

SUMMIT Inspection Services Ltd.

The Peak in Integrity and Quality Inspection

Imperial Oil Resources
1911 Broadway Ave.
Redcliff, AB
T0J 2P0

April 17, 2009

Attention: **Greg Compton**

Re: **Ultrasonic Corrosion Survey of Redcliff South Compressor Station**

Dear Sir:

As requested, an Ultrasonic Corrosion Survey was performed on several vessels at the Redcliff South Compressor Station on October 8 and 9, 2008. The **Item List** summary contains a list of all vessels that were inspected during this time. The equipment used for the inspection consisted of a Krautkramer DMS-2 Ultrasonic Instrument in conjunction with a Krautkramer KBA FH2E, ¼" dia., 5 MHz dual element transducer.

Results of the inspection found no indications of internal corrosion to be occurring and all areas appear to be in good condition. Please refer to the **Condition Indicator**, **Graphs**, and **Comment List** sections of the report for a brief summary of the inspection. The data pages contain all the information necessary for your own evaluation of the data.

All static vessel information in the report was obtained from the vessel nameplates during this and previous inspections. Several blanket assumptions have been made in the report. All piping and fittings are assumed to be either SA-106B or SA-234WPB material with a Joint Efficiency of 1.00 and with the same operating pressure and temperature as the associated vessel, and a Corrosion Allowance of .063" has been assumed for vessels and piping when none is listed on the vessel nameplate. Also, all piping associated with a vessel is assumed to have been manufactured at the time of the vessel. All static vessel information and all manufacture dates (or in-service dates) in the report should be confirmed as correct. Any areas where static vessel information is missing from the report, or where the nameplate information is incorrect, can be incorporated into the report if you let me know.

In accordance with Imperial Oil Policy, the critical thickness listed in this report and used for the calculations of Life Expectancies are based on the nominal thickness less the corrosion allowance. Therefore, the Life Expectancies in the report should only be used as a general guide and may or may not be entirely accurate. The **Condition Indicator** summary includes all items that have a calculated life expectancy of less than 100 years. All items with life expectancies greater than 100 years have not been included. Items with life expectancies of less than 10 years will be highlighted in yellow and any items with a remaining thickness below the critical thickness will be highlighted in red. Also, graphs

have been prepared showing various corrosion rates, minimum thickness, and actual point thickness for all items with life expectancies of less than 10 years.

Please refer to the **Condition Indicator**, **Graphs**, and **Comment List** sections of the report for a brief summary of the inspection. The data pages contain all the information necessary for your own evaluation of the data.

I hope this report meets with your approval and should you have any questions, please contact me at our office at your convenience.

Sincerely,



Maria Savulescu
CGSB II/SNT II

SUMMIT Inspection Services Ltd.



Imperial Oil Resources
1911 Broadway Ave.
Redcliff, AB
T0J 2P0

November 17, 2003

Attention: **Bob Adrian**

Re: **Baseline Ultrasonic Corrosion Survey of Redcliff South Compressor Station**

Dear Sir:

As requested, a Baseline Ultrasonic Corrosion Survey was performed on all Vessels and Compressor Bottles at the Redcliff South Compressor Station on November 4 and 5, 2003. The equipment used for the inspection consisted of a Krautkramer DMS-2 Ultrasonic Instrument, in conjunction with a KBA FH2E, 1/4" dia., 5 MHz, dual element transducer.

The inspection involved taking Ultrasonic Thickness readings in various locations on vessels, bottles, coolers, and associated piping at the Compressor Station to look for indications of internal corrosion and determine the overall condition of the equipment. In addition to the Ultrasonic Corrosion Survey, an MPI inspection was performed on all nozzles, couplings, and welds on the Unit #1 and Unit #2 Compressor Bottles and Coolers. Please refer to the MPI report located under the **MISC.** tab for details on the MPI inspection.

Results of the Ultrasonic Corrosion Survey found no indications of significant internal corrosion problems in any of the areas inspected and all areas appear to be in good condition. Three bands (860, 862, and 866) on the Unit #1 Compressor E-301 1st Stage Discharge Cooler (bottom) are highlighted in yellow with a life expectancy below 10 years on the **CONDITION INDICATOR** summary. This is due to the readings being slightly below the assumed nominal thickness and the fact the cooler was built in 2003. Please ignore the life expectancies for these three bands as there are no indications of internal corrosion occurring. The nominal thickness of 1.000" is assumed for the cooler and should be confirmed. Please refer to the **CONDITION INDICATOR**, and **COMMENT LIST** summaries in the report for further details on this and other areas of the inspection. The data pages found under the **TAB** associated with each vessel contain all the information necessary for your own evaluation of the data.

The critical thickness listed in the report and used for the calculations of Life Expectancies are 2/3 nominal thickness as per Imperial Oil policy. Therefore, the Condition Indicator values in the report should only be used as a general guide and may or may not be entirely accurate. The only blanket assumption made in the report is all piping is assumed to be SA 106 B material with a Joint Efficiency of 1.00 and with the same operating pressure and temperature as the associated vessel. However, since no

Code Calculations are being performed, this has no impact on any of the summaries in this report. Also, all piping associated with a vessel is assumed to have been manufactured at the same time as the vessel. Any areas where static vessel information is missing from the report, or where the nameplate information is incorrect, can be incorporated into the report if you let me know.

The **CONDITION INDICATOR** summary includes all items that have a calculated life expectancy of less than 100 years. All items with life expectancies greater than 100 years have not been included. Items with life expectancies of less than 10 years will be highlighted in yellow and any items with a remaining thickness below the critical thickness will be highlighted in red. Because no indications of internal corrosion were found, no graphs have been prepared.

Please refer to the **CONDITION INDICATOR** and **COMMENT LIST** sections of the report for a brief summary of the inspection. The data pages contain all the information necessary for your own evaluation of the data.

I hope this report meets with your approval and should you have any questions, please contact me at our office at your convenience.

Sincerely,



David Clements
CGSB II/SNT III

Western Inspection Ltd.

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| | (a) Vessel | | | |

Tab #

Tag

Description

Reg #

Serial #

Compressor Building

8 Unit #1 Compressor (north)

- (a) V-101 1st. Stage Suction Scrubber
- (b) 1st. Stage Suction Scrubber Inlet Piping
- (c) 1st. Stage Suction Scrubber Outlet Piping
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- (e) 1st. Stage Suction Bottle Inlet Piping
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- (l) 1st. Stage Suction Bottle Outlet Piping
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- (o) 1st. Stage Discharge Bottle Outlet Piping
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- (q) E-301 1st. Stage Discharge Cooler (bottom)

| | |
|----------|-------------|
| A 137104 | 405-3-76-6 |
| A 137089 | 405-3-76-9 |
| A 137103 | 405-3-76-13 |
| A 117882 | 245-76-8 |
| A 117878 | 245-76-12 |
| | 768345.3 |
| | M758006.M1 |

9 Unit #2 Compressor (south)

- (a) V-103 2nd. Stage Suction Scrubber
- (b) 2nd. Stage Suction Scrubber Inlet Piping
- (c) VBK-310 2nd. Stage Suction Bottle
- (d) 2nd. Stage Suction Bottle Inlet Piping
- (e) VBK-311 2nd. Stage Discharge Bottle
- (f) V-104 3rd. Stage Suction Scrubber
- (g) 3rd. Stage Suction Scrubber Inlet Piping
- (h) VBK-312 3rd. Stage Suction Bottle
- (i) VBK-313 3rd. Stage Discharge Bottle
- (j) 3rd. Stage Discharge Bottle Outlet Piping
- (k) V-105 4th. Stage Suction Scrubber

| | |
|----------|-------|
| A 209065 | 56122 |
| A 209068 | 56125 |
| A 209069 | 56126 |
| A 209066 | 56123 |
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| Tab # | Tag | Description | Reg # | Serial # |
|-------|-----|---|----------|----------|
| | (l) | 4th. Stage Suction Scrubber Inlet Piping | | |
| | (m) | 4th. Stage Suction Scrubber Outlet Piping | | |
| | (n) | VBK-314 4th. Stage Suction Bottle | A 190318 | 10940 |
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|-----|------------------|----------|----------|--------------|--|--|--|--|--|--|--|--|--|--|

Inlet Area

1 Inlet Header Piping

(a) Pig Receiver

| | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 100 Top North Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 103 Bottom North Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 105 Bottom South Shell | * | * | | | | | | | | | | | | | | | | | | | |

(b) Pig Receiver

| | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 110 Top North Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 113 Bottom North Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 115 Bottom South Shell | * | * | | | | | | | | | | | | | | | | | | | |

(c) Pig Receiver

| | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 120 Top North Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 123 Bottom North Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 125 Bottom South Shell | * | * | | | | | | | | | | | | | | | | | | | |

(d) Piping

| | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 150 Bottom of 6" Pipe | * | * | | | | | | | | | | | | | | | | | | | |
| 155 6" Elbow | * | * | | | | | | | | | | | | | | | | | | | |
| 160 Bottom of 6" Pipe | * | * | | | | | | | | | | | | | | | | | | | |
| 165 6" Elbow | * | * | | | | | | | | | | | | | | | | | | | |
| 170 Bottom of 4" Pipe | * | * | | | | | | | | | | | | | | | | | | | |
| 175 4" Elbow | * | * | | | | | | | | | | | | | | | | | | | |
| 180 Bottom of 2" Pipe | * | * | | | | | | | | | | | | | | | | | | | |

2 V-100 Inlet Separator

(a) V-100 Vessel

| | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 200 Top South Head | * | * | | | | | | | | | | | | | | | | | | | |
| 205 Top South Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 210 Upper West Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 215 Lower East Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 220 Bottom South Shell | * | * | | | | | | | | | | | | | | | | | | | |
| 225 Bottom South Head | * | * | | | | | | | | | | | | | | | | | | | |

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| Tab | Item | Description | Nov 2003 | Oct 2008 | Next Inspect |
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| (b) | <u>Inlet Piping</u> | | | | |
| | 230 8" | Inlet Elbow | * | | |
| | 232 8" | Inlet Nozzle | * | | |
| (c) | <u>Outlet Piping</u> | | | | |
| | 238 8" | Outlet Nozzle | * | | |
| | 239 8" | Outlet Elbow | * | | |
| | 240 8" | Outlet Elbow | * | | |
| 3 | <u>V-101 Pigging Separator</u> | | | | |
| (a) | <u>V-101 Vessel</u> | | | | |
| | 300 | Top East Head | * | | |
| | 305 | Bottom East Head | * | | |
| | 310 | Top East Shell | * | | |
| | 315 | Lower South Shell (west end) | * | | |
| | 320 | Bottom East Shell | * | | |
| | 325 | Bottom West Shell | * | | |
| | 330 | Bottom West Head | * | | |
| (b) | <u>Piping</u> | | | | |
| | 340 8" | Nozzle | * | | |
| | 350 8" | Nozzle | * | | |
| | 360 2" | Nozzle | * | | |
| | 370 2" | Nozzle | * | | |
| | 380 2" | Nozzle | * | | |
| | 385 6" | Nozzle | * | | |
| | <u>Dehy Building</u> | | | | |
| 4 | <u>C-150 Glycol Absorber Tower</u> | | | | |
| (a) | <u>C-150 Vessel</u> | | | | |
| | 420 | Lower North Shell | * | | |
| | 425 | Lower North Shell (across inlet) | * | | |
| | 430 | Bottom West Shell | * | | |
| | 435 | Bottom West Head | * | | |

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| Tab | Item Description | Nov 2003 | Oct 2008 | Next Inspect | | | | | | | | | | | |
|-----|------------------|----------|----------|--------------|--|--|--|--|--|--|--|--|--|--|--|
|-----|------------------|----------|----------|--------------|--|--|--|--|--|--|--|--|--|--|--|

(b) Inlet Piping

440 4" Nozzle

(c) Outlet Piping

450 4" Outlet Elbow

5 R-600 Glycol Reboiler

(a) R-600 Vessel

505 Upper West Shell (north of center)

510 Bottom Shell (north of center)

515 West Shell (north end)

(b) Accumulator

525 Top Middle Shell

530 Middle West Shell (north of center)

535 Bottom North Shell

540 Bottom South Shell

6 Glycol Filter

(a) Vessel

600 Top West Head

605 Top South Shell

610 Bottom North Shell

Compressor Building

8 Unit #1 Compressor (north)

(a) V-101 1st. Stage Suction Scrubber

800 Top North Head

801 Top North Shell

802 Bottom South Shell

803 Bottom South Head

(b) 1st. Stage Suction Scrubber Inlet Piping

804 8" Inlet Elbow

805 8" Inlet Nozzle

(c) 1st. Stage Suction Scrubber Outlet Piping

806 8" Outlet Nozzle

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| Tab | Item Description | Nov 2003 | Oct 2008 | Next Inspect |
|--|-----------------------------------|----------|----------|--------------|
| (d) VBK-300 1st. Stage Suction Bottle (south stage) | | | | |
| | 810 Bottom East Head | * | * | |
| | 811 Top Middle Shell | * | * | |
| | 812 Bottom Middle Shell | * | * | |
| | 813 Bottom West Shell | * | * | |
| | 814 Bottom West Head | * | * | |
| (e) 1st. Stage Suction Bottle Inlet Piping | | | | |
| | 815 8" Inlet Elbow | * | * | |
| | 816 8" Inlet Nozzle | * | * | |
| (f) 1st. Stage Suction Bottle Outlet Piping | | | | |
| | 817 6" Outlet Nozzle | * | * | |
| | 818 6" Outlet Nozzle | * | * | |
| (g) VBK-301 1st. Stage Discharge Bottle (south stage) | | | | |
| | 820 Bottom East Head | * | * | |
| | 821 Top Middle Shell | * | * | |
| | 822 Bottom East Shell | * | * | |
| | 823 Bottom West Shell | * | * | |
| | 824 Top West Head | * | * | |
| | 828 2" PSV Nozzle | * | * | |
| | 829 2" PSV Elbow | * | * | |
| (h) 1st. Stage Discharge Bottle Inlet piping | | | | |
| | 825 6" Inlet Nozzle | * | * | |
| | 826 6" Inlet Nozzle | * | * | |
| (i) 1st. Stage Discharge Bottle Outlet Piping | | | | |
| | 827 6" 45° Outlet Elbow | * | * | |
| (j) VBK-303 1st. Stage Suction Bottle (north stage) | | | | |
| | 830 Bottom East Head | * | * | |
| | 831 Top Shell (east of center) | * | * | |
| | 832 Bottom Shell (east of center) | * | * | |
| | 833 Bottom West Shell | * | * | |
| | 834 Bottom West Head | * | * | |

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| Tab | Item Description | Nov 2003 | Oct 2008 | Next Inspect |
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| (k) | <u>1st. Stage Suction Bottle Inlet Piping</u> | | | |
| | 835 8" Inlet Elbow | * | * | |
| | 836 8" Inlet Nozzle | * | * | |
| (l) | <u>1st. Stage Suction Bottle Outlet Piping</u> | | | |
| | 837 6" Outlet Nozzle | * | * | |
| | 838 6" Outlet Nozzle | * | * | |
| (m) | <u>VBK-302 1st. Stage Discharge Bottle (north stage)</u> | | | |
| | 840 Bottom West Head | * | * | |
| | 841 Top Middle Shell | * | * | |
| | 842 Bottom East Shell | * | * | |
| | 843 Bottom West Shell | * | * | |
| | 844 Top East Head | * | * | |
| (n) | <u>1st. Stage Discharge Bottle Inlet Piping</u> | | | |
| | 845 6" Inlet Nozzle | * | * | |
| | 846 6" Inlet Nozzle | * | * | |
| (o) | <u>1st. Stage Discharge Bottle Outlet Piping</u> | | | |
| | 847 6" Outlet Elbow | * | * | |
| (p) | <u>E-300 1st. Stage Discharge Cooler (top)</u> | | | |
| | 850 Bottom East Shell of Header Box (south) | * | * | |
| | 852 Bottom West Shell of Header Box (south) | * | * | |
| | 854 Bottom East Shell of Header Box (north) | * | * | |
| | 856 Bottom West Shell of Header Box (north) | * | * | |
| | 857 6" Inlet Nozzle | * | * | |
| | 858 6" Outlet Nozzle | * | * | |
| (q) | <u>E-301 1st. Stage Discharge Cooler (bottom)</u> | | | |
| | 860 Bottom East Shell of Header Box (south) | * | * | |
| | 862 Bottom West Shell of Header Box (south) | * | * | |
| | 864 Bottom East Shell of Header Box (north) | * | * | |
| | 866 Bottom West Shell of Header Box (north) | * | * | |
| | 867 6" Inlet Nozzle | * | * | |
| | 868 6" Outlet Nozzle | * | * | |

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9 Unit #2 Compressor (south)

(a) V-103 2nd. Stage Suction Scrubber

| | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 900 Top North Head | | | | | | | | | | | | | | | | | | | | | |
| * | 901 Top North Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 902 Middle West Shell (across inlet) | | | | | | | | | | | | | | | | | | | | | |
| * | 903 Bottom West Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 904 Bottom South Head | | | | | | | | | | | | | | | | | | | | | |
| * | 907 8" Outlet Nozzle | | | | | | | | | | | | | | | | | | | | | |

(b) 2nd. Stage Suction Scrubber Inlet Piping

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 905 8" Inlet Elbow | | | | | | | | | | | | | | | | | | | | | |
| * | 906 6" Inlet Nozzle | | | | | | | | | | | | | | | | | | | | | |

(c) VBK-310 2nd. Stage Suction Bottle

| | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 908 Bottom West Head | | | | | | | | | | | | | | | | | | | | | |
| * | 909 Top Middle Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 910 Bottom East Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 911 Bottom West Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 912 Bottom East Head | | | | | | | | | | | | | | | | | | | | | |
| * | 915 6" Outlet Nozzle | | | | | | | | | | | | | | | | | | | | | |
| * | 916 6" Outlet Nozzle | | | | | | | | | | | | | | | | | | | | | |

(d) 2nd. Stage Suction Bottle Inlet Piping

| | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 913 8" 45° Inlet Elbow | | | | | | | | | | | | | | | | | | | | | |
|---|------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

(e) VBK-311 2nd. Stage Discharge Bottle

| | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 917 Bottom East Head | | | | | | | | | | | | | | | | | | | | | |
| * | 918 Top Middle Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 919 Bottom East Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 920 Bottom West Shell | | | | | | | | | | | | | | | | | | | | | |
| * | 921 Top West Head | | | | | | | | | | | | | | | | | | | | | |
| * | 922 6" Inlet Nozzle | | | | | | | | | | | | | | | | | | | | | |
| * | 923 6" Inlet Nozzle | | | | | | | | | | | | | | | | | | | | | |

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(f) V-104 3rd. Stage Suction Scrubber

| | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 924 Top South Head | * | | | | | | | | | | | | | | | | | | |
| * | 925 Top South Shell | * | | | | | | | | | | | | | | | | | | |
| * | 926 Middle South Shell (across inlet) | * | | | | | | | | | | | | | | | | | | |
| * | 927 Bottom East Shell | * | | | | | | | | | | | | | | | | | | |
| * | 928 Bottom East Head | * | | | | | | | | | | | | | | | | | | |
| * | 931 6" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | |

(g) 3rd. Stage Suction Scrubber Inlet Piping

| | | | | | | | | | | | | | | | | | | | | |
|---|---------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 929 6" Inlet Elbow | * | | | | | | | | | | | | | | | | | | |
| * | 930 6" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | |

(h) VBK-312 3rd. Stage Suction Bottle

| | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 932 Bottom East Head | * | | | | | | | | | | | | | | | | | | |
| * | 933 Top Middle Shell | * | | | | | | | | | | | | | | | | | | |
| * | 934 Bottom East Shell | * | | | | | | | | | | | | | | | | | | |
| * | 935 Bottom West Shell | * | | | | | | | | | | | | | | | | | | |
| * | 936 Bottom West Head | * | | | | | | | | | | | | | | | | | | |
| * | 937 6" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | |
| * | 938 8" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | |

(i) VBK-313 3rd. Stage Discharge Bottle

| | | | | | | | | | | | | | | | | | | | | |
|---|---------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 939 Top East Head | * | | | | | | | | | | | | | | | | | | |
| * | 940 Top East Shell | * | | | | | | | | | | | | | | | | | | |
| * | 941 Top West Shell | * | | | | | | | | | | | | | | | | | | |
| * | 942 Top West Head | * | | | | | | | | | | | | | | | | | | |
| * | 943 8" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | |

(j) 3rd. Stage Discharge Bottle Outlet Piping

| | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 944 4" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | |
| * | 945 4" Outlet Elbow | * | | | | | | | | | | | | | | | | | | |

(k) V-105 4th. Stage Suction Scrubber

| | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| * | 946 Top West Head | * | | | | | | | | | | | | | | | | | | |
| * | 947 Top West Shell | * | | | | | | | | | | | | | | | | | | |
| * | 948 Middle East Shell (across inlet) | * | | | | | | | | | | | | | | | | | | |
| * | 949 Bottom West Shell | * | | | | | | | | | | | | | | | | | | |
| * | 950 Bottom Head (south side) | * | | | | | | | | | | | | | | | | | | |

ITEM LIST

| Tab | Item Description | Nov 2003 | Oct 2008 | | | | | | | | | | | | | | | | | | | | Next Inspect | | | | |
|-----|---|----------|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|
| (l) | 4th. Stage Suction Scrubber Inlet Piping 951 4" Inlet Elbow | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (m) | 4th. Stage Suction Scrubber Outlet Piping 952 4" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 953 4" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 954 4" Elbow | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (n) | VBK-314 4th. Stage Suction Bottle 955 Bottom West Head | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 956 Top Middle Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 957 Bottom East Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 958 Bottom West Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 959 Bottom East Head | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 962 3" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (o) | 4th. Stage Suction Bottle Inlet Piping 960 4" Inlet Elbow | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 961 4" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (p) | VBK-315 4th. Stage Discharge Bottle 963 Top East Head | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 964 Top East Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 965 Top West Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 967 3" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 968 3" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (q) | F-210 Fuel Gas Filter 970 Top South Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 971 Middle South Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 972 Bottom South Shell | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (r) | E-310 2nd. Stage Discharge Cooler 975 Bottom West Shell of Header Box (south) | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 976 Bottom West Shell of Header Box (north) | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 977 6" Inlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 978 6" Outlet Nozzle | * | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ITEM LIST

| Tab | Item Description | Nov 2003 | Oct 2008 | Next Inspect |
|-----|------------------|----------|----------|--------------|
|-----|------------------|----------|----------|--------------|

(s) E-311 3rd. Stage Discharge Cooler

| | | | | |
|---|--|---|--|--|
| * | 979 Top East Shell of Header Box (south en | * | | |
| * | 980 Bottom West Shell of Header Box (sout | * | | |
| * | 981 Bottom East Shell of Header Box (north | * | | |
| * | 982 Bottom West Shell of Header Box (north | * | | |
| | 983 4" Inlet Nozzle | * | | |
| | 984 4" Outlet Nozzle | * | | |

(t) E-312 4th. Stage Discharge Cooler

| | | | | |
|---|--|---|--|--|
| * | 985 Top East Shell of Header Box (south en | * | | |
| * | 986 Bottom West Shell of Header Box (sout | * | | |
| * | 987 Bottom East Shell of Header Box (north | * | | |
| * | 988 Top West Shell of Header Box (north en | * | | |
| | 989 3" Inlet Nozzle | * | | |
| | 990 3" Outlet Nozzle | * | | |

CONDITION INDICATOR

| Tab | Item Description | Last Inspection Date | Nominal Thickness mm | Thinnest Reading mm | Critical Thickness mm | Corrosion Rate mm/yr | Condition Indicator Years |
|-----------------------------|---|----------------------|----------------------|---------------------|-----------------------|----------------------|---------------------------|
| <u>Inlet Area</u> | | | | | | | |
| 1 | <u>Inlet Header Piping</u> | | | | | | |
| | (c) <u>Pig Receiver</u> | | | | | | |
| | 120 Top North Shell | Oct 2008 | 12.70 | 12.22 | 11.10 | 0.01 | 75.9 |
| 2 | <u>V-100 Inlet Separator</u> | | | | | | |
| | (a) <u>V-100 Vessel</u> | | | | | | |
| | 225 Bottom South Head | Oct 2008 | 12.70 | 12.27 | 11.10 | 0.01 | 88.7 |
| | (b) <u>Inlet Piping</u> | | | | | | |
| | 230 8" Inlet Elbow | Oct 2008 | 8.18 | 7.75 | 6.58 | 0.01 | 88.7 |
| 3 | <u>V-101 Pigging Separator</u> | | | | | | |
| | (a) <u>V-101 Vessel</u> | | | | | | |
| | 300 Top East Head | Oct 2008 | 9.52 | 9.17 | 8.03 | 0.02 | 60.3 |
| | 330 Bottom West Head | Oct 2008 | 9.52 | 8.99 | 8.03 | 0.03 | 33.9 |
| | (b) <u>Piping</u> | | | | | | |
| | 340 8" Nozzle | Oct 2008 | 12.70 | 12.37 | 11.10 | 0.02 | 72.2 |
| | 385 6" Nozzle | Oct 2008 | 21.95 | 21.41 | 20.35 | 0.03 | 37.5 |
| <u>Dehy Building</u> | | | | | | | |
| 4 | <u>C-150 Glycol Absorber Tower</u> | | | | | | |
| | (c) <u>Outlet Piping</u> | | | | | | |
| | 450 4" Outlet Elbow | Oct 2008 | 6.02 | 5.51 | 4.42 | 0.02 | 55.4 |
| 6 | <u>Glycol Filter</u> | | | | | | |
| | (a) <u>Vessel</u> | | | | | | |
| | 600 Top West Head | Oct 2008 | 4.78 | 4.17 | 3.17 | 0.02 | 41.9 |

CONDITION INDICATOR

| Tab | Item | Description | Last Inspection Date | Nominal Thickness mm | Thinnest Reading mm | Critical Thickness mm | Corrosion Rate mm/yr | Condition Indicator | Years |
|-----------------------------------|---|------------------|----------------------|----------------------|---------------------|-----------------------|----------------------|---------------------|-------|
| <u>Compressor Building</u> | | | | | | | | | |
| 8 | Unit #1 Compressor (north) | | | | | | | | |
| | (a) <u>V-101 1st. Stage Suction Scrubber</u> | | | | | | | | |
| | 801 | Top North Shell | Oct 2008 | 9.52 | 8.92 | 7.92 | 0.02 | 52.2 | |
| | (b) <u>1st. Stage Suction Scrubber Inlet Piping</u> | | | | | | | | |
| | 805 | 8" Inlet Nozzle | Oct 2008 | 22.22 | 21.54 | 20.62 | 0.02 | 42.8 | |
| | (c) <u>1st. Stage Suction Scrubber Outlet Piping</u> | | | | | | | | |
| | 806 | 8" Outlet Nozzle | Oct 2008 | 22.22 | 21.26 | 20.62 | 0.03 | 21.2 | |
| | (e) <u>1st. Stage Suction Bottle Inlet Piping</u> | | | | | | | | |
| | 815 | 8" Inlet Elbow | Oct 2008 | 12.70 | 11.99 | 11.10 | 0.02 | 40.1 | |
| | (f) <u>1st. Stage Suction Bottle Outlet Piping</u> | | | | | | | | |
| | 818 | 6" Outlet Nozzle | Oct 2008 | 21.95 | 21.54 | 20.35 | 0.01 | 94.8 | |
| | (g) <u>VBK-301 1st. Stage Discharge Bottle (south stage)</u> | | | | | | | | |
| | 824 | Top West Head | Oct 2008 | 9.52 | 7.54 | 7.92 | 0.06 | -6.2 | |
| | 828 | 2" PSV Nozzle | Oct 2008 | 11.07 | 10.64 | 9.47 | 0.01 | 86.9 | |
| | 829 | 2" PSV Elbow | Oct 2008 | 11.07 | 10.36 | 9.47 | 0.02 | 40.1 | |
| | (h) <u>1st. Stage Discharge Bottle Inlet piping</u> | | | | | | | | |
| | 826 | 6" Inlet Nozzle | Oct 2008 | 21.95 | 21.39 | 20.35 | 0.02 | 60.1 | |
| | (j) <u>VBK-303 1st. Stage Suction Bottle (north stage)</u> | | | | | | | | |
| | 834 | Bottom West Head | Oct 2008 | 9.52 | 9.07 | 7.92 | 0.01 | 80.7 | |
| | (m) <u>VBK-302 1st. Stage Discharge Bottle (north stage)</u> | | | | | | | | |
| | 840 | Bottom West Head | Oct 2008 | 9.52 | 9.07 | 7.92 | 0.01 | 80.7 | |
| | 844 | Top East Head | Oct 2008 | 9.52 | 8.31 | 7.92 | 0.04 | 10.1 | |
| | (o) <u>1st. Stage Discharge Bottle Outlet Piping</u> | | | | | | | | |
| | 847 | 6" Outlet Elbow | Oct 2008 | 7.11 | 6.60 | 5.51 | 0.02 | 69.4 | |
| | (q) <u>E-301 1st. Stage Discharge Cooler (bottom)</u> | | | | | | | | |
| | 867 | 6" Inlet Nozzle | Oct 2008 | 11.07 | 10.87 | 9.47 | 0.04 | 39.6 | |
| | 868 | 6" Outlet Nozzle | Oct 2008 | 10.97 | 10.74 | 9.37 | 0.04 | 34.5 | |

CONDITION INDICATOR

| Tab | Item | Description | Last Inspection Date | Nominal Thickness mm | Thinnest Reading mm | Critical Thickness mm | Corrosion Rate mm/yr | Condition Indicator Years |
|-----|------|-------------|----------------------|----------------------|---------------------|-----------------------|----------------------|---------------------------|
|-----|------|-------------|----------------------|----------------------|---------------------|-----------------------|----------------------|---------------------------|

9 Unit #2 Compressor (south)

(a) V-103 2nd. Stage Suction Scrubber

| | | | | | | | | |
|-----|------------------|--|----------|-------|-------|-------|------|------|
| 901 | Top North Shell | | Oct 2008 | 12.70 | 12.27 | 11.10 | 0.02 | 69.7 |
| 907 | 8" Outlet Nozzle | | Oct 2008 | 12.70 | 12.01 | 11.10 | 0.03 | 34.4 |

(e) VBK-311 2nd. Stage Discharge Bottle

| | | | | | | | | |
|-----|-----------------|--|----------|-------|-------|------|------|------|
| 922 | 6" Inlet Nozzle | | Oct 2008 | 10.97 | 10.59 | 9.37 | 0.01 | 82.5 |
|-----|-----------------|--|----------|-------|-------|------|------|------|

(f) V-104 3rd. Stage Suction Scrubber

| | | | | | | | | |
|-----|-----------------------------------|--|----------|-------|-------|-------|------|------|
| 926 | Middle South Shell (across inlet) | | Oct 2008 | 12.70 | 12.22 | 11.10 | 0.02 | 59.7 |
|-----|-----------------------------------|--|----------|-------|-------|-------|------|------|

(g) 3rd. Stage Suction Scrubber Inlet Piping

| | | | | | | | | |
|-----|-----------------|--|----------|-------|-------|------|------|------|
| 929 | 6" Inlet Elbow | | Oct 2008 | 10.97 | 9.91 | 9.37 | 0.04 | 12.9 |
| 930 | 6" Inlet Nozzle | | Oct 2008 | 10.97 | 10.08 | 9.37 | 0.03 | 20.6 |

(h) VBK-312 3rd. Stage Suction Bottle

| | | | | | | | | |
|-----|-------------------|--|----------|-------|-------|-------|------|------|
| 933 | Top Middle Shell | | Oct 2008 | 12.70 | 12.19 | 11.10 | 0.02 | 55.4 |
| 934 | Bottom East Shell | | Oct 2008 | 12.70 | 12.29 | 11.10 | 0.02 | 75.7 |
| 935 | Bottom West Shell | | Oct 2008 | 12.70 | 12.32 | 11.10 | 0.01 | 82.5 |
| 937 | 6" Inlet Nozzle | | Oct 2008 | 10.97 | 10.59 | 9.37 | 0.01 | 82.5 |

(l) 4th. Stage Suction Scrubber Inlet Piping

| | | | | | | | | |
|-----|-----------------|--|----------|------|------|------|------|------|
| 952 | 4" Inlet Nozzle | | Oct 2008 | 8.56 | 7.87 | 6.96 | 0.03 | 34.4 |
|-----|-----------------|--|----------|------|------|------|------|------|

(m) 4th. Stage Suction Scrubber Outlet Piping

| | | | | | | | | |
|-----|------------------|--|----------|------|------|------|------|------|
| 953 | 4" Outlet Nozzle | | Oct 2008 | 8.18 | 7.82 | 6.58 | 0.01 | 90.2 |
|-----|------------------|--|----------|------|------|------|------|------|

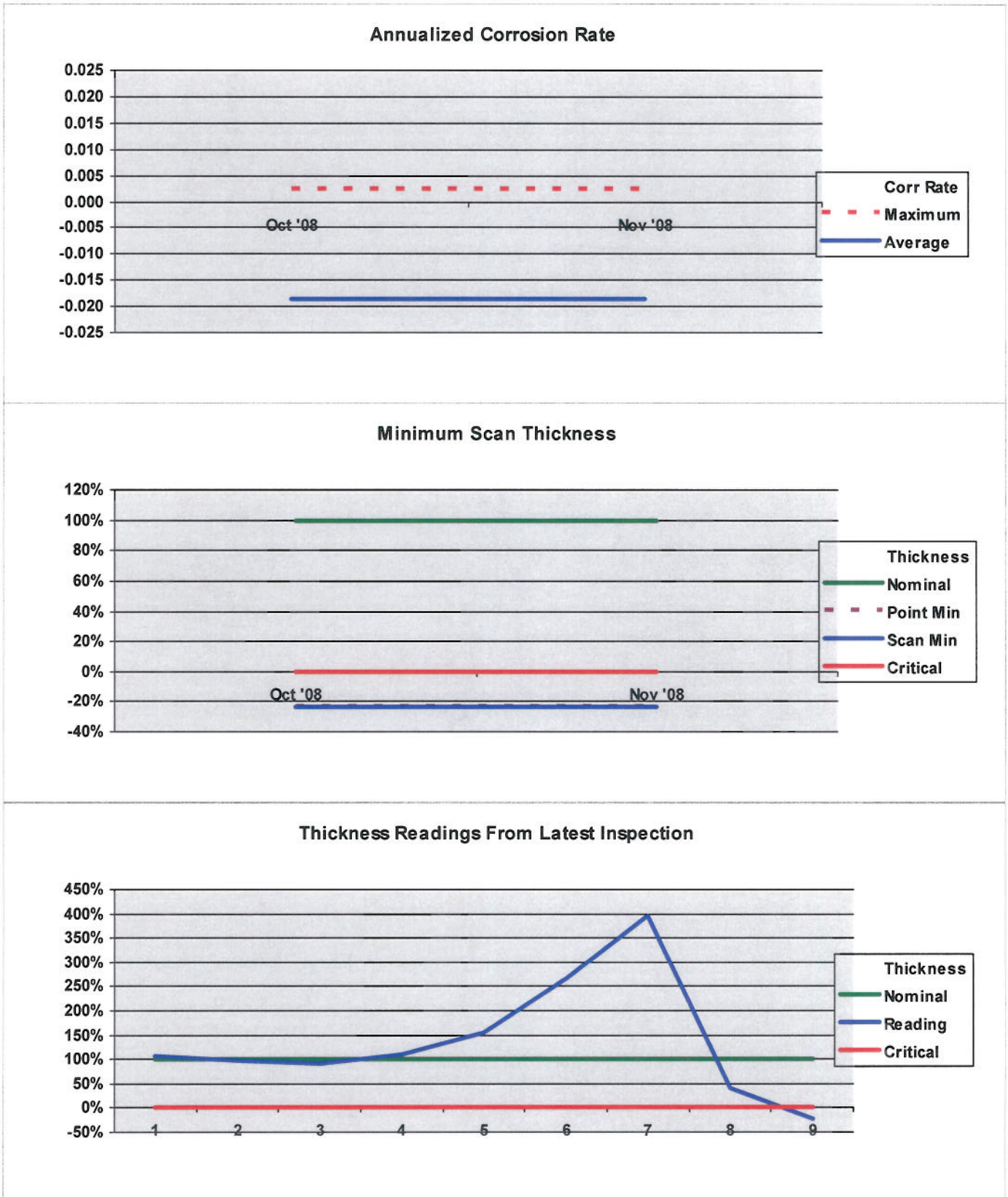
(q) F-210 Fuel Gas Filter

| | | | | | | | | |
|-----|--------------------|--|----------|-------|-------|------|------|------|
| 972 | Bottom South Shell | | Oct 2008 | 10.97 | 10.62 | 9.37 | 0.01 | 93.7 |
|-----|--------------------|--|----------|-------|-------|------|------|------|

(r) F-310 2nd. Stage Discharge Cooler

| | | | | | | | | |
|-----|------------------|--|----------|-------|-------|------|------|------|
| 977 | 6" Inlet Nozzle | | Oct 2008 | 10.97 | 10.44 | 9.37 | 0.02 | 51.5 |
| 978 | 6" Outlet Nozzle | | Oct 2008 | 10.97 | 10.44 | 9.37 | 0.02 | 51.5 |

Tab 8, Unit #1 Compressor (north)
Component (g) 1st. Stage Discharge Bottle (south stage)
Item 824, Top West Head, -6.2 years to critical thickness.



COMMENT LIST

| Tab Equipment | Date Inspected | Comments | Condition indicator |
|---|-----------------|---|---------------------|
| <p><u>Inlet Area</u></p> <p>1 Inlet Header Piping</p> <p>(d) <u>Piping</u> 155 6" Elbow</p> | <p>Nov 2003</p> | <p>A dent was found at the bottom of the elbow on the outside radius. The dent measures approximately 1.5" x 1" and is estimated at .060" deep.</p> | |

- 2 V-100 Inlet Separator**
- (a) V-100 Vessel

Nov 2003 The paint is deteriorated and is failing across much of the vessel. Rust and minor external corrosion is occurring in the areas where the paint has failed. The external corrosion is estimated at .005" deep.