



PRESSURE VESSEL
VISUAL INSPECTION
REPORT

Report #: **FIS009-WF-13**
Inspect Date: 03/03/2011
Page: 1 of 11
Insp. Co. Job #: FIS009

Criticality Designation:



Yellow



Insp. Comp: Fusion Inspection District: St Albert - North Field: Rush Lake
 Location: 15-11-048-23W4 Unit / Skid #: LSD: 15-11-048-23W4
 Jurisdiction #: A3047046 Equip Tag #: S04395 Serial #: 45919
 CRN #: M5100.231 Nat'l Bd #: Year Built: 1994
 Manufacturer: Bromely Equipment Description: Inlet Separator
 Status: In Service - Equip. Type: Vessel: Separator Service: Sweet
 MAWP Shell: 720 Psi @ 100 °F Volume: Code Stamp: Y N
 MAWP Tube: Psi @ °F Height/Length: Ft. Insulated: Y N
 MDMT: -20 °F RT: RT-1 Size/Diameter.: 36 in. O.D. PWHT: Y N
 Support Skirt Vessel on Original CNRL Inventory List: Y N Manway: Y N
 C.A.: in. Coated: Clad: J.E.: Remote Access: -

Component	Material	Nominal Thk	Diameter	OD/ID	Tube Side	Shell Side
1 Main - Shell	SA-516-70	1.000 in.	36.000 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 Bottom - Head	SA-516-70	1.000 in.	36.000 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 Top - Head	SA-516-70	1.000 in.	36.000 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 -					<input type="checkbox"/>	<input type="checkbox"/>
5 -					<input type="checkbox"/>	<input type="checkbox"/>

Static Data: Confirmed Changed (See Comments)

Comments:

The LSD was changed from 14-11-048-23W3 to 15-11-048-23W3 as per CNRL integrity request.

PSV Static Data

PSV -1 Tag #: Serial #: 005209-188 CRN: Nameplate missing
 Model #: T-8200-2 Capacity: 1970 SCFM Set Pressure: 250 psi
 Manufacturer: Taylor Service Company: PowerComm
 Inlet Size & Type: 2.00 in. - Threaded Last Service Date: Aug 31, 2010
 Outlet Size & Type: 2.00 in. - Threaded Block Valve: N/A - -
 Carseal Intact: Yes Code Stamp: No
 Shell Side / Tube Side: Shell Side Out for Service During Insp.: N Location of PSV: Downstream

PSV -2 Tag #: Serial #: CRN:
 Model #: Capacity: Set Pressure:
 Manufacturer: Service Company:
 Inlet Size & Type: - Last Service Date:
 Outlet Size & Type: - Block Valve: - -
 Carseal Intact: Code Stamp:
 Shell Side / Tube Side: Out for Service During Insp.: Location of PSV:

PSV Comments

- The PSV carseal is intact. The PSV nameplate is missing and no CRN or stamping is identifiable.



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External Inspection Results – VE External Inspection Performed

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Nameplate	<input type="checkbox"/>	Accept	Light corrosion behind nameplate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Foundation and Supports	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor Bolts	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grounding	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulation Condition	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PSV	<input type="checkbox"/>	Reject	No nameplate present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Shell Heads & Nozzles	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal Surfaces (Paint)	<input type="checkbox"/>	Reject	Light corrosion on piping flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aux Equipment	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flange Connections	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure Gauge	<input type="checkbox"/>	Accept	80 psi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperature Gauge	<input type="checkbox"/>	Accept	40 F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sight Glass	<input type="checkbox"/>	Accept		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ladder / Platform	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaks	<input type="checkbox"/>	No		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping from Vessel	<input type="checkbox"/>	Accept				
Previous UT Survey	<input type="checkbox"/>	No				

UT Company:

External Visual Observations

An external visual inspection was performed on vessel and the findings are as follows:

- The vessel was operating at time of inspection. No process leaks or vibrations were noted.
- The PSV carseal is intact. The PSV nameplate is missing and no CRN or stamping is identifiable.
- The vessel is sweating. The paint is intact on the shell and piping with the exception of the flanges and behind the nameplate where light corrosion is present.
- The skirt is secure and level with light corrosion present inside and around the base.
- All visible bolting is intact and fully engaged.
- The vessel is sufficiently grounded.
- The sight glass, temperature and pressure gauges are clear and visible.
- An external UT thickness survey was performed with no significant wall losses noted. UT was carried out with GE DMS 2 SN: 0221JR.
- Refer to the attached photos, UT data and drawing for details.

Recommendations:

- Investigate CRN status of the PSV and identify the CRN registration and other applicable static information on the PSV.
- Clean and paint the piping flanges and behind the nameplate to assist surface condition.



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Internal Inspection Results – VI N/A (Not Applicable)

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Shell	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heads	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manway	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gasket Surfaces	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Welds	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refractory	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating Coils	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demister Pad	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vane Pack	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baffles	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trays	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filter	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal Coating	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tubesheet	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube Bundle	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Internal Visual Observations

No Internal Inspection Carried Out

Recommendations:

No Internal Inspection Carried Out



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Firetube Static Data N/A (Not Applicable)

Diameter: Not Applicable Nom Thickness: Not Applicable Bend: Not Applicable
 Length: Not Applicable Firetube Description: Not Applicable

Firetube NDE Performed: UT Report#: Not Applicable ET Report#: Not Applicable
 MT Report#: Not Applicable RT Report#: Not Applicable
 PT Report#: Not Applicable Other Report#: Not Applicable

Firetube Inspection Results

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Burner	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stack	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flange (Throat)	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube Sheet	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot Side	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Miter	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return Bend	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supports	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Butt Welds	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillet Welds	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Firetube Visual Observations

No Firetube Inspection Carried Out

Recommendations:

No Firetube Inspection Carried Out



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Vessel NDE and Final Summary:

UT Report#: FIS013-UT-WF-13 ET Report#: _____
NDE Performed: MT Report#: _____ RT Report#: _____
PT Report#: _____ Other Report#: _____

Maxi-Trak Observations Summary (Summarize inspection results Max 255 Characters):

- The PSV carseal is intact. The PSV nameplate is missing and no CRN or stamping is identifiable.
- The paint is intact on the shell and piping with the exception of the flanges and behind the nameplate where light corrosion is present.

Maxi-Trak Recommendations Summary (Summarize Recommendations Max 255 Characters):

- Investigate CRN status of the PSV and identify the CRN registration and other applicable static information on the PSV.
- Clean and paint the piping flanges and behind the nameplate to assist surface condition.

Actions Corrected at Time of Inspection: (If actions were corrected at the time of Inspection – note the corrected actions here.)

Additional Visual Observations

Any other safety concerns or observations from associated equipment: (for example associated piping, buildings, pumps etc...)



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Thickness and Remaining Life Evaluation “Must be Completed”

MUST BE COMPLETED AND RESOLVED WITH CNRL IMMEDIATELY UPON DISCOVERY OF LOW WALL THICKNESS AREAS

Step 1: Was any thickness measurement location found to be less than (Nominal WT – Corrosion Allowance)? **No**

If YES, proceed to Step 2; if NO, proceed to “Crack Evaluation” and “CNRL Criticality Designation”.

Step 2: Which component(s) were found below (Nominal WT – Corrosion Allowance)?

Components found below Nom - CA:

Components
N/A - N/A
N/A - N/A
N/A - N/A
N/A - N/A
N/A - N/A

Perform Steps 3 – 8 for each component with actual thickness less than (Nominal WT – Corrosion Allowance).

Step 3: Describe Location and Extent of Corrosion:

Components	Location and Extent of Corrosion
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection

Notes:
Not Applicable for this Inspection

Step 4:

- For shells and nozzles, calculate minimum required thickness (T-min) as per ASME Section VIII UG-27.
- For heads, calculate minimum required thickness (T-min) as per ASME Section VIII UG-32.

Components	T-Min
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A



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Thickness and Remaining Life Evaluation (Continued)

Step 5: Is any measured thickness less than calculated minimum required thickness (T-min)? **N/A**

*If YES, complete Step 6
If NO, proceed to Step 7..*

Step 6: Is nature and extent of pitting acceptable as per API 510? **N/A**

Step 7: Calculate Remaining Life as per API 510. How? (Find last reading; use nominal thickness if nothing available). Short Term Corrosion Rates and Long Term Corrosion Rates.

Components	Remaining Life (Yrs)
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A

Step 8: Contact CNRL Integrity Coordinator to discuss above results.

- Name of CNRL contact: Not Applicable for this Inspection
- Date and time of conversation: Not Applicable for this Inspection

Summary/results of conversation:
Not Applicable for this Inspection

Crack Evaluation by Magnetic Particle or Alternative Inspection “Must be Completed”

MUST BE COMPLETED AND RESOLVED WITH CNRL IMMEDIATELY UPON DISCOVERY OF CRACK-LIKE INDICATIONS

Were any indications found to suggest the vessel contained cracks? **No**

If NO, proceed to “CNRL Criticality Designation”.

If YES, Contact CNRL Integrity Coordinator to discuss results.

- Name of CNRL contact: Not Applicable for this Inspection
- Date and time of conversation: Not Applicable for this Inspection

Summary/results of conversation:
Not Applicable for this Inspection



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CNRL Criticality Evaluation - MUST BE COMPLETED

The CNRL In-Service Pressure Vessel Inspector MUST answer all the following questions

- 1. Is the vessel fit-for-service? : Yes
2. Was the measured thickness less than the calculated minimum required thickness (T-min) for any component?: No
3. Were MT indications found?: No
4. Was the remaining life less than 6 years for sour service vessels or less than 10 years for sweet service vessels?: No
5. Were NCR's or Action Items generated as a result of the inspection? : Yes
6. Were UT readings below (Nominal WT - Corrosion Allowance) found? : No

Information on CNRL Owner User Program - Criticality Designation and Required Review

RED - Vessel Inspection Results are deemed RED if one of the following occurred:

- The measured thickness was less than the calculated minimum required thickness (T-min) for any component.
MT indications were found.
The remaining life was calculated to be less than 6 years for sour-service vessels or less than 10 years for sweet-service vessels.

RED inspection reports must be signed off by the CNRL Chief Inspector.

YELLOW - Vessel Inspection Results are deemed YELLOW if one or more of the following occurred:

- The vessel was declared NOT fit-for-service by the 3rd Party In-Service PV Inspector.
NCR's or Action Items were generated as a result of the inspection.
UT readings below (Nominal WT - Corrosion Allowance) were found.

YELLOW inspection reports must be signed off by the CNRL Pressure Equipment Integrity Coordinator.

GREEN - Vessel Inspection Results are deemed GREEN if all of the following are true:

- The vessel was declared fit-for-service by the 3rd Party In-Service PV Inspector.
UT readings below (Nominal WT - Corrosion Allowance) were NOT found.
MT indications were NOT found.
NCR's or Action Items were NOT generated as a result of the VE inspection.

GREEN inspection reports must be signed off by the 3rd Party In-Service Pressure Vessel Inspector.

Criticality Designation



Vehicle #: Kms:
Time In: 00:00 Time Out: 00:00 Hrs
Personnel:
Billing Info:

Inspector (Name): Wes Farquhar PESL: 462
Inspector (Signature): [Signature] Digitally signed by Wes Farquhar Date: 2011.03.25 16:44:48 -06'00' API: 29669
CNRL Coordinator (Name): Tim Kelly
CNRL Chief Inspector (Signature): (I am in full agreement with report contents)



Figure 001_Nameplate



Figure 002_Alteration Nameplate



Figure 003_Sask. Jurisdiction No.



Figure 004_Inlet Separator



Figure 005_Inlet Separator

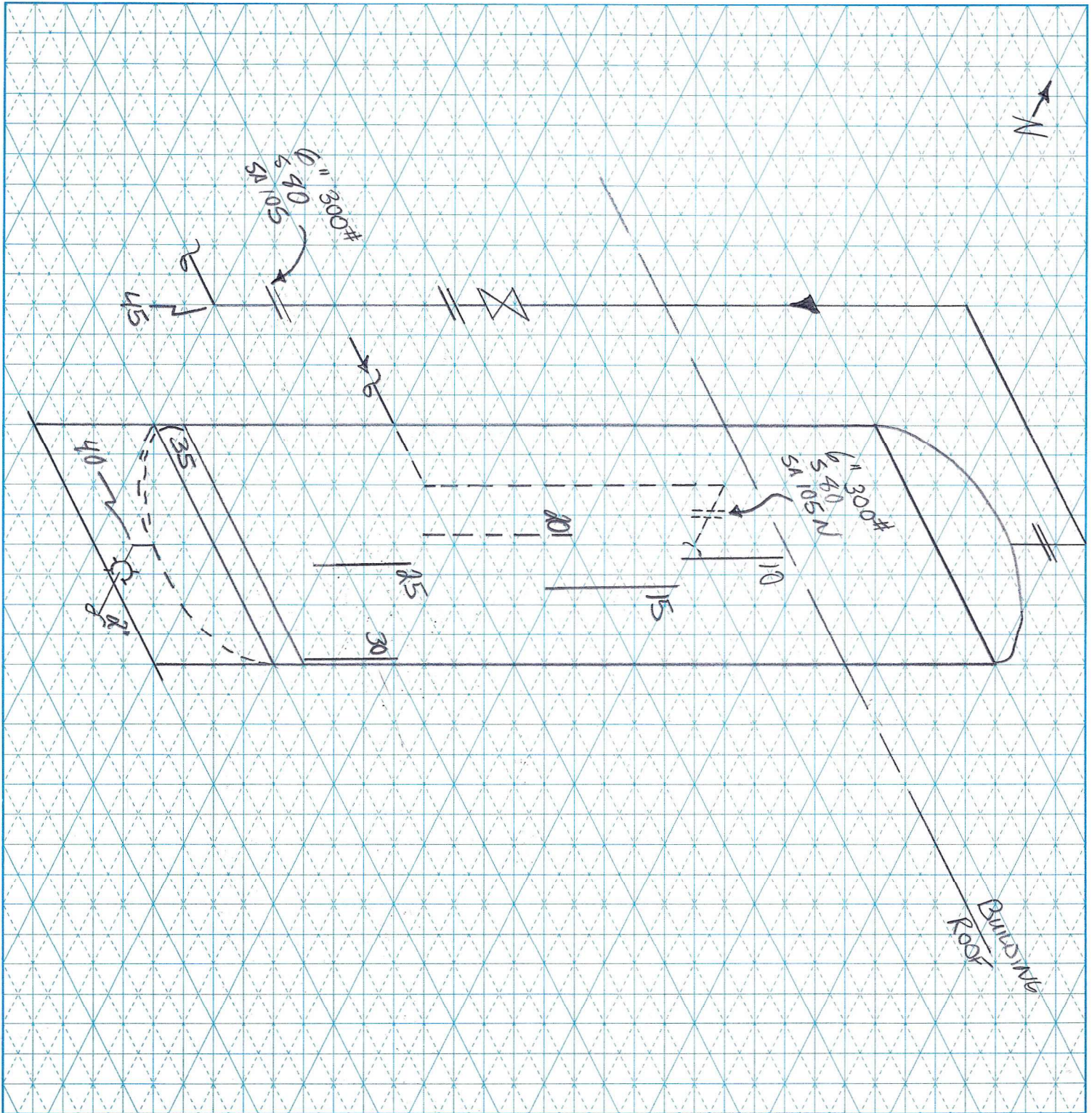


Figure 006_Corrosion behind nameplate

CLIENT: CML
 P&ID: _____
 LOCATION: _____

DISTRICT: LLOYDMINSTER
 FACILITY: BUSH LAKE
 LSD: 15-11-048-23W4

DRAWING NO: WF-13
 DATE: 03-MAR-2011
 DRAWN BY: WES F.



REG. NO. A3047046 EQP. NO. S04395 S/N 45919 EQP. DESC. INLET SEPARATOR
 CODE/STAMP uw 12A CRN M5100.231 DIA. (ID/OD) 36" YEAR BUILT 1994 SERVICE SWEET
 MANUFACTURER Bromely HEIGHT/LENGTH _____ RT RT-1 J.E. _____

HEAD		SHELL		CHANNEL HEAD	
Top/N/S/E/W Mat _____	Nom _____	Mat _____	Nom (top) <u>1.00"</u>	Shell Mat _____	Nom _____
Btm/N/S/E/W Mat _____	Nom _____	Corr. All. _____	Nom (btm) _____	Head Mat _____	Nom _____
MAWP Shell Side <u>720 psi</u>	@ MAWT <u>100°F</u>	PWHT <u>HT</u>	MDMT <u>-20°F</u>	MAWP Tube Side _____	@ MAWT _____

Row 1 Legend

TML=Thickness measurement location (Scanned Bands)

PNT 1=Minimum thickness recorded in band (Red = Thickness is below nominal minus C.A.)

PNT 2=Maximum thickness recorded in band

PNT 3=Average thickness recorded in band

SOD=Scanning orientation & direction

LOM=Location of minimum thickness relative to the start of band

SOD Column Legend -1st Entry (Scan Orientation)

H=Horizontal band

V=Vertical band

C=Circumferential band

SOD Column Legend -2nd & 3rd Entry (Scan Direction)

T=Top

B=Bottom

N=North

S=South

E=East

W=West

LOM Column Legend

SOB=Start of band

EOB=End of Band

Knuckle=Within the knuckle of a pressure vessel head

*Note: All field equipment on transportable skids will be drawn from the view at the door of the building looking in. These drawings will have "View From Door" as the reference direction in the top left hand corner of the drawing. For all drawings with the "View From Door" designation the building wall opposite the door will be considered North for all scan direction acronyms listed in the legend above.