Alyeska pipeline SERVICE COMPANY

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07-18-08A11:25 RCVD

July 14, 2008

Government Letter No.: 16507
APSC File No. 2.11

Mr. Chris Hoidal, Western Region Director
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
12300 West Dakota Avenue, Suite 110
Lakewood, CO 80228

SENT TO COMPLIANCE REGISTRY
Hardcopy__ Electronically✓
# of Copies 1 / Date 7-18-08

Re: Notice of Probable Violation CPF No. 5-2008-5014

Dear Mr. Hoidal:

Attached please find Alyeska Pipeline Service Company's detailed response to the Pipeline and Hazardous Materials Safety Administration's Notice of Probable Violation CPF No. 5-2008-5014, dated June 9, 2008. Alyeska believes that this response will provide adequate clarification and additional information on the findings issued by PHMSA.

We hope you will find this material helpful. Should you have further questions, please do not hesitate to contact me at (907) 787-8061.

Sincerely,

J. McCormick for

Joseph P. Robertson, P.E.
JPO/ DOT Liaison Director

JR/leb

Attachment: Alyeska Pipeline Service Company's Response to NOPV CPF 5-2008-5014

cc: Jerry L. Brossia
Dennis Hinnah
Mike Thompson
JPO Records Center

CERTIFIED MAIL 7004 0550 0001 0216 9914

PROBABLE VIOLATION 1:
Operation and Maintenance

PHMSA POSITION

Pertinent Regulation:

49 CFR §195.401 General Requirements.

> (b) Whenever an operator discovers any condition that could adversely affect the safe operation of its pipeline system, it shall correct it within a reasonable time. However, if the condition is of such a nature that it presents an immediate hazard to persons or property, the operator may not operate the affected part of the system until it has corrected the unsafe condition. (1) Conduct tests on the protected pipeline at least once each calendar year, but with intervals not exceeding 15 months. However, if tests at those intervals are impractical for separately protected short sections of bare or ineffectively coated pipelines, testing may be done at least once every 3 calendar years, but with intervals not exceeding 39 months.

PHMSA Findings:

In October 2006, severe flooding affected the TAPS right-of-way at numerous stream crossings along the southernmost 80 miles of pipeline. As part of our October 2007 inspection, we reviewed Alyeska's Civil Monitoring and ROW Maintenance Audit (#07-07), dated October 8, 2007. Alyeska's audit included information pertaining to flooding at stream crossings. Our review indicates that Alyeska did not address potentially adverse conditions caused by this flooding within a reasonable time.

Alyeska's internal audit identified an Authorization for Expenditure (AFE D400-40X) approved on February 1, 2007, that had not been completed per its original scope. The scope of the AFE stated,

> "5 below ground pipeline scours locations will be investigated and the pipeline will be repaired as required. One location PLMP 761.7, determined to be the location of the most severe scour, was investigated in 2006. It was found that during the flood, the pipeline was washed clear of overburden and minor damage was found to have occurred to the tape coating. Investigation determined that repairs were not immediately required and were scheduled for 2007 due to pumping safety conditions."

Alyeska's audit also reported that near MP 761.7,

> "The preliminary investigation work completed in November 2006 excavated two separate areas of approximately 8 feet each in length for

> performing the visual inspections (total scour affected area of stream was approximately 80 feet)."

Our inspection revealed that the five identified scour locations were never investigated in 2007. The sixth at MP 761.7 was only partially investigated in 2006. Our inspections were unable to find sufficient justification for cancellation of the planned 2007 investigations at the six sites. Alyeska's internal audit similarly found insufficient justification for cancellation of the planned 2007 investigation at the six sites.

In an April 25, 2008 letter to the Joint Pipeline Office (JPO) entitled Cancellation of Investigations at Six Identified 2006 Flood Locations, Alyeska stated,

> "As a result of a significant flood event in October 2006, Alyeska Pipeline Service Company (APSC) identified six locations (MP 745.26, MP 745.67, MP 748.05, MP 752.18, MP 761.74 (near 761.7), and MP 766.78) for investigation of the mainline pipe for possible flood related damage."

However, based on the information (mostly MFL pig results) obtained subsequent to the two exploratory excavations, Alyeska cancelled the pipeline excavations for the six identified sites.

PHMSA believes Alyeska did not adequately investigate and where needed, correct adverse conditions as the six scour sites in a reasonable time (initial investigation in 2006, deferred/cancelled in 2007, and rescheduled for 2008). Alyeska only excavated 16 feet of an estimated 80 feet of scour area at MP 761.73 (near MP 761.7) during 2006. Further, Alyeska did not repair pipe or coating damage, uncovered at MP 761.73.

Alyeska has indicated that it plans to re-excavate and repair coating/cathodic protection system drainage at MP 761.73 during the summer of 2008. Alyeska also recently committed to provide PHMSA and the JPO with justification for not investigating the other five scour areas including: how the depth of cover was determined, risk associated from another flood event, undisturbed depth of cover, and potential for rock and snow slides.

Evidence:
1. Photographs of damage pipe and coating.
2. Pipe investigation Report MP 761.73, North excavation.
3. Pipe investigation Report MP 761.73, South excavation.
4. OM-1, section 6 Pipeline Repairs, pages 6-1 and 6-2.
5. MR-48, Table 2.1 Permissible Permanent Repair Methods, page 2-10.
6. MR-48, section 2.6.1.5.2 Repair of Pipe Surface Damage, pages 2-16 and 2-17.
7. MR-48, section 9.8.7 Repair of Damage, pages 9-30 and 9-31.
8. Civil Monitoring and ROW Maintenance Audit #07-07, Pages 1-3 and 14.
9. Cancellation of 2006 Flood Digs, pages 1 and 2.
10. MR-48 Section 9.2 Bedding and Padding Material pages 32-39.

11. MR-48 Section 18 Pipe Coating Repairs, Pages 18-1 through 18-5.
12. Alyeska's response to JPO's letter regarding Cancellation of Investigations at Six Identified 2006 Flood Locations.
13. Alyeska's "Milepost 761.7 Excavation Risk Assessment Summary".

Warning Items:
With respect to Item 1, we have reviewed the circumstances and supporting documents involved in this case and have decided not to conduct additional enforcement action or penalty assessment proceedings at this time. We advise you to promptly correct this item. Be advised that failure to do so may result in Alyeska Pipeline Service Company being subjected to additional enforcement action.

ALYESKA PIPELINE SERVICE COMPANY'S RESPONSE

Summary:
Alyeska Pipeline Service Company (Alyeska) does not contest this finding.

Discussion:
Alyeska met with PHMSA staff in Denver on April 30, 2008. This issue was discussed and it was communicated to PHMSA at that time that Alyeska would be re-excavating and repairing the coating/cathodic protection system drainage at MP 761.73. The project work is scheduled to begin by September 1, 2008 and to be complete no later than the end of 2008.

PROBABLE VIOLATION 2:
Corrosion Control

PHMSA POSITION

Pertinent Regulation:

49 CFR §195.571 What criteria must I use to determine the adequacy of cathodic protection?

Cathodic protection required by this subpart must comply with one or more of the applicable criteria and other considerations for cathodic protection contained in paragraphs 6.2 and 6.3 of NACE Standard RP 0169 (incorporated by reference, see §195.3).

PHMSA Findings:
Five areas (MP 567.66, 574.16, 574.33, 578.95, and 579.18) of the pipeline were found to have inadequate Cathodic Protection (CP). These areas of low CP readings were confirmed by Over-the-Line Surveys conducted each year from 2003 to 2007. These five areas of the pipeline did not meet criteria set forth in section 195.571.

Evidence:
1. Alyeska's CIS data for 2003, 1 sheet.
2. Alyeska's CIS data for 2004, 2 sheets.
3. Alyeska's CIS data for 2006, 4 sheets.
4. Alyeska's CIS data for 2007, 4 sheets.
5. PHMSA spread sheet of low areas, 1 sheet.

Proposed Civil Penalty:
Under 49 United States Code §60122, you are subject to an administrative civil penalty not to exceed $100,000 for each violation for each day the violation persists up to a maximum of $1,000,000 for any related series of violations. The Compliance Officer has reviewed the circumstances and supporting documentation involved in the above probable violation(s) (Item Number 2) and has recommended that Alyeska be preliminarily assessed a civil penalty in the amount of $56,000.00.

Proposed Compliance Order:
In regard to Item Number 2 of the Notice pertaining to Low CP at MP 567.66, MP 574.16, MP 574.33, MP 578.95 and MP 579.18:

Within twelve (12) months of receipt of the Final Order, Alyeska shall take appropriate action to bring the cathodic protection levels at the above-listed locations into compliance with one or more of the applicable criteria and other considerations for cathodic protection contained in Paragraphs 6.2 and 6.3 of NACE Standard RP01169-96 (sic) (incorporated by reference, see §195.3) as required by §195.571. Alyeska shall conduct

CIS at the above-listed locations and provide the results of such CIS by September 30, 2009.

ALYESKA PIPELINE SERVICE COMPANY'S RESPONSE

Summary:
Alyeska Pipeline Service Company (Alyeska) does not dispute PHMSA's findings that there were low cathodic protection (CP) readings in the cited locations. However, Alyeska requests that the proposed compliance order be withdrawn, and the proposed civil penalty be reassessed based on mitigating circumstances.

Discussion:
Alyeska has conducted tests utilizing CP monitoring coupons and Close Interval Survey (CIS) in accordance with Monitoring Procedure MP 166-3.22, *Pipeline Cathodic Protection*. These procedures utilize NACE SP 0169-2002, Section 6.2 and 6.3 criteria for determining the adequacy of CP. CIS results for the areas cited are shown in Table 1.

Table 1, CP Test Results for Areas Cited

CPF 5-2008-5014 Finding 2, Affected Areas			CP Test Results by Year					Mitigation Plan[2]		
Area	Milepost	Feature	2003	2004	2005	2006	2007	Year	Proj	Description
1	567.66	CIS Low point cited	pass	low	low	low	low	2009	F614	800 LF AnodeFlex 1500
2	574.16	CIS Low point cited	low	low	low	pass	pass	2009	F614	2,900 LF AnodeFlex 1500
3	574.33	CIS Low point	pass	pass	pass	low	pass	2009	F614	Included with above[3]
4	578.95	CIS Low point cited	low	low	low	low	low	2009	F614	3,250 LF AnodeFlex 1500
5	579.18	CIS Low point cited	pass	pass	pass	low	low	2009	F614	Included with above[3]

Notes: Yellow highlights low reading
1 Distance in feet, between nearest CP Coupon to location cited
2 Mitigation plan to upgrade cathodic protection, year planned, Alyeska project number, and description
3 Continuous anode provided to address multiple locations cited

The results show that two of five areas pass the required criteria in the most recent years' readings.

Additionally, Alyeska has developed a broad mitigation plan for known low CP areas. Alyeska discussed this plan with PHMSA at a meeting in Denver on May 1, 2008. Alyeska plans additional mitigative action shown on Table 1 for the areas that have not passed the required criteria in the past years.

A summary of CIS results, historic actions and planned mitigation for each area follows;

1. MP 567.66 (Area 1) is currently low based on CIS results. Alyeska has repeatedly tried to improve CP at this location by adjusting nearby rectifiers. The most recent 2007 annual report (see Exhibit 1) notes that the MP 567 area was surveyed with rectifiers at Pump Station 9 turned OFF due to construction activities. Project F614, planned for implementation in 2009, will install continuous linear anodes powered by a new wind/solar generator.

2. MP 574.16 (Area 2) and MP 574.33 (Area 3) currently show passing CIS at the location cited. The 2007 annual report (see Exhibit 1) notes that the Black Rapids (MP 578) rectifier was adjusted in December, 2006 in order to improve CP results. Project F614, planned for implementation in 2009, will install continuous linear anodes powered by a new wind/solar generator.

3. MP 578.95 (Area 4) and MP 579.18 (Area 5) show low CIS at the locations cited. The 2007 annual report (see Exhibit 1) notes that the Black Rapids (MP 578) rectifier was adjusted in December, 2006 in order to improve CP results. Project F614, planned for implementation in 2009, will install continuous linear anodes powered by a new wind/solar generator.

With regard to Finding 2, Alyeska respectfully requests that the proposed civil penalty be reassessed because two of the five cited MP locations have passed the NACE SP 0169-02 criteria in the most recent years.

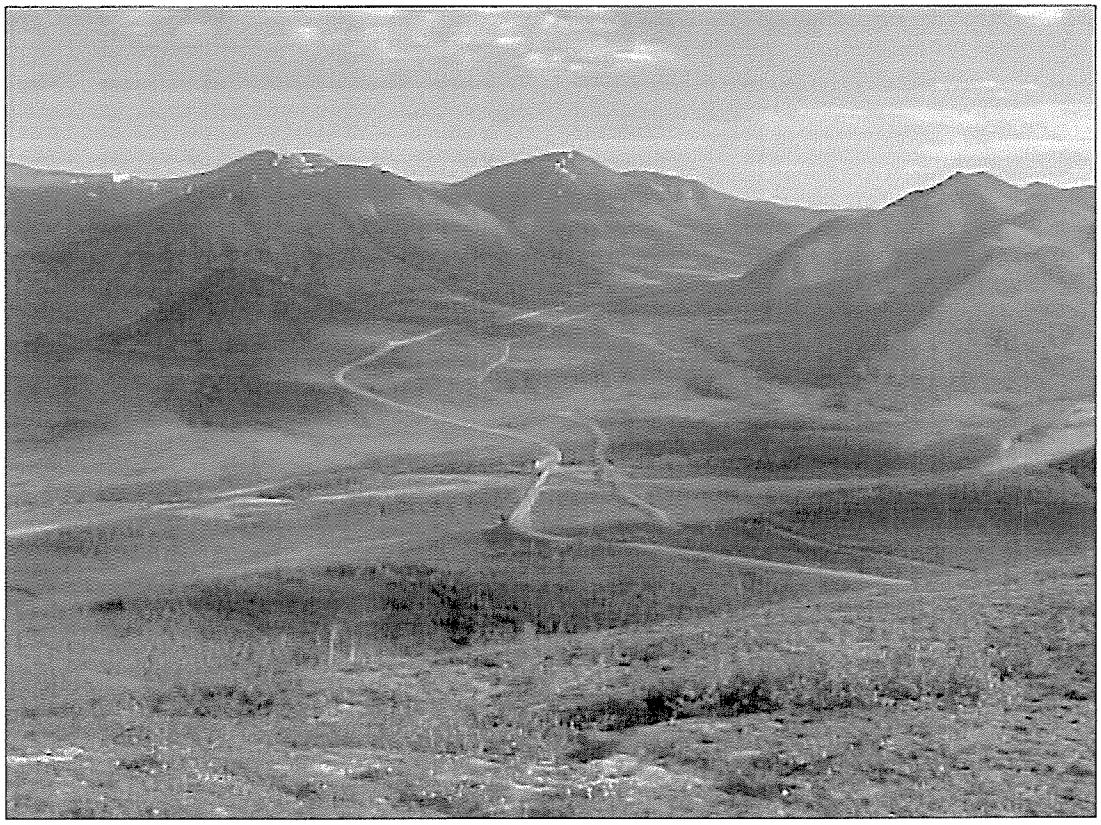
Additionally, Alyeska requests that the proposed compliance order be withdrawn as Alyeska has an action plan to add continuous anodes powered by a remote wind/solar generator in 2009 at the locations noted. The proposed compliance order sets dates for providing the results that does not consider the project season, dictated by weather and geography. These factors do not allow for the work to be done and testing complete within the stated time of September 30, 2009. Confirmation of CP improvements would not be complete until the following year, September 2010.

SUPPORTING DOCUMENTATION

Exhibit 1-- 2007 Annual Report, Mainline Integrity Monitoring, Section 4.2

Trans Alaska Pipeline System (TAPS)
2007 Annual Report

Mainline Integrity Monitoring



Prepared by: **Dave Hackney, In-line Inspection Coordinator**
Bhaskar Neogi, Program Engineer
Steve Lacatena, Cathodic Protection Support Engineer

4.2 Cathodic Protection Monitoring and Maintenance

4.2.1 Maintenance and Repair Work Completed in 2007

The 2007 CP monitoring included:

- Completed 120 miles of CP CIS from PLMP 0 to 278 including a CP CIS depolarization survey on areas not meeting the NACE RP 0169-2002.
- Completed CP monitoring of approximately 775 linewide coupon test stations.
- Completed CP monitoring of 98 Atigun Pass Reroute Type 4 and 5 test stations.
- Completed CP CIS with a CIS depolarization survey of low CP areas linewide.
- Completed soil resistivity and current requirement tests of all low CP areas linewide for CP upgrades planned for 2008 and 2009.
- Completed special testing in the Atigun Reroute to investigate unusually high instant-off potentials.
- Completed CP monitoring on road casings from PLMP 18.69 to 775.99.
- Completed CP monitoring of propane tanks at remote gate valve (RGV) sites RGV 26 through 49.
- Obtained potential readings on test stations from PLMP 0 through 278.
- Visually inspected approximately 1,018 linewide test stations and completed incidental repairs as needed.
- Completed bond and foreign structure CP monitoring at the Haines Pipeline bond, North Pole Refinery tie-in, and the PetroStar Refinery tie-in.
- Performed bimonthly inspection and monitoring of rectifiers and bonds for the mainline ICCP systems.
- Repaired AnodeFlex splices, header cable connections, and anode shunt boxes at MP 15.01 and MP 15.2 that had incurred frost-jacking related damage. Work was performed and completed under the F535 project.
- Added a new galvanic anode cathodic protection system to enhance protection of the RGV-69A buried propane tanks. Work was performed and completed under the F535 project.
- Upgraded the RGV-116 rectifier (20-EEQ-116-1) with remote monitoring capabilities to provide full time monitoring and deactivation notification of rectifier operation to enhance bimonthly monitoring when the unit is otherwise inaccessible due to winter

avalanche hazards. Work was performed and completed under the F535 project.

- Upgraded the Sheep Creek CP AnodeFlex ground bed system (PLMP 778) with five additional shallow well ground beds (~60' deep) to enhance mainline protection during winter months and bolster Keystone Canyon area CP potentials. Work was performed and completed under the F535 project.
- Upgraded the Brown's Creek CP system (MP 784) with the addition of AnodeFlex 3000 to enhance ground bed performance. Work was performed and completed under the F535 project.

4.2.2 Results Observed

During the 2007 monitoring year the following results were observed:

- MP 12 – 16: This region has historically contained several low areas. However, with repairs of the ICCP systems at MP 12 and 15 in progress, Alyeska elected to survey these sections with the local ICCP ground beds temporarily energized to document expected performance of the systems after completion of the repairs. All previous low areas in this section passed.
- MP 16 – 32: This region encompasses 11 low areas totaling 2,307 feet and a low CP coupon. The impressed current system at MP 18 is not having significant effect in this area. The southern boundary of this region is where the MP 47 IC system begins to have a significant impact on cathodic protection levels. CP in this area could be increased with improvements to the IC system at MP 18 and additional CP as necessary.
- MP 60 – 77: This region includes four low areas totaling 535 feet. There are two IC systems in this area; PS 02 and MP 69. The low area at MP 63.96 is a new low area and is in the vicinity of a series of thermosiphons at the site. Additional testing was performed to determine if the pipe is shorted to these structures. No short was located. This low area is located on the northern Sagavanirktok Island, while the low area at MP 76.72 is located on the southern Sagavanirktok Island.
- MP 286 – 287: This region contains three low areas totaling 988 feet located near the Bonanza Creek IC system. Alyeska increased the output settings in spring, 2007, resulting in a decrease in the size of the previous low areas in 2006 (1,337 feet). Further improvements to the Bonanza Creek system will likely have a positive effect on CP levels in these areas.
- MP 438 – 478: This region is near Fairbanks and is affected by several overlapping deep well IC systems. The area encompasses 11 low areas totaling 2,525 feet and four low CP coupons.

  - MP 448 – 450 is near the Fox IC system (MP 448.73).
  - MP 462 is near CV73B and about a mile from the Nordale IC system.
  - MP 468 is less than a mile from the North Pole Metering IC system.
  - MP 477 – 478 is on Eielson AFB between Transmitter Road and Quarry Road.

- MP 567: This region includes two low areas totaling 631 feet and a low CP coupon. This area was surveyed with PS9 ICCP turned OFF due to construction at the pump station. The closest impressed current system is approximately 10 miles away at Black Rapids.
- MP 573 – 579: This region contains seven low areas totaling 2,339 feet. It also includes a casing that failed based on the MP-166 criteria (MP 579.48) and another casing that passes NACE criteria (MP 573.81). This region is most heavily influenced by the Black Rapids IC system. Alyeska increased the output settings earlier this spring, resulting in a decrease in the size of the previous low areas in 2006 (2,869 feet).
- MP 749 – 774: This region includes 14 low areas totaling 1,613 feet. It also includes two casings that failed based on the MP-166 criteria (MP 758.83 and MP 765.24). This region is most heavily influenced by the Tsaina IC system.
- Northern region propane tanks: A total of 12 out of 49 propane tanks in the northern region did not pass the -850mV I-off and 100mV depolarization criteria for a pass rate of 75.5%.
- CP coupons: A total of 10 out of 775 CP coupons failed the -850mV I-off and 100mV depolarization criteria for a pass rate of 98.7%.
- Cased road crossings: a total of 4 out of 32 casings failed MP-166 criteria (MP 246.18, 579.48, 758.83, and 765.24) for a pass rate of 87.5%.
- ICCP Systems: 28 IC systems were tested in an effort to find sources of high resistance. The high resistance components varied from system to system. These components fell into two basic categories: ground bed and metallic path resistances. In order to pinpoint the exact location and cause of each high resistance component, various levels of further testing is required before repair attempts are made.
- All damaged cathodic protection test station facilities were repaired.
- Of the 126 miles of CIS survey performed, 12,426 feet had low CP for a pass rate of 98.1%.

4.2.3 Recommended Future Actions

- MP 16 – 18: Install additional AnodeFlex powered by a wind/solar generator at existing ICCP systems at PLMP 15 or 18. These improvements will bring the CP levels up in this area.
- MP 19-25: Install magnesium galvanic anodes at specific locations. These improvements will bring the CP levels up in this area.
- MP 27-32: Install AnodeFlex powered by a wind/solar generator. These improvements will bring the CP levels up in this area.
- MP 60-64: Improve the ICCP ground bed at PLMP 67. With success, these improvements will bring the CP levels up in this area.
- MP 76.72: Install magnesium galvanic anodes or attempt to improve the existing ICCP at Happy Valley (PLMP 76). These improvements will bring the CP levels up in this area.
- MP 192: Install magnesium galvanic anodes. These improvements will bring the CP levels up in this area.
- MP 283 – 287: Install AnodeFlex powered by the existing ICCP system at PLMP 286. These improvements will bring the CP levels up in this area
- MP 448 – 449: Install AnodeFlex powered by the existing ICCP system at PLMP 449. These improvements will bring the CP levels up in this area
- MP 462: Install magnesium galvanic anodes. These improvements will bring the CP levels up in this area.
- MP 477: Install AnodeFlex powered by a new wind/solar generator. These improvements will bring the CP levels up in this area.
- MP 567: Install AnodeFlex powered by a new wind/solar generator. These improvements will bring the CP levels up in this area.
- MP 574: Install AnodeFlex powered by a new wind/solar generator. These improvements will bring the CP levels up in this area.
- MP 574.5: Install magnesium galvanic anodes. These improvements will bring the CP levels up in this area.
- MP 578 – 579: Install AnodeFlex powered by a new wind/solar generator. These improvements will bring the CP levels up in this area.
- MP 800: Install AnodeFlex powered by the existing rectifier at this location (BL 972). These improvements will bring the CP levels up in this area.
- MP 749 – 790: Project F535 upgraded ground beds at Sheep Creek and Brown Creek ICCP systems in 2007. Project F564 will install approximately 40,000 feet of AnodeFlex in 2008. These improvements to the ICCP systems in this region are likely to influence this entire area once F564 is completed in 2008. Further

PROBABLE VIOLATION 3:
Internal Inspection Intervals

PHMSA POSITION

Pertinent Regulation:

49 CFR §195.402 Procedural manual for operations, maintenance, and emergencies

> (a) General. Each operator shall prepare and follow for each pipeline system a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. This manual shall be reviewed at intervals not exceeding 15 months, but at least once each calendar year, and appropriate changes made as necessary to insure that the manual is effective. This manual shall be prepared before initial operations of a pipeline system commence, and appropriate parts shall be kept at locations where operations and maintenance activities are conducted.

PHMSA Findings:

Alyeska's manual of written operations and maintenance procedures at MP-166-3.03, "Facility Corrosion Integrity Monitoring" and MP-166-3.03-01, "Facility Corrosion Integrity Monitoring Engineering and Implementation," states that re-inspection intervals are based on the intervals set forth in API 570 "Piping Inspection Code." The "corrosion rate" referenced in API 570 is derived from measuring the difference between actual readings of wall thicknesses over time. Alyeska presented documentation that indicated that the following check valve by-passes were not or will not be inspected at the intervals prescribed by API 570, as required by Alyeska's own manual of written operations and maintenance procedures:

> CV84 AB- Was last inspected by Alyeska in 2006. API 570 calculated re-inspection interval is 2 years, based on a 30 mil/yr. corrosion rate. Alyeska has scheduled the next re-inspection for 2010.
>
> CV90 D - Was last inspected by Alyeska in 2006. API 570 calculated re-inspection interval is 3 years, based on a 15 mil/yr. corrosion rate. Alyeska has scheduled the next re-inspection for 2016.
>
> CV95 AB - Was last inspected by Alyeska in 2001. API 570 calculated re-inspection interval is 4 years, based on a 13 mil/yr. corrosion rate. Alyeska has scheduled the next re-inspection for 2014.

Alyeska is not following their manual of written procedures for conducting normal operations and maintenance activities. Specifically, Alyeska is not following the written

procedures in MP-166-3.03 or MP-166-3.03.01 for determining re-inspection intervals on valve bypass lines.

Evidence:
1. MP166-3.03, "Facility Corrosion Integrity Monitoring", pages 1 through 9.
2. API 570, "Piping Inspection Code" pages 6-1, 6-2, 6-3, 7-1, 7-3.
3. ASME B31.3, Table A-1, page 140.
4. Alyeska's spread sheet for valve bypass inspections.
5. PHMSA analysis of Alyeska's Re-inspection Interval based API 570.

Proposed Compliance Order:
In regard to Item Number 3 of the Notice pertaining to the re-inspection intervals for internal corrosion based on API 570/MP-166-3.03, "Facility Corrosion Integrity Monitoring:"

Alyeska shall properly re-determine the re-inspection intervals for check-valve bypasses listed in the Notice in accord with Alyeska's written procedures and specifications (API 570) and submit to PHMSA a revised inspection plan which will ensure that Alyeska re-inspects internal corrosion in check valve bypasses in a timely manner.

ALYESKA PIPELINE SERVICE COMPANY'S RESPONSE

Summary:
Alyeska Pipeline Service Company (Alyeska) respectfully disagrees with PHMSA's finding that Alyeska does not follow its procedures in MP-166-3.03 and MP-166-3.03-01 to determine re-inspection intervals on valve bypass piping. Alyeska requests that PHMSA withdraw this finding and the proposed compliance order.

Discussion:
Alyeska conducts assessments of re-inspection intervals using Alyeska procedures MP-166-3.03, *Facility Corrosion Integrity Monitoring*, and MP-166-3.03-01, *Facility Corrosion Integrity Monitoring Engineering and Implementation*. Alyeska determines corrosion rates based upon concepts outlined in API 570 Section 7.1.1. However, re-inspection interval calculations on B31.4 design class piping are performed in accordance with: MP-166-3.03, Sections 5.1.6 and 5.2.2 (see Exhibit 2) and MP-166-3.03-01, Sections 5.3, 5.3.1 and 5.3.2 (see Exhibit 3). These procedures require pressure capacity calculations based on either RSTRENG or ASME B31G.

Alyeska re-inspection interval calculations are based on ASME B31G modified criterion (WIN RSTRENG) to determine remaining strength and half-life re-inspection interval, Safe Maximum Operating Pressure, and 80% wall loss.

In light of this Finding, Alyeska has reviewed the inspection data and calculated re-inspection dates for each of the locations in question. The results are summarized in Table 1, below.

Table 1: Check Valve Inspection Date Calculations and Supporting Data

CPF 5-2008-5014 Finding 3, Cited Locations						Re-inspection Date[2]	
CV	Location MP	Inspection Date	Deepest Pit, in	RSTREN Safe MOP, psi	Corrosion Rate[1], in/yr	RSTREN	80% WL
84	542.45	8/29/2006	0.213	2930.48	0.040	8/1/2008	2010
90	578.87	9/7/2006	0.157	3374.73	0.020	3/1/2012	2016
95	619.19	9/16/2001	0.159	3650.01	0.020	3/1/2008	2011

Notes;

1 Corrosion Rate based on API 570 Section 7.1.1, maximum of short and long term

2 Re-inspection Date based B31.4 requirements for Safe MOP and Wall Thickness

a) 1/2 Remaining Life based on RSTRENG

a) Remaining Life based 80% Wall Loss

3 Check valve bypass piping has following properties;

a)	Max Operating Pressure	1,440 psi
b)	Wall Thickness	0.432 in
c)	Outer Diameter	6.625 in
d)	Minimum Yield Strength	35,000 psi

Based on PHMSA's findings, it appears PHMSA performed an analysis of the bypass piping using incorrect corrosion rates and API 570 Section 7.1.1 as a basis. Alyeska's calculations are based on different corrosion rates and the combination of RSTRENG and ASME B31G as required by MP-166-3.03 and MP-166-3.03-01.

- CV84AB –PHMSA used a 30 mil/yr corrosion rate. Alyeska used a 40 mil/yr corrosion rate based upon data from multiple grid locations. Alyeska will re-inspect in 2008 based on RSTRENG. PHMSA's re-inspection date of 2010 appears based the 80% remaining wall loss date, not the re-inspection date. The re-inspection calculation is summarized in Exhibit 4.

- CV90 D –PHMSA used a 15 mil/yr corrosion rate. Alyeska used a 20 mil/yr corrosion rate based upon data from multiple grid locations. Alyeska will re-inspect in 2012 based on RSTRENG. PHMSA's re-inspection date of 2016 appears based on the 80% remaining wall loss date, not the re-inspection date. The re-inspection calculation is summarized in Exhibit 5.

- CV095AB – PHMSA used a 13 mil/yr corrosion rate. Alyeska used a 10 mil/yr corrosion rate in 2001, which resulted in a 2014 re-inspection date, as stated in the finding. Alyeska re-calculated the re-inspection interval as 2008 using a 20 mil/yr corrosion rate in accordance with MP-166-3.03. Therefore, Alyeska has scheduled the inspection for 2008. The re-inspection calculation is summarized in Exhibit 6.

Alyeska has evaluated the information provided by PHMSA and re-assessed the bypass piping data in accordance with MP-166-3.03 and MP-166-3.03-01. The re-assessed schedule is shown in Exhibit 7.

In April 2008, Alyeska substantially revised MP-166-3.03 *Facility Corrosion Integrity Monitoring* and MP-166-3.03-01 *Facility Corrosion Integrity Monitoring Engineering and Implementation.* At the time of the last inspection on CV095AB in 2001, MP-166-3.03-01 had not been written. MP-166-3.03-01 was developed in April 2007, to detail the methods in which Alyeska completes the assessment process of inspection data. Section 5.3, *Analyzing Data*, provides details of the process involved with analyzing inspection results, calculating corrosion rates, and determining re-inspection intervals. Alyeska continues to review and update these manuals in accordance with 49 CFR §195.402(a) and Alyeska procedures and schedules described in MP-166-1.01, *Development and Maintenance of Procedures.*

With regard to Finding 3, Alyeska respectfully requests that PHMSA withdraw the finding and the proposed compliance order because Alyeska has already reassessed the re-inspection intervals for this check valve bypass piping in accordance with Alyeska's procedures that calculate intervals based on RSTRENG and ASME B31G. Alyeska revised the interval for CV095AB and has included a revised inspection schedule with this response.

SUPPORTING DOCUMENTATION

Exhibit 2 - MP 166-3.03, *Facility Corrosion Integrity Monitoring,* Sections 5.1.6 and 5.2.2
Exhibit 3 - MP 166-3.03-01, *Facility Corrosion Integrity Monitoring Engineering and Implementation*, Sections 5.3, 5.3.1 and 5.3.2.
Exhibit 4 –WinRStreng print out for CV084AB2
Exhibit 5 – WinRStreng print out for CV090D2
Exhibit 6 – WinRStreng print out for CV095AB2
Exhibit 7 – Revised 2008 Internal Inspection Schedule

5.1.5 Special Inspection Locations

The Integrity Management Engineer shall provide inspection criteria in accordance with the amendment to the August 16, 1975 waiver (Docket No. Pet. 75-13W) from compliance of coating and cathodic protection requirements of 49 CFR 195.238(a)(5) and 195.242(a) for buried pump station and terminal insulated piping.

5.1.6 Corrosion Control Program Inspection Schedule

The PIT Program performs the annual facilities piping inspections incorporating a line-wide approach to completing the required inspections at all of the pipeline facilities, main line valve by-pass piping and the VMT. The PIT Program treats TAPS as one continuous system with regard to inspection philosophy. This approach allows for a continuous inspection cycle with inspections completed each year at the facilities. Inspection locations are selected at each facility or remote location based upon calculated half-life inspection intervals, asset request, previously known corrosion data and program baseline investigations.

The PIT Program employs a progressive approach to corrosion investigations on TAPS piping systems. Interval inspections are continued based upon the methods described in this procedure for identifying the next scheduled inspection. Further, the Program continuously assesses the Facilities piping systems to identify new locations for corrosion inspections. This includes working directly with the operating assets to assess the systems and walking down systems as necessary to evaluate for new atmospheric corrosion control locations, areas of concern, piping flow directional changes, etc. This continuous process improvement philosophy allows the Program to consistently be able to evaluate new locations on piping systems while maintaining the evaluations for longer term corrosion monitoring of existing locations.

Facility piping is organized or segmented into unique operating environments or line segments (legs) to which inspection classifications are assigned in accordance with *API 570*, "Piping Inspection Code - Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems." Half-life sample inspection intervals or frequencies are based upon projected failure dates calculated for each leg using the RSTRENG method. The actual grid corrosion strings and an assumed or actual corrosion rate are used to determine the future date when the leg will be in an out-of-code condition. Actual corrosion rates may be determined from inspection history or corrosion coupon data.

An annual scope of work for leg inspections is typically determined using the half-life scheduling method identified above. Field inspections and fitness-for-service calculations are performed in accordance with Master Specification, *B-511*. In addition to the aforementioned methods for determining the annual scope of work, requests for inspections are typically received from the Operating Assets on piping systems that are of interest to the facility for reasons that may include criticality to the system for uninterrupted operational performance, high pressure systems, history of corrosion concerns, operational changes etc.

5.2 Analysis of Data

5.2.1 Data Storage

The data obtained from the inspections performed by the PIT Program are entered and archived into the Alyeska Electronic Data Management (EDM) system. The inspection data obtained from individual inspection grid locations as well as atmospheric corrosion evaluations, once analyzed, is loaded into the EDM system where it can be retrieved for future use for system analysis, to aid in determining future inspections, to identify the system health of a piping segment at a facility, or to trend corrosion rates of a piping segment.

5.2.2 Procedure to Determine Fitness for Service

Final acceptable analysis shall be performed per Master Specification *B-511*. More conservative interim analysis may be performed for screening purposes to expedite the inspection and analysis process. Two acceptable procedures for conservative interim analysis include using:

1. the ASME B-31G method; and,
2. the ASME B-31G method assuming maximum longitudinal extent of corrosion such that Part 4.2(b) factor A is greater than 4.0.

5.2.3 Corrosion Control Improvements

Alyeska's policy for corrosion control planning for oil and vapor systems allows for a prioritized or risk-based approach to corrosion control. Alyeska's Risk Assessment Procedure is defined in *AMS-017-01*. This method requires periodic excavation inspections and/or CP monitoring of buried piping. Corrosion control for the purpose of safety and reducing risk of oil discharge may include pipe replacement, pipe remode (moving belowground pipe to aboveground mode), removing piping systems from service, and installing or upgrading cathodic protection systems.

5.2.4 Piping Removed From Service

When it is determined to have piping removed from service due to the results of the corrosion investigations, a visual inspection will be performed on the affected piping, any associated fittings and the adjacent piping both upstream and downstream. Once the removed materials have been inspected and documented, they can be discarded. A person competent and experienced in corrosion engineering in Alyeska Integrity Management Engineering and/or a person directly associated with the PIT Program such as the Program Corrosion Field Engineer (CFE) or Program Support Engineer shall perform the required inspections.

The results of the inspections will be documented on a Corrosion Investigation Report (CIR) and submitted to the Alyeska Integrity Management Engineering PIT Program Support Engineer. The hard copy of the CIR will be placed in the Integrity Management Engineering files and the PIT Program data base will be updated to reflect the removal of the piping and installation of new piping. As necessary (if existing inspection sites/grids affected); an electronic CIR will be

4. The NDE Technician digitally photographs each inspection location as directed by the CFE and routes them electronically to the CFE for review and archival.

5.3 Analyzing Data

The CFE and the IME both analyze the data. The CFE evaluates the data from the NDE Technicians. This involves reviewing the reports for accuracy and consistency and evaluating the results of the NDE, identifying potential corrosion related wall loss or other potential damage mechanisms. This also includes an evaluation for possible expansion of the grid limits. Once this is complete, the CFE inputs the data into their respective folders, Pipe Integrity Testing (PIT) Report, and the PIT Data Base to begin processing the data. These steps are described in more detail below.

The IME reviews the Pipe Integrity Testing (PIT) Report which has a line item for each inspection grid. Additionally, from the Pipe Integrity Testing (PIT) Report the IME reviews each Combo file and R-Streng file (as applicable; no Combo or R-Streng for grids which received radiography only). Each file along with the Pipe Integrity Testing (PIT) Report is cross referenced for accuracy and consistency. The CFE Checklist is also cross referenced to verify completion of all work to each inspection grid. These steps are identified and described in more detail below.

5.3.1 CFE Data Analysis Accountabilities

1. Upon receiving the reports and files for the NDE results from the NDE Technician, the CFE thoroughly reviews each document and file to assure their accuracy and consistency.
2. Radiographic information requires CFE review of the densitometry sheet and each piece of corresponding film or digital radiographic image. This review is to identify corrosion based upon the NDE Technician film interpretation results and when necessary (due to corrosion related wall loss or possible discrepancies with UT data), verification of results of densitometry.
3. For electronic UT data, the CFE transfers the .00a/.00b and/or .aly files into their respective inspection grid locations within the Combo File data base folder. Each file is named according to its sequential inspection grid and naming convention. If the data is related to a baseline inspection, the CFE creates a new file. Each alpha numeric data set shall be positioned correctly in the Excel Combo File spread sheet to correctly correspond to the most recently previously acquired file (example: Row 001 on current grid shall line up with Row 001 for previous grid). Each alpha numeric data set (.00a/.00b and/or .aly file) shall be configured in its Excel format with "conditional formatting" with different colors representing varying degrees of wall loss. The CFE calculates wall losses to determine the conditional formatting color requirements. The CFE may manipulate the color percent and color scheme during their analysis to better suit the data set conditions, however, the final "saved" version shall follow the scheme identified below. Each Combo file shall be saved with its' conditional formatting intact. The percent wall loss and color scheme are as follows:
   a. Red: represents wall loss equal to or greater than 20% of nominal or actual measured wall thickness
   b. Blue: represents wall loss from 10% to 19% of nominal or actual measured wall thickness

c. Green: represents wall loss from 0% to 9% of nominal or actual measured wall thickness

4. The CFE analyzes Combo file data and compares it against the most recent previously acquired data set looking for: changes in the wall loss conditions represented by the data set, increased corrosion activity, corrosion trends and any discrepancies in the data acquired. This includes determining whether grid expansion is necessary to capture any outlying data points to ensure adequate corrosion inspection coverage. The corrosion rate, whether baseline or interval, along with any corrosion percent increase is input into the Pipe Integrity Testing (PIT) Report and applicable PIT Data Base location. Any discrepancies or suspect data points will be rescanned or reverified by manual UT to the satisfaction of the CFE.

5. Each Combo file data set acquired shall be compared arithmetically against its' most recently acquired previous combo file data set. The new alpha numeric combo file shall be subtracted from the previously acquired alpha numeric file. The "difference data set" shall be placed to the right and adjacent to the new or current combo file. The "greatest" difference point location value shall be identified and have a bold border placed around it for viewing. The corresponding alpha numeric grid point locations (example: F6) on each of the combo grids being evaluated shall be considered the current "grid point comparators." These values shall be input into the data base as such for data analysis under the Pipe Integrity Testing (PIT) Report. Additionally, the previous and new pit depths shall be compared and applied to the PIT Program data base to be part of the evaluation process. No conditional formatting is required for the comparator difference data set. The CFE shall save this for the IME evaluation of data. It will be the responsibility of the IME to delete once the final data reporting is complete. Should there be a difference in the physical size of the current and previous combo files, the difference comparison will be the "best fit" size that best represents and incorporates the affected corrosion pattern represented by the conditional formatting of the combo files.

6. For locations with 20% wall loss or greater, the CFE creates a colorized 3d Corrosion Profile in Excel depicting the corrosion data set to help analyze the data. Place a hard copy of this 3D corrosion profile in the Binder file for the subject grid. The electronic version is saved along side of the applicable Combo file.

7. The CFE copies the "tNom/dPit"column (the far right depth of Pit column on each Combo file data set) into the Winrstr.exe program for pending half-life reinspection calculations per B31.4 or as applicable. The R-Streng calculation utilizes the Maximum Allowable Operating Pressure (MAOP) to perform the required calculations. For ASME B31.3 ("Process Piping") piping, a B31G ("Manual for Determining the Remaining Strength of Corroded Pipelines a Supplement to the ASME B31 Code for Pressure Piping") calculation is performed directly under the PIT Data Base program.

8. Using the Windows R-Streng calculation program (Winrstr.exe in the PIT Program F-Drive folder) or PIT Data Base B31G as applicable, the CFE inputs the required data into the header blocks, inputs the data string from the subject Combo file and run the R-Streng calculation in the program. The CFE saves this R-Streng data string into the R-Streng data file in the PIT Program F-Drive, "Rstreng" folder. The naming convention for this file follows the inspection site/grid naming convention.

NOTE: Calculate a half-life re-inspection interval for each location that has received ultrasonic testing regardless of the inspection results. This could mean R-Streng or B31G (for ASME

B31.3 piping). If it is determined that no corrosion related wall loss is exhibited, a standard 10 mil per year rate shall be used to perform the half-life calculation. This is completed in order to establish the reinspection interval and acquire a safe maximum operating pressure.

9. The CFE transfers or inputs the results of the data review from the Combo file and R-Streng calculation into the Pipe Integrity Testing (PIT) Report and PIT Data Base location for each respective data entry cell and for each grid inspected, noting any relevant comments describing the corrosion found and/or conditions of inspection.
10. The CFE inputs the required information into the electronic Corrosion Investigation Report (CIR) within the Electronic Data Management (EDM) system. All locations identified for atmospheric corrosion evaluations will have a unique identification developed and an associated electronic CIR created. Comments shall be completed to support the EDM electronic CIR attributes and list the approximate length of piping system or component evaluated as applicable for each atmospheric corrosion evaluation site. The data entry of the *.00a*, *.00b* or *.aly* files are also be loaded into this system. When exposing belowground ASME B31.4 crude oil piping, the CFE completes a Pipeline Investigation Report (PIR).
11. The CFE populates the CFE Checklist as appropriate to each inspection grid.
12. Reference Attachment 1, "PIT CID Manual," for details on PIT Data Base use.

5.3.2 IME Data Analysis Accountabilities

1. The IME reviews of each grid line item on the Pipe Integrity Testing (PIT) Report. The IME notes the percent wall loss, maximum pit depth, interval inspection data (especially any increase in corrosion), MAOP or safe operating pressure calculated, R-Streng or B31G reinspection date and comments. All data cells are reviewed with emphasis placed upon those identified here and any others found relevant to a specific grid finding.
2. Each Combo file is reviewed by the IME. This includes a cross reference check to the Pipe Integrity Testing (PIT) Report verifying accuracy and consistency. Each Combo file data set is analyzed for the corrosion pattern, correlation to results of previous inspection data, minimum remaining wall (max pit depth and wall loss) and any apparent increase in corrosion activity. This evaluation will consider the grid point comparators as well as pit comparators. The short term corrosion rates will be identified and evaluated for reporting.
3. Each R-Streng file is reviewed by the IME. This includes a cross reference check to the PIT Data Sheet verifying accuracy and consistency. Also cross reference check the R-Streng file data string, max pit depth and nominal wall against the Combo file data verifying accuracy and consistency.
4. Review of the PIT Data Base for each line item grid inspected. The IME evaluates the PIT Data Base grid against the Pipe Integrity Testing (PIT) Report, Combo files and R-Streng files verifying accuracy and consistency.
5. The IME evaluates the "pit corrosion increase" and "pit short term rate" as well as the "grid corrosion increase" and "grid short term rate" based upon the comparators as previously established and

identified in the Pipe Integrity Testing (PIT) Report. Should either of these two comparator rates be greater than 10 mils per year (MPY) as used in the reinspection calculations then the IME will modify the reinspection interval in the PIT Program Data Base. The IME will input a Requested Inspection Date (RID) in the data entry page of the data base for each affected grid. This RID will be developed based on the comparator short term rates. The IME will consider each comparator rate, remaining wall thickness, and current calculated reinspection date. Consideration will be made of the piping classification, product and whether it is DOT jurisdictional piping.

The IME will evaluate the remaining wall thickness against the greatest short term rate derived in the Pipe Integrity Testing (PIT) Report if greater than 10 MPY. The number of years to achieve 80% wall loss will be calculated. Additionally the difference between the number of years calculated until the next inspection based on 10 MPY and the current inspection year will be determined and then divided by 2. The calendar year represented by the lesser of these two periods will be entered into the RID block of the data base for the next inspection interval.

6. The IME verifies EDM data entry of all inspections as applicable, to include atmospheric corrosion evaluation locations.
7. The IME verifies through a review of the Program drawings and Pipe Integrity Testing (PIT) Report that the necessary evaluations have been performed for atmospheric corrosion control in accordance with 49 CFR 192.479 and 49 CFR 192.481, and 49 CFR 195.581 and 49 CFR 195.583 to represent each facility piping leg.
8. The IME verifies all required hard copy files are complete and incorporated into the Binder Files.
9. The IME reviews each grid line item in the CFE Checklist to verify SOW completion.
10. Reference Attachment 1, "PIT CID Manual" for details on PIT Data Base use.

5.4 Reporting

Reporting accountabilities are largely placed upon the IME. The NDE Technicians provide their reports and inspection records to the CFE and the CFE populates the PIT Data Base, Program spread sheets and other applicable or required files as previously noted. The IME provides an interim report of the inspection results to each affected asset. The IME also completes the final reporting of the PIT Program results as required by *MP-166-1.00, Integrity Management Programs Process*, for the year end annual report.

5.4.1 NDE Technician Reporting Accountabilities

1. No formal written report is required from the NDE Technicians for the PIT Program.
2. Refer to Section 5.2.3, "NDE Technician Implementation Accountabilities," paragraph 3 for the required NDE reports and records.

WinRStreng

Summary

Milepost/Facility: **542.451**
Grid Name: **CV084AB2**
Inspection Date: **8/29/2006**
Safe MOP(psi): **2930.48**

Pipe Information

Maximum Operating Pressure (psi): **1440**
Wall Thickness (inches): **0.432**
Outer Diameter (inches): **6.625**
Minimum Yield Strength (psi): **35000**
Safety Factor: **0.72**

Corrosion Grid

Reading Increment: **1** " Length: **12** "

	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data
(pit depth	0.143										
in inches)	0.130										
	0.132										
	0.142										
	0.138										
	0.142										
	0.144										
	0.135										
	0.139										
	0.190										
	0.192										
	0.213										
	0.150										

Corrosion Growth

Milepost/Facility: **542.451**
Grid Name: **CV084AB2**
Inspection Date: **8/29/2006**
Reinspection Date: **8/1/2008** (1/2 life)
Corrosion Rate (mils/year): **40**
Maximum Operating Pressure (psi): **1440**

Key Dates
1/2 Life: 8/1/2008
80% wall loss: 2010
100% wall loss:

Year	psi	Year	psi	Year	psi	Year	psi	Year	psi
2006	2930.5								
2007	2563.0								
2008	2177.6								
2009	1772.9								
2010	1345.2								

WinRStreng

Summary

Milepost/Facility: **578.87**
Grid Name: **CV0090D2**
Inspection Date: **9/7/2006**
Safe MOP(psi): **3374.73**

Pipe Information

Maximum Operating Pressure (psi): **1440**
Wall Thickness (inches): **0.432**
Outer Diameter (inches): **6.625**
Minimum Yield Strength (psi): **35000**
Safety Factor: **0.72**

Corrosion Grid

Reading Increment: **1** " Length: **13** "

	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data
(pit depth	0.046										
in inches)	0.071										
	0.027										
	0.156										
	0.157										
	0.099										
	0.083										
	0.147										
	0.073										
	0.139										
	0.046										
	0.051										
	0.048										
	0.102										

Corrosion Growth

Milepost/Facility: **578.87**
Grid Name: **CV0090D2**
Inspection Date: **9/7/2006**
Reinspection Date: **3/1/2012** (1/2 life)
Corrosion Rate (mils/year): **20**
Maximum Operating Pressure (psi): **1440**

Key Dates
1/2 Life: 3/1/2012
80% wall loss: 2016
100% wall loss:

Year	psi	Year	psi	Year	psi	Year	psi	Year	psi
2006	3374.7	2016	1470.6						
2007	3208.0	2017	1246.5						
2008	3036.6								
2009	2860.3								
2010	2679.0								
2011	2492.3								
2012	2300.1								
2013	2102.1								
2014	1898.0								
2015	1687.6								

WinRStreng

Summary

Milepost/Facility: **619.19**
Grid Name: **CV095AB1**
Inspection Date: **9/16/2001**
Safe MOP(psi): **3650.01**

Pipe Information

Maximum Operating Pressure (psi): **1440**
Wall Thickness (inches): **0.432**
Outer Diameter (inches): **6.625**
Minimum Yield Strength (psi): **35000**
Safety Factor: **0.72**

Corrosion Grid

Reading Increment: **1** " Length: **30** "

	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data
(pit depth	0.017	0.020	0.020								
in inches)	0.017	0.040									
	0.017	0.032									
	0.017	0.028									
	0.017	**0.024**									
	0.017	**0.159**									
	0.017	**0.085**									
	0.017	**0.124**									
	0.017	**0.040**									
	0.017	0.023									
	0.017	0.022									
	0.017	0.020									
	0.017	0.020									
	0.017	0.018									
	0.024	0.020									

Corrosion Growth

Milepost/Facility: **619.19**
Grid Name: **CV095AB1**
Inspection Date: **9/16/2001**
Reinspection Date: **3/1/2008** (1/2 life)
Corrosion Rate (mils/year): **20**
Maximum Operating Pressure (psi): **1440**

Key Dates
1/2 Life: 3/1/2008
80% wall loss: 2011
100% wall loss:

Year	psi	Year	psi	Year	psi	Year	psi	Year	psi
2001	3650.0	2011	1929.8						
2002	3517.4	2012	1693.3						
2003	3377.8	2013	1440.0						
2004	3230.7	2014	1168.2						
2005	3073.0								
2006	2905.5								
2007	2730.2								
2008	2546.6								
2009	2354.4								
2010	2151.3								

2008 PIT ɔgram Scope

FBU Inspection Sites

Mainline

MP	Leg	Grid	Next UT #	Next RT #	Next VT	Drawing	Description	Inspection Justification	Nominal Pipe (in.)	AG or BG?	In or Out?	Anticipated Inspection Methods	Scaffold?	Insulated?	Last UT Date (mm/dd/yy	Last RT Date (mm/dd/yy	Last VT Date (mm/dd/yy	Grid Length
ML Valve at Mainline																		
11.20	CV0003	CV0003A	5	2		Sketch	'Grove' Valve Bypass - Mainline Pup	Post repair build up	6.00	A	O	UT, RT	N	Y	10/20/2007	9/9/2007		14
11.20	CV0003	CV0003B	5	2		Sketch	'Grove' Valve Bypass - Elbow (Scheculed replace 2008)	Baseline/Post Shutdown replacement	6.00	A	O	UT, RT	N	Y	8/28/2007	9/9/2007		14
11.20	CV0003	CV0003C	5	2		Sketch	'Grove' Valve Bypass - Horizontal Run (Scheculed replace 2008)	Baseline/Post Shutdown replacement	6.00	A	O	UT, RT	N	Y	8/29/2007	9/9/2007		59
11.20	CV0003	CV0003D	5	2		Sketch	'Grove' Valve Bypass - Elbow (Scheculed replace 2008)	Baseline/Post Shutdown replacement	6.00	A	O	UT, RT	N	Y	8/29/2007	9/9/2007		14
11.20	CV0003	CV0003E	5	2		Sketch	'Grove' Valve Bypass - Mainline Pup	Baseline/Post Shutdown replacement	6.00	A	O	UT, RT	N	Y	10/21/2007	10/20/2007		14
18.20	MV005A	MV005AB	1	1		Sketch	MGV-Grove - mainline bypass (US Horizontal Riser)	Opportunity	6.00	T	O	UT, RT	N	Y	New	New		#Error
18.20	MV005A	MV005AC	2	1		Sketch	MGV-Grove - mainline bypass (Vertical Elbow)	Requested Inspection	6.00	A	O	UT, RT	N	Y	7/11/2000	New		9
18.20	MV005A	MV005AD	3	1		Sketch	MGV-Grove - mainline bypass (Horizontal Elbow)	Requested Inspection	6.00	A	O	UT, RT	N	Y	8/4/2004	New		14
18.20	MV005A	MV005AE	3	1		Sketch	MGV-Grove - mainline bypass (Straight Run)	Half Life Calculation Requested Ins	6.00	A	O	UT, RT	N	Y	8/4/2004	New		54
18.20	MV005A	MV005AF	3	1		Sketch	MGV-Grove - mainline bypass (Horizontal Elbow)	Requested Inspection	6.00	A	O	UT, RT	N	Y	8/4/2004	New		14
18.20	MV005A	MV005AG	2	1		Sketch	MGV-Grove - mainline bypass (Vertical Elbow)	Requested Inspection	6.00	A	O	UT, RT	N	Y	7/11/2000	New		9
18.20	MV005A	MV005AH	1	1		Sketch	MGV-Grove - mainline bypass (DS Horizontal Riser)	Opportunity	6.00	T	O	UT, RT	N	Y	New	New		#Error
30.80	CV0008	CV0008A	2	1		Sketch	WKM - mainline bypass	Interval Inspection Requested Inspe	6.00	**B**		UT, RT	N	N	12/18/1998	New		8
30.80	CV0008	CV0008B	1	1		Sketch	WKM - mainline bypass	Requested Inspection	6.00	**B**		UT, RT	N	N	New	New		36 Max
30.80	CV0008	CV0008C	2	1		Sketch	WKM - mainline bypass	Interval Inspection Requested Inspe	6.00	**B**		UT, RT	N	N	12/17/1998	New		82
30.80	CV0008	CV0008D	1	1		Sketch	WKM - mainline bypass	Requested Inspection	6.00	**B**		UT, RT	N	N	New	New		36 Max
30.80	CV0008	CV0008E	2	1		Sketch	WKM - mainline bypass	Interval Inspection Requested Inspe	6.00	**B**		UT, RT	N	N	12/18/1998	New		8
85.00	CV0019	CV0019A	4	1		Sketch	Grove - mainline bypass	Requested Inspection	6.00	A	O	UT, RT	N	Y	9/15/2004	New		11
85.00	CV0019	CV0019B	2	1		Sketch	Grove - mainline bypass	Half Life Calculation Requested Ins	6.00	A	O	UT, RT	N	Y	9/15/2004	New		14
85.00	CV0019	CV0019C	4	1		Sketch	Grove - mainline bypass	Half Life Calculation Requested Ins	6.00	A	O	UT, RT	N	Y	9/15/2004	New		59
85.00	CV0019	CV0019D	4	1		Sketch	Grove - mainline bypass	Requested Inspection	6.00	A	O	UT, RT	N	Y	9/15/2004	New		14
85.00	CV0019	CV0019E	4	1		Sketch	Grove - mainline bypass	Requested Inspection	6.00	A	O	UT, RT	N	Y	9/15/2004	New		11
178.70	RV0032	RV0032A	1	1		Sketch	6" Mainline bypass - Lower Riser (Expand investigation)	Requested Inspection	6.00	A	O	UT, RT	**Y**	Y	New	New		36 Max
178.70	RV0032	RV0032B	1	1		Sketch	6" Mainline bypass (Vertical Elbow) (replacment 2007)	Requested Inspection	6.00	A	O	UT, RT	N	Y	New	New		36 Max
178.70	RV0032	RV0032C	3	2		Sketch	6" Mainline bypass (Horizontal Elbow) (replacment 2007)	Requested Inspection	6.00	A	O	UT, RT	N	Y	11/14/2005	11/17/2005		14
178.70	RV0032	RV0032D	3	2		Sketch	6" Mainline bypass (Horizontal Straight Run) (replacment 2007)	Requested Inspection	6.00	A	O	UT, RT	N	Y	11/15/2005	11/17/2005		82
178.70	RV0032	RV0032E	3	2		Sketch	6" Mainline bypass (Horizontal Elbow) (replacment 2007)	Requested Inspection	6.00	A	O	UT, RT	N	Y	11/14/2005	11/17/2005		14
178.70	RV0032	RV0032F	1	1		Sketch	6" Mainline bypass (Vertical Elbow) (replacment 2007)	Requested Inspection	6.00	A	O	UT, RT	N	Y	New	New		36 Max
178.70	RV0032	RV0032G	1	1		Sketch	6" Mainline bypass - Lower Riser (Expand investigation)	Requested Inspection	6.00	A	O	UT, RT	**Y**	Y	New	New		36 Max
217.40	RV0039	RV0039A	1	1		Sketch	WKM, Valve Bypass (Verical riser) (New baseline, scaffold req)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
217.40	RV0039	RV0039B	1	1		Sketch	WKM, Valve Bypass (replaced 2002)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
217.40	RV0039	RV0039C	1	1		Sketch	WKM, Valve Bypass (replaced 2002)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
217.40	RV0039	RV0039D	1	1		Sketch	WKM, Valve Bypass (replaced 2002)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
217.40	RV0039	RV0039E	1	1		Sketch	WKM, Valve Bypass (replaced 2002)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
217.40	RV0039	RV0039F	1	1		Sketch	WKM, Valve Bypass (replaced 2002)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
217.40	RV0039	RV0039G	1	1		Sketch	WKM, Valve Bypass (Verical riser) (New baseline, scaffold req)	Baseline	6.00	A	O	UT, RT	N	Y	New	New		TBD
456.20	RV0072	RV0072A	1	1		Sketch	WKM Bypass - Lower Riser (Expand typical investigation	Baseline/Expand investigation	6.00	A	O	UT, RT	**Y**	Y	New	New		36 Max
456.20	RV0072	RV0072B	1	1		Sketch	WKM Bypass - 90 degree vertz elbow	Baseline/Post Schedule replacement	6.00	A	O	UT, RT	N	Y	New	New		36 Max
456.20	RV0072	RV0072C	2	1		Sketch	WKM Bypass - 90 degree horiz elbow	Baseline/Post Schedule replacement	6.00	A	O	UT, RT	N	Y	7/20/2001	New		18
456.20	RV0072	RV0072D	2	1		Sketch	WKM Bypass - Horizontal straight run	Baseline/Post Schedule replacement	6.00	A	O	UT, RT	N	Y	7/20/2001	New		81
456.20	RV0072	RV0072E	2	1		Sketch	WKM Bypass - 90 degree horiz elbow	Baseline/Post Schedule replacement	6.00	A	O	UT, RT	N	Y	7/20/2001	New		18
456.20	RV0072	RV0072F	1	1		Sketch	WKM Bypass - 90 degree vertz elbow	Baseline/Post Schedule replacement	6.00	A	O	UT, RT	N	Y	New	New		36 Max
456.20	RV0072	RV0072G	1	1		Sketch	WKM Bypass - Lower Riser (Expand typical investigation	Baseline/Expand investigation	6.00	A	O	UT, RT	**Y**	Y	New	New		36 Max
540.20	CV0084	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		**B**		VT	N	N			New	N/A
542.50	CV084A	CV084AA	3	2		Sketch	WKM - mainline bypass	Requested Inspection	6.00	**B**		UT, RT	N	Y	8/30/2006	8/18/2006		7
542.50	CV084A	CV084AB	3	2		Sketch	WKM - mainline bypass	Half Life Calculation	6.00	**B**		UT, RT	N	Y	8/30/2006	8/18/2006		13
542.50	CV084A	CV084AC	3	2		Sketch	WKM - mainline bypass	Requested Inspection	6.00	**B**		UT, RT	N	Y	8/30/2006	8/18/2006		83
542.50	CV084A	CV084AD	3	2		Sketch	WKM - mainline bypass	Requested Inspection	6.00	**B**		UT, RT	N	Y	8/30/2006	8/18/2006		13
542.50	CV084A	CV084AE	3	2		Sketch	WKM - mainline bypass	Requested Inspection	6.00	**B**		UT, RT	N	Y	8/30/2006	8/18/2006		7
542.50	CV084A	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		**B**		VT	N	N			New	N/A
545.10	CV0085	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		**B**		VT	N	N			New	N/A
552.50	CV0086	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		**B**		VT	N	N			New	N/A
556.20	CV0087	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A

571.20	RV[illegible]	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
573.80	CV[illegible]	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
578.90	CV0090	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
585.70	CV090A	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
590.90	RV0091	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
593.80	CV0092	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
603.30	CV0093	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
608.50	CV0094	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
608.50	MV094A	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
616.30	RV0095	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
619.90	CV095A	CV095AA	2	1			6" mainline bypass between US elbow and valve	Interval Inspection Requested Inspe	6.00	A	O	UT, RT	N	Y	9/17/2001	New		14
619.90	CV095A	CV095AB	2	1		Sketch	Revised Interval Inspection / upstream (US) elbow	Interval Inspection Half Life Calcu	6.00	A	O	UT, RT	N	Y	9/17/2001	New		18
619.90	CV095A	CV095AC	2	1			6" Mailine bypass / piping	Interval Inspection Requested Inspe	6.00	A	O	UT, RT	N	Y	9/17/2001	New		59
619.90	CV095A	CV095AD	2	1			6" Mailine bypass / downstream (DS) elbow	Interval Inspection Requested Inspe	6.00	A	O	UT, RT	N	Y	9/17/2001	New		18
619.90	CV095A	CV095AE	2	1			6" mainline bypass between DS elbow and valve	Interval Inspection Requested Inspe	6.00	A	O	UT, RT	N	Y	9/17/2001	New		14
619.90	CV095A	CV095AF	2	1			Valve Body Drain Line	Interval Inspection Requested Inspe	1.50	A	O	UT, RT	N	Y	9/17/2001	New		8
619.90	CV095A	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval	6.00	A	O	VT	N	Y			New	N/A
629.00	RV095B	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
633.30	RV0096	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
647.60	RV0097	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
651.60	RV0098	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
653.50	RV098A	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
654.50	CV0099	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
658.60	RV0100	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
666.00	RV0101	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
669.50	RV0102	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
673.80	RV0103	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
677.20	RV0104	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
682.10	RV0105	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
687.30	CV0106	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
692.00	RV0107	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
697.10	RV0108	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
697.90	CV0109	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
701.80	CV0110	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
712.60	CV0111	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A		VT	N	N			New	N/A
712.60	MV111A	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
718.10	CV0112	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
723.30	RV0113	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
727.00	CV0114	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
741.90	RV0115	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
747.20	RV0116	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			New	N/A
755.90	RV0117	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/16/2008	N/A
760.40	RV0118	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B	O	VT	N	Y			6/16/2008	N/A
765.20	RV0119	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/17/2008	N/A
769.80	CV0120	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping (Dewatering Req)	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
776.70	RV0121	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/27/2008	N/A
778.80	RV121A	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/27/2008	N/A
779.80	CV0122	CV0122A	2	1		Sketch	Vault location / WKM	Interval Inspection Requested Inspe	6.00	B		UT, RT	N	N	6/27/1998	New		6
779.80	CV0122	CV0122B	2	1		Sketch	Vault location / WKM	Interval Inspection Requested Inspe	6.00	B		UT, RT	N	N	6/27/1998	New		14
779.80	CV0122	CV0122C	2	1		Sketch	Vault location / WKM, stght line seg, replaced end 98.	Interval Inspection Half Life Calcu	6.00	B		UT, RT	N	N	6/27/1998	New		83
779.80	CV0122	CV0122D	2	1		Sketch	Vault location / WKM	Interval Inspection Requested Inspe	6.00	B		UT, RT	N	N	6/27/1998	New		13
779.80	CV0122	CV0122E	2	1		Sketch	Vault location / WKM	Interval Inspection Requested Inspe	6.00	B		UT, RT	N	N	6/27/1998	New		6
779.80	CV0122	DOT			1	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		B		VT	N	N			New	N/A
784.20	RV0123	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/27/2008	N/A
788.90	RV0124	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/12/2008	N/A
794.30	RV0125	DOT			2	Sketch	DOT Atmospheric / CIR / Bypass piping	DOT Leg Atmospheric Interval		A	O	VT	N	Y			6/12/2008	N/A

Grid Count	109	% Cmplt	3.52	Scfld	4	Ins	85	BG	29	OS	80	AUT	0/0	UT	0/0	RT / UT	59/0	RT	0/0	VT	50/8

FBU Totals

Grid Count	109	Scaffold	4	Below Grade	29	AUT	0	0	RT	0	0	VT	50	8
% Complete	3.5	Insulated	85	Outside	80	UT	0	0	RT w/ UT	59	0			

PROBABLE VIOLATION 4:
Maps and Records

PHMSA POSITION

Pertinent Regulation:

49 CFR §195.404 Maps and Records

(c) Each operator shall maintain the following records for the periods specified:

(1) The date, location, and description of each repair made to pipe shall be maintained for the useful life of the pipe.

PHSMA Findings:
Alyeska did not provide records of the wall thickness and grade for the DRA Sleeves installed at PS 09 and PS 10. The Alignment sheets (G-100 drawings) also do not show the DRA injection ring for PS 09. These repairs and alterations are required information for Alyeska's MR-48, "Trans-Alaska Pipeline Maintenance and Repair Manual."

Evidence:

1. Drawing D-39-M600, "Pump Station 9 DRA Injection Annular Ring Injection Nozzle Sections & Details".
2. OM-1, "Procedures Manual for Operations Maintenance and Emergencies", pages 10-9 through 10-11.
3. Alignment sheets for PS09 & PS10.
4. As-built Data sheets showing DRA Sleeves at 28974+27 & 30936+74.

Proposed Compliance Order:
In regard to item 4 of the Notice pertaining to "As-built" information of DRA Injection Rings at PS09 & PS10:

Alyeska shall determine the wall thickness and grade of material used for the DRA injection rings at PS09 & PO10, include this information in their "As-built" records, and maintain these records for the life of the pipeline. Alyeska shall provide these updated records within 180 days.

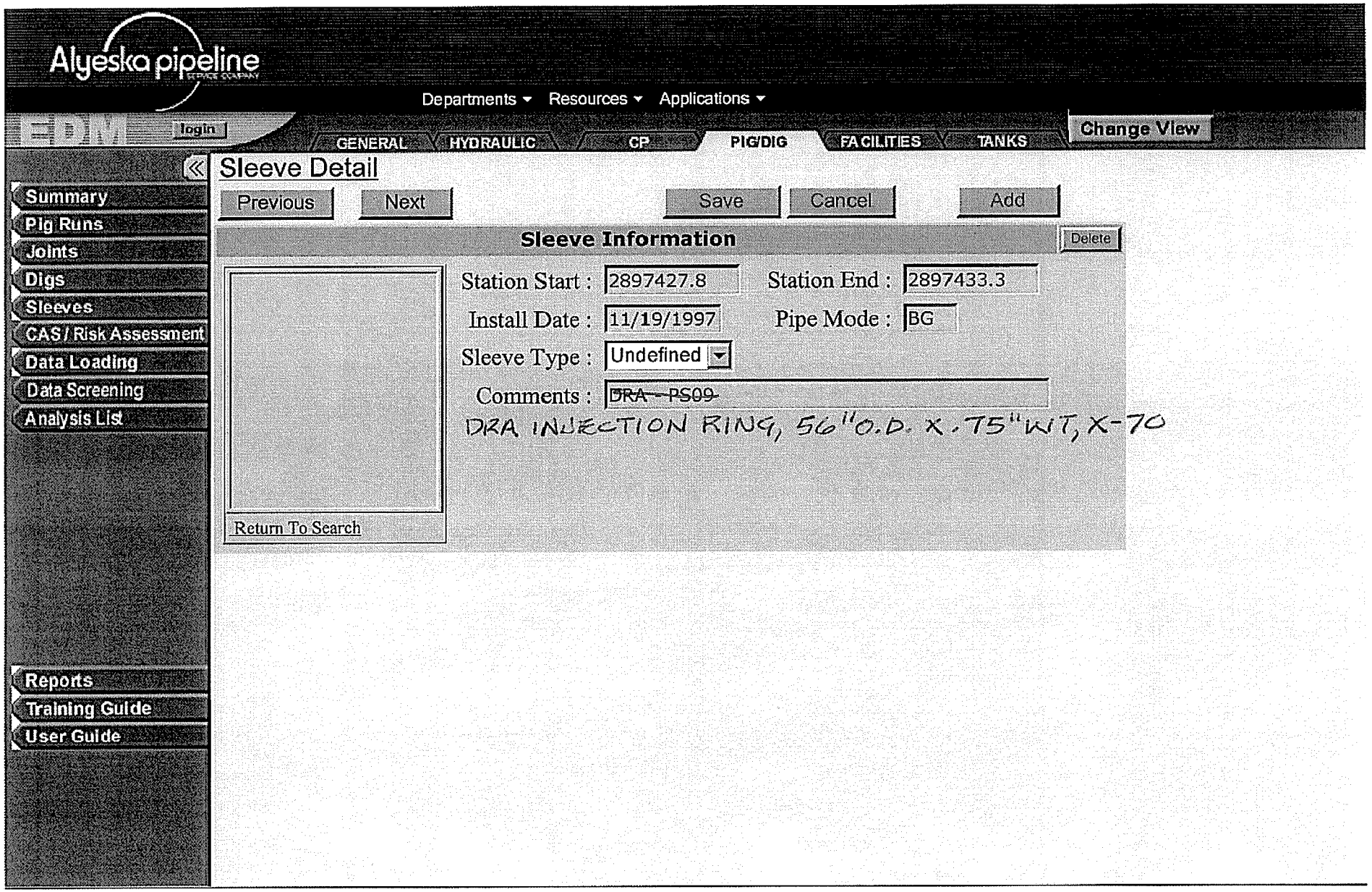
ALYESKA PIPELINE SERVICE COMPANY'S RESPONSE

Summary:
Alyeska Pipeline Service Company (Alyeska) does not contest this finding and will update EDM accordingly.

Discussion:
Alyeska recognizes that the data on wall thickness and grade for the DRA injection rings at Pump Station (PS) 09 and PS10 is not contained in the official records maintained under 49 CFR §195.404(c)(1). Alyeska has determined that the Engineering Data Management (EDM) system is the repository of official records. Alyeska will update EDM to include the wall thickness and grade as shown in the redline printout. (See Exhibit 8).

SUPPORTING DOCUMENTATION

Exhibit 8—EDM Redline printout, Pig Dig Sleeve Detail



Contact: John P. Henry