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 36'' pipeline - Fluid: Oil 20' oil line 20' oil line 10'' at Oil Gas 20' oil line 10'' & 2'' pipe at PCMTBE , PDH Plant 1'' & 2'' pipe at PCMTBE , PDH Plant 20'' oil Riser Location A 16''Crude Oil Riser Location A 16''Crud	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion & Leak External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Veid defect Internal corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Niderad Angola Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola France Malaysia France NiGERIA	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JOC OPS OPS OPS TOTAL FETRONAS CHEMICALS MIBE SANKYU (M) SDN BHD SANKYU (M) SDN BHD	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - Pipe 42' reinforcement Pipe reinforcement - Offshore Pipe damage, cause by road construction, Onshore Buried Offshore - 10' and 12' pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping Reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	30° pipeline - Fluid: Oil 16° Stabilized Oil from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 10° Gas One WO-073 50-210 AEC-PO-067-10°-A13 Tank 20 000m3 60-5900-WW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20-310E-WO-073 16° Gas Pipe Line 10° and 12° 20° Gil Ine 21° cil Ine 21° cil Ine 21° cil Ine 20° gas/ glycol line 8° propylene line at Neat Jetty, Section5 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oil 20° Gil Ine 4° cil Gas 1° & 2° ge at PCMTBE , PDH Plant 1° & 2° Gil Ine 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 1° Sec Pipe at PCMTBE , PDH Plant 1° Crude Oil Riser Location B 20° Gil Riser Location B 20° Cil Riser Location B 20° Cil Riser Location B 20° Ine 50°-210D-PW-5013-B28 20° Sinter Ine 20° water Ine 20° water Ine	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion & Leak External corrosion & Leak External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion Internal corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Meld defect Internal corrosion Internal corrosion External Hole External Hole External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Nov-18           Oct-18           Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola France Malaysia France Malaysia France Malaysia France Malaysia France Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU Long JOC CUU LONG JOC OPS OPS OPS OPS OPS	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 2 defect Pipe reinforcement at Pite Subber Offshore - 2 defect Pipe reinforcement at Pite Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - Offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas DExport Metering - Piping (2*-DF-0969 4' water line 30-3413-C-302A 20-310E-WO-073 50-210 AEC-PO-067-10''Ar13 Tank 20 000m3 60-590-VWW-021-4''-A11 2' OFD 1 Depressing Line 42' 12' 20-310E-WO-073 16' Gas Pipe Line 10'' and 12' 20' oil line 2'' oil line 2'' oil line 2'' oil gas line 4'' oil/gas line 4'' oil/gas line 20' gas/ glycol line 6'' propylene line at Neat Jetty. Section5 1'' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 36'' pipeline - Fluid: Oil 20' oil line 20' oil line 10'' at Oil Gas 20' oil line 10'' & 2'' pipe at PCMTBE , PDH Plant 1'' & 2'' pipe at PCMTBE , PDH Plant 20'' oil Riser Location A 16''Crude Oil Riser Location A 16''Crud	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion & Leak External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Veid defect Internal corrosion External corrosion External corrosion	3X Distributor 3X Monaco 3X Distributor 3X Monaco 3X Distributor 3X Distributor
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Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Angola Angola Vietnam Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA COLOMBIA Angola Angola Angola France NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA NIGERIA Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC KPO TOTAL CIM TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Pipe Studiet Pipe reinforcement at Piter Studiet Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - Offshore	30° pipeline - Fluid: Oli 16° Stabilized Oli from AMP1 to Export Line at ODP 36° Offloading manifold at AKPO FPSO 16° Gas Riser at AKPO FPSO 10° Gas Observer 10° A13 50-210 AEC-PO-067 10° A13 17 ank 20 000m3 160-5800-VW-021-4°-A11 2° OFD 1 Depressing Line 42° 12° 20°-310E-WO-073 16° Gas Pipe Line 10° and 12° 20° oil line 2° oil line 2° oil line 2° oil line 2° oil line 2° oil line 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oli 20° oil line 4° oil/gas line 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 1° & 2° (6 locations) pipe at PCMTBE , PDH Plant 1° & 2° pipe at PCMTBE , PDH Plant 1° & 2° pipe at PCMTBE , PDH Plant 1° & 2° pipe at PCMTBE , PDH Plant 1° Crude Oli Riser Location B 20° oil Riser Location B 20° oil Riser Location B 20° oil Riser Location B 20° oil Riser Location A 16° Crude Oli Riser Location B 20° water line 20° water line 20° sater line 20° sater line 20° sater line 20° sater line 20° sa	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak External corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External Hole External Hole External Hole External Hole External Hole External corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Veid defect Internal corrosion External Hole External Hole	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distributor
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Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan NIGERIA Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola Angola France Malaysia France Malaysia France NIGERIA Malaysia France NIGERIA Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC CPC CPC CPC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU LONG JOC CUU LONG JOC OPS OPS OPS OPS OPS OPS OPS OPS OPS OPS	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement - Offshore Pipe damage, cause by road construction, Onshore Buried Offshore - 12° pipe reinforcement Piping reinforcement - Offshore Piping Reinforcement - Offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 30' 3413-C: 302A 20'301E-WO-073 50-210 ABC-PO-067-10''A13 Tark 20 000m3 60-5900-WW-021-4''-A11 2' OFD 1 Depressing Line 42'' 12' 20:310E-WO-073 16' Gas Pipe Line 10' and 12' 20'301E- 20' 01 line 2'' oil gas line 4'' oil/gas line 4'' oil/gas line 1'' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oil 20'' oil line 20'' oil line 20'' oil line 1'' & 2'' pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oil 20'' oil line 1'' & 2'' pipe at PCMTBE , PDH Plant 1'' elbow (line #. 1'' F6071037-1330YY) at Flare Area, LRCC plant 20'' teo pipe reinforcement 16''Crude Oil Riser Location A 16'' Crude Oil Riser Location A 16''Crude Oil Riser Locat	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion External corrosion Derivation from 18 'to 14' in pipeline External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion Internal corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion External Hole External corrosion Hole - Internal corrosion + 12 defects Preventive repar	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distr
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Nideria Nagola Angola Angola Angola Angola Angola Angola Angola Angola Angola France Malaysia France Malaysia France NIGERIA Angola Angola Angola Angola Angola Angola Angola France NIGERIA Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC CPC CPC CPC CPC CPC CPC CPC TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU Long JOC CUU LONG JOC OPS OPS OPS OPS OPS OPS OPS OPS OPS OPS	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° tipe reinforcement Offshore - 12° tipe reinforcement Offshore - 12° tipe reinforcement Diffshore - 12° tipe reinforcement Pipe damage, cause by road construction, Onshore Buried Offshore - 10° and 12° pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement Diffshore - 10° and 12° pipe reinforcement - offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Pipe Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - Offshore Piping reinforcement - Offshore	30° pipeline - Fluid: Oil           16' Stabilized Oil from AMP1 to Export Line at ODP           36' Offloading manifold at AKPO FPSO           16' Gas Riser at AKPO FPSO           n line on 32' FSO Export Metering - Piping (2'-DF-0969           a' water line           30' 3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10''-A13           Tark 20 000m3           60-5900-WW-021-4''-A111           2' OFD 1 Depressing Line           42'           12'           20-310E-WO-073           16' Gas Pipe Line           10' and 12'           20-310E-WO-073           16' Gas Pipe Line           10' and 12'           20' oil line           2' oil line           2' oil line           2' oil gas line           20' gas/ glycol line           8' propylene line at Neat Jetty. Secton5           1' & 2' (6 locations) pipe at PCMTBE , PDH Plant           36' pipeline - FNui: Oil           20' oil line           20' line           1' & 2' pipe at PCMTBE , PDH Plant	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion & Leak External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External corrosion Internal corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion External Hole External	3X Distributor 3X Monaco 3X Monaco 3X Distributor 3X Distr
Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Dec-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Nov-18 Oct-18 Oc	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan Nidersia Nidersia Nidersia Nidersia Nidersia Nidersia Malaysia France Malaysia France Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia France Nidersia Malaysia Malaysia France Nidersia Malaysia	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC CPC CPC CPC KPO TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUU LONG JOC CUU LONG JOC OPS OPS OPS OPS OPS OPS OPS OPS OPS OPS	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Offshore - 12° pipe reinforcement Offshore - 10° and 12° pipe reinforcement - Offshore Piping reinforcement - offshore Offshore - 10° and 12° pipe reinforcement at Piping Straight Pipe-Onshore Straight Pipe-Onshore Piping reinforcement - offshore Piping reinforcement - onshore Piping Piping reinforcement - onshore Piping Piping Pipe-Onshore	30° ipjeline - Fluid: Oil           16' Stabilized Oil from AMP1 to Export Line at ODP           36' Offloading manifold at AKPO FPSO           16' Gas Riser at AKPO FPSO           n line on 32' FSO Export Metering - Piping (2*-DF-0969           a' water line           30-3413-C-302A           20-310E-WO-073           50-210 ABC-PO-067-10''-A13           Tank 20 000m3           60-5800-WW-021-4''-A11           2' OFD 1 Depressing Line           42''           12'           20-310E-WO-073           16' Gas Pipe Line           10' and 12'           20-310E-WO-073           16' Gas Pipe Line           10' and 12'           20' oil line           2' oil line           2' oil line           2' oil line           20' gas/ glycol line           6' propylene line at Neat Jetty, Section5           1' & 2' (6 locations) pipe at PCMTBE , PDH Plant           36' pipeline - Fluid: Oil           20' oil line           4' oil line           20' oil line           4' oil line           6' gaz           1' & 2' pipe at PCMTBE , PDH Plant           16' Crude Oil Riser Location A           16 'Crude Oil Riser Locat	Protection against external loads External corrosion External corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion Internal corrosion Internal corrosion Severe External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External role External role	3X Distributor 3X Distributor
Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Dec-18           Nov-18           Nov-18           Nov-18           Oct-18           Aug-18           Aug-18           Aug-18           Aug-18           Aug-18           Aug-18           Aug-18           Au	COLOMBIA NIGERIA NIGERIA NIGERIA NIGERIA URRAINE Kazakhstan Kazakhstan Kazakhstan Kazakhstan NIGERIA France The Netherlands Kazakhstan Indonesia The Netherlands Kazakhstan NIGERIA Vietnam Vietnam Vietnam Vietnam Vietnam Malaysia COLOMBIA Angola Angola Angola Angola France Malaysia France Malaysia France NIGERIA Malaysia France NIGERIA Kazakhstan	OCENSA TOTAL TOTAL TOTAL TOTAL TOTAL KRISTAL-8 KPO KPO CPC KPO CPC CPC KPO TOTAL CIM TOTAL CIM TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL CUL LONG JOC CUL LONG JO	Pipe reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Piping Reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement - Offshore Pipe reinforcement - Offshore Pipe reinforcement - Offshore Pipe damage, cause by road construction, Onshore Buried Offshore - 12° pipe reinforcement Piping reinforcement - Offshore Piping Reinforcement - Offshore	30° pipeline - Fluid: Oil 16' Stabilized Oil from AMP1 to Export Line at ODP 36' Offloading manifold at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 16' Gas Riser at AKPO FPSO 30' 3413-C: 302A 20'301E-WO-073 50-210 ABC-PO-067-10''A13 Tark 20 000m3 60-5900-WW-021-4''-A11 2' OFD 1 Depressing Line 42'' 12' 20:310E-WO-073 16' Gas Pipe Line 10' and 12' 20'301E- 20' 01 line 2'' oil gas line 4'' oil/gas line 4'' oil/gas line 1'' & 2'' (6 locations) pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oil 20'' oil line 20'' oil line 20'' oil line 1'' & 2'' pipe at PCMTBE , PDH Plant 36° pipeline - Fluid: Oil 20'' oil line 1'' & 2'' pipe at PCMTBE , PDH Plant 1'' elbow (line #. 1'' F6071037-1330YY) at Flare Area, LRCC plant 20'' teo pipe reinforcement 16''Crude Oil Riser Location A 16'' Crude Oil Riser Location A 16''Crude Oil Riser Locat	Protection against external loads External corrosion External corrosion Internal corrosion & Leak External corrosion Internal corrosion Internal corrosion Leak Internal corrosion & Leak External corrosion External corrosion Derivation from 18 'to 14' in pipeline External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion Internal corrosion Leaking defect & external corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion Severe External corrosion External Hole External corrosion Hole - Internal corrosion + 12 defects Preventive repar	3X Distributor 3X Monaco 3X Monaco 3X Monaco 3X Distributor 3X Distributo

| June-18         Maloysia         HENOYUM REFINING COMPANY<br>BERHAD         Straight Pipe-Orabore         1" Pipe at V7300 (back site near<br>C-7801, 14CC Plant         Internal consolon           Moy-18         Angola         TOTAL         Piping metacoment - diffuore         16" of line         External Hole           May-18         Angola         OPS         Piping metacoment - diffuore         14" of line         External Hole           May-18         Angola         OPS         Piping metacoment - diffuore         14" of line         External Hole           May-18         Angola         OPS         Piping metacoment - diffuore         14" of line         External Hole           May-18         Angola         OPS         Piping metacoment - diffuore         34" Welded on 12"SH-3201-C51 (location A)         External Hole           May-18         NIGERIA         TOTAL         Piping Refiratoment - Offabore         34" Welded on 12"SH-3201-C51 (location B)         External corrosion           May-18         NIGERIA         TOTAL         Piping Refiratoment - Offabore         34" Welded on 12"SH-3201-C51 (location B)         External corrosion           May-18         NIGERIA         TOTAL         Piping Refiratoment - Offabore         34" Welded on 12"SH-3201-C51 (location B)         External corrosion           May-18         NIGERIA         TOTAL <th>Hole         3X Distributor           Hole         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor</th>   | Hole         3X Distributor           prosion         3X Monaco           prosion         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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May-16         Angela         TOTAL         Piping rendrocamest - offshore         16" of line         External Hole           May-18         Angela         OPS         Piping rendrocamest - offshore         14" of line         External Hole         1           May-18         Angela         OPS         Piping rendrocamest - offshore         14" of line         External Hole         1           May-18         Angela         OPS         Piping rendrocamest - offshore         14" of line         External Hole         1           May-18         Angela         OPS         Piping Rendrocamest - offshore         14" of line         External corrosion           May-18         NIGERIA         TOTAL         Piping Rendrocamest - Offshore         34" Welded on 12"SH-322" of 51" offsmore         34" Welded on 12"SH-322" of 51" offsmore         15" offsmore         34" Welded on 12"SH-322" of 51" offsmore         34" Welded on 12"SH-322" of 51" offsmore         34" Welded on 12"SH-32" offsmore         34" Welded on 12"SH-32" offsmore </td <td>Hole         3X Distributor           Hole         3X Distributor           Hole         3X Distributor           Hole         3X Distributor           Hole         3X Distributor           IHole         3X Distributor           Irrosion         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor</td>	Hole         3X Distributor           IHole         3X Distributor           Irrosion         3X Distributor           prosion         3X Monaco           prosion         3X Distributor						
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Angaba         OPS         Pping reinforcement - offshore         14° of Ine         External Hole           May-18         Angaba         OPS         Pping reinforcement - offshore         14° of Ine         External Hole         Internal Mole           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (12'5H-320-1C) (location A)         External Ande           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (12'5H-320-1C) (location B)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (Location C)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         34' Welded en (Location G)         External corrosion           May-18         NIGERIA  | Hole         3X Distributor           Hole         3X Distributor           Hole         3X Distributor           arrosian         3X Monaco           arrosian         3X Distributor           arrosian         3X Distributor      arosian         3X Distributor </td   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Angela         OPS         Pping reinforcement - diffuore         14° of line         Esternal Hole           May-18         NiGERIA         TOTAL         Pping Reinforcement - diffuore         34° Weldet or 12°H-320-C51 (location A)         External Hole           May-18         NiGERIA         TOTAL         Pping Reinforcement - Offshore         34' Weldet or 12°H-320-C51 (location A)         External corrosion           May-18         NiGERIA         TOTAL         Pping Reinforcement - Offshore         34' Weldet or 12°H-320-C51 (location A)         External corrosion           May-18         NiGERIA         TOTAL         Pping Reinforcement - Offshore         34' Weldet or (Location C)         External corrosion           May-18         NiGERIA         TOTAL         Pping Reinforcement - Offshore         34' Weldet or (Location F)         External corrosion           May-18         NiGERIA         TOTAL         Pping Reinforcement - Offshore         34' Weldet or (Location F)         External corrosion           May-18         NiGERIA         TOTAL         Pping Reinforcement - Offshore         34' Weldet or (Location F)         External corrosion           May-18         Malbysia         HENGYUAN REFINIO COMPANY<br>BERHAD         Reducer-Onshore         2' to 2'reducer dt -760 (LGC 103), LRCC         Internal corrosion           May-18  | Hole         3X Distributor           Hole         3X Distributor           Hole         3X Distributor           prosion         3X Moraeo           prosion         3X Distributor           prosion         3X Distributor <t< td=""></t<>   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-16         Angola         OPS         Piping reinforcement - offshore         14* alie         External Hole           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt 12*3H-3021-C51 (location A)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt 12*3H-3021-C51 (location B)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weidede nt (Location F)         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMAD         Reducer-Onshore         2* to 12* reducer al V-7609 (78 LG 1043), LRCC Plant         Internal corrosion   | Hole         3X Distributor           prrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor      prorision         3X Distributor <tr p<="" td=""></tr> <tr><td>May-16         INIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Weldeld on 12°SH-3021-C51 (location A)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Weldeld on 12°SH-3021-C51 (location B)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         11 /2" Advanced on Infin dingua (location C)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         Malaysia         HENGYUAR REFINING COMPANY         Reducer-Onshore         2" to 1/2" pipe at C-7601, LRCC Plant         Internal consolon           May-18         Malaysia         HENGYUAR REFINING COMPANY         Straight Pipe-Onshore         2" to 1/2" reducer at V-7600 (76.LG 1009), LRCC Plant</td><td>arrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor</td></tr> <tr><td>May-18         INIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on 12°SH-3021-C51 (location B)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location G)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location G)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         2' to 12'' cold of FLO 103, LECC         Internal controlin           May-18         Malaysia         HENTYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Chabre         3'' pipe at C-7601, LECC Plant         Internal controlin           May-18         Malaysia         HENTYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Chabre         2' to ''' cold cack ade near<br/>C-7601, LECC Plant         Internal controli</td><td>3X Distributor           arrosion         3X Monaco           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Distributor</td></tr> <tr><td>May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         11/2* Nozele on blind itange (Location C)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         6* Ppi on Location F         External corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br/>BERHAD         Straight Ppe-Onshore         2* to 1/2* pip at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br/>BERHAD         Straight Ppe-Onshore         3* pip at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br/>BERHAD         Straight Ppe-Onshore         2* to 1/* reducer at V-7600 (78 LG 1009), LRCC Plant         In</td><td>3X Distributor           arrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosi</td></tr> <tr><td>May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location D)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location D)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location F)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location G)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         6" Pring on Location F         External consistion           May-18         NIGERIA         HENGYUAN REFINING COMPANY<br/>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609, LRCC Plant         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer</td><td>Strostin      
  3X Distributor           strosion         3X Monaco           strosion         3X Distributor           strosion         3X Monaco           strosion         3X Distributor           strosin         3X Dis</td></tr> <tr><td>May-18         NIGER/A         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location E)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location G)         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         1/2' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Strai</td><td>3X Distributor           arrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor      <tr tbotp<="" tr=""> <tr tbu<="" td=""></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R</td><td>arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di</td></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor</td><td>3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco           prrosion         3X Distributor           prosion         3X Distributor  </td></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement</td><td>arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rorosion 3X Distributor<br/>rorosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n          
May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X bistributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br/>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18<!--</td--><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td></td></tr><tr><td>Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br/>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co</td><td>rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     orrosion     3X Distributor</td></tr><tr><td>May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br/>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'4* line         External Corrosion         &lt;</td><td>3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping
r</td><td>3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola</td><td>orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion</td><td>SX Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho</td><td>orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion         Apr-18</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe<!--</td--><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co</td><td>3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion        
4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<></td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" fare system line         External Corrosion           Apri-18         Angola         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr18         Angola         TOTAL         Piping reinforcement - dfshore         1" flare system line         External Corrosion           Apr18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - 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offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td></td></tr><tr><td>April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion</td><td>JA DISTIDUTO</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>April-18 Russia SIBUR piperositore 159mm/auagutume-ond internacionadari<br/>April-18 Russia SIBUR piperositore 159mm/auagutume-ond Internacionadari</td><td></td></tr><tr><td>April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion</td><td></td></tr><tr><td>April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion</td><td>arrosion 3X Distributor</td></tr><tr><td>BERHAD</td><td></td></tr><tr><td>Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole</td><td></td></tr><tr><td>Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole</td><td>I Hole 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion</td><td>prosion 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion</td><td>STOSION SX Distributor</td></tr><tr><td>Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion</td><td>prrosion 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru</td><td></td></tr><tr><td>Mar-18 Russia SIBUR Performancement of the Control Con</td><td>SUD + ITOL 3Y Distributor</td></tr><tr><td>Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion</td><td></td></tr><tr><td>Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion</td><td>prrosion 3X Distributor</td></tr><tr><td>Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco</td></tr><tr><td>Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco</td></tr><tr><td>Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal &amp; external corrosion - 5 defects</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco</td></tr><tr><td></td><td>vrrosion         3X Distributor           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           vrrosion         3X Distributor</td></tr><tr><td>Feb-18 Iran NIGC Pipereinforcement / onshore 8<sup>r</sup> pipereinforcement Extend concession 3 defects</td><td>3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco</td></tr><tr><td></td><td>vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects</td><td>3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External
Hole</td><td>3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects</td><td>vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole</td><td>vrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>a defects 3X Monaco<br/>on - 3 defects 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18</td><td>vrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion</td><td>rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv     Adv</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>arrosion 3X Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line      
External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion    </td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion</td><td>vrrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>Hole 3X Distributor<br/>AN Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA<!--</td--><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td></td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid:</td><td>rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 4 Stributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2!l9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - offshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         ColoMBIA         OCENSA        
Pipe reinforcement         60-5620-WW-114-4''-A11         Inter</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>rrosion - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair<br/>and dent repair<br/>prosion 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c</td><td>rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>rrosion 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor</td></tr><tr><td>Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>rrosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement</td><td>rrosion</td></tr><tr><td>Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone</td><td>vrosion 3X
Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>SX Distrib</td></tr><tr><td>Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Manaco<br/>prosion 3X Distributor<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion</td><td>rrosion</td></tr><tr><td>Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Manaco<br/>prrosion 3X Distributor<br/>i Hole 3X Distributor<br/>and dent repair<br/>ax Distributor<br/>prrosion 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan         <td< td=""><td>arrosion arrosion ar</td></td<></td></tr><tr><td>Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi</td><td>arrosion arrosion ar</td></tr><tr><td>Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio</td><td>rrosion</td></tr><tr><td>Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17</td><td>rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         arrosion</td></tr><tr><td>Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c</td><td>rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro</td></tr><tr><td>Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole           
Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan<!--</td--><td>rorosion         3X Distributor         arrosion         3X Distributor         a</td></td></tr><tr><td>Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a</td></tr><tr><td>Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr</td></tr><tr><td>Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr</td></tr><tr><td>Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO</td><td>arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion         3X Distributor           prosion</td></tr><tr><td>Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse</td><td>rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion</td></tr><tr><td>Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar</td></tr><tr><td>Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If         If</td><td>arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent repair     3X Distributor       prosion     3X Distributor       prosion</td></tr><tr><td>Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas)         <thip (catabas)<="" programmed="" th=""></thip></td><td>rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br/>Hole<br/>3X Distributor<br/>rrosion<br/>3X Distributor<br/>rrosin</td></tr></tr></td></tr> | May-16         INIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Weldeld on 12°SH-3021-C51 (location A)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Weldeld on 12°SH-3021-C51 (location B)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         11 /2" Advanced on Infin dingua (location C)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         Malaysia         HENGYUAR REFINING COMPANY         Reducer-Onshore         2" to 1/2" pipe at C-7601, LRCC Plant         Internal consolon           May-18         Malaysia         HENGYUAR REFINING COMPANY         Straight Pipe-Onshore         2" to 1/2" reducer at V-7600 (76.LG 1009), LRCC Plant                                       | arrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor                 | May-18         INIGERIA       
 TOTAL         Piping Reinforcement - Offshore         3/4 Welded on 12°SH-3021-C51 (location B)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location G)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location G)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         2' to 12'' cold of FLO 103, LECC         Internal controlin           May-18         Malaysia         HENTYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Chabre         3'' pipe at C-7601, LECC Plant         Internal controlin           May-18         Malaysia         HENTYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Chabre         2' to ''' cold cack ade near<br>C-7601, LECC Plant         Internal controli                            | 3X Distributor           arrosion         3X Monaco           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Distributor | May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         11/2* Nozele on blind itange (Location C)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         6* Ppi on Location F         External corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br>BERHAD         Straight Ppe-Onshore         2* to 1/2* pip at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br>BERHAD         Straight Ppe-Onshore         3* pip at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br>BERHAD         Straight Ppe-Onshore         2* to 1/* reducer at V-7600 (78 LG 1009), LRCC Plant         In                               | 3X Distributor           arrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosi | May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location D)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location D)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location F)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location G)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         6" Pring on Location F         External consistion           May-18         NIGERIA         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609, LRCC Plant         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer                   | Strostin         3X Distributor           strosion         3X Monaco           strosion         3X Distributor           strosion         3X Monaco           strosion         3X Distributor           strosin         3X Dis | May-18         NIGER/A         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location E)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location G)         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         1/2' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Strai | 3X Distributor           arrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor <tr tbotp<="" tr=""> <tr tbu<="" td=""></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R</td><td>arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di</td></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor</td><td>3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco          
prrosion         3X Distributor           prosion         3X Distributor  </td></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement</td><td>arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rorosion 3X Distributor<br/>rorosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X bistributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br/>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18<!--</td--><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td></td></tr><tr><td>Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext</td><td>rrosion 3X
Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br/>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co</td><td>rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     orrosion     3X Distributor</td></tr><tr><td>May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br/>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'4* line         External Corrosion         &lt;</td><td>3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping r</td><td>3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola</td><td>orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion</td><td>SX Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho</td><td>orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line        
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offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co</td><td>3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<></td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - 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offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1° fare system line         External Corrosion           Aprl-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe
        External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor</td></tr><tr><td>Apr.18         Angola         TOTAL         Piping reinforcement - offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td></td></tr><tr><td>April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion</td><td>JA DISTIDUTO</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>April-18 Russia SIBUR piperositore 159mm/auagutume-ond internacionadari<br/>April-18 Russia SIBUR piperositore 159mm/auagutume-ond Internacionadari</td><td></td></tr><tr><td>April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion</td><td></td></tr><tr><td>April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion</td><td>arrosion 3X Distributor</td></tr><tr><td>BERHAD</td><td></td></tr><tr><td>Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole</td><td></td></tr><tr><td>Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole</td><td>I Hole 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion</td><td>prosion 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion</td><td>STOSION SX Distributor</td></tr><tr><td>Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion</td><td>prrosion 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru</td><td></td></tr><tr><td>Mar-18 Russia SIBUR Performancement of the Control Con</td><td>SUD + ITOL 3Y Distributor</td></tr><tr><td>Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion</td><td></td></tr><tr><td>Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion</td><td>prrosion 3X Distributor</td></tr><tr><td>Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco</td></tr><tr><td>Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco</td></tr><tr><td>Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal &amp; external corrosion - 5 defects</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco</td></tr><tr><td></td><td>vrrosion         3X Distributor           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           vrrosion         3X Distributor</td></tr><tr><td>Feb-18 Iran NIGC Pipereinforcement / onshore 8<sup>r</sup> pipereinforcement Extend concession 3 defects</td><td>3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco</td></tr><tr><td></td><td>vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects</td><td>3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects</td><td>vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole</td><td>vrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>a defects 3X Monaco<br/>on - 3 defects 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18</td><td>vrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X
Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion</td><td>rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv     Adv</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>arrosion 3X Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion    </td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion</td><td>vrrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>Hole 3X Distributor<br/>AN Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA<!--</td--><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td></td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K</td><td>vrosion 3X Distributor<br/>prrosion 3X
Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid:</td><td>rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 4 Stributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2!l9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - offshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-4''-A11         Inter</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>rrosion - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair<br/>and dent repair<br/>prosion 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c</td><td>rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>rrosion 3X Distributor<br/>Hole
3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor</td></tr><tr><td>Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>rrosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement</td><td>rrosion</td></tr><tr><td>Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>SX Distrib</td></tr><tr><td>Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Manaco<br/>prosion 3X Distributor<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion</td><td>rrosion</td></tr><tr><td>Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Manaco<br/>prrosion 3X Distributor<br/>i Hole 3X Distributor<br/>and dent repair<br/>ax Distributor<br/>prrosion 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole         
  Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan         <td< td=""><td>arrosion arrosion ar</td></td<></td></tr><tr><td>Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi</td><td>arrosion arrosion ar</td></tr><tr><td>Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio</td><td>rrosion</td></tr><tr><td>Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17</td><td>rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         arrosion</td></tr><tr><td>Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c</td><td>rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro</td></tr><tr><td>Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan<!--</td--><td>rorosion         3X Distributor         arrosion         3X Distributor         a</td></td></tr><tr><td>Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a</td></tr><tr><td>Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr</td></tr><tr><td>Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr</td></tr><tr><td>Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping
interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO</td><td>arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion         3X Distributor           prosion</td></tr><tr><td>Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse</td><td>rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion</td></tr><tr><td>Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar</td></tr><tr><td>Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If         If</td><td>arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent repair     3X Distributor       prosion     3X Distributor       prosion</td></tr><tr><td>Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas)         <thip (catabas)<="" programmed="" th=""></thip></td><td>rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br/>Hole<br/>3X Distributor<br/>rrosion<br/>3X Distributor<br/>rrosin</td></tr></tr> | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R   | arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor  | 3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco           prrosion         3X Distributor           prosion         3X Distributor | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement | arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X
Distributor<br>rrosion 3X Distributor<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rorosion 3X Distributor<br>rorosion 3X Distributor<br>orrosion 3X Distributor  | May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X bistributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | May-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18 </td <td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td> | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>  | Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext   | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co | rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     orrosion     3X Distributor | May-18         Malaysia        
HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'4* line         External Corrosion         <  | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping r  | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola   | orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor           orrosion         3X Distributor | May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion  | SX Monaco           orrosion         3X Distributor           orrosion         3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho   | orrosion         3X Distributor           orrosion         3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion  
        Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion         Apr-18 | orrosion 3X Distributor<br>orrosion 3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe </td <td>orrosion         3X Distributor           orrosion         3X Distributor</td> | orrosion         3X Distributor           orrosion         3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co | 3X Distributor           orrosion         3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<> | orrosion         3X Distributor           orrosion         3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" fare system line         External Corrosion           Apri-18         Angola         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr18         Angola         TOTAL         Piping reinforcement - dfshore         1" flare system line         External Corrosion           Apr18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1° fare system line         External Corrosion           Aprl-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion | orrosion 3X Distributor<br>orrosion 3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL   
     Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion | orrosion 3X Distributor | Apr.18         Angola         TOTAL         Piping reinforcement - offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion |                         | April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion   | JA DISTIDUTO            |   |  |   |                       | April-18 Russia SIBUR piperositore 159mm/auagutume-ond internacionadari<br>April-18 Russia SIBUR piperositore 159mm/auagutume-ond Internacionadari |                        | April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion       |                        | April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion | arrosion 3X Distributor | BERHAD  |                         | Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole  |                           | Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole  | I Hole 3X Distributor     | Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion                      | prosion 3X Distributor  | Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion                 | STOSION SX Distributor                        | Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion       | prrosion 3X Distributor   | Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru                                |   | Mar-18 Russia SIBUR Performancement of the Control Con | SUD + ITOL 3Y Distributor   | Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion        |   | Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion             | prrosion 3X Distributor  | Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion  | orrosion 3X Distributor<br>orrosion 3X Monaco   | Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion  | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco  | Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal & external corrosion - 5 defects  | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco  |  
   | vrrosion         3X Distributor           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           vrrosion         3X Distributor  | Feb-18 Iran NIGC Pipereinforcement / onshore 8 <sup>r</sup> pipereinforcement Extend concession 3 defects  | 3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco   |   | vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor   | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects  | 3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole   | 3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor   | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects  | vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole  | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>a defects 3X Monaco<br>on - 3 defects 3X Distributor<br>Hole 3X Distributor   
  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole  | 3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole  | 3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole  | 3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor  | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18  | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor   | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion   
   | rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv     Adv | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor  | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>arrosion 3X Distributor   | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor  | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola   
 CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion  | vrrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>Hole 3X Distributor<br>AN Distributor   | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA </td <td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td> | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor<br>prosion 3X Distributor<br>arrosion 3X Distributor<br>prosion 3X Distributor  | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON    
    Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 4 Stributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor                     | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2!l9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - offshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-4''-A11         Inter  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor   | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil       | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>rrosion - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair<br>and dent repair<br>prosion 3X Distributor<br>prosion 3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c | rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement        
66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor   | Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>prosion 3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement   | rrosion  
  | Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distrib | Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Manaco<br>prosion 3X Distributor<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor   | Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion  | rrosion   | Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola        
CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Manaco<br>prrosion 3X Distributor<br>i Hole 3X Distributor<br>and dent repair<br>ax Distributor<br>prrosion 3X Distributor<br>prosion 3X Distributor   | Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan <td< td=""><td>arrosion arrosion ar</td></td<>        | arrosion ar | Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi          | arrosion ar | Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio   | rrosion   | Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17   | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         arrosion    | Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c  
  | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro | Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan </td <td>rorosion         3X Distributor         arrosion         3X Distributor         a</td> | rorosion         3X Distributor         arrosion         3X Distributor         a | Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza   | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a | Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins   | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr | Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO   | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr | Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO | arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion         3X Distributor           prosion | Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse | rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion | Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar | Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If         If | arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent repair     3X Distributor       prosion     3X Distributor       prosion | Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas) <thip (catabas)<="" programmed="" th=""></thip> | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br>Hole<br>3X Distributor<br>rrosion<br>3X Distributor<br>rrosin |
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| May-16         INIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Weldeld on 12°SH-3021-C51 (location A)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Weldeld on 12°SH-3021-C51 (location B)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         11 /2" Advanced on Infin dingua (location C)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4" Weldeld on (Location F)         External consolon           May-18         Malaysia         HENGYUAR REFINING COMPANY         Reducer-Onshore         2" to 1/2" pipe at C-7601, LRCC Plant         Internal consolon           May-18         Malaysia         HENGYUAR REFINING COMPANY         Straight Pipe-Onshore         2" to 1/2" reducer at V-7600 (76.LG 1009), LRCC Plant   | arrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         INIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on 12°SH-3021-C51 (location B)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location D)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location G)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4 Welded on (Location G)         External controlin           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         2' to 12'' cold of FLO 103, LECC         Internal controlin           May-18         Malaysia         HENTYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Chabre         3'' pipe at C-7601, LECC Plant         Internal controlin           May-18         Malaysia         HENTYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Chabre         2' to ''' cold cack ade near<br>C-7601, LECC Plant         Internal controli  | 3X Distributor           arrosion         3X Monaco           arrosion         3X Monaco           arrosion         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         11/2* Nozele on blind itange (Location C)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location D)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         3/4* Webdet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Pping Reinforcement - Offshore         6* Ppi on Location F         External corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br>BERHAD         Straight Ppe-Onshore         2* to 1/2* pip at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br>BERHAD         Straight Ppe-Onshore         3* pip at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENCYLAN REFINING COMPANY<br>BERHAD         Straight Ppe-Onshore         2* to 1/* reducer at V-7600 (78 LG 1009), LRCC Plant         In  | 3X Distributor           arrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosi   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location D)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location D)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location F)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         34" Webde on (Location G)         External consistion           May-18         NIGERIA         TOTAL         Pring Reinforcement - Offshore         6" Pring on Location F         External consistion           May-18         NIGERIA         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer at V-7609, LRCC Plant         Internal consistion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERMO         Straight Pipe-Onshore         2" to 1/2" reducer  | Strostin         3X Distributor           strosion         3X Monaco           strosion         3X Distributor           strosion         3X Monaco           strosion         3X Distributor           strosin         3X Dis  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         NIGER/A         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location E)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4' Weldelet on (Location G)         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         1/2' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Strai  | 3X Distributor           arrosion         3X Distributor           prrosion         3X Distributor           prosion         3X Monaco           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor <tr tbotp<="" tr=""> <tr tbu<="" td=""></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R</td><td>arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di</td></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor</td><td>3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco           prrosion         3X Distributor           prosion         3X Distributor  </td></tr><tr><td>May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement</td><td>arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External
corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Monaco<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rorosion 3X Distributor<br/>rorosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br/>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>rrosion 3X bistributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>May-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br/>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br/>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18<!--</td--><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td></td></tr><tr><td>Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext</td><td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br/>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co</td><td>rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     orrosion     3X Distributor</td></tr><tr><td>May-18         Malaysia         HENGYUAN REFINING COMPANY<br/>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br/>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping
reinforcement - offshore         3'4* line         External Corrosion         &lt;</td><td>3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping r</td><td>3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola</td><td>orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion</td><td>SX Monaco           orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho</td><td>orrosion         3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion         Apr-18</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe<!--</td--><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co</td><td>3X Distributor           orrosion         3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL        
Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<></td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" fare system line         External Corrosion           Apri-18         Angola         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr18         Angola         TOTAL         Piping reinforcement - dfshore         1" flare system line         External Corrosion           Apr18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1° fare system line         External Corrosion           Aprl-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Distributor</td></tr><tr><td>Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td>orrosion 3X Distributor</td></tr><tr><td>Apr.18         Angola         TOTAL         Piping reinforcement - offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion</td><td></td></tr><tr><td>April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion</td><td>JA DISTIDUTO</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>April-18 Russia SIBUR piperositore 159mm/auagutume-ond internacionadari<br/>April-18 Russia SIBUR piperositore 159mm/auagutume-ond Internacionadari</td><td></td></tr><tr><td>April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion</td><td></td></tr><tr><td>April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion</td><td>arrosion 3X Distributor</td></tr><tr><td>BERHAD</td><td></td></tr><tr><td>Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole</td><td></td></tr><tr><td>Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole</td><td>I Hole 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion</td><td>prosion 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion</td><td>STOSION SX Distributor</td></tr><tr><td>Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion</td><td>prrosion 3X Distributor</td></tr><tr><td>Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru</td><td></td></tr><tr><td>Mar-18 Russia SIBUR Performancement of the Control Con</td><td>SUD + ITOL 3Y Distributor</td></tr><tr><td>Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion</td><td></td></tr><tr><td>Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion</td><td>prrosion 3X Distributor</td></tr><tr><td>Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco</td></tr><tr><td>Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion</td><td>orrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco</td></tr><tr><td>Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal &amp; external corrosion - 5 defects</td><td>orrosion 3X
Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco</td></tr><tr><td></td><td>vrrosion         3X Distributor           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           vrrosion         3X Distributor</td></tr><tr><td>Feb-18 Iran NIGC Pipereinforcement / onshore 8<sup>r</sup> pipereinforcement Extend concession 3 defects</td><td>3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco</td></tr><tr><td></td><td>vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects</td><td>3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects</td><td>vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 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offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole</td><td>3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18</td><td>vrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion</td><td>rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv     Adv</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor</td></tr><tr><td>Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 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Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Distributor<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>arrosion 3X Distributor</td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - 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offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA<!--</td--><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td></td></tr><tr><td>Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid:</td><td>rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil     
   External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 4 Stributor<br/>1 Hole 3X Distributor<br/>1 Hole 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - 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offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c</td><td>rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>rrosion 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>SX Distributor</td></tr><tr><td>Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>rrosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion
        Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement</td><td>rrosion</td></tr><tr><td>Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Distributor<br/>Hole 3X Distributor<br/>SX Distrib</td></tr><tr><td>Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Manaco<br/>prosion 3X Distributor<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Monaco<br/>an 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion</td><td>rrosion</td></tr><tr><td>Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17</td><td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Monaco<br/>prrosion 3X Manaco<br/>prrosion 3X Distributor<br/>i Hole 3X Distributor<br/>and dent repair<br/>ax Distributor<br/>prrosion 3X Distributor<br/>prosion 3X Distributor</td></tr><tr><td>Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan         <td< td=""><td>arrosion arrosion ar</td></td<></td></tr><tr><td>Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi</td><td>arrosion arrosion ar</td></tr><tr><td>Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio</td><td>rrosion</td></tr><tr><td>Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON   
     Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17</td><td>rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         arrosion</td></tr><tr><td>Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c</td><td>rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro</td></tr><tr><td>Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan<!--</td--><td>rorosion         3X Distributor         arrosion         3X Distributor         a</td></td></tr><tr><td>Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a</td></tr><tr><td>Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr</td></tr><tr><td>Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr</td></tr><tr><td>Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO</td><td>arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion         3X Distributor           prosion</td></tr><tr><td>Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse</td><td>rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion</td></tr><tr><td>Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors</td><td>rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar</td></tr><tr><td>Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If         If</td><td>arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent repair     3X Distributor       prosion     3X Distributor       prosion</td></tr><tr><td>Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas)         <thip (catabas)<="" programmed="" th=""></thip></td><td>rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br/>Hole<br/>3X Distributor<br/>rrosion<br/>3X Distributor<br/>rrosin</td></tr></tr>   
   
   | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R    | arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor | 3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco           prrosion         3X Distributor           prosion         3X Distributor                | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement     | arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor   | May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rorosion 3X Distributor<br>rorosion 3X Distributor<br>orrosion 3X Distributor  | May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion      
    May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin   | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   | May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter  | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X bistributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  
   | May-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18 </td <td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td> | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>  | Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext   | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co   | rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor   | May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'4* line         External Corrosion         <                              | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping r   | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco        
  orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola   | orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor           orrosion         3X Distributor | May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion | SX Monaco           orrosion         3X Distributor           orrosion         3X Distributor | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho  | orrosion         3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion         Apr-18  | orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe </td <td>orrosion         3X Distributor           orrosion         3X Distributor</td> | orrosion         3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co | 3X Distributor           orrosion         3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External
Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<> | orrosion         3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" fare system line         External Corrosion           Apri-18         Angola         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr18         Angola         TOTAL         Piping reinforcement - dfshore         1" flare system line         External Corrosion           Apr18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping
reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1° fare system line         External Corrosion           Aprl-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion  | orrosion 3X Distributor<br>orrosion 3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor   | Apr.18         Angola         TOTAL         Piping reinforcement - offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion  |   | April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion   | JA DISTIDUTO   |   |   |  |  | April-18 Russia SIBUR piperositore 159mm/auagutume-ond internacionadari<br>April-18 Russia SIBUR piperositore 159mm/auagutume-ond Internacionadari   |                         | April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion  |                         | April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion | arrosion 3X Distributor | BERHAD  |  | Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole                                       |                       | Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole                            | I Hole 3X Distributor  | Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion | prosion 3X Distributor | Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion  | STOSION SX Distributor  | Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion         | prrosion 3X Distributor | Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru  
   |                           | Mar-18 Russia SIBUR Performancement of the Control Con | SUD + ITOL 3Y Distributor | Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion |                         | Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion | prrosion 3X Distributor                       | Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion | orrosion 3X Distributor<br>orrosion 3X Monaco                       | Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco                       | Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal & external corrosion - 5 defects   | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco   |   | vrrosion         3X Distributor           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           vrrosion         3X Distributor   | Feb-18 Iran NIGC Pipereinforcement / onshore 8 <sup>r</sup> pipereinforcement Extend concession 3 defects | 3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco  |  | vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor      | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects  | 3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco          | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole | 3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor                           | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects   | vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole   | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>a defects 3X Monaco<br>on - 3 defects 3X Distributor<br>Hole 3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole  | 3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping
reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole | 3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole   | 3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18 | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor   | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion  | rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv     Adv | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor  | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>arrosion 3X Distributor  | Feb-18       Iran    
  NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor   | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion   | vrrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>Hole 3X Distributor<br>AN Distributor | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA </td <td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td> | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor<br>prosion 3X Distributor<br>arrosion 3X Distributor<br>prosion 3X Distributor   | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>X Distributor  
  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11    | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 4 Stributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2!l9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - offshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-4''-A11         Inter | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>rrosion - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair<br>and dent repair<br>prosion 3X Distributor<br>prosion 3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c | rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor      
  Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement                       | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor   | Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>prosion 3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement                | rrosion  | Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distrib | Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line   
     External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Manaco<br>prosion 3X Distributor<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor   | Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion  | rrosion   | Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Manaco<br>prrosion 3X Distributor<br>i Hole 3X Distributor<br>and dent repair<br>ax Distributor<br>prrosion 3X Distributor<br>prosion 3X Distributor   | Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           
January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan <td< td=""><td>arrosion arrosion ar</td></td<> | arrosion ar | Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi | arrosion ar  | Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio | rrosion  | Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17   | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         arrosion    | Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c  | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro | Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan </td <td>rorosion         3X Distributor         arrosion         3X Distributor         a</td> | rorosion         3X Distributor         arrosion         3X Distributor         a     | Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament
- differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza   | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a     | Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr | Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr | Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO   | arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion  | Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse  | rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion       | Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar | Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If  | arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent
repair     3X Distributor       prosion   | Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas) <thip (catabas)<="" programmed="" th=""></thip> | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br>Hole<br>3X Distributor<br>rrosion<br>3X Distributor<br>rrosin   |   |  |   |   |  
  |   |  |   |   |   |
| May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R  | arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor | 3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco           prrosion         3X Distributor           prosion         3X Distributor                        | May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement  | arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor  | May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rorosion 3X Distributor<br>rorosion 3X Distributor<br>orrosion 3X Distributor   | May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin   | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18        
Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter  | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X bistributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   | May-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18 </td <td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td> | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>  
  | Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext   | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  | Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co   | rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor  | May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'4* line         External Corrosion         <  | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping r  | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           orrosion         3X Distributor | May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola  | orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor  | May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18
        Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion   | SX Monaco           orrosion         3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho                          | orrosion         3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion         Apr-18                                | orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe </td <td>orrosion         3X Distributor           orrosion         3X Distributor</td> | orrosion         3X Distributor  | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co   | 3X Distributor           orrosion         3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion   | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External
Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<> | orrosion         3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" fare system line         External Corrosion           Apri-18         Angola         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr18         Angola         TOTAL         Piping reinforcement - dfshore         1" flare system line         External Corrosion           Apr18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1° fare system line         External Corrosion           Aprl-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion  | orrosion 3X Distributor<br>orrosion 3X Distributor   | Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping
reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion  | orrosion 3X Distributor   | Apr.18         Angola         TOTAL         Piping reinforcement - offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   |   | April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion  | JA DISTIDUTO  |  |  |   |   | April-18 Russia SIBUR piperositore 159mm/auagutume-ond internacionadari<br>April-18 Russia SIBUR piperositore 159mm/auagutume-ond Internacionadari   |  | April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion  |                         | April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion   | arrosion 3X Distributor | BERHAD   |                         | Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole |  | Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole | I Hole 3X Distributor | Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion  | prosion 3X Distributor | Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion | STOSION SX Distributor | Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion  | prrosion 3X Distributor | Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru |                         | Mar-18 Russia SIBUR Performancement of the Control Con | SUD + ITOL 3Y Distributor | Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion  
  |                           | Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion      | prrosion 3X Distributor | Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion           | orrosion 3X Distributor<br>orrosion 3X Monaco | Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion          | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco | Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal & external corrosion - 5 defects | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco |  | vrrosion         3X Distributor           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           vrrosion         3X Distributor | Feb-18 Iran NIGC Pipereinforcement / onshore 8 <sup>r</sup> pipereinforcement Extend concession 3 defects | 3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco |   | vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects | 3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole | 3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects  | vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>a defects 3X Monaco<br>on - 3 defects 3X Distributor<br>Hole 3X Distributor   | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole | 3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole | 3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole         
   | 3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor     | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18 | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor  | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion  | rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv     Adv | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor  | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>arrosion 3X Distributor   | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor  | Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore   
 2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion   | vrrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>Hole 3X Distributor<br>AN Distributor | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA </td <td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td> | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor<br>prosion 3X Distributor<br>arrosion 3X Distributor<br>prosion 3X Distributor   | Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>X Distributor   | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11 
          | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 4 Stributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2!l9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - offshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-4''-A11         Inter | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor   | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil      | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>rrosion - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair<br>and dent repair<br>prosion 3X Distributor<br>prosion 3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c  | rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement               | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor  | Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line        
External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter           | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>prosion 3X Distributor  | Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement             | rrosion  | Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distrib | Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Manaco<br>prosion 3X Distributor<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor   | Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8'
pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion                | rrosion  | Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17     | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Manaco<br>prrosion 3X Distributor<br>i Hole 3X Distributor<br>and dent repair<br>ax Distributor<br>prrosion 3X Distributor<br>prosion 3X Distributor | Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan <td< td=""><td>arrosion arrosion ar</td></td<> | arrosion ar | Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi  | arrosion ar | Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio  | rrosion  
   | Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17   | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         arrosion | Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro | Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan </td <td>rorosion         3X Distributor         arrosion         3X Distributor         a</td> | rorosion         3X Distributor         arrosion         3X Distributor         a | Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza  | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a     | Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr     | Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO  
      | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr | Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO | arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion  | Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse | rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion       | Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors  | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar | Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If  | arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent repair     3X Distributor       prosion   | Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas) <thip (catabas)<="" programmed="" th=""></thip> | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br>Hole<br>3X Distributor<br>rrosion<br>3X Distributor<br>rrosin   |  
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| May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location F)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         3/4* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERNAD         Straight Pipe-Onshore         2' to 1/2* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Vet-Nam         CLJOC         R  | arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Monaco           arrosion         3X Distributor           arrosion         3X Di  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         34* Weldolet on (Location G)         External corrosion           May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* reducer at V-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to ½* reducer at V-7600 (fact site near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gai riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshor   | 3X Distributor           prrosion         3X Monaco           prrosion         3X Monaco           prrosion         3X Distributor           prosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         NIGERIA         TOTAL         Piping Reinforcement - Offshore         6* Pipe on Location F         External corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Reducer-Onshore         2* to 1/2* reducer at V-709 (76 LS 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3* pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2* to %* reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         1* pipe at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Ga riser         External corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement  | arrosion         3X Distributor           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Reducer-Onshore         2" to 1/2" reducer at V-7609 (76 LG 1043), LRCC         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion           May-18         Waky-18         Malaysia         HENGYUAR REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viek-Nam         CLJOC         Riser reinforcement - offshore         18" line         External corrosion           Apr-18         Angola         TOTA  | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Monaco<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rorosion 3X Distributor<br>rorosion 3X Distributor<br>orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-13         Malaysia         BERHAD         Reducer-Unstore         Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1/2' pipe at C-7601, LRCC plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3' pipe at C-7601, LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Malaysia         HENSYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to %' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion         n           May-18         Wet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         18'' Ine         External corrosion         n           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14'' Gas riser         External corrosion         n           Apr-18         Angola         TOTAL         Pipipin  | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Malaysia         BERHAD         Straight Pipe-Onshore         1/2" pipe at C-7601, LRCC plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         3" pipe at C-7601, LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (FaLG 1009), LRCC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2" to %" reducer at V-7609 (back side near<br>C-7601), LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Pipe Ine Subsea         16" Gas riser         External corrosion         M           May-18         Viet-Nam         PV Gas         Piping reinforcement - offshore         18" Ine         External corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" line         Exter   | rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X Distributor<br>rrosion 3X bistributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore3° pipe at C-7601, LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore2' to '/' reducer at V-7609 (76 LS 1009), LRCC PlantInternal corrosionMay-18MalaysiaHENGYUAN REFINING COMPANY<br>BERHADStraight Pipe-Onshore1' pipe at V-7609 (back side near<br>C-7601), LRCC PlantInternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore14' Cd riserExternal corrosionMay-18Viet-NamCLJOCRiser reinforcement - offshore16' Gas pipelineInternal corrosionMay-18AngolaTOTALPiping reinforcement - offshore16' Gas pipelineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore2' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18AngolaTOTALPiping reinforcement - offshore3'd' lineExternal CorrosionApr-18 </td <td>rrosion 3X Distributor<br/>rrosion 3X Distributor<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Monaco<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor<br/>orrosion 3X Distributor</br></br></br></br></br></td>  | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Indep-10         Malaysia         BERHAD         Straight Pipe-Onshore         3 pipe a C-R01, ENCL Part         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         2' to ½' reducer at V-7609 (76 LG 1009), LRCC Plant         Internal corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         14' Old riser         External corrosion            May-18         Viet-Nam         CLJOC         Rise reinforcement - offshore         16' Gas riger         External corrosion            May-18         Viet-Nam         PV Gas         Pipe insoftsore         2' line         External corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' line         External Corrosion            Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         Ext  | rrosion 3X Distributor<br>rrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>orrosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Image/10         Malaysia         BERHAD         Straight Pipe-Onshore         210 % Peoulder RV-Pool (PLC 1009), LPC Plant         Internal corrosion           May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1° pipe at V-7609 (pack side near<br>C-7601), LRCC Plant         Internal corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Cli riser         External corrosion         1           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         16° Gas pipeline         Internal corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'' cold water line         External Co  | rrosion     3X Distributor     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Malaysia         HENGYUAN REFINING COMPANY<br>BERHAD         Straight Pipe-Onshore         1* pipe at V-760 (back side near<br>C-7601), LRCC Plent         Internal corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Oll riser         External corrosion         M           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14* Gas riser         External corrosion         M           May-18         Viet-Nam         Pup Cas         Pipe ing reinforcement - offshore         18* Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4* line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3'4* line         External Corrosion         <   | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Integrin         Maryla         BERHAD         Straight Pipe-Unside         C7601, LRCC Plant         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14° Ol riser         External corrosion         Internal corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16° Gas pipeline         Internal corrosion         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping r   | 3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Viet-Nam         CLJOC         Riser reinforcement - offshore         14" Gas riser         External corrosion           May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         M           Apr-18         Angola  | orrosion         3X Monaco           orrosion         3X Michaeco           orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| May-18         Viet-Nam         PV Gas         Pipe line Subsea         16" Gas pipeline         Internal corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         34" line         External Corrosion         16" Gas pipeline           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         16" Gas pipeling           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion  | SX Monaco           orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         1           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3' cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offsho   | orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3° cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10° line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion         Apr-18   | orrosion 3X Distributor<br>orrosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         2" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         12"           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe </td <td>orrosion         3X Distributor           orrosion         3X Distributor</td>  | orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         12" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion         Image: Co  | 3X Distributor           orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3/4" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore <td< td=""><td>orrosion         3X Distributor           orrosion         3X Distributor</td></td<>   | orrosion         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         3" cold water line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion         4           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         16" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" are system line         External Corrosion           Apr1-18         Russia         SIBUR         pipe orshore         159mm /bend/GAS         Internal cor  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         10" line         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         11" fare system line         External Corrosion           Apri-18         Angola         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         4" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - dfshore         18" pipe         External Corrosion           Apr18         Angola         TOTAL         Piping reinforcement - dfshore         1" flare system line         External Corrosion           Apr18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion  | orrosion 3X Distributor<br>orrosion 3X Distributor<br>orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18° pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1° fare system line         External Corrosion           Aprl-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr-18         Angola         TOTAL         Piping reinforcement - offshore         18" pipe         External Corrosion           Apr-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Angola         TOTAL         Piping reinforcement - offshore         1" flare system line         External Corrosion           Apri-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   | orrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Apr.18         Angola         TOTAL         Piping reinforcement - offshore         1° flare system line         External Corrosion           April-18         Russia         SIBUR         pipe/onshore         159mm /bend/ GAS         Internal corrosion   |   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| April-18 Russia SIBUR pipe/onshore 159mm/bend/GAS Internal corrosion   | JA DISTIDUTO  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| April-18 Russia LUKOIL pipe/onshore 325mm/ bend/ Oil Internal corrosion  |   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| April-18 Malaysia HENGYUAR REFINING COMPANY Straight Pipe-Onshore 2° to 1/2° reducer at V-7609 (76 LG 1043), LRCC Internal corrosion   | arrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 Angola CHEVRON Piping reinforcement - offshore 4* water line External Hole  |   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4* gas line         External Hole  | I Hole 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8' naphta External corrosion  | prosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 France TOTAL Pipe reinforcement - ONSHORE 8" naphta External corrosion  | STOSION SX Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 FRANCE TOTAL Pipe reinforcement - ONSHORE 12" gazol External corrosion  | prrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 France TOTAL Pipereinforcement - ONSHORE 8"reseau EH extension concesion + tru  |   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 Russia SIBUR Performancement of the Control Con   | SUD + ITOL 3Y Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 Viet-Nam HLHV Riserreinforcement / offshore CNV 3P well flow line 6 inch External corrosion   |   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 Viet-Nam HLW Riser reinforcement / offshore H4 gas Ift riser 6 inch External corrosion  | prrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Mar-18 Viet-Nam HLHV Riser reinforcement / offshore 8 °ol piping External corrosion  | orrosion 3X Distributor<br>orrosion 3X Monaco   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18 Russia SIBUR pipe/onshore 273-377mm/reducer/ GAS Internal corrosion   | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18 France GEOSTOCK Pipe reinforcement / onshore 20" pipe reinforcement Internal & external corrosion - 5 defects   | orrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18 Iran NIGC Pipereinforcement / onshore 8 <sup>r</sup> pipereinforcement Extend concession 3 defects  | 3X Distributor           orrosion         3X Monaco           orrosion         3X Distributor           rrosion         3X Monaco           orrosion         3X Monaco  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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|  | vrrosion         3X Distributor           vrrosion         3X Monaco           vrrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Monaco           orrosion         3X Distributor           rrosion 5         3K Monaco           or         3X Distributor           rrosion 5         3X Monaco           on 3 defects         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects   | 3X Distributor           orrosion         3X Monaco           or         3X Monaco           on - 3 defects         3X Monaco   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole  | 3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           I Hole         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects   | vrrosion         3X Distributor           orrosion         3X Monaco           or - 3 defects         3X Monaco           on - 3 defects         3X Distributor           Hole         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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   |
| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole   | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>a defects 3X Monaco<br>on - 3 defects 3X Distributor<br>Hole 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole            Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole   | 3X Distributor           orrosion         3X Monaco           or         3 defects           3X Monaco         on           on         3 defects           3X Distributor         Hole           Hole         3X Distributor           Hole         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole  | 3X Distributor           orrosion         3X Monaco           or         3K Monaco           or         3X Monaco           or         3X Distributor           Hole         3X Distributor           I Hole         3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole  | 3X Distributor           orrosion         3X Monaco           or         offects           3X Monaco         3X Monaco           or         offects           3X Distributor         1           Hole         3X Distributor           I Hole         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         External Hole         Stetrail Hole         Stetrail Hole         January-18  | vrosion 3X Distributor<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Monaco<br>orrosion 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion   | rrosion     3X Distributor     vrrosion     3X Monaco     vrrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Monaco     orrosion     3X Distributor     rosion     3 defects     3X Monaco     on     3 defects     3X Distributor     Hole     3X Distributor     Adv   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dac-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Gas         External corrosion and dent repair  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>arrosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Water line       External Hole         Dec-17       Russia       SiBUR       pipe/onshore       219/bend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8" pipeline - Fluid: Coli       External corrosion and dent repair         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Coli       External corrosion   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18     Iran     NIGC     Pipe reinforcement / onshore     8" pipe reinforcement     External corrosion - 3 defects       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     2" Diesel line     External Hole       Feb-18     Angola     CHEVRON     Piping reinforcement - offshore     4" water line     External Hole       January-18     Angola     CHEVRON     Piping reinforcement - offshore     2" water line     External Hole       Dec-17     Russia     SIBUR     pipe/onshore     219/bend/GAS     Internal corrosion       Dec-17     COLOMBIA     MORELCO     Pipe reinforcement - Onshore     8" pipeline - Fluid: Gas     External corrosion and dent repair       Dec-17     COLOMBIA     OCENSA     Pipe reinforcement - Onshore     30" pipeline - Fluid: Oil     External corrosion   | vrrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>Hole 3X Distributor<br>AN Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       Pipe reinforcement - offshore       2" water line       External Hole         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       2" pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       36" pipeline - Fluid: Oil       External corrosion         Dec-17       COLOMBIA       OCENSA </td <td>vrosion 3X Distributor<br/>prrosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3X Monaco<br/>prosion 3 defects 3X Monaco<br/>an - 3 defects 3X Monaco<br/>an - 3 defects 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>Hole 3X Distributor<br/>and dent repair 3X Distributor<br/>prosion 3X Distributor<br/>prosion 3X Distributor<br/>arrosion 3X Distributor<br/>prosion 3X Distributor</td>   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor<br>prosion 3X Distributor<br>arrosion 3X Distributor<br>prosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18       Iran       NIGC       Pipe reinforcement / onshore       8" pipe reinforcement       External corrosion - 3 defects         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       2" Diesel line       External Hole         Feb-18       Angola       CHEVRON       Piping reinforcement - offshore       4" water line       External Hole         January-18       Angola       CHEVRON       Piping reinforcement - offshore       2" water line       External Hole         Dec-17       Russia       SIBUR       pipe/onshore       2! Diesend/GAS       Internal corrosion         Dec-17       COLOMBIA       MORELCO       Pipe reinforcement - Onshore       8' pipeline - Fluid: Gas       External corrosion         Dec-17       COLOMBIA       OCENSA       Pipe reinforcement - Onshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Qatar       QPD - Japan       Pipe reinforcement - offshore       30" pipeline - Fluid: Oil       External corrosion         Dec-17       Kazakhtan       K  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         2" water line         External corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Cli         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Cli         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid:  | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Monaco     orrosion         3X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor     Hole         4X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SiBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion and dent repair           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         Qatar         OPD- Japan         Pipe reinforcement         60-5620-WW-t114-t*A11   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 4 Stributor<br>1 Hole 3X Distributor<br>1 Hole 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2!l9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - offshore         30' pipeline - Fluid: Cili         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-4''-A11         Inter  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         219/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         36" pipeline - Fluid: Oil   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Distributor<br>rrosion - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair<br>and dent repair<br>prosion 3X Distributor<br>prosion 3X Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Dec-17         Russia         SIBUR         pipe/onshore         2! 9/bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Gas         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         60-6620-WW-114-6'-A11         Internal c  | rrosion         3X Distributor     rrosion         3X Monaco         3X Monaco     rrosion         3X Monaco         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         rrosion         3X Distributor         Arrosion         3X Distributor         Arrosion         3X Distributor         rrosion         3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>SX Distributor   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIEC         Pipe reinforcement / onshore         8" pipe reinforcement         External corosion - 3 defects           Peb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           Jaruary-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec-17         Russia         SIBUR         pipe/onshore         210bend/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8" pipeline - Fluid: OI         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         8" Riser - splash zone         External corrosion           Dec-17         Gatar         QPD - Japan         Pipe reinforcement         60-5620-WVV-1146A11         Inter  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>rrosion 3 defects 3X Monaco<br>an - 3 defects 3X Monaco<br>an - 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>prosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           Dec-17         Russia         SIBUR         pipa/onshore         219bend/GAS         Internal corrosion         External Hole           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion         Dec-17           COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30' pipeline - Fluid: Oil         External corrosion         Dec-17           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         66:6820-WW-114-F-A111         Internal corrosion           Dec-17         Kazakhstan         KPO         Pipe reinforcement  | rrosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NICC         Pipe reinforcement / onshore         8" pipe reinforcement         External corrosion - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement / offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External corrosion           Dec:17         Russia         SIBUR         pipe/onshore         218bend/GAS         Internal corrosion           Dec:17         COLOMBIA         MORELCO         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         COLOMBIA         OCENSA         Pipe reinforcement - Onshore         30" pipeline - Fluid: Oil         External corrosion           Dec:17         Kazakhstan         KPO         Pipe reinforconsent - dishore         8" Riser - spiska zone   | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Distributor<br>Hole 3X Distributor<br>SX Distrib  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb 13         Inn         NBC         Ppe reinforcement / orabore         8" ppe reinforcement         External corrosion - 3 defects           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         2" Diesel line         External Hole           Feb 18         Angola         CHEVRON         Piping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2" water line         External Hole           De-17         Russia         SIBUR         pipo reinforcement - offshore         219bend/GAS         Internal corrosion           De-17         COLOMBIA         MORELCO         Pipe reinforcement - Orshore         219bend/GAS         External corrosion           De-17         COLOMBIA         OCENSA         Pipe reinforcement - Orshore         30" pipeline - Fluid: Gas         External corrosion           De-17         ColLoMBIA         OCENSA         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosion           De-17         Catar         OPD- Japan         Pipe reinforcement         66-820-WW-1114-F-A11         Internal corrosi  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Monaco<br>prosion 3X Manaco<br>prosion 3X Distributor<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Monaco<br>an 3 defects 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>Hole 3X Distributor<br>and dent repair 3X Distributor<br>prosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         tran         NGC         Ppp reinforcement         8' pipe reinforcement         External corresion - 3 defects           Feb-18         Angola         CHEVRON         Piping minforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Diesal line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         4' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         piportenhore         2' Board/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELOO         Pipe reinforcement - Onshore         8' pipeline - Fluid: Oil         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement         03' Dipeline - Fluid: Oil         External corrosion           Dec-17         ColoMBIA         OCENSA         Pipe reinforcement         60-5620-WW-114-G-A111         Internal corrosion   | rrosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NIGC         Ppe rainforcement         8" pipe rainforcement         External Hole           Feb-18         Angola         CHEVRON         Ppiping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Diesel line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         4" water line         External Hole           January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole           Dec-17         COLOMBIA         MORELCO         Ppe reinforcement - onshore         2" blendiGAS         Internal corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - onshore         3" ppeline - Fluid: Clas         External corrosion           Dec-17         COLOMBIA         OCENSA         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17         CALMBIA         KPO         Ppe reinforcement - do-602 WW - 114 - 4-111         Internal corrosion           Dec-17  | vrosion 3X Distributor<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Monaco<br>prrosion 3X Manaco<br>prrosion 3X Distributor<br>i Hole 3X Distributor<br>and dent repair<br>ax Distributor<br>prrosion 3X Distributor<br>prosion 3X Distributor  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NBC         Pps reinforcement / orbors         9" pps reinforcement         External concelon-3 defects           Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" Dised line         External Hole            Feb-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angola         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         pping reinforcement - offshore         2" BabendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Orabore         8" ppiner - Fluid Gas         External corrosion            Dec-17         COLOMBIA         OCENSA         Ppine reinforcement - Gas Secouviry-1456 - Ant         External corrosion           Dec-17         Razahstan <td< td=""><td>arrosion arrosion ar</td></td<>        | arrosion ar  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NBC         Pipe reinforcement / orbitra         Pipe reinforcement         Pi   | arrosion ar   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Iran         NBC         Pipe reinforcement         Offper reinforcement         External controlon - 3 defects           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Dised line         External Hole           Feb-18         Angola         CHEVRON         Piping reinforcement - offshore         2' water line         External Hole           January-18         Angola         CHEVRON         Piping reinforcement - offshore         2' Water line         External Hole           Dec-17         Russia         SIBUR         pipolorahore         218bond/GAS         Internal corrosion           Dec-17         COLOMBIA         MORELCO         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosion           Dec-17         Quark         OCENSA         Pipe reinforcement - Orahore         8' pipeline - Fluid: Gat         External corrosio  | rrosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb:18         Ign         NBC         Piper reinforcement         Piper reinforcement         External consoin         Setternal Hole           Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' Diesel line         External Hole            Feb:18         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External Hole            January-10         Angola         CHEVRON         Piping reinforcement - diftore         2' water line         External corrosion            Dec-17         Russia         SIBUR         pipol/wrshore         219berd/GAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - diatore         30' pipeline - Fluid: Gas         External corrosion            Dec-17         Kazahitan         OCENSA         Pipe reinforcement - diatore         80' pipeline - Fluid: Col         External corrosion            Dec-17  | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Jan         NBG         Piper relacement / crebron         Piper predicement / crebron         Piper predicrement / crebron         Piper predicrement / c  | rorosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         aro  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb:18         Ign         NBC         Pps reducement / calava         Pps representation         External consiston         2 detects           Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" Desel Ine         External Hole            Feb:18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            January-18         Angda         CHEVRON         Pping reinforcement - offshore         2" water line         External Hole            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External domosion            Dec-17         Russia         SBUR         Pping reinforcement - Ontoine         2" Buferia - Fluid Gas         External contain more           Dec-17         COLOMBIA         CCENSA         Pping reinforcement - Ontoine         8" Ref - egital cone         External contain more           Dec-17         Kazashitan </td <td>rorosion         3X Distributor         arrosion         3X Distributor         a</td> | rorosion         3X Distributor         arrosion         3X Distributor         a   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Inn         NGC         Pper inforcement         IP per inforcement         Eternal corrosion : 3 differs           Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" Dised ine         External Hole            Feb-18         Arogola         CHEVRON         Piping inificrament - differs         2" uter fine         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            January 18         Arogola         CHEVRON         Piping inificrament - differs         2" water line         External Hole            Dec-17         Russia         SIBUR         piping reinforcement - onshore         215bendGAS         Internal corrosion            Dec-17         COLOMBIA         OCENSA         Pipe reinforcement - onshore         30" pipeline - Fluid Col         External corrosion            Dec-17         Kazabhtain         KPO         Pipe reinforcement - dishore         8" pipeline - Fluid Col         External corrosion            Dec-17         Kaza  | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         a  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Inn         NGC         Ppc instructionent / calors         #Ppc instructionent         #Ppc instructins  | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distr  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO  | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         arrosion         3 defects         3X Distributor         arrosion         3X Distributor         arr  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Pe-18         Inn         ING         Pipe interforment / righters         0" pipe interforment         Extend contains - 3 detects           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" Dated line         Extend interfail           Feb-18         Angola         CHEVRON         Piping interforment - righters         2" water line         Extend interfail           January 18         Angola         CHEVRON         Piping interforment - righters         2" Water line         Extend interfail           De-17         Russia         SBUR         pipol restorment - contains         2" Date-17         Extend contains         Extend interfail           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contains         External contains           De-17         CLOMBIA         OCENNA         Pipe interforment - contains         30 pipeline - Fluid Git         External contain           De-17         CLOMBIA         OCENNA         Pipe interforment         69 4200 WV-114 - 411         Hetmal contain           De-17         Karabhatin         KPO  | arcelon         3X Distributor           prosion         3X Monaco           prosion         3X Distributor           prosion         3X Distributor           Hole         3X Distributor           Index         3X Distributor           prosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Inst.         NGC         Pps relations (cattor)         If "pps relationsmet.         If "pps relationsmet.         If the pseudo pse  | rorosion         3X Distributor     rorosion         3X Manaco     rorosion         3X Distributor     rorosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Ins.         NGC         Pps refracment (cattors)         If "ps refracment, cattors         If "ps refracment, cattors         If the second cattor         If the second cattors  | rorosion         3X Distributor         arrosion         3X Distributor         arrosion         3X Monaco         arrosion         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         Hole         3X Distributor         arrosion         3X Distributor         ar   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Feb-18         Ins.         NIGC         Pipe relationed (unloss)         If "pipe render control         Ethermal Notes         Description           Feb-18         Angola         CHEVRON         Pring render control         If Dead Yae         Ethermal Notes         If           Feb-18         Angola         CHEVRON         Pring render control         If         If         Ethermal Notes         If   | arrosion     3X Distributor       prosion     3X Monaco       prosion     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       1Hole     3X Distributor       and dent repair     3X Distributor       prosion   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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| Peb-18         Inst.         NGC         Pps relationed (catabas)         IP programmed (catabas) <thip (catabas)<="" programmed="" th=""></thip>  | rrosion         3X Distributor     rrosion         3X Monaco     rrosion         3X Distributor<br>Hole<br>3X Distributor<br>rrosion<br>3X Distributor<br>rrosin  
   
   
   
   
   
   
   
   
   
   
   
   
   
   
   
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Aug-17 Aug-17	Angola Angola	CHEVRON CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore	P-8075 water line 2" water line	External Hole External Hole	3X Distributor 3X Distributor
Aug-17 Aug-17	Nigeria	TOTAL	Piping - Offshore	9A	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore		External corrosion	3X Distributor
-	Nigena			2" By-Pass Line For 10" NG-46628-H21A (Item 27) 2" NC-46612-G21 Condensates to the Closed Drains		3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	Vessel (Item 17)	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	2" NC-46618-H21A Condensates to the Closed Drains Vessel (Item20A	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	3" NG-46630-H21A Gas Discharge to PSV-6526 (Item	External corrosion	3X Distributor
	-			25)		
Aug-17 Aug-17	Nigeria Nigeria	TOTAL TOTAL	Piping - Offshore Piping - Offshore	2* NG-46602-F01 Gas Discharge to PSV- 5740 3/4* piping on 16*NG-46617-G21 (item 1)	External corrosion External corrosion	3X Distributor 3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	3/4" piping on 16"NG-46617-G21 (item 1)	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	3/4" piping on 16"NG-46617-G21 (item 3)	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	2" Nozzle on 10-DS-301B HIPPS VESSEL LOCATION	External corrosion	3X Distributor
	•			A 2" Nozzle on 10-DS-301B HIPPS VESSEL		
Aug-17	Nigeria	TOTAL	Piping - Offshore	LOCATION B	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL	Piping - Offshore	2" Nozzle on 10-DS-203	External corrosion	3X Distributor
Aug-17	Nigeria	TOTAL GAZPROM	Piping - Offshore	2" Nozzle on 10-DS-301A	External corrosion	3X Distributor
Aug-17 Aug-17	Russia CONGO	TOTAL	OFFSHORE	530mm/sea water NKP	weld defect External corosion / hole - 3 defects	3X Distributor 3X Distributor
Aug-17	CONGO	TOTAL	OFFSHORE	NKP	External corosion - 5 defects	3X Distributor
Aug-17	CONGO	TOTAL	OFFSHORE	YAFP	Internal corrosion / hole - 2 defects	3X Distributor
Aug-17	CONGO	TOTAL	OFFSHORE	SEFP	Internal corrosion / hole	3X Distributor
Aug-17	Myanmar	TOTAL EP Myanmar	Piping reinforcement - offshore	Yadana: 3" glycol (PP pf) + 3" flare (PP pf) + 18" flare (MCP pf) + 30" flare (MCP pf)	Various localised external corrosion defects	3X Distributor
August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	2" - HC - 616 - 3A3 (2.875 Inch, Hydrocarbon	Leak @ elbow	3X Distributor
-				condensate)		
August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	MP PW Discharge line (8.625 Inch, Produced water)	Leak @ elbow	3X Distributor
August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	MP PW suction line (8.625 Inch, Produced water)	Seep	3X Distributor
August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	3" - HC - 24 - 616 - 3A3T (3.5 Inch, Hydrocarbon	Weld defect at elbow	3X Distributor
-				condensate) 3" - HC - 24 - 610 - 3A3T (3.5 Inch, Hydrocarbon		
August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	condensate)	Weld defect at T connection	3X Distributor
August-17	VIET NAM	PREMIER OIL	Full wrapping - offshore	Cylinder #3 (Approx 1750mm, NGL Hydrocarbon)	Thining	3X Distributor
August-17	VIET NAM	PREMIER OIL	Full wrapping - offshore	Cylinder #5 (Approx 1750mm, NGL Hydrocarbon)	Thining	3X Distributor
August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	K1 Nozzle (2.75 Inch, NGL Hydrocarbon)	Thining	3X Distributor
August-17 August-17	VIET NAM	PREMIER OIL	Piping reinforcement - offshore	2" Drain Line (2.75 Inch, Crude oil)	Thining	3X Distributor
August-17	VIET NAM	PREMIER OIL	Reinforcekit Patch - offshore	NGL Reboiler E34 (Approx 1535mm, Hydrocarbon	Thining	3X Distributor
August-17	ITALY	EXXON MOBIL	Piping reinforcement - Refinery	condensaten) 12" gasoline waste line	Internal corrosion	3X Monaco
July-17	Angola	CHEVRON	Piping reinforcement - offshore	2" water line	External Hole	3X Distributor
July-17	Angola	CHEVRON	Piping reinforcement - offshore	2" gas line	External Hole	3X Distributor
July-17	Angola	CHEVRON	Piping reinforcement - offshore	6" oil line	External corrosion	3X Distributor
July-17	Angola	CHEVRON	Piping reinforcement - offshore	2" gas line	External Hole	3X Distributor
July-17	Angola	CHEVRON	Piping reinforcement - offshore	3" oil line	External Hole	3X Distributor
July-17 July-17	Congo Congo	TOTAL TOTAL	Piping reinforcement - offshore Piping reinforcement - offshore	4" - Djeno line 4" - compressor KX831B - SEFP	Hole	3X Distributor 3X Distributor
				collecteur décompression gares racleur et manifolds 2-		
July-17	Congo	TOTAL	Piping reinforcement - offshore	AV-1564-B52 - SEFP	Hole	3X Distributor
July-17	Congo	TOTAL	Piping reinforcement - offshore	Nozzle 2" on line 8" SW 2041 B97 - YAQ	Hole	3X Distributor
July-17 July-17	Qatar Qatar	TOTAL TOTAL	Piping reinforcement - offshore Piping reinforcement - offshore	6" & 8" bend - gas line 2" injection water line (2 defects)	Internal corrosion	3X Monaco 3X Monaco
		HENGYUAN REFINING COMPANY		6" Elbow Suction Oil line & 6" Straight Pipe Oil line at		
July-17	Malaysia	BERHAD	Elbow Suction Line-Onshore	V107	Internal corrosion	3X Distributor
July-17	Malaysia	PETRONAS GAS BERHAD	Elbow -Onshore	8" Elbow Water Line, Line No 8"-1006-D1101-(N-404)	External corrosion	3X Distributor
June-17	France	NOVAPEX	Pipe reinforcement	8"	External corrosion	3X Distributor
June-17	Angola	CHEVRON	Piping reinforcement - offshore	1" water line	External Hole	3X Distributor
June-17	Angola	CHEVRON	Piping reinforcement - offshore	16" line	External Hole	3X Distributor
June-17	Congo		Piping reinforcement - offshore	2* - Nkossa 3* - Nkossa	External corrosion External corrosion	3X Distributor 3X Distributor
	-	TOTAL				
June-17 June-17	Congo	TOTAL	Piping reinforcement - offshore Piping reinforcement - offshore	1" 1/2 sur 52" - Nkossa	External corrosion	3X Distributor
	Congo Congo	TOTAL	Piping reinforcement - offshore			
June-17	Congo	TOTAL TOTAL	Piping reinforcement - offshore Piping reinforcement - offshore	1" 1/2 sur 52" - Nkossa	External corrosion	3X Distributor
June-17 June-17 May-17 May-17	Congo Congo Congo France Angola	TOTAL TOTAL TOTAL SPAC CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16" 8" oil line	External corrosion External corrosion Internal corrosion External Hole	3X Distributor 3X Distributor 3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17	Congo Congo Congo France Angola Angola	TOTAL TOTAL SPAC CHEVRON CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - onshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16* 8 ol line 3* oil line	External corrosion External corrosion Internal corrosion External Hole External Hole	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17	Congo Congo France Angola Angola Angola	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16* 8* oil line 3* oil line 2* gas line	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17	Congo Congo Congo France Angola Angola	TOTAL TOTAL SPAC CHEVRON CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16* 8* oil line 3* oil line 2* gas line 2* gas line 2* di line	External corrosion External corrosion Internal corrosion External Hole External Hole	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17	Congo Congo France Angola Angola Angola Angola	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16* 8* oil line 3* oil line 2* gas line	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17	Congo Congo France Angola Angola Angola Angola COLOMBIA	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16" 8' oil line 3' oil line 2' gas line 2' oil line 2' pipeline - Fluid: Water	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole Material Iost	3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17	Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan	ТОТАL ТОТАL ТОТАL SPAC СНЕVRON СНЕVRON СНЕVRON СНЕVRON РЕКЕNCO КРО КРО КРО	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - Offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16" 8" oil line 2" gas line 2" gas line 2" oil line 0:5620-OW-011-2-A11 60-5620-SL-103-3-A11 60-5620-SL-104-3-A11	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17	Congo Congo Crango France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan	ТОТАL ТОТАL ТОТАL SPAC СНЕVRON СНЕVRON СНЕVRON СНЕVRON СНЕVRON РЕКЕМСО КРО КРО КРО КРО	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16" 8" oil line 2" gas line 2" oil line 5" oil line 2" oil line 5" oil line 1" oil 60-5620-0W-011-2-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-105-3-A11	External corrosion External corrosion External Hole External Hole External Hole External Hole Material Iost Internal corrosion Internal corrosion Internal corrosion Internal corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-17	Congo Congo Crongo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA	ТОТАL ТОТАL ТОТАL SPAC СНЕVRON СНЕVRON СНЕVRON СНЕVRON РЕКЕNСО КРО КРО КРО КРО РЕСЕNСО	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 5* oil line 2* oil line 6* oil line 2* oil line 2* oil line 2* oil line 3* oil line 2* oil line 2* oil line 3* oil line 2* oil line 2* oil line 3* oil oil tubing	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Internal corrosion Internal corrosion Protection	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-17 April-17 April-17	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA COLOMBIA France	TOTAL           TOTAL           TOTAL           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           CHEVRON           KPO           KPO           KPO           KPO           SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* gas line 2* gas line 2* gas line 2* gipeline - Fluid: Water 60-5620-OW-011-2-A11 60-5620-SL-103-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 3.5* colled tubing 16*	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Internal corrosion Protection External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-17	Congo Congo Crongo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA	ТОТАL ТОТАL ТОТАL SPAC СНЕVRON СНЕVRON СНЕVRON СНЕVRON РЕКЕNСО КРО КРО КРО КРО РЕСЕNСО	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 5* oil line 2* oil line 6* oil line 2* oil line 2* oil line 2* oil line 3* oil line 2* oil line 2* oil line 3* oil line 2* oil line 2* oil line 3* oil oil tubing	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-17 April-17 April-2017	Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France France	TOTAL           TOTAL           TOTAL           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           KPO           KPO           KPO           KPO           SPAC           SPAC           SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16" 8" oil line 2" gas line 2" gas line 2" oil line 3" oil line 2" oil line 2" oil line 2" oil line 3" oil line 16" oil	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Internal corrosion Protection External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 2017 April 2017 April 2017	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France France France France France France	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16* 8* oil line 2* gas line 2* gas line 2* oil line 2* oil line 2* oil line 2* pipeline - Fluid: Water 60-5620-OW-011-2-A11 60-5620-SL-103-3-A11 60-5620-SL-103-3-A11 60-5620-SL-105-3-A11 3,5* coiled tubing 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 April 2017 April 2017	Congo Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France France France France France France	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - Onshore Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 3* oil	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Protection External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Avail corrosion Avail corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 April 2017 April 2017 April 2017 April 2017 April 2017	Congo Congo Crongo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA France France France France France France France France France	TOTAL           TOTAL           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           PERENCO           KPO           KPO           SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 2* oil line 2* japeline - Fluid: Water 60-5620-OW-011-2-A11 60-5620-SL-103-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-105-3-A11 3.5* coiled tubing 16* 16* 16* 16* 16* 2*	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Protection External orrosion External corrosion External corrosion Protection External corrosion Ext	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-2017 April 2017 April 2017	Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France France France France France France France France France France France France France	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* gas line 3* gas line 1* gas line	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Axia crack External corrosion External fole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017	Congo Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA France France France France France France France France France France France France France France France France	TOTAL           TOTAL           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           PERENCO           KPO           KPO           SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 2* oil line 2* japeline - Fluid: Water 60-5620-OW-011-2-A11 60-5620-SL-103-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-105-3-A11 3.5* coiled tubing 16* 16* 16* 16* 16* 2*	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion Protection External orrosion External corrosion External corrosion Protection External corrosion Ext	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-2017 April 2017 April 2017	Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France France France France France France France France France France France France France	TOTAL           TOTAL           TOTAL           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           CHEVRON           KPO           KPO           KPO           SPAC           SPAC           SPAC           SPAC           SPAC           SPAC           SPAC           CHEVRON	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - offshore Piping reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 3* oil line 2* gas line 2* gas line 2* jopeline - Fluid: Water 60-5620-0%-011-2-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 16* 16* 16* 16* 16* 16* 16* 1	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Internal corrosion Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Avial crack External corrosion External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 2017	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Franc Franc Franc Franc Franc France France France Franc Franc Franc Franc F	TOTAL           TOTAL           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           PERENCO           KPO           KPO           SPAC           CHEVRON           CHEVRON           CHEVRON           CHEVRON           CHEVRON           CHEVRON           CHEVRON           CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 2* gas line 3* gas line 3* gas line 3* gas line 3* gas line 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole Internal corrosion Internal corrosion Internal corrosion Protection External corrosion External corrosion External corrosion External corrosion Avial crack External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-2017 April 2017 April 2017	Congo Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Franc Franc France Franc France Franc Franc France Franc Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oll line 2* gas ine 2* gas ine 2* oll line 2* jepeline - Fluid: Water 60-5620-0V-01+2-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 16* 16* 16* 16* 16* 16* 16* 1	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Franc France France France France Franc Franc Franc Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 3* oil line 3* oil line 3* oil	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External corrosion Protection External corrosion External corrosion Pipe reinforcement External corrosion Pipe reinforcement External corrosion External Hole External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 A	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Fran France Franc Franc Franc Franc France Franc Franc Franc Franc Franc Franc Fra	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - offshore Pipe reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 2* gas line 3* gas line 3* gas line 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Axial crack External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 2017	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Franc France France France France Franc Franc Franc Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 2* oil line 3* oil line 3* oil line 3* oil	External corrosion External corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External corrosion Protection External corrosion External corrosion Pipe reinforcement External corrosion Pipe reinforcement External corrosion External Hole External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-2017 April 2017 April 7 April 7	Congo Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Piping reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement Nozzle reinforcement Pipe reinforcement	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oll line 2* gas ine 2* gas ine 2* gas ine 2* oll line 2* jepeline - Fluid: Water 60-5620-01*-011-2-011 60-5620-SL-104-3-011 60-5620-SL-104-3-011 60-5620-SL-104-3-011 60-5620-SL-104-3-011 60-5620-SL-104-3-011 60-5620-SL-104-3-011 6* 16* 16* 16* 16* 16* 16* 16	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Pipe rainforcement External corrosion External corrosion External corrosion External corrosion External Hole External corrosion External corrosion External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 Apri-17 Apri-17 Apri-17 Apri-17 Apri-17 March-2017 March-17 March-17 March-17	Congo Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Fra	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - Nazzle reinforcement Pipe reinforcement Piping reinforcement Piping reinforcement Piping reinforcement - offshore Piping reinforcement	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* gas ine 2* gas ine 2* gas ine 2* jepeline - Fluid: Water 60-5620-0V-01+2-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 16* 16* 16* 16* 16* 16* 16* 1	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Pipe rainforcement External corrosion Pipe rainforcement External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion External corrosion External corrosion External Hole External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 7 April 7 March 7 March 17 March 17	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Franc Franc Franc Franc F	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement Pipe reinforcement - onshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 52* - Nkossa 16* 8* oil line 3* oil line 2* gas ine 2* gas ine 2* oil line 2* gas ine 2* oil line 2* gas ine 2* oil line 2* gas ine 2* oil line 3* house of the set 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Pipe reinforcement External corrosion Pipe reinforcement External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Corrosion External Corrosion External Hole External Corrosion External Hole External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 Apri-17 Apri-17 Apri-17 Apri-17 Apri-17 March-2017 March-17 March-17 March-17	Congo Congo Congo France Angola Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Fra	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - Nazzle reinforcement Pipe reinforcement Piping reinforcement Piping reinforcement Piping reinforcement - offshore Piping reinforcement	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 52* - Nkossa 16* 8* oil line 2* gas ine 2* gas ine 2* gas ine 2* jepeline - Fluid: Water 60-5620-0V-01+2-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 60-5620-SL-104-3-A11 16* 16* 16* 16* 16* 16* 16* 1	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole Material lost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Pipe rainforcement External corrosion Pipe rainforcement External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External corrosion External corrosion External corrosion External Hole External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 7 April 7 March 7 March 17 March 17	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Franc Franc Franc Franc F	TOTAL TOTAL TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC CHEVRON	Piping reinforcement - offshore Piping reinforcement - offshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement Pipe reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement Pipe reinforcement - onshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 52* - Nkossa 16* 8* oil line 3* oil line 2* gas ine 2* gas ine 2* oil line 2* gas ine 2* oil line 2* gas ine 2* oil line 2* gas ine 2* oil line 3* house of the set 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Pipe reinforcement External corrosion Pipe reinforcement External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Corrosion External Corrosion External Hole External Corrosion External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 March 2017 March-17 March-17 March-17 March-17	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Fran	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON PERENCO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement Offshore Piping reinforcement Piping reinforcement Pipe reinforcement Pipe reinforcement Piping reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1/2 sur 52* - Nkossa 16* 8* oil line 3* oil line 2* gas ine 2* gas ine 3* gas ine 16* inf 16* inf 16* inf 16* inf 16* inf 16* inf 2* water line 3* gas ine 8* gas ine 16* inf 16* i	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion External corrosion Protoction External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External corrosion Internal corrosion External Hole External Hole External corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 7 April 7 March	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Franc Fr	TOTAL TOTAL TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC CHEVRON	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement Piping reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16' 8' oil line 2' gas ine 2' gas ine 16' 16' 16' 16' 16' 16' 16' 2' 2' water line 8' water line 8' water line 8' water line 8' water line 8' water line 3' water line 8' water line 3' water line 3' water line 16' 16' 16' 16' 16' 16' 16' 16'	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion External corrosion External corrosion Protection External corrosion External corrosion Pipe reinforcement External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External corrosion Internal corrosion External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 20	Congo Congo Crongo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Pipe reinforcement Piping reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 52* - Nkossa 16* 8* oil line 3* oil line 2* gas ine 2* oil line 2* oil line 2* oil line 2* oil line 2* oil line 2* oil line 3* oil line 3* oil line 3* oil line 3* oil line 3* oil of the set 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole Internal corrosion Internal corrosion Internal corrosion External corrosion External corrosion Pipe reinforcement External corrosion Pipe reinforcement External corrosion External Hole External Corrosion Internal corrosion External Corrosion External Hole External Hole External Hole External Corrosion Internal corrosion External corrosion External Hole External Hole	3X Distributor 3X Distributor
June-17 June-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April-2017 April 2017 April 2017 March-17	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan France Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Piping reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 1* 1/2 sur 12* - Nkossa 16' 8' oil line 2' gas ine 2' gas ine 16' 16' 16' 16' 16' 16' 16' 16'	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion External Hole External Hole External Hole External Hole External Hole External corrosion External corrosion External Hole External Corrosion	3X Distributor 3X Distributor
June-17 June-17 June-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 2017 March 2017 March 2017 March-17 Marc	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - onshore Pipe reinforcement - Onshore Pipe reinforcement Pipe reinforcement Piping reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 12* - Nkossa 16* 8* oil line 2* gas line 3* gas line 3* gas line 5* colled tubing 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Corrosion	3X Distributor
June-17 June-17 June-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 2017 March 2017 March-	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Franc Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - offshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement Nozzle reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 12* - Nkossa 16' 8' oll line 2' gas line 3' oll line 2' gas line 3' oll line 3.5' coiled tubing 16' 16' 16' 16' 16' 16' 16' 16'	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion Pipe reinforcement External corrosion External corrosion External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Hole External Corrosion External Corrosion External Hole External Corrosion Internal corrosion Internal corrosion External corrosion	3X Distributor 3X Distributor
June-17 June-17 June-17 May-17 May-17 May-17 May-17 April-17 April-17 April-17 April-17 April 2017 April 2017 March 2017 March 2017 March-17 Marc	Congo Congo Congo France Angola Angola Angola COLOMBIA Kazakhstan Kazakhstan Kazakhstan Kazakhstan COLOMBIA France Franc	TOTAL TOTAL TOTAL SPAC CHEVRON CHEVRON CHEVRON CHEVRON CHEVRON KPO KPO KPO KPO SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Piping reinforcement - offshore Piping reinforcement - onshore Piping reinforcement - onshore Pipe reinforcement - onshore Pipe reinforcement - onshore Pipe reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement Pipe reinforcement Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore Piping reinforcement - offshore	1* 1/2 sur 52* - Nkossa 3 * 1* 1/2 sur 12* - Nkossa 16* 8* oil line 2* gas line 3* gas line 3* gas line 5* colled tubing 16* 16* 16* 16* 16* 16* 16* 16*	External corrosion External corrosion External Hole External Hole External Hole External Hole External Hole External Hole External Iost Internal corrosion Internal corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External Hole External Corrosion	3X Distributor

Oct-16	VIETNAM	VIETSOVPETRO	Flange protection	23" flange (HLHV platform)	External corrosion	3X Monaco
Sep-16	TUNISIA	MARETAP	Pipe reinforcement	4" Gas pipeline	External corrosion defects (3 defects)	3X Monaco
Sep-16	NIGERIA	EXXON MOBIL	Pipe line Subsea	36" pipeline	Dent	3X Monaco
Aug-16	SAUDI ARABIA	ARAMCO	Pipe line Subsea	48" oil pipeline	Leak	3X Monaco
Aug-16	SAUDI ARABIA	ARAMCO	Pipe line Subsea	48" oil pipeline	External corrosion defect (3 defects)	3X Monaco
Jul-16	VIETNAM	PREMIER OIL	Reboiler nozzle reinforcement	22" reboiler nozzle	External corrosion	3X Monaco
Jun-16	VIETNAM	PVGAS	Pipe line Subsea	16" Gas pipeline	Dent	3X Monaco
Jun-16	VIETNAM	PVGAS	Pipe line Subsea	18" Gas pipeline	Dent	3X Monaco
April-16	Kazakhstan	KPO	Pipe reinforcement	20-2300-FL-011-12"-A11	Internal corrosion	3X Distributor
		KPO				
April-16	Kazakhstan	-	Pipe reinforcement	310E-FL-16-4"-A11	Internal corrosion	3X Distributor
April-16	Kazakhstan	KPO	Pipe reinforcement	50-214D-VT-015-3-A18	Internal corrosion	3X Distributor
April-16	Kazakhstan	KPO	Pipe reinforcement	7-0000-FL-008-16"-A11	Internal corrosion+Leak	3X Distributor
March-16	Kazakhstan	КРО	Pipe reinforcement	20-4110-LT-002	Internal corrosion+Leak	3X Distributor
March-16	Kazakhstan	KPO	Pipe reinforcement	20-4110-FL-001-6" A11	Internal corrosion	3X Distributor
March-16	Kazakhstan	KPO	Pipe reinforcement	20-4110-LT-002		3X Distributor
Feb-16	Kazakhstan	КРО	Pipe reinforcement	7-0000-FL-008-16"-A11	Internal corrosion	3X Distributor
Feb-16	Kazakhstan	KPO	Pipe reinforcement	20-2300-FL-023-10"-A11	Internal corrosion	3X Distributor
Feb-16	COLOMBIA	ECOPETROL	Pipe line Subsea	24" pipeline	Dent	3X Monaco
				2015		
Dec-15	France	EXXON	Pipeline reinforcement	Pipeline 4"_C3 to LPP	Multiple dents	3X Monaco
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-FL-105-2-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-FL-106-2-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-FL-107-2-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	КРО	Pipe reinforcement	60-5620-FL-108-1-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-FL-109-1-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-FL-049-1-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	КРО	Pipe reinforcement	60-5620-FL-050-1-A11	Internal corrosion	3X Distributor
	Kazakhstan	KPO				
Dec-15			Pipe reinforcement	60-5620-FL-051-1-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	КРО	Pipe reinforcement	60-5620-FL-052-1"-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	70-2300-VA-02-VT-001K-3	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-WW-510-6"-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5620-BD-121-1-A11	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	КРО	Pipe reinforcement	60-5500-WW-048-6-A21	Internal corrosion	3X Distributor
Dec-15	Kazakhstan	KPO	Pipe reinforcement	60-5500-WW-049-6-A21	Internal corrosion	3X Distributor
		KPO				
Nov-15	Kazakhstan		Pipe reinforcement	60-5620-WW-505-6"-A11	Internal corrosion	3X Distributor
Nov-15	Kazakhstan	КРО	Pipe reinforcement	50-214C-CS-041-6"-A18	Internal corrosion	3X Distributor
Nov-15	MYANMAR	TOTAL E&P MYANMAR	Riser protection	24" Riser	External corrosion	3X Monaco
Oct-15	VIETNAM	HLJOC	Piping reinforcement	2" piping	Internal corrosion	3X Monaco
Oct-15	VIETNAM	PVGAS	Pipe line Subsea	16" Gas pipeline	2 Dents	3X Monaco
Oct-15	Kazakhstan	КРО	Pipe reinforcement	Tank 60-5620-VW-001 Nozzle's	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	КРО	Pipe reinforcement	50-214D-GL-014-3-A18	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	кро	Pipe reinforcement	50-214D-GL-015-8-A18	Internal corrosion+Leak	3X Distributor
Oct-15	Kazakhstan	КРО	Pipe reinforcement	50-214D-GL-030-8-A18	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	KPO	Pipe reinforcement	60-5900-WW-032-3-A11	Internal corrosion	3X Distributor
Oct-15	Kazakhstan					3X Distributor
		КРО	Pipe reinforcement	50-3390-VA-03-VT-020E-2-A18	Internal corrosion	
Oct-15	Kazakhstan	КРО	Pipe reinforcement	50-3390-VA-03-VT-020F-2-A18	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	кро	Pipe reinforcement	50-3390-VA-03-VT-020-2-A18	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	кро	Pipe reinforcement	60-5500-WW-052&WW-053-1 1/2"-A21	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	КРО	Pipe reinforcement	60-5620-WW-504-8-A11	Internal corrosion	3X Distributor
Oct-15	Kazakhstan	KPO	Pipe reinforcement	A4100-24110-VT-007E	Internal corrosion	3X Distributor
Oct-15	KAZAKHSTAN	кро	Piping reinforcement	1" Flare line piping	Internal corrosion	3X Monaco
				2" Flare line piping	Internal corrosion	3X Monaco
Sep-15	ALGERIA	SONATRACH	Piping reinforcement	20" Gas Piping	Leaking cracks / Welding defect	3X Monaco
Aug-15	IRAN	NISOC	Pipe line reinforcement	20" Gas Pipeline	Leak	3X Monaco
Aug-15	VIETNAM	PVGAS	Pipe line Subsea	16" Gas pipeline	3 Dents	3X Monaco
Aug-15	Martinique	LA SARA	Process piping reinforcement	Tee 1"	External corrosion	3X Monaco
	FRANCE		Pipeline reinforcement			
Jun-15	FRANCE	CCMP	Pipeline reinforcement	12" Oil pipeline	External corrosion	3X Monaco
				10" Gas lift riser	External corrosion	3X Monaco
	]	I I				



32" oil piping

32" oil pipe line

12" pipeline

2" injection water line 60-5620-OW-011-2"-A11

60-5620-SL-101-3-A11

60-5620-SL-102-3-A11 HC Tank storage

6" & 8" Gas piping

8" Gas pipeline (K5PK platform)

23" flange (HLHV platform)

Piping reinforcement

Pipe line reinforcement Pipe line reinforcement

Piping reinforcement Pipe reinforcement

Pipe reinforcement

Pipe reinforcement

Tank reinforcement

Trunk line rehabilitation

Flare line reinforcement

Flange protection

TOTAL EP Myanmar

TOTAL

PDOC

TOTAL

TOTAL KPO KPO

KPO EPPLN

OOCEP

TOTAL

VIETSOVPETRO

Dec-16

Dec-16 Dec-16

Dec-16

Dec-16 Dec-16

Dec-16

Dec-16 Nov-16 Oct-16 Oct-16

Oct-16

Myanmar

NIGERIA

SOUDAN

QATAR

QATAR Kazakhsta

Kazakhstan

FRANCE

OMAN

NEDERLAND

VIETNAM

Ka

To ensure no sea water ingress inside the riange

Hole

External corrosion (100+ defects)

External corrosion

Internal corrosion (4 defects) Internal corrosion

Internal corrosion

Internal corrosion External corrosion + Hole

Internal corrosion (4 defects)

External corrosion (4 defects)

External corrosion

3X Distributor

3X Monaco

3X Monaco

3X Monaco

3X Monaco 3X Distributo

3X Distributor

3X Distributor 3X Monaco

3X Monaco

3X Monaco

3X Monaco

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Feb-17	France	TRAPIL	Pipe reinforcement	10"	External corrosion	3X Distributor
Feb-17	France	GDH BP	Pipe reinforcement	28"	External corrosion	3X Distributor
Feb-17	Angola	CHEVRON	Piping reinforcement - offshore	2" water line	External Hole	3X Distributor
Feb-17	Angola	CHEVRON	Piping reinforcement - offshore	1" water line	External corrosion	3X Distributor
Feb-17	Angola	CHEVRON	Piping reinforcement - offshore	2" oil line	External Hole - 5 defects	3X Distributor
Feb-17	Angola	CHEVRON	Piping reinforcement - offshore	4" water line	External Hole	3X Distributor
Feb-17	Malaysia	PETRONAS GAS BERHAD	Straight Pipe-Onshore	2" pipe water line, Line No L-101 a/b/c/d	External corrosion	3X Distributor
Feb-17	Malaysia	BASE PETRONAS CHEMICALS SDN	Elbow Bend-Onshore	4" elbow water line at D-2801	External corrosion	3X Distributor
Feb-17	Kazakhstan	КРО	Pipe reinforcement	60-562-VV-01 ( 24 nozzles)	Internal corrosion	3X Distributor
Mar-17	Kazakhstan	KPO	Pipe reinforcement	60-562-VW-01 ( 25 nozzles)	Internal corrosion	3X Distributor
				108mm gas line	External corrosion	3X Distributor
Feb-17	RUSSIA	SIBUR	Pipe reinforcement/onshore	159mm gas line	External corrosion	3X Distributor
				426mm gas line	External corrosion	3X Distributor
Jan-17	Angola	CHEVRON	Piping reinforcement - offshore	2" oil line	External Hole	3X Distributor
Jan-17	Angola	CHEVRON	Piping reinforcement - offshore	4" gas line	External Hole	3X Distributor
Jan-17	Angola	CHEVRON	Piping reinforcement - offshore	14" gas line	External Hole	3X Distributor
Jan-17	NIGERIA	TOTAL	Piping Reinforcement - Offshore	32'B511	External corrosion	3X Distributor

Land         Land <thland< th="">         Land         Land         <thl< th=""><th>Mar-13</th><th>France</th><th>SPAC</th><th>Pipe line</th><th>18" NH-5-61003-B511 TEE0150 30" NH-6-83021-B513 14"/6" NW-5-33201-C513 10" TE PK 18581 20" hydrocarbures Tranche 2A</th><th>Leak due to internal corrosion Leak due to internal corrosion Leak due to internal corrosion Seam defect Internal corrosion</th><th>3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco</th></thl<></thland<>	Mar-13	France	SPAC	Pipe line	18" NH-5-61003-B511 TEE0150 30" NH-6-83021-B513 14"/6" NW-5-33201-C513 10" TE PK 18581 20" hydrocarbures Tranche 2A	Leak due to internal corrosion Leak due to internal corrosion Leak due to internal corrosion Seam defect Internal corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Image: state					18" NH-5-61003-B511 TEE0150 30" NH-6-83021-B513 14"/6" NW-5-33201-C513 10" TE PK 18581	Leak due to internal corrosion Leak due to internal corrosion Leak due to internal corrosion Seam defect	3X Monaco 3X Monaco 3X Monaco 3X Monaco
Image: book in the start of the st					18" NH-5-61003-B511 TEE0150 30" NH-6-83021-B513 14"/6" NW-5-33201-C513	Leak due to internal corrosion Leak due to internal corrosion	3X Monaco 3X Monaco
Image: state in the s					18" NH-5-61003-B511 TEE0150	Leak due to internal corrosion	3X Monaco
Normal         Normal         Normal         Normal         Normal         Normal         Normal           001         101         1010         1010         1010         1010         1010           001         1010         000         000         000         000         0000           001         1010         0000<							
Image: state							3Y Monaco
number of the standard state is a state is				Process piping reinforcement			
1         0			ANGOLA TOTAL ANGOLA				
Image: state							
Image: Control         Image: Contro         Image: Contro         Image: C	1				10" NH-5-61079-B511 straight 3	Internal corrosion	3X Monaco
Image: bit							
Image: state							
1         1         0		ANGOLA			18" NH-0068-B511	External corrosion	3X Monaco
Image: bit	Apr-13						
Anits         Function         Control (Control (Con							
Image: biological status           0x1         Form					3" GT-1601-F511 (43014221) / P60R	External corrosion	3X Monaco
Image: space							
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April         Proc.         Difference							
Ap-1         Total, Aprilation         Total, Aprilation         Total         Distribution         Distribution <thdistribution< th=""> <thdistribution< th=""> <t< td=""><td></td><td></td><td></td><td rowspan="2"></td><td></td><td></td><td></td></t<></thdistribution<></thdistribution<>							
Image: Control of the state is a state in the state is a state is a state is a state in the state is a	ŀ				3" GT-1101-F511 (43014071) / P10L		
Image: state		BIRMANIE	TOTAL MYANMAR	Process piping reinforcement			
Image: Control in the state in the	May-13						
Image: Control in the state in the				Tank			
Image: Control in the second in the	Juri-13	NIGERIA	ADDAX	Pipe subsea			
$\begin{array}{ c c c c c c } \hline  c c c c c c c c c c c c c c c c c c $	Jun-13	GABON	TOTAL GABON	Process piping reinforcement			
Image: Control in the second in the					Critical line 1" & 2" of KY600 under :		
Image: Control in the second in the	ŀ						
Land         Land <thland< th="">         Land         Land         <thl< td=""><td>Jul-13</td><td></td><td></td><td></td><td></td><td></td><td></td></thl<></thland<>	Jul-13						
American         American         American         American         American         American           30-13         Farce         TOTAL Refines homouth         Pipe references         2001 is:         Edited constant         300000           20-13         Farce         TOTAL Refines homouth         Pipe references         2001 is:         Edited constant         3000000           20-13         Robit         TOTAL Refines homouth         Pipe references         1 trade to 191         Edited constant         3000000           20-14         Robit         TOTAL Refines homouth         Pipe references         1 trade to 191         Edited constant         3000000           20-14         Robit         TOTAL Refines homouth         Pipe references         1 trade to 191         Edited constant         3000000           20-14         Robit         TOTAL Refines homouth         Pipe references         1 trade to 191         Edited constant         3000000           20-14         Farce         TOTAL Refines homouth         Pipe references         1 trade to 191         Edited constant         3000000           20-14         Farce         TOTAL Refines homouth         Pipe references         1 trade to 191         Edited constant         3000000           20-14         Farce <td< td=""><td>F</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	F						
Land         Land         Land         Land         Maximum         Maximum           3a-15         France         TOTAL Raiffield Monanda         Pipe refractioner         Lander Lin 16 <sup>-1</sup> Edendi Contocon         33 Monanda           2a-15         France         TOTAL Raiffield Monanda         Pipe refractioner         Traveler Lin 16 <sup>-1</sup> Edendi Contocon         33 Monanda           2a-15         France         TOTAL Raiffield Monanda         Pipe refractioner         17 Viel - Hill (Viel 1000 Viel 10000 Viel 1000 Viel 10000 Viel 1000 Viel 10000 Viel 1		F	0000		400	6 Eut'	
Land         Land <thland< th="">         Land         Land         <thl< td=""><td></td><td>Abu Dhabi</td><td>ADGAS</td><td>Temperature from: +10°C to +110°C -</td><td>Not listed due to a long exhaustive list</td><td>Cracked girth weld (H2S SCC)</td><td>3X Monaco</td></thl<></thland<>		Abu Dhabi	ADGAS	Temperature from: +10°C to +110°C -	Not listed due to a long exhaustive list	Cracked girth weld (H2S SCC)	3X Monaco
Image: biological state in the sta	hah 1			Ø Piping from : 2" to 30"	זא <sup>ייי</sup> weld seam at V/V 36		
Image:         Column:         Column: <th< td=""><td>Sep-13</td><td>NIGERIA</td><td>BUMIARMADA</td><td>Process piping</td><td>18" T- PIECE DISCHARGE SIDE OF V/V 40</td><td>Leak</td><td>3X Monaco</td></th<>	Sep-13	NIGERIA	BUMIARMADA	Process piping	18" T- PIECE DISCHARGE SIDE OF V/V 40	Leak	3X Monaco
Image: bit in the state is a state in the state is a st					20" BALLAST LINE SEPARATOR INLET & OUTLET		
Image: Control in the state of the	Sep-13	France	SIP Corse	Pipe line Subsea	line 4" subsea		
Image: state of the s	Sep-13	France	TOTAL PETROCHEMICALS	Pipe reinforcement	16" DN400 OBERHOFFEN		
Image         Image <th< td=""><td></td><td></td><td></td><td>11.0.</td><td></td><td></td><td></td></th<>				11.0.			
Image: state of the s		GABON	TOTAL GABON	Process piping reinforcement		Leak	3X Monaco
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$ \begin{array}{ c c c c c } \hline \begin{tabular}{ c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	-	France					
$ \begin{array}{ c c c c c } \hline \\ \hline $	Feb-14						
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External controlin         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External controlin         3X Monaco           Dec-14         IND/A         ONGC         Pipe reinforcement         10" HR-HRG (WF)         Lasis         3X Monaco           Dec-14         IND/A         ONGC         Pipe reinforcement         8" Wale Nuka france         Statumatic Activity         3X Monaco           Nor.14         France         VERMEIN         Pipe reinforcement         8" Wale Nuka france         Statumatic Activity         Monaco           Oct-14         France         VERMEIN         Pipe reinforcement         8" Wale Nuka france         Statumatic Activity         Monaco           Sep1-14         France         VERMEIN         Pipe reinforcement         10" Transport Mail         External corrosion         3X Monaco           Sep1-14         France         TOTAL GARGANVILLE         Pipe reinforcement         Mu-2 Sup catazon         External corrosion         3X Monaco           Aug-14         VETNAM         CLOC         Pipe reinforcement         PUL 20"         Internal corrosion         3X Monaco		GABON	TOTAL GABON	Weld reinforcement	Heavy Oil 12" CB1 UHL-COLLECTOR	11 Weld defect (external corrosion)	3X Monaco
Jan-15         France         TOTAL Refinerie Normandie         Pipe reinforcement         24°OI riser         Esternal contosion         33 Monaco           Jan-15         France         TOTAL Refinerie Normandie         Pipe reinforcement         Transfer Line 16 "         Esternal contosion         33 Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         Esternal contosion         33 Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10' 'HR -HRS (WF)         Liska         SX Monaco           Nov-14         France         VERMILLON         Pipe reinforcement         8' Water Nank Line from V3 to V2         Internal contosion         33 Monaco           Oct-14         France         AR LIGUIDE         Pipe reinforcement         8' Water Nank Line from V3 to V2         Internal contosion         33 Monaco           Oct-14         France         AR LIGUIDE         Pipe reinforcement         8' Gaz         Esternal contosion         33 Monaco           Step1-14         France         TOTAL LEB YEMEN         Pipe reinforcement         10' Transport Naile         Esternal contosion         33 Monaco           Gast         France         TOTAL GARGANVILE         Pipe reinforcement         PLF 20'         Internal contosion	ivial'-14			Process piping reinforcement	10" Kiser	External corrosion	3X Monaco
Jan-15         France         TOTAL Raffinerie Normanie         Pipe reinforcement         10° rijecturiteitie         24° Oil riser         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normanie         Pipe reinforcement         Transfer Like 16 °         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10° rijecturi rise         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10° rijecturi rise         External corrosion         3X Monaco           Doc-14         INDIA         ONGC         Pipe reinforcement         10° rise rise         External corrosion         3X Monaco           Doc-14         INDIA         ONGC         Pipe reinforcement         6° War Munc Like for WB w/2         Internal corrosion         3X Monaco           Doc-14         France         AV GUIDE         Pipe reinforcement         0° War Munc Like for WB w/2         Internal corrosion         3X Monaco           Corrosin         AV Monaco         Pipe reinforcement         ML-2 Surg casson         Esternal corrosion         3X Monaco           Jun-14         France         TOTAL GARGANVILLE         Pipe reinforcement         PLF 20°         Internal corrosion<	Mar 11		LA SARA				
$ \begin{array}{ c c c } \hline \begin{tabular}{ c c } \hline \begi$	ļ	France					
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Tarasfer Line 16 "         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Tarasfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Tarasfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10° Haren Nuck Line form V3 to W2         Internal corrosion         3X Monaco           Nov:14         France         VERMILLION         Pipe reinforcement         0° Water Nuck Line form V3 to W2         Internal corrosion         3X Monaco           Oct-14         France         VERMILLION         Pipe reinforcement         0° Transport hule         External corrosion         3X Monaco           Oct-14         France         TOTAL EAP BONEO         Process piping reinforcement         MJ-2 Sum colation         External corrosion         3X Monaco           Sep14         BRUNEI         TOTAL EAP BONEO         Process piping reinforcement         MJ-2 Sum colation         External corrosion         3X Monaco           Jul-14         VETNAM         CLJOC         Process piping reinforcement	Apr-14						
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3.X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3.X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Toraster Line 16 "         External corrosion         3.X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10" HR-HRG (WF)         Leaks         3.X Monaco           Nor-14         YEMEN         TOTAL EAP YEMEN         Pipe reinforcement         8" Water Nunk Line from W3 to W2         Internal corrosion         3.X Monaco           Nor-14         YEMEN         TOTAL EAP YEMEN         Pipe reinforcement         10" Transport hulie         External corrosion         3.X Monaco           Sep-14         BRUNEI         TOTAL EAP BORNEO         Process piping reinforcement         ML-2 Sump catison         External corrosion         3.X Monaco           Jul-14         France         TOTAL GARGANVILLE         Pipe reinforcement         PLF 20'         Internal corrosion         3.X Monaco           Jul-14         France         TOTAL GARGANVILLE         Pipe reinforcement         PLF 20'	Apr 14	RDC	PERENCO RDC	Process piping reinforcement			
$ \begin{array}{ c c c c } \hline \begin{tabular}{ c c } \hline \be$							
Image: Constraint of the second of					MIBALE Aux	External corrosion	3X Monaco
Image: Internal control of injectoring in the injector internal control of injector internal control of injector internal control of injector internal control of i	may-14		PRENCO GABON				
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10" HR - HRG (WF)         Leaks         3X Monaco           Nov.14         YEMEN         TOTAL E&P YEMEN         Pipe reinforcement         8' Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Nov.14         YEMEN         TOTAL E&P YEMEN         Pipe reinforcement         10' Transport hule         External corrosion         3X Monaco           Nov.14         France         VERMILLION         Pipe reinforcement         MLJ-2 Sump calsson         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL ARGANVILLE         Pipe reinforcement         MLJ-2 Sump calsson         External corrosion         3X Monaco           Jul-14         VIETNAM         CLJOC         Process piping reinforcement         PLIF 20'         Interna	to	GABON		Process piping reinforcement			
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         8" Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Nov-14         YEMEN         TOTAL E&P YEMEN         Pipe reinforcement         8" Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Oct-14         France         VERMILLON         Pipe reinforcement         10" Transport hulie         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL E&P SORNEO         Process piping reinforcement         ML-2 Sump caisson         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL E&P SORNEO         Process piping reinforcement         ML-2 Sump caisson         External corrosion         3X Monaco           Jul-14         VIETNAM         CLIOC         Process piping reinforcement <td></td> <td></td> <td>TOTAL GABON</td> <td></td> <td></td> <td></td> <td></td>			TOTAL GABON				
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10' HR - HRG (WF)         Leaks         3X Monaco           Nn-14         YEMEN         TOTAL E&P YEMEN         Pipe reinforcement         8' Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Oct-14         France         VERMILLION         Pipe reinforcement         10' Transport hule         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL E&P BORNEO         Process piping reinforcement         MLJ-2 Sump caisson         External corrosion         3X Monaco           Aug-14         VETNAM         CLJOC         Pipe reinforcement         PLI-20"         Internal corrosion         3X Monaco           Jul-14         France         VERMILLION         Pipe reinforcement         PIC-28"         28"         22 W		France	LA SARA				
Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10' HR - HIG (WF)         Leaks         3X Monaco           Nn-14         YEMEN         TOTAL E&P YEMEN         Pipe reinforcement         8' Water Nuk Line from W3 to W2         Internal corrosion         3X Monaco           Oct-14         France         VERMILLION         Pipe reinforcement         10' Transport hule         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL E&P BORNEO         Process piping reinforcement         MLJ-2 Sump caisson         External corrosion         3X Monaco           Aug-14         VETNAM         CLJOC         Pipe reinforcement         PILP 20"         Internal corrosion         3X Monaco           Jul-14         France         VERMILLION         Pipe reinforcement         10' O' Transport         8' External corrosion			JAPAN VIETNAM PETROLEUM				
Image: Constraint of high-contraint in the control of high-control of	Jul-14	France		Pipe reinforcement			
Initial         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec:14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec:14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec:14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec:14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec:14         INDIA         ONGC         Pipe reinforcement         8" Valer Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Nov:14         France         VERMILLION         Pipe reinforcement         8" Valer Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Oct:14         France         AIR LiQUIDE         Pipe reinforcement         ML/2 Sump caisson         External corrosion         3X Monaco           Sep-14<					10"	Welding defect	3X Monaco
Initial         External corrosion         SX Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe fiel fiel Subsea         10° HR - HRG (WF)         Leaks         3X Monaco           Nor-14         YEMEN         TOTAL E&P YEMEN         Pipe reinforcement         8' Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Oct-14         France         VERMILLION         Pipe reinforcement         10° Transport hulie         External corrosion         3X Monaco           Oct-14         France         AIR LIQUIDE         Pipe reinforcement         10° Transport hulie         External corrosion         3X Monaco           Oct-14         France         AIR LIQUIDE         Pipe reinforcement         8' Gaz         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL E&P BORNEO         Process piping reinforcement         ML-2 Sump caisson         External corrosion         3X Monaco           France         TOTAL GAGANVILLE         Pi	Aug-14	VIETNAM	CLJOC	Process piping reinforcement	30"	Welding defect	3X Monaco
Initial         External corrosion         SX Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Nv-14         VEMEN         ONGC         Pipe reinforcement         8" Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Nv-14         France         VERMILLON         Pipe reinforcement         8" Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Oct-14         France         VERMILLON         Pipe reinforcement         10" Transport hulie         External corrosion         3X Monaco           Oct-14         France         AIR LIQUIDE         Pipe reinforcement         10" Transport hulie         External corrosion         3X Monaco           Sep-14         BRUNEI         TOTAL EAP BORNEO         Process piping reinforcement         ML-2 Sump caisson         External corrosion         3X Monaco	Ē				28"	22 Welding defect	3X Monaco
International         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Jan-15         France         TOTAL Raffinerie Normandie         Pipe reinforcement         Transfer Line 16 "         External corrosion         3X Monaco           Dec-14         INDIA         ONGC         Pipe reinforcement         10' HR - HRG (WF)         Leaks         3X Monaco           Nov-14         YEMEN         ONGC         Pipe reinforcement         8' Water Nunk Line from W3 to W2         Internal corrosion         3X Monaco           Nov-14         France         VEMILLION         Pipe reinforcement         8'' Gaz         External corrosion         3X Monaco           Oct-14         France         VAINLLIQUIDE         Pipe reinforcement         8'' Gaz         External corrosion         3X Monaco	Sep-14						
Image: Information of injection real     External corrosion     3.5. Monaco       Jan-15     France     TOTAL Raffinerie Normandie     Pipe reinforcement     Transfer Line 16 "     External corrosion     3.3. Monaco       Sec-14     INDIA     ONGC     Pipe reinforcement     10° HR - HRG (WF)     Leaks     3.3. Monaco       Dec-14     INDIA     ONGC     Pipe reinforcement     8" Water Nunk Line from W3 to W2     Internal corrosion     3.3. Monaco							
Image: Constraint of type: contraint     External controsion     3.5. Nonaco       Jan-15     France     TOTAL Ratfinerie Normandie     Pipe reinforcement     Transfer Line 16 ''     External corrosion     3.3. Monaco       ZeO144       Dec-14     INDIA     ONGC     Pipe line Subsea     10' HR - HRG (WF)     Leaks     3.3. Monaco	Nov-14						
Jan-15     France     TOTAL Raffinerie Normandie     Pipe reinforcement     Transfer Line 16 "     External corrosion     3X Monaco       Z01148       Z01148       Displan-15       France     TOTAL Raffinerie Normandie     Pipe reinforcement     Transfer Line 16 "     External corrosion     3X Monaco       Z01144	Dec-14						
Jan-15     France     TOTAL Raffinerie Normandie     Pipe reinforcement     Transfer Line 16 "     External corrosion     3X Monaco       Value     Value     Value     Value     Value     Value     Value							
Jan-15     France     TOTAL Raffinerie Normandie     Pipe reinforcement     Transfer Line 16 "     External corrosion     3X Monaco       Value     Value     Value     Value     Value     Value     Value					2014		
Jan-15 France TOTAL Raffinerie Normandie Pipe reinforcement Transfer Line 16 " External corrosion 3X Monaco						External contraint	SX Wonaco
io injectori risen External corrosion SA Morido	Jan-15	France	TOTAL Raffinerie Normandie	Pipe reinforcement	Transfer Line 16 "		
						External conosion	3X WUIACU
16" Injection riser External corrosion 3X Monaco							
Jun-15 VIETNAM CLJOC Riser reinforcement for training Control of the second sec		VIETNAM	CLJOC	Riser reinforcement	16" Injection riser	External corrosion	3X Monaco

January to	ANGOLA Cabinda	SBM / CHEVRON	1	F	Esternal according	07.14
to				Not listed due to a long exhaustive list	External corrosion	3X Monaco
			Ø Piping from : 2" to 36" Temperature from: ambiant to 110°C Fluid : Oil, gas Water process & regulation		Girth weld	3X Monaco
					Cracks	3X Monaco
					Leaks	3X Monaco
			2	2012		
Dec-12	France	CIM Le Havre	Pipe Line	16" Manifold 1 Collecteur 5	Leak	3X Monaco
	France	EDE Corco	Pipe line	4" OLEODUC DU DPM déf N°6	External corrosion	3X Monaco
	France	EDF Corse	Pipe line	déf N°18 déf N°25	External corrosion External corrosion	3X Monaco 3X Monaco
Nov-12				14" NG-228-B51	Internal corrosion	3X Monaco
	GABON	TOTAL GABON	Process piping reinforcement	14" NG-228-B51	Leak due to internal corrosion	3X Monaco
				14" NG-228-B51 4" OLEODUC DU DPM déf N°163	Internal corrosion External corrosion	3X Monaco 3X Monaco
	France	EDF Corse	Pipe line	déf N°164	External corrosion	3X Monaco
	1 Talloo		1.00	déf N°166	External corrosion	3X Monaco
Oct-12	France	TSI	Pipe line	12" at T62	External corrosion	3X Monaco
	Yemen	Yemen LNG	Tank	Seawater Tank	Leaks	3X Monaco
	France	Andros	Nozzels	3" sur tronçons a ANDROS	Leak	3X Monaco
				42" Ecluse François 1er : PK22733.416 PK22733.416	External corrosion External corrosion	3X Monaco 3X Monaco
				PK22735.207	External corrosion	3X Monaco
	_			PK22768.762	External corrosion	3X Monaco
Jul-12	France	CIM Le Havre	Pipe Line	PK22770.485 PK22793.274	External corrosion External corrosion	3X Monaco 3X Monaco
				PK22793.274 PK22876.742	External corrosion	3X Monaco 3X Monaco
				PK22877.089	External corrosion	3X Monaco
		Oranta di Mana	Di- 11	PK22881.779	External corrosion	3X Monaco
	France France	Geostock Manosque Geostock Manosque	Pipe line Pipe line	4" Conduite transfert gasoil liaisons puits 24" DN 600 Lupiac / Lussan	External corrosion External corrosion	3X Monaco 3X Monaco
	110100		r ipo into	4"-FS-4-2102-B511	Leak	3X Monaco
				6"-NH-4-1111-F511	External corrosion	3X Monaco
			Process piping reinforcement	6"-NH-4-1111-F511 bend 16"-NH-4-0047-B511	External corrosion External corrosion	3X Monaco 3X Monaco
				16"-NH-4-0047-B511 8"-NH-R-230-B511	External corrosion External corrosion	3X Monaco 3X Monaco
				18"-NH-0072-B511	External corrosion	3X Monaco
Jun-12	ANGOLA	TOTAL ANGOLA		8"-NH-1216-F720	Saw damage	3X Monaco
Jun-12	ANGOLA	TOTAL ANGOLA		8"-NH-1216-F720 Tee 2"-IA-4-8507-B571 CUS 81	External corrosion External corrosion	3X Monaco 3X Monaco
				2"-IA-4-8507-B571 CUS 89	External corrosion	3X Monaco
				2"-IA-4-8507-B571 CUS 92	External corrosion	3X Monaco
				2"-IA-4-8507-B571 STRAIGHT TBR (4)	External corrosion	3X Monaco
				2"-IA-4-8507-B571 TEE TBR (3) 2"-IA-4-8507-B571 TEE TBR (1)	External corrosion External corrosion	3X Monaco 3X Monaco
				2"-IA-4-8507-B571 TEE TBR (2)	External corrosion	3X Monaco
				4" OLEODUC DU DPM déf N°78	External corrosion	3X Monaco
	France	EDF Corse	Pipe line	déf N°69 déf N°81	External corrosion External corrosion	3X Monaco 3X Monaco
Jun-12				déf N°12	External corrosion	3X Monaco
	YEMEN	Yemen LNG	Pipe line	line 38" gas	Dent	3X Monaco
May-12	France GABON	Geostock Manosque TOTAL GABON	Pipe line Process piping reinforcement	20" sur site de GEOSEL Manosque 2" NG-462-D70	External corrosion External corrosion	3X Monaco 3X Monaco
	GABON	Tome or Bolt	Process piping remorcement	1 MW 42311 B51	External corrosion	3X Monaco
				2 HD 517 B51	External corrosion	3X Monaco
				2 IA 688 B57	External corrosion	3X Monaco
				2 IA 688 B57 3 1 IA 621 B57	External corrosion External corrosion	3X Monaco 3X Monaco
				2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51	External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco
				2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B63 3 SA 601 B51 3 SG 588 C51	External corrosion External corrosion External corrosion 2 External corrosion External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
				2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51	External corrosion External corrosion External corrosion 2 External corrosion External corrosion Leak	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
				2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B63 3 SA 601 B51 3 SG 588 C51	External corrosion External corrosion External corrosion 2 External corrosion External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 NG 424 070	External corrosion External corrosion 2 External corrosion 2 External corrosion External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 NG 424 D70 6 SD 660 B51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 NG 424 070	External corrosion External corrosion 2 External corrosion 2 External corrosion External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 NG 424 D70 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 8 TW 550 F51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 WD 4151 B51 3 XH 634 B51 4 NG 424 D70 6 SD 660 B51 6 SD 661 B51 8 FY 435 B51 8 TW 550 F51 10 NG 42101 B51	External corrosion External corrosion 2 External corrosion 2 External corrosion External corrosion Leak External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 8 FS 433 B51 8 TW 550 F51 10 NG 42101 B51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 8 TW 550 F51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 669 B55	External corrosion External corrosion 2 External corrosion 2 External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 8 FS 433 B51 10 NG 42101 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON	TOTAL GABON	Process piping reinforcement	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 689 C51 3 WD 4151 B51 3 XH 634 B51 4 F5 440 B51 4 F5 440 B51 6 SD 660 B51 6 SD 660 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 669 B55 4 NG 408 B51 14 NG 401 B51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12	GABON			2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 14 NG 401 B51 8 FS 2102 B51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Apr-12 Mar-12	FRANCE YEMEN	TSI Yemen LNG	Pipe reinforcement Flange	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 68 C51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 669 B55 4 NG 408 B51 14 NG 401 B51 8 FS 439 B51 14 NG 401 B51 8 FS 439 B51 14 NG 401 B51 8 FS 2102 B51 8 FS 439 B51 14 NG 401 B51 8 FS 2102 B51 8 FS 405 C51 18 FS 405 F51 14 NG 401 B51 14 NG 401 B51 3 FF 46022	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12	FRANCE YEMEN France	TSI Yemen LNG SPAC	Pipe reinforcement Flange Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 688 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 FS	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
	FRANCE YEMEN	TSI Yemen LNG	Pipe reinforcement Flange	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 868 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 9 FLord a Fos-sur-Mer Tube 20° sur ligne G5M 1 Nord – Point n°8	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12	FRANCE YEMEN France	TSI Yemen LNG SPAC	Pipe reinforcement Flange Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 PW 41214 B53 3 SA 601 B51 3 SG 688 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 FS	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12	FRANCE YEMEN France	TSI Yemen LNG SPAC	Pipe reinforcement Flange Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 8 FS 2102 B51 8 FS 2102 B51 8 SF 2102 B51 10 NG 4 Point n°8 IPN-NH-0630-77-710 (ADH 10-016 VIE/SCD) 3 ° GT-1502 F511 (CUS 312) 3 ° GT-1502 F511 (CUS 308)	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12	FRANCE YEMEN France	TSI Yemen LNG SPAC	Pipe reinforcement Flange Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 3 WA 4124 B53 3 SA 601 B51 3 SG 68 C51 3 SG 68 C51 3 XH 634 B51 4 F5 440 B51 4 F5 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 TW 550 F51 10 NG 42101 B51 10 TW 540 F51 10 TW 540 F51 14 FS 437 B51 2 SD 669 B55 4 NG 408 B51 8 STW 550 F51 14 NG 401 B51 8 STS 438 B51 2 SD 669 B55 4 NG 408 B51 14 NG 401 B51 8 STS 120 E51 8 STW ligne de transport TE1 32-FT-46032 42° Fluxel à Fos-sur-Mer Tube 20° sur ligne GSM 1 Nord – Point n°8 IPN-NH-6630-T7-F710 (ADH 10-016 VL/SCD) 3° GT-1502 F511 (CUS 312) 3° GT-1502 F511 (CUS 317)	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France	TSI Yemen LNG SPAC	Pipe reinforcement Flange Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 8 FS 2102 B51 8 FS 2102 B51 8 SF 2102 B51 10 NG 4 Point n°8 IPN-NH-0630-77-710 (ADH 10-016 VIE/SCD) 3 ° GT-1502 F511 (CUS 312) 3 ° GT-1502 F511 (CUS 308)	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12	FRANCE YEMEN France France	TSI Yemen LNG SPAC Geostock Eguilles	Pipe reinforcement Flange Pipe line Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 3 VM 4121 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 428 D55 4 NG 420 B51 8 FS 410 B51 8 FS 410 B51 8 FS 2102 B51 10 NG 401 B51 13 2-FT-46032 42" Fluxel à Fos-sur-Mer Tube 20" sur ligne GSM 1 Nord - Point n*8 IPN-NH-630-17-F710 (ADH 10-016 VE/SCD) 3 "GT-1502 F511 (CUS 312) 3 "GT-1502 F511 (CUS 317) 3 "GT-1501 F511 (CUS 317) 3 "GT-1501 F511 (CUS 318)	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France	TSI Yemen LNG SPAC Geostock Eguilles	Pipe reinforcement Flange Pipe line Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 3 VM 4121 B53 3 SA 601 B51 3 SG 588 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 428 D55 4 NG 420 B51 8 FS 410 B51 8 FS 410 B51 8 FS 2102 B51 10 NG 401 B51 13 2-FT-46032 42" Fluxel à Fos-sur-Mer Tube 20" sur ligne GSM 1 Nord - Point n*8 IPN-NH-630-17-F710 (ADH 10-016 VE/SCD) 3 "GT-1502 F511 (CUS 312) 3 "GT-1502 F511 (CUS 317) 3 "GT-1501 F511 (CUS 317) 3 "GT-1501 F511 (CUS 318)	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France	TSI Yemen LNG SPAC Geostock Eguilles	Pipe reinforcement Flange Pipe line Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 68 C51 3 SG 68 C51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 10 TW 540 F51 14 FS 437 B51 2 SD 669 B55 4 NG 408 B51 8 '' sur ligne de transport TE1 3 2+FT-46032 42'' Fluxel à Fos-sur-Mer Tube 20'' sur ligne GSM 1 Nord - Point n°8 I'PN-NH-6630-T7-F710 (ADH 10-016 VL/SCD) 3'' GT-1502 F511 (CUS 316) 3'' GT-1502 F511 (CUS 316) 3'' GT-1302 F511 (CUS 328) 3'' GT-1302 F511 (CUS 328)	External corrosion External corrosion 2 External corrosion 2 External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France	TSI Yemen LNG SPAC Geostock Eguilles	Pipe reinforcement Flange Pipe line Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SA 601 B51 3 SG 686 C51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 413 B51 8 FS 413 B51 8 FS 413 B51 14 NG 401 B51 8 FS 410 B51 8 FS 410 B51 8 FS 410 B51 8 FS 410 B51 14 NG 401 B51 8 FS 410 B51 14 NG 401 B51 8 FS 410 B51 14 NG 401 B51 8 FS 410 B51 13 FT-46032 42" Fluxel à Fos-sur-Mer Tube 20" sur ligne G5M 1 Nord – Point n*8 IPN-NH-0630-17-F710 (ADH 10-016 VIE/SCD) 3" GT-1502 F511 (CUS 312) 3" GT-1501 F511 (CUS 318) 3" GT-1501 F511 (CUS 330)	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France ANGOLA	TSI Yemen LNG SPAC Geostock Eguilles TOTAL ANGOLA	Pipe reinforcement Flange Pipe line Pipe line Process piping reinforcement Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 TM 41214 B53 3 SA 601 B51 3 SG 68 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 428 0F51 14 NG 420 F51 8 FS 433 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 8 FS 2102 B51 8 FS 430 F51 12 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 8 FS 2102 B51 8 FS 2102 B51 3 CT-1502 F511 (CUS 312) 3 CT-1502 F511 (CUS 318) 3 CT-1302 F511 (CUS 328) 3 GT-1302 F511 (CUS 328) 3 GT-1302 F511 (CUS 300) 20" sur ligne 2 Engrenier – Rognac	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France ANGOLA	TSI Yemen LNG SPAC Geostock Eguilles TOTAL ANGOLA	Pipe reinforcement Flange Pipe line Pipe line Process piping reinforcement Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 688 C51 3 SG 688 C51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 10 TW 540 F51 14 FS 437 B51 2 SD 689 B55 4 NG 408 B51 14 NG 401 B51 8 FS 433 B51 8 FS 433 B51 8 FS 438 B51 14 NG 401 B51 14 FS 437 B51 14 NG 401 B51 8 FS 437 B51 14 NG 401 B51 8 FS 437 B51 14 NG 401 B51 8 FS 437 B51 14 NG 401 B51 13 CFT-46032 42 FLucel à Fos-sur-Mer Tube 20° sur ligne G8 MT Nord – Point n°8 IPN-NH-0630-17-F710 (ADH 10-016 VIE/SCD) 3 °GT-1502 F511 (CUS 312) 3 °GT-1502 F511 (CUS 316) 3 °GT-1302 F511 (CUS 328) 3 °GT-1302 F511 (CUS 328) 3 °GT-1301 F511 (CUS 300) 20° sur ligne 2 Engrenier – Rognac	External corrosion External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France ANGOLA	TSI Yemen LNG SPAC Geostock Eguilles TOTAL ANGOLA	Pipe reinforcement Flange Pipe line Pipe line Process piping reinforcement Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 TVA 4124 B53 3 SA 601 B51 3 SG 68 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 FS 433 B51 10 NG 42101 B51 10 TW 540 F51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 448 B51 14 NG 440 B51 8 FS 421 D51 8 FS 433 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 8 '' sur ligne de transport TE1 3 2-FT-46032 42'' FLuval À F0s-sur-Mer Tube 20'' sur ligne GSM 1 Nord – Point n°8 I'PN-NH-6030-17-F710 (ADH 1-0:16 VE/SCD) 3'' GT-1502 F511 (CUS 312) 3'' GT-1502 F511 (CUS 312) 3'' GT-1302 F511 (CUS 328) 3'' GT-1302 F511 (CUS 328) 3'' GT-1302 F511 (CUS 328) 3'' GT-1302 F511 (CUS 300) 20'' sur ligne 2 Engrenier – Rognac	External corrosion External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France ANGOLA	TSI Yemen LNG SPAC Geostock Eguilles TOTAL ANGOLA	Pipe reinforcement Flange Pipe line Pipe line Process piping reinforcement Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 68 C51 3 SG 68 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 TW 550 F51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 TW 1996 B55 4 NG 408 B51 14 NG 401 B51 8 TS 433 B51 8 TW 1996 B55 4 NG 408 B51 14 NG 401 B51 8 TS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 TS 437 B51 12 ST 106 B51 8 TS 433 B51 3 GT -1502 F511 (CUS 312) 3 GT -1502 F511 (CUS 316) 3 GT -1502 F511 (CUS 318) 3 GT -1302 F511 (CUS 318) 3 GT -1302 F511 (CUS 328) 3 GT -1302 F511 (CUS 328) 3 GT -1302 F511 (CUS 300) 20" sur ligne 2 Engrenier – Rognac 2011 18" line 8-NG-411-C51 3 -FG-7101-B51	External corrosion External corrosion 2 External corrosion Leak External corrosion External corrosion	3X Monaco 3X Monaco
Mar-12 Feb-12 Jan-12	FRANCE YEMEN France France ANGOLA	TSI Yemen LNG SPAC Geostock Eguilles TOTAL ANGOLA Geostock Istres	Pipe reinforcement Flange Pipe line Pipe line Process piping reinforcement Pipe line Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 4124 B53 3 SA 601 B51 3 SG 588 C51 3 SG 588 C51 3 WD 4151 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 660 B51 10 NG 42101 B51 10 NG 42101 B51 10 NG 42101 B51 10 NG 42101 B51 2 SD 689 B55 4 NG 408 B51 14 NG 408 B51 14 NG 408 B51 14 NG 408 B51 8 FS 433 B51 8 FS 433 B51 8 FS 433 B51 10 NG 4210 B51 13 SF 5430 B51 14 NG 408 B51 14 NG 408 B51 14 NG 401 B51 8 FS 2102 B51 8 'sur ligne de transport TE1 32-FT-46032 4 2' FLwal 6 To-sur-Mer Tube 20' sur ligne GSM 1 Nord – Point n°8 IPN-NH-0630-17-F710 (ADH 10-016 VIE/SCD) 3' GT-1502 F511 (CUS 308) 3' GT-1502 F511 (CUS 317) 3'' GT-1502 F511 (CUS 318) 3'' GT-1302 F511 (CUS 330) 3'' GT-1302 F511 (C	External corrosion External corrosion External corrosion 2 External corrosion Leak External corrosion Extern	3X Monaco 3X Monaco
Mar-12 Feb-12	FRANCE YEMEN France France ANGOLA	TSI Yemen LNG SPAC Geostock Eguilles TOTAL ANGOLA	Pipe reinforcement Flange Pipe line Pipe line Process piping reinforcement Pipe line Pipe line	2 IA 688 B57 3 1 IA 621 B57 3 FW 41214 B53 3 SA 601 B51 3 SG 68 C51 3 SG 68 C51 3 WD 4151 B51 3 XH 634 B51 4 FS 440 B51 4 FS 440 B51 6 SD 660 B51 6 SD 660 B51 6 SD 661 B51 8 TW 550 F51 10 NG 42101 B51 10 TW 540 F51 14 FS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 TW 1996 B55 4 NG 408 B51 14 NG 401 B51 8 TS 433 B51 8 TW 1996 B55 4 NG 408 B51 14 NG 401 B51 8 TS 437 B51 2 SD 869 B55 4 NG 408 B51 14 NG 401 B51 8 TS 437 B51 12 ST 106 B51 8 TS 433 B51 3 GT -1502 F511 (CUS 312) 3 GT -1502 F511 (CUS 316) 3 GT -1502 F511 (CUS 318) 3 GT -1302 F511 (CUS 318) 3 GT -1302 F511 (CUS 328) 3 GT -1302 F511 (CUS 328) 3 GT -1302 F511 (CUS 300) 20" sur ligne 2 Engrenier – Rognac 2011 18" line 8-NG-411-C51 3 -FG-7101-B51	External corrosion External corrosion 2 External corrosion 2 External corrosion Leak External corrosion Exte	3X Monaco 3X Monaco

				2-NG-410-C51	External corrosion	3X Monaco
				4-FS-3-B51	External corrosion	3X Monaco
				2-DF-4-6003-B511 8-GT-4-1002-F511	External corrosion External corrosion	3X Monaco 3X Monaco
	ANGOLA	TOTAL ANGOLA	Process piping reinforcement	2-NG-4-5101-C511	External corrosion	3X Monaco
				24-NH-4-3213-B511	External corrosion	3X Monaco
				IPN-NH-0630-17-F710	External corrosion	3X Monaco
				ligne 18" RABI :PK 1824 PK 2138.4	Internal corrosion External corrosion	3X Monaco 3X Monaco
Nov-11				PK 4771.88	External corrosion	3X Monaco
	Gabon	TOTAL Gabon	Pipe line	PK 5332.36	External corrosion	3X Monaco
				PK 5463.13	External corrosion	3X Monaco
				PK 6031.613 PK 6031.903	External corrosion External corrosion	3X Monaco 3X Monaco
				PK 18139.17	External corrosion	3X Monaco
	France	SPSE	Pipe line	34" L111 (line)	External corrosion	3X Monaco
				34" L111 (bend)	External corrosion	3X Monaco
Oct-11	France	EDF Corse	Pipe line	4" OLEODUC DU DPM déf N°2 déf N°76	External corrosion External corrosion	3X Monaco 3X Monaco
	GABON	TOTAL Gabon	Pipe line	12" Coucal o pipe 18" jonction Rabi	External corrosion	3X Monaco
				24"	External corrosion	3X Monaco
Sep-11	France	CIM Le Havre - Antifer	Pipe line	42"	External corrosion External corrosion	3X Monaco 3X Monaco
					Leak	3X Monaco
Aug-11	France	CIM Le Havre	Pipe line	24" de la couronne de refoulement du bac 80	Leak	3X Monaco
					Leak	3X Monaco
Jun-11	France	EDF Corse	Pipe line	4" OLEODUC DU DPM déf N°33 déf N°42	External corrosion External corrosion	3X Monaco 3X Monaco
our m	Tailoo		1 100 1110	dél N°79	External corrosion	3X Monaco
				36"-FS-2001-B661	External corrosion	3X Monaco
				36"-FS-2001-B661	External corrosion	3X Monaco
				36"-FS-2001-B661 36"-NH-3202-B511	External corrosion External corrosion	3X Monaco 3X Monaco
				36"-NH-3202-B511 36"-NH-3202	External corrosion	3X Monaco
	ANGOLA	TOTAL ANGOLA	Process piping reinforcement	18"-NH-0084-B511	External corrosion	3X Monaco
				14"-NH-1103-F511	External corrosion	3X Monaco
				16"-F2015-B661 16"-0059-B511/12"-NH-0059	External corrosion External corrosion	3X Monaco 3X Monaco
				10"-FS-9501-B511	External corrosion	3X Monaco 3X Monaco
				10"-FS-9501-B511	External corrosion	3X Monaco
ļ			<u> </u>	6"-CF-9503-C531	External corrosion	3X Monaco
May-11				34" L105 MERLON L105 5R1	External corrosion External corrosion	3X Monaco 3X Monaco
				L106 6R2	External corrosion	3X Monaco 3X Monaco
				L106 Descente	External corrosion	3X Monaco
				L112 Descente	External corrosion	3X Monaco
				L106 MERLON	External corrosion	3X Monaco
	France	SPSE	Pipe line	L112 12R1	External corrosion	3X Monaco
				L108 8R2	External corrosion	3X Monaco
				L109 9R1	External corrosion	3X Monaco
				L108 MERLON L102 MERLON	External corrosion Internal corrosion	3X Monaco 3X Monaco
				L110 10R2	Internal corrosion	3X Monaco
				L104 4R1	Internal corrosion	3X Monaco
				L101	Internal corrosion	3X Monaco
Apr-11	France	Geostock Manosque	Pipe line	20" sur site de GEOSEL Manosque 18" line	External corrosion External corrosion	3X Monaco 3X Monaco
						or wondo
				36"-NH-3202-B511/232-NH-3202-1	External corrosion	3X Monaco
Jan-11	ANGOLA	TOTAL ANGOLA	Process piping reinforcement			
				36"-NH-3202-B511/41-NH-3202-3	External corrosion	3X Monaco
				18"-NH-0068-B511 (01-NH-0068-1)	External corrosion	3X Monaco
			-	2010		
Nov-10	France	Geostock Perthuis	Pipe line	20" GSM2	Internal corrosion	3X Monaco
	France YEMEN	Geostock Perthuis Yemen LNG			Internal corrosion Dent	3X Monaco 3X Monaco
			Pipe line	20" GSM2 line 38" gas 6"-NH-1404-D511	Dent External corrosion	3X Monaco 3X Monaco
			Pipe line	20" GSM2 line 38" gas 6"-NH-1404-D511 8"-NH-1210	Dent External corrosion Internal corrosion	3X Monaco 3X Monaco 3X Monaco
			Pipe line	20" GSM2 line 38" gas 6"-NH-1404-D511	Dent External corrosion	3X Monaco 3X Monaco
Oct-10	YEMEN		Pipe line Pipe line	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1409 8°-NH-1409 8°-NH-1410 10°-NH-4-0137-B511	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco
Oct-10		Yemen LNG	Pipe line	20" GSM2 ine 38" gas 6"-NH-1404-D511 8"-NH-1401 8"-NH-1410 8"-NH-1410 10"-NH-40137-B511 14"-NH-1133-F511	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Oct-10	YEMEN	Yemen LNG	Pipe line Pipe line	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1210 8°-NH-1410 10°-NH-40137-B511 14°-NH-1103-F511 14°-NH-1103-F511	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Oct-10	YEMEN	Yemen LNG	Pipe line Pipe line	20" GSM2 ine 38" gas 6"-NH-1404-D511 8"-NH-1401 8"-NH-1410 8"-NH-1410 10"-NH-40137-B511 14"-NH-1133-F511	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion	3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco 3X Monaco
Oct-10	YEMEN	Yemen LNG TOTAL ANGOLA	Pipe line Pipe line	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1210 8°-NH-1410 10°-NH-4037-B511 14°-NH-1037-B511 14°-NH-1037-B511 16°-NH-048-B511 18°-NH-048-B511 18°-NH-0138-B511	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Oct-10	YEMEN	Yemen LNG	Pipe line Pipe line	20" GSM2 line 38" gas 6"-NH-1404-0511 8"-NH-1210 8"-NH-1210 8"-NH-1410 10"-NH-40137-8511 14"-NH-1037-8511 14"-NH-1037-8511 16"-NH-048-8511 18"-NH-062-8511	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Nov-10 Oct-10 Sep-10 Aug-10	YEMEN	Yemen LNG TOTAL ANGOLA	Pipe line Pipe line	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1210 8°-NH-1410 10°-NH-4037-B511 14°-NH-1037-B511 14°-NH-1037-B511 16°-NH-048-B511 18°-NH-048-B511 18°-NH-0138-B511	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10	YEMEN ANGOLA GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon	Pipe line Pipe line Process piping reinforcement	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1409 8°-NH-1409 8°-NH-1410 10°-NH-4-0137-B511 14°-NH-1037-B511 14°-NH-1003-F511 16°-NH-0048-B511 18°-NH-0082-B51 18°-NH-0082-B51 18°-NH	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10	YEMEN ANGOLA GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon	Pipe line Pipe line Process piping reinforcement	20" GSM2           line 38" gas           6"-NH-1404-D511           8"-NH-1404-D511           8"-NH-1409           8"-NH-1409           10"-NH-40137-B511           14"-NH-103-F511           16"-NH-0408-B511           16"-NH-0408-B511           18"-NH-0032-B511           18"-NH-0138-B511           18"-NH-0138-B511           18"-NH-0138-B511           42" Ecluse François 1er : PR15	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10	YEMEN ANGOLA GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon	Pipe line Pipe line Process piping reinforcement	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1410           8°-NH-1409           8°-NH-1410           10°-NH-40137-B511           14°-NH-1037-B511           14°-NH-1037-B511           16°-NH-0048-B511           18°-NH-0052-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-0138-B511           98-101           18°-NH-138-B511           98-11           18°-NH-138-B511           18°-NH-138-B511           18°-NH-138-B511           98-14	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10	YEMEN ANGOLA GABON France	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre	Pipe line Pipe line Process piping reinforcement Pipe line	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1404-D511 8°-NH-1409 8°-NH-1409 8°-NH-1410 10°-NH-4-0137-B511 14°-NH-1038-B511 18°-NH-0088-B511 18°-NH-0138-B511 18°-NH-0138-B511 18°-NH-0138-B511 18°-NH-0138-B511 18°-NH-0138-B511 Piref 6° on Tohstamba West 42° Ecluse François 1er : PR15 PR14 PK 22773.198 20009	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion External corrosion External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10	YEMEN ANGOLA GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon	Pipe line Pipe line Process piping reinforcement	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1210           8°-NH-1409           8°-NH-1409           10°-NH-037-B511           14°-NH-1037-B511           16°-NH-048-B511           16°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-138-B511           18°-NH-1408-B511           18°-NH-048-B511           18°-NH-048-B51           PR14           PK 22773.198	Dent External corrosion Internal corrosion Internal corrosion 5 External corrosion 3 External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10	YEMEN ANGOLA GABON France	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre	Pipe line Pipe line Process piping reinforcement Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1409           8°-NH-1409           8°-NH-1409           10°-NH-037-8511           14°-NH-1037-8511           16°-NH-048-B511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0438-B511           198           20009           10°-Gas Pipe : Diga-Batanga au pk 29           00-GF1-201	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10	YEMEN ANGOLA GABON France	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre	Pipe line Pipe line Process piping reinforcement Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1410           10°-NH-40137-B511           14°-NH-1603-F511           14°-NH-1603-F511           16°-NH-0048-B511           18°-NH-1803-F511           18°-NH-1803-F511           18°-NH-0048-B511           18°-NH-183-B511           18°-NH-183-B511           18°-NH-183-B511           18°-NH-183-B511           18°-NH-183-B511           18°-NH-183-B511           18°-NH-183-B511           18°-NH-184-012           42″ Ecluse François 1er : PR15           PR14           PK 22773.198           20009           10° Gas Pipe : Diga-Batanga au pk 29           04-GH-3302           04-GH-3422	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10	YEMEN ANGOLA GABON France	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre	Pipe line Pipe line Process piping reinforcement Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1409           8°-NH-1409           8°-NH-1409           10°-NH-037-8511           14°-NH-1037-8511           16°-NH-048-B511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0438-B511           198           20009           10°-Gas Pipe : Diga-Batanga au pk 29           00-GF1-201	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10	YEMEN ANGOLA GABON France	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre	Pipe line Pipe line Process piping reinforcement Pipe line	20° GSM2 line 38° gas 6°-NH-1404-D511 8°-NH-1410 10°-NH-40137-B511 14°-NH-1603-F511 14°-NH-1603-F511 18°-NH-062-B511 18°-NH-062-B511 18°-NH-0138-B511 18°-NH-0138-B511 18°-NH-0138-B511 18°-NH-0138-B511 10° Gas Pipe : Diga-Batanga au pk 29 00-GT-1201 04-GH-3302 04-NH-3422 08-NH-0024 10° FS:9401 12-CD-0079	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion Extern	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10 Dec-09	YEMEN ANGOLA GABON France	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre	Pipe line Pipe line Process piping reinforcement Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1404-D511           8°-NH-1409           8°-NH-1409           8°-NH-1409           10°-NH-40137-B511           14°-NH-103-F511           14°-NH-103-F511           18°-NH-002-B511           18°-NH-003-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-138-B511           9°-NH-1408-B511           18°-NH-138-B511           9°-NH-1438-B511           9°-NH-1402           9°-NH-1402           9°-OOOG           10° Gas Ppe : Diga-Batanga au pk 29           03-GT-1201           04-NH-3022           06-NH-0024           10-FS-9401           12-CD-0079           12-FS-8004	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion Extern	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10 Dec-09	YEMEN ANGOLA GABON France GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre Perenco Gabon	Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1410           8°-NH-1409           8°-NH-1410           10°-NH-1503-P511           14°-NH-103-P511           16°-NH-16103-P511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0138-B511           9R14           PR14           PK 22773.198           200099           10° Gas Pipe : Diga-Batanga au pk 29           03-GT-1201           04-NH-3302           04-NH-3302           04-NH-3302           04-NH-3422           08-NH-0024           10-PS-3401           12-PS-3401           12-PS-3604           12-NH-0056	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion SExternal corrosion External corrosion Externa	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10 Dec-09	YEMEN ANGOLA GABON France GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre Perenco Gabon	Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1404-D511           8°-NH-1409           8°-NH-1409           8°-NH-1409           10°-NH-40137-B511           14°-NH-103-F511           14°-NH-103-F511           18°-NH-002-B511           18°-NH-003-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-0138-B511           18°-NH-138-B511           9°-NH-1408-B511           18°-NH-138-B511           9°-NH-1438-B511           9°-NH-1402           9°-NH-1402           9°-OOOG           10° Gas Ppe : Diga-Batanga au pk 29           03-GT-1201           04-NH-3022           06-NH-0024           10-FS-9401           12-CD-0079           12-FS-8004	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion External corrosion External corrosion External corrosion External corrosion Internal corrosion External corrosion Extern	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10 Dec-09	YEMEN ANGOLA GABON France GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre Perenco Gabon	Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1410           8°-NH-1409           8°-NH-1410           10°-NH-1503-P511           14°-NH-103-P511           16°-NH-1603-P511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-0138-B511           9           42° Ecluse François 1er : PR15           PR14           PK 22773.198           20009           10° Gas Pipe : Diga-Batanga au pk 29           03-GT-1201           04-NH-3302           04-NH-3302           04-NH-3302           04-NH-3422           08-NH-0024           10-FS-3401           12-FS-8004           12-NH-0056           16-NH-0153           16-NH-0153           16-NH-0053	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion External	3X Monaco 3X Monaco
Oct-10 Sep-10 Aug-10 May-10 Dec-09	YEMEN ANGOLA GABON France GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre Perenco Gabon	Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1402-D511           8°-NH-1410           10°-NH-40137-B511           14°-NH-1037-B511           14°-NH-1037-B511           16°-NH-0028-B511           18°-NH-108-B511           18°-NH-1083-B511           18°-NH-1032           PR14           PK 22773.198           20009           10°-Gas Pipe : Diga-Batanga au pk 29           03-GT-1201           04-GH-3302           04-NH-3422           08-NH-0024           10-FS-9401           12-CD-0079           12-RF-8004           12-NH-0056           13-NH-051           16-NH-051           16-NH-051           16-NH-051           16-NH-051           16-NH-051	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion S External corrosion Extern	3X Monaco 3X Monaco
Oct-10 Sep-10	YEMEN ANGOLA GABON France GABON	Yemen LNG TOTAL ANGOLA Perenco Gabon CIM Le Havre Perenco Gabon	Pipe line	20° GSM2           line 38° gas           6°-NH-1404-D511           8°-NH-1410           8°-NH-1409           8°-NH-1410           10°-NH-1503-P511           14°-NH-103-P511           16°-NH-1603-P511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-0428-B511           18°-NH-048-B511           18°-NH-0428-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-048-B511           18°-NH-0138-B511           9           42° Ecluse François 1er : PR15           PR14           PK 22773.198           20009           10° Gas Pipe : Diga-Batanga au pk 29           03-GT-1201           04-NH-3302           04-NH-3302           04-NH-3302           04-NH-3422           08-NH-0024           10-FS-3401           12-FS-8004           12-NH-0056           16-NH-0153           16-NH-0153           16-NH-0053	Dent External corrosion Internal corrosion Internal corrosion Internal corrosion External	3X Monaco 3X Monaco

Aug-09	ANGOLA	TOTAL	Process piping reinforcement	12 CD 0084 B511	External corrosion	3X Monaco
				18 NH 0072 B511	External corrosion	3X Monaco
				36 NH 0028 B511	External corrosion	3X Monaco
Nov-09	CONGO	Perenco	Pipe line	sea line 16" Est Mibale	External corrosion	3X Monaco
				Line 08" oil to Antonio	External corrosion	3X Monaco
				Line 08" oil to Mibale	External corrosion	3X Monaco
				Line 10" Water Injection	External corrosion	3X Monaco
Apr-09	RDC	Perenco RDC	Process piping reinforcement	Line 08" Gas Lift	External corrosion	3X Monaco
				Line 08" Water Injection	External corrosion	3X Monaco
				Line 06" Gas Lift	External corrosion	3X Monaco
				Line 12" Oil	External corrosion	3X Monaco