



National Transportation Safety Board
Office of Railroad, Pipeline and Hazardous Materials Investigations
Washington, D.C. 20594

Report Date: March 25, 2002

COMPLIANCE INSPECTIONS FACTUAL REPORT

A. Accident

Operator: El Paso Natural Gas Company
Facility: 30" diameter pipeline, number 1103
Location: Eddy County, New Mexico near the crossing of the Pecos River
Product: Natural gas
Date: August 19, 2000
Time: 0526 MDT
Accident #: DCA00-MP009

B. Compliance Inspections Group

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C. Summary of Accident

El Paso Natural Gas Company's pipeline number 1103, a 30-inch OD natural gas transmission pipeline, ruptured near the point where the pipeline crosses the Pecos River in Eddy County, New Mexico. Immediately after the rupture, a natural gas fire started and burned for approximately 51 minutes. Twelve 12 persons were fatally injured and three vehicles parked near the river were destroyed.

D. Construction Records, Maps and Operating History: Inspections by Office of Pipeline Safety (OPS) or their Agent

1. Federal Pipeline Safety Regulations (49CFR192.605) require the following: §605(a) General: Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least one each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted; §605(b) Maintenance and normal operations: The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations: §605(b)(3) Making construction records, maps, and operating history available to appropriate operating personnel.
2. Inspection results - Listed below are the 26 inspections referenced in this report and included as Attachments 1, 8 and 9. The inspector's evaluations are noted on the inspection forms as "satisfactory"; "unsatisfactory" (or "needs improvement"); "N/A" (not applicable) or "N/C" (not checked). For each of these 26 inspections, compliance with 192.605(b)(3) was noted as "satisfactory," "N/A," "N/C" or, in some cases, the inspection form did not include questions specifically related to maps and records.

September 2000 (El Paso and Deming Complex)

July 2000 (Jal and Waha Districts) – compliance for 192.605(b)(3) in these areas was not checked in this inspection, except for a Process Control and Flow Schematic Review at Keystone Compressor Station, which was noted "satisfactory."

June 2000 (Plains, TX to Belen, NM; Roswell-Plains Complex)

June 2000 (Oklahoma (Lear Delivery) to Dumas Station; Dimmitt Station to Lubbock, TX)

May 2000 (El Paso #2 Compressor Station to Pecos River)

May 2000 (San Juan River and Gallup Districts)

April 2000 (Team O&M Inspection) – The inspection form noted "satisfactory" for compliance with 192.605(b)(3). On a document entitled "Summary - Quick Fix" attached to the inspection form, a deficiency was noted: "192.605(b)(3): The same priority is being given to the revision of all maps and records." The action taken to correct the deficiency was "Section 102 (of the EPNG O&M Plan) was revised to give priority to revising emergency response and SCADA maps and records."

July 1999 (Team O&M Inspection – procedures only)

August 1998 (facilities in State of Arizona)

August - September 1997 (facilities in State of Arizona)

August - October 1996 (facilities in State of Arizona)

July 1996 (Roswell Complex)

May 1996 (Gallup Complex)

May 1996 (Plains Complex)

May 1996 (Waha Complex)
May/July 1996 (El Paso Complex)
May 1996 (Pecos River Complex)
May 1996 (San Juan River Complex)
May 1996 (Jal Complex)
May 1996 (Deming Complex)
May 1996 (Amarillo Complex)
May 1996 (El Paso Headquarters)
August - October 1994 (facilities in State of Arizona) - not specifically addressed on the inspection form
August 1993 (Pecos River Complex) – not specifically addressed on the inspection form
March 1992 (Headquarters) - not specifically addressed on the inspection form
June 1990 (Goldsmith District) - not specifically addressed on the inspection form

E. Internal Corrosion Control: Inspections by Office of Pipeline Safety (OPS) or their Agent

1. In response to a request from NTSB to provide 1) completed "Evaluation Report of Gas Transmission Pipeline" forms and other related documents for the inspections of El Paso Natural Gas Company performed by OPS during the period August 1, 1995 to August 18, 2000 (including regular, high-impact and System Integrity Inspection Pilot Program (SII)-related inspections), and 2) enforcement actions (including Letters of Concern), issued by the Office of Pipeline Safety to El Paso Natural Gas Company since 1984, OPS provided copies of their recent inspection reports for El Paso Natural Gas Company; additional inspection data was received from OPS in February 2002. (Attachment 1)
2. Inspection data, excluding SII Pilot Program Inspections, related to El Paso's internal corrosion control program is summarized in Figure 1.

Date of Inspection	Items noted in OPS Inspection Report that relate to internal corrosion control regulations
August 1998 (facilities in State of Arizona)	This inspection used the 'high impact inspection' form. This form had only two questions that relate to internal corrosion: the inspector documented "satisfactory" on the subject of "procedures - internal corrosion control coupon monitoring," and "not applicable" on "records of internal corrosion control coupon monitoring."
August/September 1997 (facilities in State of Arizona)	<p>Inspection Report noted "satisfactory" to the following questions on the inspection form:</p> <ol style="list-style-type: none"> 1) Are corrosion control procedures (for design, installation, operation and maintenance) established? 2) Are these procedures under the responsibility of a qualified person? 3) Is gas tested to determine corrosive properties? 4) Whenever a pipe segment is removed from a pipeline, is it examined for evidence of internal corrosion? 5) Remedial action (if required) to minimize internal corrosion? 6) Have coupons been utilized and checked at least twice annually, not to exceed 7.5 months? <p>In the Records Review section of the Inspection Report, "Internal Corrosion" was noted "satisfactory" and "Coupon Monitoring" was noted "not applicable."</p>
August - October 1996 (facilities in State of Arizona)	<p>Inspection Report noted "satisfactory" to the following 6 questions on the inspection form:</p> <ol style="list-style-type: none"> 1) Are corrosion control procedures established? 2) Are these procedures under the responsibility of a qualified person? 3) Have coupons been utilized and checked at least twice annually, not to exceed 7.5 months? 4) Is gas tested to determine corrosive properties? 5) Whenever a pipe segment is removed from a pipeline, is it examined for evidence of internal corrosion? 6) Remedial action (if required) to minimize internal corrosion? <p>In the Records Review section of the Inspection Report, "Internal Corrosion" was noted "satisfactory" and "Coupon Monitoring" was noted "not applicable."</p>
July 1996 (Roswell Complex)	Inspection Report noted "satisfactory" to questions 1, 2, 4, 5 and 6 on the inspection form, and "not applicable" to question number 3, with the comment "chromaticgraph" (see above for questions). (see above for questions).
May 1996 (Gallup Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
May 1996 (Plains Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
May 1996 (Waha Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
May/July 1996 (El Paso Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions), and for question 3) the report noted that coupons are "not used at all locations."
May 1996 (Pecos River Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
May 1996 (San Juan River Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
May 1996 (Jal Complex)	Inspection Report noted "satisfactory" to 5 questions; question 3 was noted "N/A"; question 4 was noted "where gas is received" (see above for questions).
May 1996 (Deming Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).

Date of Inspection	Items noted in OPS Inspection Report that relate to internal corrosion control regulations
May 1996 (Amarillo Complex)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
May 1996 (El Paso Headquarters)	Inspection Report noted "satisfactory" to the six questions (see above for questions).
August - October 1994 (facilities in State of Arizona)	Inspection Report noted "satisfactory" to questions 1, 2, 4, 5, and 6; question 3 was noted "N/A -- not using coupon." (See above for questions). The form used for this inspection posed an additional question "are corrosion control procedures adequate?" – the response was "satisfactory."
August 1993 (Pecos River Complex)	Inspection Report noted "satisfactory" to questions 1, 2, 4, 5, and 6; question 3 was noted "N/A -- not using coupon." (See above for questions). The form used for this inspection posed an additional question "are corrosion control procedures adequate?" – the response was "satisfactory."
March 1992 (Headquarters)	Inspection Report noted "satisfactory" to four questions; questions 3 and 6 were noted "N/A" (See above for questions). The form used for this inspection posed an additional question "are corrosion control procedures adequate?" – the response was "satisfactory."
June 1990 (Goldsmith District)	Inspection Report noted "satisfactory" to four questions; question 3 was noted "N/A" and there was no response entered for question 4 (See above for questions). The form used for this inspection posed an additional question "are corrosion control procedures adequate?" – the response was "satisfactory."

Figure 1

Inspection Summary (excluding SII Pilot Program Inspections)
for Internal Corrosion Control Compliance

3. SII Program -- The SII Program was a pilot activity designed to test whether a more broad-based examination of an operator's safety and pipeline integrity programs, including many areas not currently considered during a typical inspection, will result in improved performance. Instead of OPS or state inspectors conducting comprehensive compliance-based inspections, they will work with the operator to address the most significant pipeline system integrity issues, addressing areas that may not be completely or explicitly covered in the regulations. To ensure continued regulatory compliance, OPS will leverage company resources by ensuring that the operator conducts comprehensive internal audits for compliance with the Federal pipeline safety regulations. Under the SII Pilot Program, OPS will ensure the operator has an effective compliance driven internal audit plan, and will conduct field and records verification-checks to assure its effective implementation. This enhancement of current OPS inspection practices was intended to result in improved communication and information sharing between operators and government, and focus resources on the most important risks to pipeline safety. (from the SII program description on the OPS website -- <http://ops.dot.gov/>).
4. OPS has established a number of criteria that will be used to select operators for SII Pilot Program participation. These are: (from the SII Pilot Program description on the OPS website -- <http://ops.dot.gov/>)

- The system(s) proposed for the SII Pilot Program are interstate pipelines subject to the requirements of Parts 191, and 192 or 195, as applicable, of the Federal Pipeline Safety Regulations.
 - OPS expects that companies selected to participate in the SII Pilot Program will be among the industry leaders in proactively searching for system integrity issues, and implementing activities and programs to address these concerns.
 - The operator has a proven history of regulatory compliance, and has addressed (or was in the process of addressing) any outstanding compliance issues consistent with OPS expectations.
 - The operator has an existing, on-going, system-wide process that evaluates system integrity and operational reliability.
 - The operator has a history of cooperation and open communication with OPS and interstate agents.
 - A comprehensive, well-defined pipeline system(s) was proposed by the operator for the SII Pilot Program. A key OPS objective was to understand specific system integrity monitoring program processes, tools and technologies, and how the operator applies its integrity program across a complete system. Operators should not propose portions or segments of a pipeline for the SII Pilot Program.
 - The operator has a defined organizational structure to resolve, or coordinate resolution of safety and environmental issues.
 - The operator effectively communicates information about system integrity issues and potential solutions to support effective decision-making. This includes effective, two-way communication between corporate units and field operations regarding system integrity issues.
 - It was preferred that the operator have a centralized location for filing and retaining system integrity and compliance records.
5. Qualification of El Paso for the SII Pilot Program -- OPS launched the 3-year SII Pilot Program described above in December 1998. (Three pipeline operators applied, and two, including El Paso Natural Gas, were accepted. One applicant was not accepted due to the limited size of their pipeline system). In a letter to the Research and Special Programs Administration (RSPA) in February 1999, El Paso Natural Gas Company asked to be considered as a candidate for the SII program. RSPA completed the initial screening of candidates in December 1999. After reviewing El Paso's qualifications, RSPA sent El Paso a letter in April 2000 and accepted the Company into the program. The facilities to be included in the program were the approximately 10,000 miles of gas pipeline operated by El Paso (El Paso Natural Gas and Mojave Pipeline Operating Company). (Attachments 2 and 3)
6. Summary of El Paso's inspections and audits – in an undated (based on the timelines in this memo, it appears to have been prepared between July 14, 2000 and October 2000) memo (Attachment 4) entitled *Summary of El Paso Natural Gas' Efforts in the System Integrity Inspection Pilot Program* provided to NTSB by OPS, the following specifics about SII and El Paso were presented:

- OPS and El Paso had four joint meetings and OPS conducted seven inspections of El Paso facilities in the period from May 1999 to July 2000. El Paso was accepted into the SII Pilot Program in April 2000.
- In the *Team O&M Recommendations* section, there was a list of 20 recommendations, and a statement that El Paso had satisfactorily corrected their O&M Procedures to reflect the shortcomings identified in the Team O&M Inspections. Except for a statement (number 3) that the O&M Plan had no instructions related to determining the extent of internal corrosion once internal corrosion has been found, there were no recommendations related to internal corrosion monitoring, control or training of corrosion control personnel.
- In the *Recommendation and Best Practices Following Site Inspections* section, there were nine items that El Paso committed to rectify and enhance their procedures and practices accordingly, and which were follow-up issues for the SII team. None of the items were related to internal corrosion monitoring, control or training of corrosion control personnel.
- In the *Comments on Year 2000 Work Plan* section, three items were listed. None of the items were related to internal corrosion monitoring, control or training of corrosion control personnel.
- In the *EPG's Other Incidents* section, seven incidents were listed. The list of incidents did not include the January 1998 rupture of line 1103 ("Salt Flats" rupture) in Texas, which was caused by external corrosion. (Attachment 5). Two of the seven were caused by internal corrosion (gathering line 4A in 1989 and line 1300 in 1996).

7. Inspection specifics

- As described in the December 13, 1999 Federal Register Notice, advance preparation for the SII on-site internal audit review included OPS inspectors obtaining information on "lessons learned and actions taken following leaks, incidents, or other abnormal operational events". In September 1996, El Paso experienced a rupture of line 1300 near Roswell, NM due to internal corrosion; in January 1998, El Paso experienced a rupture of line 1103 ("Salt Flats" rupture) in Texas due to external corrosion. In the inspection reports provided to NTSB by OPS, there was no documentation that OPS inspectors reviewed and discussed with El Paso the lessons learned or actions taken by El Paso following these two recent failures. (Attachments 5, 6 and 7).
- SII Pilot Program inspections related to El Paso's internal corrosion control program are summarized in Figure 2.

Date of Inspection	Items noted in OPS Inspection Report that relate to internal corrosion control regulations
September 2000 (El Paso and Deming Complex)	<p>One month after the Carlsbad accident, a validating inspection was conducted in the field. Other than an amendment to El Paso's procedures regarding revision, review, approval and distribution of engineering and flow schematic drawings, no compliance deficiencies were noted. The inspection report notes that while at Deming Compressor Station, the inspectors reviewed cleaning pig data from line 1005, and it was determined that pigging liquids or solids were analyzed for the purpose of disposal but not for the sake of internal corrosion. The data revealed high iron content but did not identify the source of the iron. The report also noted that the OPS inspector understands that El Paso was working on procedures that would enhance communication between measurement analyses and corrosion control. (Attachment 8).</p> <p>The detailed Inspection Report form used for this inspection required the OPS auditor to inquire about internal corrosion monitoring practices if "the facility is within or downstream of a storage field."</p> <p>The Inspection Report form notes "satisfactory" to 4 questions:</p> <ol style="list-style-type: none"> 1) Does the Company maintain a comprehensive corrosion control program and associated records? 2) Is the company's corrosion program under the direction of a qualified person, with associated records?" (OPS comment: "[name omitted] has many years of OJT in addition to NACE training") 3) Are corrosion control procedures in place and do they follow Part 192/NACE/industry standards, with associated records? 4) How is the gathered information reviewed and analyzed? Associated records?" (OPS comment: all corrosion information is given to the Sr. Operations Specialist and to the Principle Coordinator of Corrosion Services. These individuals analyze the data and make recommendations. Readings below -850 mv are identified as problem areas.")
July 2000 (Jal and Waha Districts)	<p>No compliance issues related to internal corrosion were noted in the summary letter prepared by OPS.</p> <p>The detailed Inspection Report form used for this inspection required the OPS auditor to inquire about internal corrosion monitoring practices if "the facility is within or downstream of a storage field." The following corrosion-related items were noted "satisfactory" on this report form:</p> <ol style="list-style-type: none"> 1) Does the Company maintain a comprehensive corrosion control program? (OPS Comment: yes, 6 technicians in Midland District. There is also 1 technician in the El Paso District.) 2) Is the Company's corrosion control program under the direction of a qualified person? (OPS Comment: (employee's name) is the Principle Coordinator of Corrosion Services and has many years of OJT in addition to NACE training.) 3) Are corrosion control procedures in place and do they follow Part 192/NACE /industry standards? 4) How is the gathered information reviewed and analyzed to identify problem areas? (OPS Comment: all corrosion information is given to the Sr. Operations Specialist and to the Principle Coordinator of Corrosion Services. These individuals analyze the data and make recommendations.) <p>There was no documentation of questions/responses specifically related to internal corrosion control.</p>

Date of Inspection	Items noted in OPS Inspection Report that relate to internal corrosion control regulations
<p>June 2000 (Plains, TX to Belen, NM; Roswell-Plains Complex)</p>	<p>The detailed Inspection Report form used for this inspection required the OPS auditor to inquire about internal corrosion monitoring practices if "the facility is within or downstream of a storage field."</p> <p>The Inspection Report form notes "satisfactory" to 4 questions:</p> <ol style="list-style-type: none"> 1) Does the Company maintain a comprehensive corrosion control program and associated records 2) Is the company's corrosion program under the direction of a qualified person, with associated records?" (OPS comment: "Yes, [name omitted] is the Principle Coordinator of Corrosion Services and has many years of OJT in addition to NACE training") 3) Are corrosion control procedures in place and do they follow Part 192/NACE/industry standards, with associated records? 4) How is the gathered information reviewed and analyzed? Associated records?" (OPS comment: "all corrosion information is given to the Sr. Operations Specialist and to the Principle Coordinator of Corrosion Services. These individuals analyze the data and make recommendations")
<p>June 2000 (Oklahoma (Lear Delivery) to Dumas Station; Dimmitt Station to Lubbock, TX)</p>	<p>The detailed Inspection Report form used for this inspection required the OPS auditor to inquire about internal corrosion monitoring practices if "the facility is within or downstream of a storage field."</p> <p>The Inspection Report form notes "satisfactory" to 4 questions:</p> <ol style="list-style-type: none"> 1) Does the Company maintain a comprehensive corrosion control program and associated records? 2) Is the company's corrosion program under the direction of a qualified person, with associated records?" (OPS comment: "Yes, [name omitted] is the Principle Coordinator of Corrosion Services, [name omitted] and [name omitted] have many years of OJT in addition to NACE training") 3) Are corrosion control procedures in place and do they follow Part 192/NACE/industry standards, with associated records? 4) How is the gathered information reviewed and analyzed? Associated records?" (OPS comment: "all corrosion information is given to the Sr. Operations Specialist and to the Principle Coordinator of Corrosion Services. These individuals analyze the data and make recommendations. Readings below -850 mv are identified as problem areas.")
<p>May 2000 (El Paso #2 Compressor Station to Pecos River)</p>	<p>The detailed Inspection Report form used for this inspection required the OPS auditor to inquire about internal corrosion monitoring practices if "the facility is within or downstream of a storage field."</p> <p>The Inspection Report form notes "satisfactory" to 4 questions:</p> <ol style="list-style-type: none"> 1) Does the Company maintain a comprehensive corrosion control program and associated records? (OPS Comment: "yes, 6 technicians in Midland District. There is also 1 technician in the El Paso District.") 2) Is the company's corrosion program under the direction of a qualified person, with associated records?" (OPS comment: "Yes, [name omitted] is the Principle Coordinator of Corrosion Services and has many years of OJT in addition to NACE training") 3) Are corrosion control procedures in place and do they follow Part 192/NACE/industry standards, with associated records? 4) How is the gathered information reviewed and analyzed? Associated records?" (OPS comment: "all corrosion information is given to the Sr. Operations Specialist and to the Principle Coordinator of Corrosion Services. These individuals analyze the data and make recommendations")

Date of Inspection	Items noted in OPS Inspection Report that relate to internal corrosion control regulations
<p>May 2000 (San Juan River and Gallup Districts)</p>	<p>The detailed Inspection Report form used for this inspection required the OPS auditor to inquire about internal corrosion monitoring practices if "the facility is within or downstream of a storage field."</p> <p>The Inspection Report form notes "satisfactory" to 4 questions:</p> <ol style="list-style-type: none"> 1) Does the Company maintain a comprehensive corrosion control program and associated records? 2) Is the company's corrosion program under the direction of a qualified person, with associated records?" (OPS comment: "Yes, [name omitted] is the Principle Coordinator of Corrosion Services, [name omitted] and [name omitted] have many years of OJT in addition to NACE training") 3) Are corrosion control procedures in place and do they follow Part 192/NACE/industry standards, with associated records? 4) How is the gathered information reviewed and analyzed? Associated records?" (OPS comment: "All corrosion information is given to the Sr. Operations Specialist and to the Principle Coordinator of Corrosion Services. These individuals analyze the data and make recommendations. Readings below -850 mv are identified as problem areas")
<p>April 2000 (Team O&M Inspection)</p>	<p>A "Joint Team O&M Procedures Inspection" for the SII Pilot Program was conducted. The inspection form used for this audit included only four questions related to internal corrosion. The first was for the operator's procedure for internal corrosion control coupon monitoring (rated "Satisfactory"); the second was for the operator's procedure for corrosion remedial measures (rated "Satisfactory"); the third was for the records of the coupon monitoring (rated "Not Applicable"); and the fourth was for records of the corrosion control remedial measures (rated "Not Applicable"). This form noted with an asterisk that the first two questions were "high risk." There were no questions or subject areas on the inspection record related to transporting corrosive gas, training of internal corrosion control personnel, or whether the internal corrosion control program is under the direction of a qualified person, as required by 49 CFR 192.453. The OPS "Quick Fix" summary of this inspection did not identify any deficiencies in internal corrosion monitoring, control or personnel training. (Attachment 9).</p>
<p>July 1999 (Team O&M Inspection – procedures only)</p>	<p>Inspection Report noted "satisfactory" to the following 3 questions on the inspection form:</p> <ol style="list-style-type: none"> 1) Are corrosion control procedures for design and installation established? 2) Are corrosion control procedures for internal corrosion control coupon monitoring established? 3) Are corrosion control procedures for remedial measures established?

Figure 2

Inspection Summary for SII Pilot Program Inspections
for Internal Corrosion Control Compliance

8. Status of the SII Program – The 3 year SII Pilot Program demonstration period expired at the end of 2001, at which time the program was terminated by OPS. El Paso Natural Gas Company remained in the program until that time. The most recent inspection of El Paso Natural Gas under the SII Pilot Program was in November 2001.

F. Construction Records, Maps and Operating History: OPS Enforcement Actions

In response to a request from NTSB, OPS provided copies of enforcement actions (Warning Letters, Letters of Concern, Notices of Amendment, Notices of Probable Violation) for El Paso Natural Gas Company. (Two of the Warning Letters included in the OPS documents were issued to El Paso Hydrocarbons Company and concerned actions related to the transportation of hazardous liquids by pipeline). In the period from August 1978 to July 2001, there were no enforcement actions for El Paso Natural Gas Company's program for making construction records, maps and operating history available to operating personnel. (Attachment 10 and OPS website: <http://ops.dot.gov/>).

G. Internal Corrosion: OPS Enforcement Actions

In the period from August 1978 to July 2000, there were no enforcement actions for El Paso Natural Gas Company's internal corrosion program. (Attachment 10 and OPS website: <http://ops.dot.gov/>).

H. Internal Audit Program – El Paso Natural Gas

1. An element of the SII Program was the operator's internal audit program. EPNG's *Quality Assurance Auditing Procedures Manual* (2/4/99, revised 3/3/99) describes its internal audit program. The Manual was subdivided into three sections: Pipeline, Plant/Stations and Drugs/Alcohol.
2. For internal corrosion, both pipeline and plant/stations sections of the *Quality Assurance Auditing Procedures Manual* have a section entitled "Corrosion Control - Internal Coupons." Answers to the following questions are required for the audit: Is corrosive gas being transported? If so, has the effect of the gas on the pipeline been investigated? What steps have been taken to minimize internal corrosion? Corrosion inhibitor? Dehydration? Have internal coupons been installed to monitor the effectiveness of the corrosion-mitigating program? If so, are the coupons checked two times each calendar year at intervals not exceeding 7-1/2 months? Is the mil loss per year acceptable? (Attachment 11)
3. Preprinted forms are provided in the *Quality Assurance Auditing Procedures Manual* for the auditor to record the results of the audit. For pipelines, these forms do not list the internal corrosion items identified in the audit questions, or provide a space for the auditor to document the results of the internal corrosion portion of the audit. For internal corrosion on the forms for plants/stations, the following items are listed: ITEM 1E. Corrosion Control - Internal Coupons: 1) frequency of inspections 2) mitigation method, and 3) acceptable mil loss. (Attachment 12)

Reference Materials

- Attachment 1 OPS Inspection Reports (1990 – 2000)
- Attachment 2 SII letter from Thomas P. Morgan dated February 1, 1999
- Attachment 3 SII letter from Richard B. Felder dated April 19, 2000
- Attachment 4 "Summary of El Paso Natural Gas' Efforts in the System Integrity Inspection Pilot Program"
- Attachment 5 First page only - Letter dated March 9, 1998 from F. H. Martinez and W. E. Ritchie
- Attachment 6 Title page only - "Investigation Report - Rupture of line 1300" dated September 10, 1996
- Attachment 7 Meeting minutes and other records of OPS inspections conducted to qualify El Paso for the SII program
- Attachment 8 OPS Inspection Report ("El Paso Natural Gas Company Audit Plan Validation") dated January 31, 2001
- Attachment 9 OPS Inspection Report ("Joint Team O&M Procedures Inspection") and letter for inspection dates April 18-20, 2000
- Attachment 10 Letter from T. Fortner dated April 16, 1999
- Attachment 11 El Paso Natural Gas *Quality Assurance Auditing Procedures Manual* (2/4/99, revised 3/3/99) – procedure (pipeline section)
- Attachment 12 El Paso Natural Gas *Quality Assurance Auditing Procedures Manual* (2/4/99, revised 3/3/99) – record forms (plant/station and pipeline section)