

Static Equipment Inspection Report

Item Inspected:	V-102 Pigging Separator
Location:	Redcliff South Compressor Station
ABSA #:	A02664161
CRN #:	K-1666.2
Serial #:	2059.90
SAP #:	
IOR / EMCW #:	V102
Damage Code:	
SUMMIT Job#:	

PSV #:		
Service Date:		
Set Pressure:		
Capacity:		
Serial #:		

MAWP: (shell)	259psi @ 140°F
MAWP: (tube)	@ °

Inspection requested by: McPhee Rod McPhee

Inspection Date: November 20, 2008

Inspection performed by: Maria Savulescu

Certification number: API-510# 24958, ABSA# 000162

Chief Inspector & In-Service Cert. #: Aue Rutherford IPV #31

Inspection Interval: INTERNAL INTERVAL
CONTINUE 5 yr
 SUPPLEMENT WITH UT ON AREAS NOT
 VISIBLE.

<p>Remedial Action</p> <p><input type="checkbox"/> no action required</p> <p><input checked="" type="checkbox"/> coating/lining repairs</p> <p><input type="checkbox"/> coating / lining</p> <p><input type="checkbox"/> repair weld – S.R.</p> <p><input type="checkbox"/> repair weld – no S.R.</p> <p><input type="checkbox"/> ground out</p> <p><input type="checkbox"/> replaced</p> <p><input type="checkbox"/> monitor</p> <p><input type="checkbox"/> see notes</p>	<p>Access & Coverage</p> <p><input type="checkbox"/> poor cleaning</p> <p><input checked="" type="checkbox"/> adequately cleaned</p> <p><input checked="" type="checkbox"/> internal inspection</p> <p><input type="checkbox"/> partial int inspection</p> <p><input checked="" type="checkbox"/> external inspection</p> <p><input checked="" type="checkbox"/> NDE inspection</p> <p><input type="checkbox"/> internal visual + NDE</p> <p><input type="checkbox"/> installation inspection</p>	<p>Other</p> <p><input checked="" type="checkbox"/> see comments</p> <p><input type="checkbox"/> baffle / weir damage</p> <p><input type="checkbox"/> support ring damage</p> <p><input type="checkbox"/> flange corrosion</p> <p><input type="checkbox"/> burner misaligned</p> <p><input type="checkbox"/> bolting damage</p> <p><input type="checkbox"/> downcomer corrosion</p> <p><input type="checkbox"/> valve caps missing</p>	<p>Shell</p> <p><input checked="" type="checkbox"/> top</p> <p><input checked="" type="checkbox"/> bottom</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> external corrosion</p> <p><input type="checkbox"/> internal corrosion</p> <p><input type="checkbox"/> pitted - light</p> <p><input type="checkbox"/> pitted - severe</p> <p><input type="checkbox"/> scaled - light</p> <p><input type="checkbox"/> scaled - heavy</p> <p><input type="checkbox"/> blistered</p>
<p>Nozzles</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> internal corrosion</p> <p><input type="checkbox"/> cracked</p> <p><input type="checkbox"/> scaled</p> <p><input type="checkbox"/> plugged</p> <p><input type="checkbox"/> poor welding</p> <p><input type="checkbox"/> leaking</p>	<p>External Protection</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> fireproofing cracked</p> <p><input type="checkbox"/> insulation damaged</p> <p><input checked="" type="checkbox"/> paint deteriorated</p> <p><input type="checkbox"/> corrosion under insulation (CUI)</p>	<p>Welds</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> corroded</p> <p><input type="checkbox"/> cracked</p> <p><input type="checkbox"/> broken</p> <p><input type="checkbox"/> poor quality</p>	<p>Supports</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> distorted</p> <p><input type="checkbox"/> cracked</p> <p><input type="checkbox"/> broken</p> <p><input type="checkbox"/> poor installation</p> <p><input type="checkbox"/> bolts missing/loose</p>
<p>Heads</p> <p><input type="checkbox"/> top</p> <p><input checked="" type="checkbox"/> right</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> external corrosion</p> <p><input type="checkbox"/> internal corrosion</p> <p><input type="checkbox"/> pitted – light</p> <p><input type="checkbox"/> pitted – severe</p> <p><input type="checkbox"/> scaled – light</p> <p><input type="checkbox"/> scaled – heavy</p> <p><input type="checkbox"/> blistered</p>	<p>Heads</p> <p><input type="checkbox"/> bottom</p> <p><input checked="" type="checkbox"/> left</p> <p><input checked="" type="checkbox"/> good condition</p> <p><input type="checkbox"/> external corrosion</p> <p><input type="checkbox"/> internal corrosion</p> <p><input type="checkbox"/> pitted – light</p> <p><input type="checkbox"/> pitted – severe</p> <p><input type="checkbox"/> scaled – light</p> <p><input type="checkbox"/> scaled – heavy</p> <p><input type="checkbox"/> blistered</p>	<p>Internal Protection</p> <p><input checked="" type="checkbox"/> coating</p> <p><input type="checkbox"/> lining</p> <p><input type="checkbox"/> good condition</p> <p><input type="checkbox"/> blistered – light</p> <p><input type="checkbox"/> blistered – severe</p> <p><input type="checkbox"/> disbonded</p> <p><input type="checkbox"/> chipped</p> <p><input checked="" type="checkbox"/> holidays</p> <p><input type="checkbox"/> mechanical damage</p> <p><input type="checkbox"/> missing</p>	<p>Anodes</p> <p><input type="checkbox"/> good condition</p> <p><input type="checkbox"/> dirty</p> <p><input type="checkbox"/> consumed 20%</p> <p><input type="checkbox"/> consumed 50%</p> <p><input type="checkbox"/> consumed 80%+</p> <p><input type="checkbox"/> missing</p>

Static Equipment Inspection Report (cont'd)

Demister Screen

- good condition
- dirty
- dislodged
- broken
- missing
- tie-downs missing

Heating Coil

- good condition
- corrosion
- cracked
- scaled
- worn
- loose
- poor installation

Manways

- good condition
- coating damage
- internal corrosion
- mechanical damage

Trays

- good condition
- collapsed
- distorted (bent)
- loose
- missing
- wear
- corrosion
- poor installation

Firetubes

- good condition
- cracked
- corrosion
- scaled
- heat impinged
- coated
- wear

Tube Bundle

- good condition
- pitted – light
- pitted – severe
- scaled
- plugged
- damaged
- wear
- erosion

Tubesheet

- good condition
- general corrosion
- pitted – light
- pitted – severe
- erosion
- damaged

Channel Head

- good condition
- general corrosion
- pitted – light
- pitted – severe
- erosion
- scaled
- coated

Refractory

- good condition
- cracked (minor)
- spalled
- missing
- damaged
- badly cracked

Tube

- good condition
- external corrosion
- internal corrosion
- thinning
- bulged
- heat impinged
- distorted
- erosion

Drum

- mud
- steam

- good condition
- damaged internals
- internal corrosion
- cracking
- scaling

Floor

- good condition
- external corrosion
- internal corrosion
- pitted – light
- pitted - severe
- edge settlement
- weld cracking
- sludge
- previous repairs

Comments:

(External) Inspection

- The Separator was painted. (Minor paint damage was noted on the top shell/north side, No external corrosion was present in the areas with paint damage.)
- The Supports (welded saddle supports) appeared to be in good condition.)
- The (Shell and the heads appeared to be in good condition, no mechanical damage (dents, gouges, bulges) were present.)
- The (welds (circ seams, long seams) appeared to be in good condition.)
- (All the nozzles, the manway, the liquid level assembly, couplings appeared to be in good condition, no leaks were noted at the time of inspection.)
- (All the associated piping was removed at the time of inspection.)
- (No Ground Cable Connection was found attached to the Separator.)

(2008/007 wt survey completed, All Tails were within the corrected allowance.)

Static Equipment Inspection Report (cont'd)

(Internal) Inspection

- The Separator was internally coated. The (coating appeared to be in general good condition, well bonded, Very small holidays were present on the manway inside rim.)
- The shell and the heads appeared to be in good condition.
- (All the internal attachments (vortex breaker, demister pad, inlet deflector plate) appeared to be in good condition.)
- The (nozzles and couplings appeared to be in good condition, clean, not plugged.)

Static Equipment Inspection Report

Client:	Imperial Oil Resources	Inspection Date:	November 20, 2008
Facility:	Redcliff South Compressor Stn.	LSD:	08-23-012-04W4
Equipment:	Pigging Separator A#02664161		

Technicians/Inspectors

Maria Savulescu

Certifications

API 510	ABSA PESL	CGSB Lev.II UT

Technique:

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> UT (thickness) | <input type="checkbox"/> MPI (dry powder) | <input type="checkbox"/> LPI (visible aqueous) | <input checked="" type="checkbox"/> Visual (external) |
| <input type="checkbox"/> UT (shearwave) | <input type="checkbox"/> MPI (wet fluorescent) | <input type="checkbox"/> LPI (visible post emulsifiable) | <input checked="" type="checkbox"/> Visual (internal) |
| <input type="checkbox"/> UT (c-scan) | <input type="checkbox"/> MPI (wet visible) | <input type="checkbox"/> LPI (visible solvent removable) | <input type="checkbox"/> Hardness (telebrinell) |
| <input type="checkbox"/> UT (TOFD) | | <input type="checkbox"/> LPI (fluorescent water washable) | <input type="checkbox"/> Hardness (microdur) |
| <input type="checkbox"/> UT (phased array) | | <input type="checkbox"/> LPI (fluorescent post emulsifiable) | |
| | | <input type="checkbox"/> LPI (fluorescent solvent removable) | |

Equipment:

- | | |
|---|---|
| Ultrasonic | Magnetic Particle |
| <input type="checkbox"/> DMS | <input type="checkbox"/> AC Yoke |
| <input checked="" type="checkbox"/> DMS-2 | <input type="checkbox"/> DC Yoke |
| <input type="checkbox"/> USN-52L | <input type="checkbox"/> Blacklight |
| <input type="checkbox"/> USN-58L | <input type="checkbox"/> Permanent Yoke |
| <input type="checkbox"/> Other: _____ | |

Consumables:

- | | |
|--|---|
| Magnetic Particle | Liquid Penetrant |
| <input type="checkbox"/> Magnaflux 7HF (black) | <input type="checkbox"/> SKL-WP Penetrant |
| <input type="checkbox"/> Magnaflux WCP-2 Contrast Paint | <input type="checkbox"/> SKD-S2 Developer |
| <input type="checkbox"/> Magnaflux 14AM Fluorescent Bath | <input type="checkbox"/> SKC-S Cleaner |
| <input type="checkbox"/> Red Oxide Powder | <input type="checkbox"/> DP-51 Penetrant |
| <input type="checkbox"/> Grey Oxide Powder | <input type="checkbox"/> DR-62 Developer |
| <input type="checkbox"/> Other: _____ | |

Ultrasonic Transducers:

Description	Type	Frequency	Diameter	Angle
FH2E	Dual	5MHz	0.375	0deg

Code 1:	Customer Spec
Code 2:	
Calibration:	Stepwedge
Sensitivity:	80%FSH

Magnetic Particle:

Material:	
Surface:	
Technique:	
Lighting:	

Code 1:	
Acc. Criteria	
AC Yoke	
Calibration:	

Comments: API 510 Visual Internal and External inspection were performed on the Pigging Separator A#02664161 at Redcliff South Compressor Station.

For details of the inspection please see the attached report.

Signature: _____

Date: February 20, 2009