

PRESSURE VESSEL & COLUMN INSPECTION REPORT

Plant	Ansell Field	Op Unit			
Asset #		Equipment ID	66146013	Asset Type	
Description	Inlet Separator	Prov. Insp. #	A0569388	Serial #	11069
Manufacturer	RJV Gasfield Services	CRN	P-7217.2	Year Built	2007
MAWP	10204	KPag	@ 38 °C	MDMT	-29 °C
Code	RT-2	Fluid Service	Natural Gas	Sweet	
Internal Access	No	Insulated	No	Internal Coating	
Operating Pressure	N/A	KPag		Operating Temp	N/A °C

PSV DATA

PSV ID #	Location	Size		Set Pressure	Capacity SCFM / Lbs/Hr / GPM	Manufacturer	Model	Last Service
		Inlet	Outlet					
	Vessel	25.4 mm	25.4 mm	9928 kPa	5180 SCFM	Taylor		Dec. 2007

INSPECTION SUMMARY

The vessel list provided by Husky shows this vessel to be located at 15-30-049-18W5M, but is actually located at 04-24-051-19W5M.

Signs of a leak from a 2" plug were seen on the upper southeast side of the shell.

Signs of a leak were seen coming from the threaded valve at the bottom of the top sight glass.

The wellhead was shut in at the time of the inspection.

RECOMMENDATIONS

All leaking connections should be addressed prior to starting the well again.

NONCONFORMANCES / INSPECTION DEFICIENCIES

INSPECTION PLANNING

Inspection Strategy	Availability	Inspection Interval
Inspection Date	Date of Last Inspect	Date of Next Inspect

REPORT CERTIFICATION

The signatures below certify that inspections/tests have been completed in accordance with the identified inspection strategy and that the specified equipment is considered fit for service until the date of next inspection.

Inspected by	Adam Fitzgerald		Date	07/24/2012
Reviewed and Approved by			Date	
Criticality Assessment Rerun		Inspection Planning Rerun		
Assessed Next Inspection Date				



PRESSURE VESSEL & COLUMN INSPECTION REPORT

ID	General	Condition
V1	Other (please explain)	☐ Good ☐ Fair ☐ Poor ☐ N/A
The vessel list provided by Husky shows this vessel to be located at 15-30-049-18W5M, but is actually located at 04-24-051-19W5M. The well head was shut in at the time of inspection.		
V2	General Corrosion	☐ Yes ☒ No
V3	General Leaks	☒ Yes ☐ No
Signs of a leak from a 2" plug were seen on the upper southeast side of the shell. Signs of a leak were seen coming from the threaded valve at the bottom of the top sight glass.		
V4	Vibration	☐ Yes ☒ No
V5	Dissimilar Flange Rating	☐ Yes ☒ No
V6	Ladder/Stairway	☐ Yes ☒ No
V7	Heads	☒ Good ☐ Fair ☐ Poor ☐ N/A
V8	Guy Wires	☐ Good ☐ Fair ☐ Poor ☒ N/A
V9	Electrical Ground	☒ Good ☐ Fair ☐ Poor ☐ N/A
V10	Painted Inactive Corrosion	☐ Good ☐ Fair ☐ Poor ☒ N/A
V11	Coating/Painting	☒ Good ☐ Fair ☐ Poor ☐ N/A
V12	Expansion Joint or Bellows	☐ Good ☐ Fair ☐ Poor ☒ N/A
V13	Gauge/Site Glass	☒ Good ☐ Fair ☐ Poor ☐ N/A
V14	Shell	☒ Good ☐ Fair ☐ Poor ☐ N/A
V15	Jacket	☐ Good ☐ Fair ☐ Poor ☒ N/A
Supports		Condition
V21	Other (please explain)	☒ Good ☐ Fair ☐ Poor ☐ N/A
The skirt is welded to the floor.		
V22	Foundation	☐ Good ☐ Fair ☐ Poor ☒ N/A
V23	Anchor Bolts	☐ Good ☐ Fair ☐ Poor ☒ N/A
V24	Saddle Skirt	☒ Good ☐ Fair ☐ Poor ☐ N/A
V25	Davit	☐ Good ☐ Fair ☐ Poor ☒ N/A
V26	Fireproofing	☐ Good ☐ Fair ☐ Poor ☒ N/A
Connections		Condition
V31	Other (please explain)	☐ Good ☐ Fair ☐ Poor ☒ N/A

PRESSURE VESSEL & COLUMN INSPECTION REPORT

V32	Small Branches	☒ Good ☐ Fair ☐ Poor ☐ N/A
V33	Nozzles	☒ Good ☐ Fair ☐ Poor ☐ N/A
V34	Manways	☐ Good ☐ Fair ☐ Poor ☒ N/A
V35	Reinforcing Pads	☐ Good ☐ Fair ☐ Poor ☒ N/A
V36	Inadequate Thread Engagement	☐ Good ☐ Poor ☒ N/A
V37	Bolting	☒ Good ☐ Poor ☐ N/A
V38	Flanges	☒ Good ☐ Fair ☐ Poor ☐ N/A
V39	Leak Clamps	☐ Good ☐ Poor ☒ N/A
	Insulation	Condition
V41	Other (please explain)	☐ Good ☐ Fair ☐ Poor ☒ N/A
V42	Damage	☐ Good ☐ Fair ☐ Poor ☒ N/A
V43	Penetrations	☐ Good ☐ Fair ☐ Poor ☒ N/A
V44	Jacket	☐ Good ☐ Fair ☐ Poor ☒ N/A
V45	Banding	☐ Good ☐ Fair ☐ Poor ☒ N/A
V46	Seals/Joints	☐ Good ☐ Fair ☐ Poor ☒ N/A
	Relief Device	Condition
V51	Other (please explain)	☒ Good ☐ Fair ☐ Poor ☐ N/A
V52	Corrosion	☐ Yes ☒ No
V53	Leaks	☐ Yes ☒ No
V54	Restricted Inlet/Outlet	☐ Yes ☒ No
V55	Manual Operation Lever	☐ Yes ☒ No

PRESSURE VESSEL & COLUMN INSPECTION REPORT**DETAILED INSPECTION
UT THICKNESS**

CML	Nom. Thk	Current Reading	Short Term Corr Rate	Long Term Corr Rate	Remaining Life	Comments
10900	20.62	21.11	0.00	0.00	100+	
10905	21.44	22.95	0.00	0.00	100+	
10910	21.44	22.33	0.00	0.00	100+	
10915	21.44	22.82	0.00	0.00	100+	
10920	21.44	21.88	0.00	0.00	100+	
10925	20.62	21.47	0.00	0.00	100+	
10930	15.24	14.37	0.16	0.16	16.7	
10935	15.24	14.80	0.08	0.08	38.8	
10940	8.71	7.78	0.17	0.17	10.4	
10950	5.49	5.06	0.08	0.08	24.1	
10960	7.62	7.81	0.00	0.00	100+	

The internal condition of the vessel was assessed via an ultrasonic corrosion survey on a representative sample of the vessel and the associated piping. The UT data has been evaluated based on a T-min value calculated via nominal minus corrosion allowance. Results of the corrosion survey found no indications of internal corrosion and all areas appear to be in good condition.

Please refer to the attached corrosion survey report for further details of the inspection results.

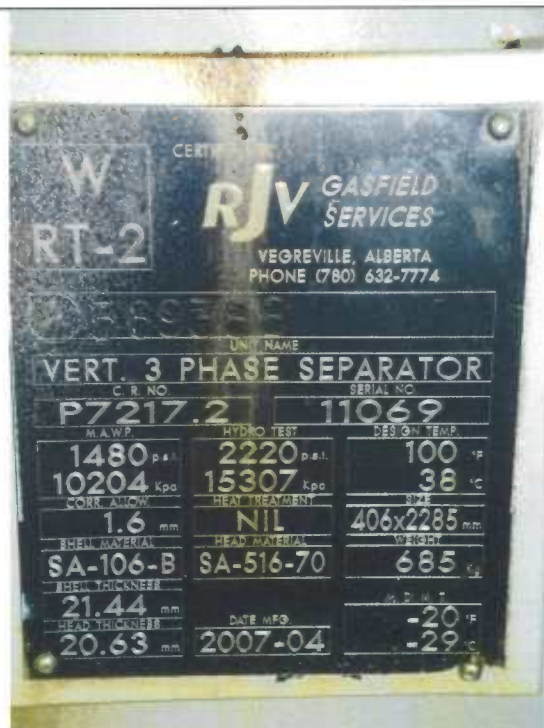
Chief Inspector Certification # _____

Assigned Interval _____

Chief Inspector Signature _____

Date _____

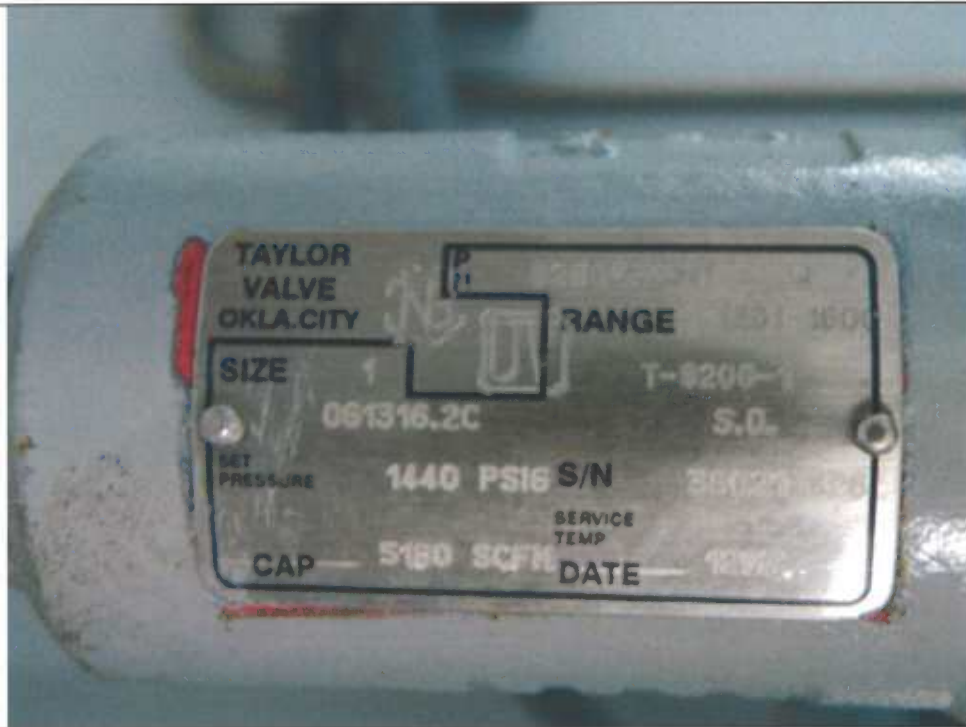
Pictures



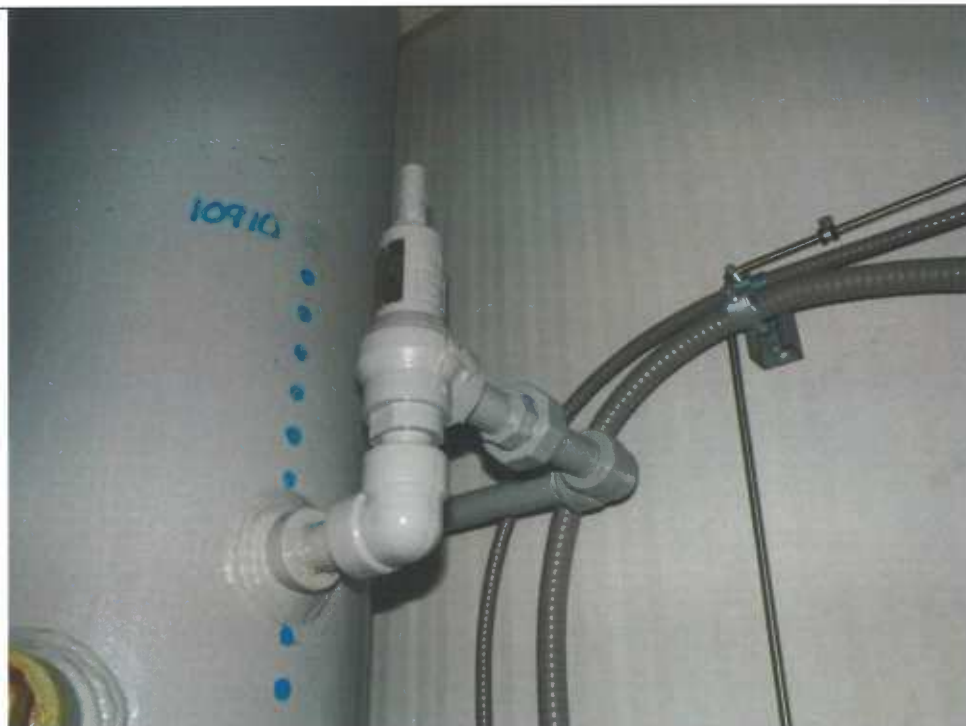
Nameplate



General View of the Vessel



PSV Nameplate



General View of the PSV



Leak stains from a 2" Plug on the Upper Shell



Signs of a Leak at the Bottom of the Sight Glass

Cover Page			
Client:	Husky Energy	Inspection Date:	July 24, 2012
Facility:	Ansell Field	LSD:	04-24-050-19W5M
Requested By:	Bob Marchak	Equipment #:	66146013
Equipment:	Inlet Separator		

Status			
☐ In Service	☐ Not In Service	☒ Standby	☐ Not At location

Type of Inspection			SISL Technique
☒ Visual External	☐ Visual Internal	☐ Shearwave	SISL-20
☐ Firetubes	☐ Installation Inspection	☒ PSV	SISL-24
☐ Miscellaneous	☒ Corrosion Survey	☐ Compressor Cracking Survey	

Technicians/Inspectors	Certifications		
Adam Fitzgerald	API-510 #39616	IPVI #000583	CGSB UT-II #13474

Technique												
☐ BR	☐ CN	☐ CP	☐ ET	☐ MT	☐ PR	☐ PT	☐ RT	☐ TM	☒ UT	☒ VE	☐ VI	☐ Other
☒ UT (thickness)	☐ Holiday Detection	☐ LPI (visible post emulsifiable)	☒ Visual (external)									
☐ UT (shearwave)	☐ MPI (dry powder)	☐ LPI (visible solvent removable)	☐ Visual (internal)									
☐ UT (c-scan)	☐ MPI (wet fluorescent)	☐ LPI (fluorescent water washable)	☐ RVT									
☐ UT (TOFD)	☐ MPI (wet visible)	☐ LPI (fluorescent post emulsifiable)	☐ Hardness (microdur)									
☐ UT (phased array)	☐ LPI (visible aqueous)	☐ LPI (fluorescent solvent removable)	☐ Chemical Etching									

Equipment		Consumables	
Ultrasonic	Magnetic Particle	Magnetic Particle	Liquid Penetrant
☒ DMS-2	☐ AC Yoke	☐ Magnaflux 7HF (black)	☐ SKL-WP Penetrant
☐ USN-52L	☐ DC Yoke	☐ Magnaflux WCP-2 Contrast Paint	☐ SKD-S2 Developer
☐ USN-58L	☐ Permanent Yoke	☐ Magnaflux 14AM Fluorescent Bath	☐ SKC-S Cleaner
☐ USN-Phaser	☐ Blacklight	☐ Red Oxide Powder	☐ DP-51 Penetrant
☐ Westdyne Intraspec 4	☐ Tinker & Razor M1	☐ Grey Oxide Powder	☐ DR-62 Developer
☐ MFE 4020 MKII	Other	☐ Nital Chemical Solution	

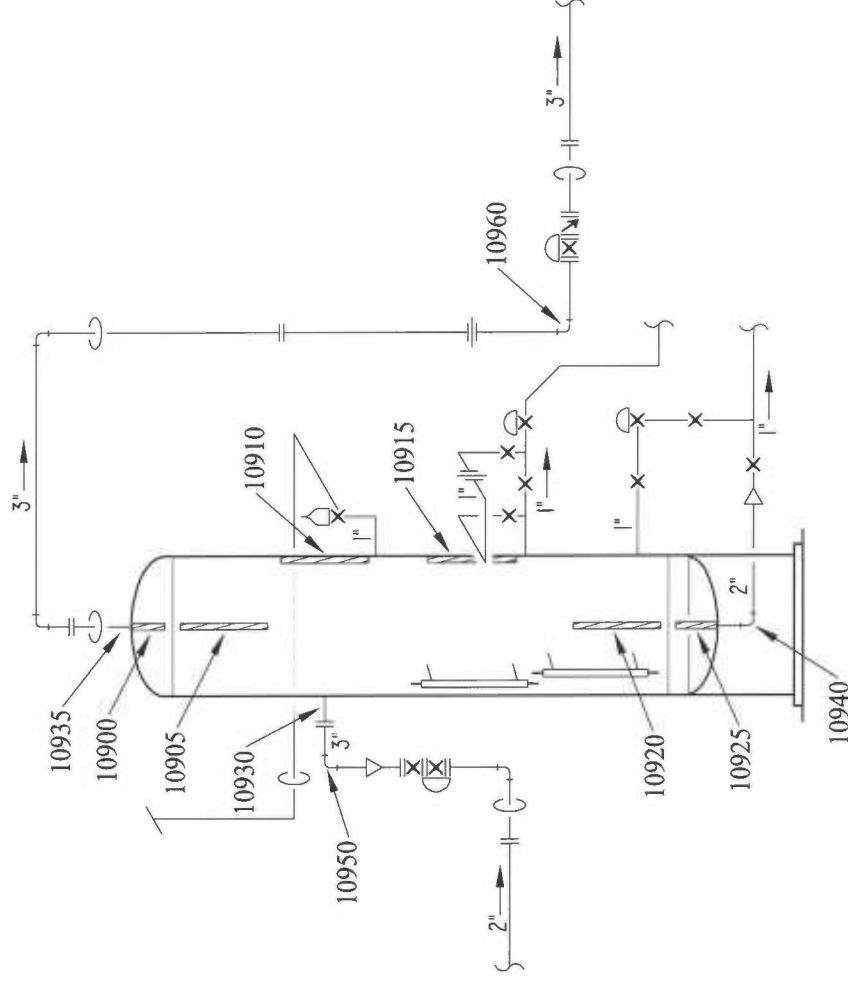
Ultrasonic Transducers					Code	
Description	Type	Frequency	Diameter	Angle	Code:	ASME V
FH2E	Dual	7.5 MHz	.380"	0 degrees	Acc. Criteria:	API-510
					Calibration:	.250" - 1.000" Stepwedge
					Sensitivity:	BWR @ 80% FSH

Magnetic Particle		Code	
Material:		Code:	
Surface:		Acc. Criteria:	
Technique:		AC Yoke:	
Lighting:		Calibration:	

Comments:
An external visual inspection and UT corrosion survey were performed on the vessel. Please see report for further detail.

Signature: Adam Fitzgerald
Adam Fitzgerald

Date: October 24, 2012



66146013

Inlet Separator

Reg. No. : A 0569388
S/N : 11069
CRN : P-7217.2
Built : 2007
MWP : 1480 PSI @ 100°F
Dia. : 16" OD
C.A. : 0.063"
J.E. : RT-2 / 100%
Shell : 0.844" SA 106-B
Head : 0.812" SA 516-70
Built By : RJV Gas Services Ltd.

Sketched: AF	Date: 08/2012
AutoCad: DD/MN	Revised:
Dwg: 109	Items: 10900 - 10960

SUMMIT Inspection Services Ltd.

Husky Energy
Ansell Field
04-24-050-19 W5M

DATA PAGE

Index: 109	Inlet Separator	Product:	JE:	100%
Component: (a)	66146013 Vessel	Drawing: 109	Dia:	406 (mm) OD
Band: 10900	Top West Head	MfgDate: Jan 2007	CA:	1.59(mm)
Registration: A 0569388		Material: SA 516 70	Nominal:	20.62 (mm)
CRN: P-7217.2		MWP: 10204 kpa @ 38 °C	Critical:	19.04(mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012	13													
Top	1	21.57													
	2	21.60													
	3	21.55													
	4	21.37													
	5	21.11													
	6	21.29													
Bottom	7	22.00													

Comments:

Scan Minimum (mm)	21.11
Avg Thickness (mm)	21.50
Avg Loss	
Avg Loss Rate	
Max Loss Rate	
Avg.Condition Indicator	
Min.Condition Indicator	

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (a)	66146013 Vessel	Drawing: 109	Dia: 406 (mm) OD
Band: 10905	Top West Shell	MfgDate: Jan 2007	CA: 1.59 (mm)
Registration: A 0569388		Material: SA 106 B	Nominal: 21.44 (mm)
CRN: P-7217.2		MWP: 10204 kpa @ 38 °C	Critical: 19.85 (mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012														
Top	13														

1	23.33
2	23.17
3	23.33
4	23.38
5	23.61
6	23.33
7	23.48
8	23.25
9	23.43
10	23.25
11	23.20
12	23.68

Bottom

Comments:

Scan Minimum (mm)	22.95
Avg Thickness (mm)	23.37
Avg Loss	
Avg Loss Rate	
Max Loss Rate	
Avg Condition Indicator	
Min Condition Indicator	

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (a) 66146013 Vessel		Drawing: 109	Dia: 406 (mm) OD
Band: 10910 Upper South Shell (across inlet)		MfgDate: Jan 2007	CA: 1.59(mm)
Registration: A 0569388		Material: SA 106 B	Nominal: 21.44 (mm)
CRN: P-7217.2		MWP: 10204 kpa @ 38 °C	Critical: 19.85(mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012														
Top	1 23.25	2 22.74	3 22.69	4 22.97	5 23.00	6 22.74	7 22.33	8 22.82	9 23.05	10 23.33	11 23.17	12 23.17			
After Nozzle															
Bottom															
Comments:															

Scan Minimum (mm)	22.33
Avg Thickness (mm)	22.94
Avg Loss	
Avg Loss Rate	
Max Loss Rate	
Avg.Condition Indicator	
Min.Condition Indicator	

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109 **Inlet Separator**
Component: (a) 66146013 Vessel
Band: 10915 Lower South Shell
Registration: A 0569388
CRN: P-7217.2

Product:
Drawing: 109
MfgDate: Jan 2007
Material: SA 106 B
MWP: 10204 kpa @ 38 °C

JE: 100%
Dia: 406 (mm) OD
CA: 1.59 (mm)
Nominal: 21.44 (mm)
Critical: 19.85 (mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012														
Top	13														
	1	23.45													
	2	23.73													
	3	23.25													
	4	23.22													
	5	23.15													
	6	23.12													
	7	23.40													
	8	23.48													
	9	23.56													
	10	23.48													
	11	23.40													
Bottom	12	22.82													
Comments:															

Scan Minimum (mm) 22.82

Avg Thickness (mm) 23.34

Avg Loss

Avg Loss Rate

Max Loss Rate

Avg.Condition Indicator

Min.Condition Indicator

SUMMIT  **Inspection**

4.1.0.8a 12-December-2012

Loss rate term: **Mid Term 3**
Data printed in: **Metric units.**
Material correction: **ON**

Minimum readings before ignoring nominal: **3**
Critical thickness: **Nominal less Corrosion Allowance**
Calibration correction: **ON**

Item:
10915

Temperature Correction: **ON**

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109 Inlet Separator

Component: (a) 66146013 Vessel

Band: 10920 Bottom West Shell

Registration: A 0569388

CRN: P-7217.2

Product:

Drawing: 109

Mfg Date: Jan 2007

Material: SA 106 B

MWP: 10204 kpa @ 38 °C

JE: 100%

Dia: 406 (mm) OD

CA: 1.59 (mm)

Nominal: 21.44 (mm)

Critical: 19.85 (mm)

1 2 3 4 5 6 7 8 9 10 11 12

Inspection Dates
Temperature °C

Top

1 22.59
2 22.36
3 22.64
4 22.28
5 22.18
6 22.67
7 23.02
8 22.56
9 22.97
10 22.49
11 23.02
12 23.45

Bottom

Comments:

Total Loss (mm)
Loss Rate (mm/yr)
Condition Indicator

Scan Minimum (mm) 21.88

Avg Thickness (mm) 22.69

Avg Loss

Avg Loss Rate

Max Loss Rate

Avg Condition Indicator

Min Condition Indicator

SUMMIT Inspection

4.1.0.8a 12-December-2012

Loss rate term: Mid Term 3
Data printed in: Metric units.
Material correction: ON

Minimum readings before ignoring nominal: 3
Critical thickness: Nominal less Corrosion Allowance
Calibration correction: ON

Item:
10920

Temperature Correction: ON

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (a)	66146013 Vessel	Drawing: 109	Dia: 406 (mm) OD
Band: 10925	Bottom West Head	MfgDate: Jan 2007	CA: 1.59(mm)
Registration: A 0569388		Material: SA 516 70	Nominal: 20.62 (mm)
CRN: P-7217.2		MWP: 10204 kpa @ 38 °C	Critical: 19.04(mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012														
Top	1 22.08														
	2 21.78														
Inside Skirt	3 21.47														
	4 21.57														
	5 21.65														
	6 21.60														
Bottom	7 21.60														
Comments:															

Scan Minimum (mm) 21.47

Avg Thickness (mm) 21.68

Avg Loss

Avg Loss Rate

Max Loss Rate

Avg.Condition Indicator

Min.Condition Indicator

SUMMIT Inspection

4.1.0.8a 12-December-2012

Loss rate term: **Mid Term 3**
Data printed in: **Metric units.**

Material correction: **ON**

Minimum readings before ignoring nominal: **3**
Critical thickness: **Nominal less Corrosion Allowance**

Calibration correction: **ON**

Temperature Correction: **ON**

Item: **10925**

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (b)	Nozzles	Drawing: 109	Dia: 89 (mm) OD
Band: 10930 3" Inlet Nozzle		MfgDate: Jan 2007	CA: 1.60(mm)
Registration:		Material: SA 106 B	Nominal: 15.24 (mm)
CRN:		MWP: 10204 kpa @ 38 °C	Critical: 11.73 (mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012	13													
Top	1	15.82													
East	2	15.82													
Bottom	3	14.37													
West	4	15.49													
Comments:													0.87	0.16	16.7

Scan Minimum (mm)	14.37
Avg Thickness (mm)	15.38
Avg Loss	
Avg Loss Rate	
Max Loss Rate	0.16
Avg.Condition Indicator	
Min.Condition Indicator	16.7

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (b)	Nozzles	Drawing: 109	Dia: 89 (mm) OD
Band: 10935 3" Outlet Nozzle		MfgDate: Jan 2007	CA: 1.60 (mm)
Registration:		Material: SA 106 B	Nominal: 15.24 (mm)
CRN:		MWP: 10204 kpa @ 38 °C	Critical: 11.73 (mm)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Inspection Dates	Jul 2012														
Temperature °C	13														
North	1	15.11											0.13	0.02	
East	2	15.08											0.16	0.03	
South	3	14.80											0.44	0.08	38.8
West	4	15.08											0.16	0.03	

Comments:

Scan Minimum (mm)	14.80
Avg Thickness (mm)	15.02
Avg Loss	0.22
Avg Loss Rate	0.04
Max Loss Rate	0.08
Avg Condition Indicator	77.2
Min Condition Indicator	38.8

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (b)	Nozzles	Drawing: 109	Dia: 60 (mm) OD
Band: 10940 2" Drain Elbow		MfgDate: Jan 2007	CA: 1.60 (mm)
Registration:		Material: SA 234 WPB	Nominal: 8.71 (mm)
CRN:		MWP: 10204 kpa @ 38 °C	Critical: 6.02 (mm)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Inspection Dates	Jul 2012												0.37	0.07	34.6
Temperature °C	13												0.67	0.12	16.4
Top	1 8.34												0.72	0.13	14.9
	2 8.04												0.52	0.09	22.9
	3 7.99												0.16	0.03	84.1
	4 8.19														
	5 8.55														
Bottom															

Comments:

Scan Minimum (mm) 7.78
 Avg Thickness (mm) 8.22
 Avg Loss 0.49
 Avg Loss Rate 0.09
 Max Loss Rate 0.17
 Avg Condition Indicator 19.7
 Min Condition Indicator 10.4

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (c)	Inlet Piping	Drawing: 109	Dia: 89 (mm) OD
Band: 10950 3" Inlet Elbow		MfgDate: Jan 2007	CA: 1.60 (mm)
Registration:		Material: SA 234 WPB	Nominal: 5.49 (mm)
CRN:		MWP: 10204 kpa @ 38 °C	Critical: 3.20 (mm)

	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Inspection Dates	Jul 2012														
Temperature °C	13														
Top	1 5.24												0.25	0.04	45.6
	2 5.42												0.07	0.01	
	3 5.06												0.42	0.08	24.1
After Nozzle	4 5.27												0.22	0.04	51.4
	5 5.47												0.02	0.00	
Bottom	6 5.34												0.14	0.03	81.5

Comments:

Scan Minimum (mm)	5.06
Avg Thickness (mm)	5.30
Avg Loss	0.19
Avg Loss Rate	0.03
Max Loss Rate	0.08
Avg.Condition Indicator	54.8
Min.Condition Indicator	24.1

Client: Husky Energy

Facility: Ansell Field

DATA PAGE

Index: 109	Inlet Separator	Product:	JE: 100%
Component: (d)	Outlet Piping	Drawing: 109	Dia: 89 (mm) OD
Band: 10960 3" Outlet Elbow		MfgDate: Jan 2007	CA: 1.60(mm)
Registration:		Material: SA 234 WPB	Nominal: 7.62 (mm)
CRN:		MWP: 10204 kpa @ 38 °C	Critical: 5.07(mm)

Inspection Dates	1	2	3	4	5	6	7	8	9	10	11	12	Total Loss (mm)	Loss Rate (mm/yr)	Condition Indicator
Temperature °C	Jul 2012														
Top	1 7.94														
	2 8.04														
	3 8.04														
	4 7.94														
Bottom	5 7.99														
	6 7.81														

Comments:

Scan Minimum (mm) 7.81

Avg Thickness (mm) 7.96

Avg Loss

Avg Loss Rate

Max Loss Rate

Avg.Condition Indicator

Min.Condition Indicator



4.1.0.8a 12-December-2012

Loss rate term: **Mid Term 3**
Data printed in: **Metric units.**
Material correction: **ON**

Minimum readings before ignoring nominal: **3**
Critical thickness: **Nominal less 12.5% - Corrosion Allowance**
Calibration correction: **ON**

Item: **10960**

Temperature Correction: **ON**