



# Diversified Technology Services

2045 Preisker Lane Suite A – Santa Maria, California 93454 – 805-928-6392

## EXTERNAL VISUAL INSPECTION REPORT (API-510 – Pressure Vessels)

	Client: <u>DTS Client</u> Location: <u>Somewhere USA</u>
	Equipment Number: <u>V-4</u> Date Built: <u>1984</u>
	Equipment Name: <u>East Well Bay Test Separator</u>
	P&ID No.: <u>E-SB-11-5346</u> Service: <u>Production 2 Phase Gas/Liquid</u>
	Inspector Name: <u>API Certified Insp.</u> API 510 # <u>15</u> Date: <u>03/20/2003</u>

### \* Inspection Interval Statistics \*

Date of last Inspection: Unknown Date of Next Inspection: 03/20/2008

### \* Equipment Statistics \*

Carbon Steel       Stainless Steel       Other  
 Insulated       Non-Insulated       Partial Insulated

Item	Area of Interest	Condition				Comments
		Good	Fair	Poor	N/A	
1	Shell	X				Where Visible
2	Head or Channel	X				Where Visible
3	Nozzle & Bolts		X	X		See Narrative
4	Manway & Flange Bolts		X			See Narrative
5	Welds Seams		X			See narrative
6	Platform		X			See Narrative
7	Ladders & Cages		X			See Narrative
8	Handrails		X			See Narrative
9	Stairway & Treads				X	
10	Insulation or Coating		X			See Narrative
11	Weatherproofing			X		See Narrative
12	Fireproofing				X	
13	Supports		X			See Narrative
14	Support Base Plates		X			See Narrative
15	Support Bolts		X			See Narrative
16	Davits		X			See Narrative
17	Sightglass		X			See Narrative



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Item	Area of Interest	Condition				Comments
		Good	Fair	Poor	N/A	
18	Safety Steam Lines				X	
19	Safety Disc. Lines		X			

Item	Area of Interest	Condition			Comments
		Yes	No	N/A	
20	Safety Valve Removed		X		
21	Ground wire	X			Light Corrosion
22	Corrosion	X			See Narrative
23	Name Plate Attached	X			
24	Visible Leaks		X		
25	Screwed Fittings		X		
26	Visible Distortion		X		
27	Weep Holes Okay			X	Where Visible
28	Blistering		X		Not Visible
29	Other			X	Where Visible

### \* Narrative description of findings \*

**Date:** 03/20/2003

**Equipment No.:** V-4

An External inspection was performed in accordance with the guidelines of API-510. This vessel was insulated; therefore, the inspection was limited to access holes for TML's and damaged sections of insulation. This equipment experiences at random times a deluge from the fire water system that is comprised of seawater. This atmosphere could cause substantial accelerated corrosion mechanisms to take place on this equipment. The bottom of this vessel exhibited visible areas of what appeared to be salt residue at the time of this inspection.

**Shell:**

The shell was in satisfactory condition at areas viewable.

**Heads:**

The heads were in satisfactory condition at areas viewable.

**Nozzles and Bolts:**

The nozzles on the bottom were coated with a hard salt scale where they protrude through the insulation. It appeared as though this salt scale was remaining residue from the seawater deluge system that formed over a period of time. These nozzles appear to have enough wall loss from external corrosion to suggest recommending an evaluation from the Client Inc. Engineering department, to determine the fitness for service of this vessel. All bolts of nozzles have light to moderate corrosion on them. One nozzle was noted having a stud that extended several threads past the nuts and was corroded with light scaling.

The bottom nozzles were found having heavy corrosion at the areas in which they protrude through the insulation and behind the insulation. These areas were noted with the following thickness depths:



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### \* Narrative description of findings \*

**Date:** 03/20/2003

**Equipment No.:** V-4

#### Nozzles and Bolts (Cont):

Nozzle ID, Size Pitting Depth	UT Thickness Measured	Remaining Wall	Nozzle ID, Size Pitting Depth	UT Thickness Measured	Remaining Wall
N6A, 2" .125"	.567"	.442"	N7A, 2" .125" - .218"	.564"	.346" - .439"
N6B, 2" .125" - .187"	.547"	.360" - .422"	N7B, 2" .156" - .187"	.558"	.371" - .402"
N6C, 2" .125" - .156"	.560"	.404" - .435"	N3, 4" .156" - .187"	.762"	.575" - .606"
			N4, 3" .187"	.634"	.447"

#### Manways and Flange Bolts:

The manways and associated bolting have experienced coating failure and exhibited light corrosion.

#### Weld Seams:

The welds of the bottom nozzles have degradation from the corrosion listed above.

#### Insulation, Weatherproofing, and Coating:

The insulation has experienced areas on the heads where the Fiber Cast has started to degrade. The insulation on the north sightglass assembly was noted having damage and/or was missing in places. The painted coating in areas viewable was in tact and in fair condition. The weatherproofing around nozzle penetrations of the insulation and around the supports has started to degrade and in some areas, missing.

#### Supports, Base Plates, and Bolts:

The supports and base plates exhibited paint failure. At areas where the coating had failed there was a film of light corrosion noted. Support bolts were noted having moderate corrosion.

#### Davits:

The davits were noted having coating failure and light corrosion in areas.

#### Platform, Ladder and Handrails:

The platform exhibited areas of coating failure and light spotted areas of corrosion. The ladder has experienced areas of coating failure and has areas of corrosion on the rungs. The handrails exhibited spotted coating failure but had no mentionable corrosion at the time of inspection.

#### Sightglass:

The insulation on the north sightglass assembly was noted having damage and/or was missing in places. The painted coating in areas viewable was intact and in fair condition.

#### Ground Wire:

The grounding wire exhibited a light film of corrosion at the time of this inspection.



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### *\*Recommended Items for Repair V-4\**

Item	Recommendations
3	Recommend evaluation by Client Inc. Engineering department to determine if extent of corrosion is within safe operating conditions. At a minimum, these areas should be cleaned and re-coated with a protective coating to prevent further corrosion wall loss.
3-8, 13-16, & 21	Mechanically clean all areas with corrosion and seal with a proper coating to prevent further damage to vessel and parts.
10	Repair areas of damaged and/or missing insulation.
11	The weatherproofing sealant should be replaced or installed at the protrusions of the insulation to prevent access points for CUI mechanisms to enter behind the insulation.
17	The sightglass assemblies of this vessel should be considered for stripping of insulation to further examine for CUI. Minimally, these areas should have the insulation repaired or replaced to prevent CUI.

### Report Sign-Off

_____	03/20/2003
<b>API Certified Inspector</b>	<b>Date</b>



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* Narrative Photo Attachment Page *			
V-4		03/20/2003	
External view		External view	
Corrosion scale of bottom nozzle		Corrosion scale of bottom nozzle	
Missing weatherproofing around insulation protrusions.		Corrosion scale of bottom nozzle	
Long Stud in flange, and light corrosion at nozzle		Degrading Fiber Cast insulation on heads.	