



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials Safety  
Administration**

8701 South Gessner, Suite 1110  
Houston, TX 77074

## NOTICE OF AMENDMENT

### CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 16, 2009

Ms. Elizabeth Casciani  
Vice President, Operations and Service  
Praxair, Inc.  
39 Old Ridgebury Road  
Danbury, CT 06810

**CPF 4-2009-1010M**

Dear Ms. Casciani:

On September 10 to 14 and September 24 to 27, 2007, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), pursuant to Chapter 601 of 49 United States Code inspected Praxair, Inc. procedures for Integrity Management in Deer Park, Texas.

On the basis of the inspection, PHMSA has identified the apparent inadequacies found within Praxair, Inc. plans or procedures, as described below:

**1. §192.905(a) General. To determine which segments of an operator's transmission pipeline system are covered by this subpart, an operator must identify the high consequence areas. An operator must use method (1) or (2) from the definition in §192.903 to identify a high consequence area. An operator may apply one method for its entire pipeline system, or an operator may apply one method to individual portions of the pipeline system. An operator must describe in its integrity management program which method it is applying to each portion of the operator's pipeline system. The description must include the potential impact radius when utilized to establish a high consequence area. (See appendix E.I. for guidance on identifying high consequence areas.)**

Praxair must amend its Integrity Management processes and procedures as they relate to the HCA identification process to ensure that it will specifically address how the centerline of the pipeline (which is critical in determining if identified sites are within the PIR) was located and if it is being accurately portrayed on the GIS system maps. Additionally, amended procedures must adequately describe the development

and/or use of the potential impact radius. Specifically, the Praxair IM Plan must provide additional details of key aspects of the processes associated with who, what, when, where and how the GIS system data is obtained and integrated.

**2. §192.919(e) A procedure to ensure that the baseline assessment is being conducted in a manner that minimizes environmental and safety risks.**

Praxair must amend its Integrity Management processes and procedures as they relate to the consideration of Environmental and Safety Risks processes and procedures to ensure that specific references for health and environmental procedures from the Praxair Worldwide Safety and Environmental Services Manual are addressed.

**3. §192.917(a) Threat identification. An operator must identify and evaluate all potential threats to each covered pipeline segment. Potential threats that an operator must consider include, but are not limited to, the threats listed in ASME/ANSI B31.8S (ibr, see §192.7), section 2, which are as follows:**

- 1) Time dependent threats such as internal corrosion, external corrosion, and stress corrosion cracking;**
- 2) Static or resident threats, such as fabrication or construction defects;**
- 3) Time independent threats such as third party damage and outside force damage; and Human error**

Praxair must amend its Integrity Management Threat identification process and procedures to ensure that they sufficiently address and evaluate interactive threats.

**4. §192.917 (b) Data gathering and integration. To identify and evaluate the potential threats to a covered pipeline segment, an operator must gather and integrate existing data and information on the entire pipeline that could be relevant to the covered segment. In performing this data gathering and integration, an operator must follow the requirements in ASME/ANSI B31.8S, section 4. At a minimum, an operator must gather and evaluate the set of data specified in appendix A to ASME/ANSI B31.8S, and consider both on the covered segment and similar non-covered segments, past incident history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, internal inspection records and all other conditions specific to each pipeline.**

Praxair must amend its Integrity Management Data gathering and integration process and procedures to ensure that they contain sufficient detail and procedures for collecting, reviewing, and analyzing risk data. Additionally, Praxair's Risk Assessment process and procedures must incorporate a requirement to evaluate data from both covered and non covered segments.

**5. § 192.917 (e)(1) Third party damage. An operator must utilize the data integration required in paragraph (b) of this section and ASME/ANSI B31.8S, appendix A7 to determine the susceptibility of each covered segment to the**

threat of third party damage. If an operator identifies the threat of third party damage, the operator must implement comprehensive additional preventive measures in accordance with § 192.935 and monitor the effectiveness of the preventive measures. If, in conducting a baseline assessment under § 192.921, or a reassessment under § 192.937, an operator uses an internal inspection tool or external corrosion direct assessment, the operator must integrate data from these assessments with data related to any encroachment or foreign line crossing on the covered segment, to define where potential indications of third party damage may exist in the covered segment. An operator must also have procedures in its integrity management program addressing actions it will take to respond to findings from this data integration.

Praxair must amend its Integrity Management Third party damage process and procedures to ensure that the requirement to integrate one call and foreign line crossing data in the risk assessment are fully developed. Additionally, the amended procedure must ensure that required additional third party damage preventive and mitigative measures are documented and implemented.

**6. §192.917 (c) Risk assessment.** An operator must conduct a risk assessment that follows ASME/ANSI B31.8S, section 5, and considers the identified threats for each covered segment. An operator must use the risk assessment to prioritize the covered segments for the baseline and continual reassessments (§§192.919, 192.921, 192.937), and to determine what additional preventive and mitigative measures are needed (§ 192.935) for the covered segment.

Praxair must amend its Integrity Management processes and procedures as they relate to the Risk Assessment process to ensure that the process provides for revisions to the risk assessment if new information is obtained or conditions change on the pipeline segments. Additionally, the Risk Assessment amended procedures must ensure that it specifically describes a risk validation process that shall be identified and documented in the integrity management program.

**7. §192.925(b)(1) Preassessment.** In addition to the requirements in ASME/ANSI B31.8S section 6.4 and NACE RP 0502-2002, section 3, the plan's procedures for preassessment must include-

- i. Provisions for applying more restrictive criteria when conducting ECDA for the first time on a covered segment; and
- ii. The basis on which an operator selects at least two different, but complementary indirect assessment tools to assess each ECDA Region. If an operator utilizes an indirect inspection method that is not discussed in Appendix A of NACE RP0502-2002, the operator must demonstrate the applicability, validation basis, equipment used, application procedure, and utilization of data for the inspection method.

Praxair must amend its Integrity Management ECDA pre-assessment process and procedures to ensure that these procedures define the criteria for conducting the

feasibility assessment, the selection of two complementary tools and other tools not listed in the NACE table. Additionally, the procedures must define what more restrictive criteria would be used when conducting ECDA pre-assessment for the first time on a covered segment.

**8. §192.925(b)(2) Indirect Examination.** In addition to the requirements in ASME/ANSI B31.8S section 6.4 and NACE RP 0502-2002, section 4, the plan's procedures for indirect examination of the ECDA regions must include -

- i. Provisions for applying more restrictive criteria when conducting ECDA for the first time on a covered segment;
- ii. Criteria for identifying and documenting those indications that must be considered for excavation and direct examination. Minimum identification criteria include the known sensitivities of assessment tools, the procedures for using each tool, and the approach to be used for decreasing the physical spacing of indirect assessment tool readings when the presence of a defect is suspected;
- iii. Criteria for defining the urgency of excavation and direct examination of each indication identified during the indirect examination. These criteria must specify how an operator will define the urgency of excavating the indication as immediate, scheduled or monitored; and
- iv. Criteria for scheduling excavation of indications for each urgency level.

Praxair must amend its Integrity Management ECDA Indirect Examination process and procedures to ensure that it includes a process for adjusting the specified spacing for tool application during different field conditions as required by §192.925(b)(2)(ii).

**9. §192.925(b)(3) Direct Examination.** In addition to the requirements in ASME/ANSI B31.8S section 6.4 and NACE RP 0502-2002, section 5, the plan's procedures for direct examination of indications from the indirect examination must include -

- i. Provisions for applying more restrictive criteria when conducting ECDA for the first time on a covered segment;
- ii. Criteria for deciding what action should be taken if either: (A) corrosion defects are discovered that exceed allowable limits (Section 5.5.2.2 of NACE RP0502-2002), or (B) root cause analysis reveals conditions for which ECDA is not suitable (Section 5.6.2 of NACE RP0502-2002);.
- iii. Criteria and notification procedures for any changes in the ECDA Plan, including changes that affect the severity classification, the priority of direct examination, and the time frame for direct examination of indications; and
- iv. Criteria that describe how and on what basis an operator will reclassify and reprioritize any of the provisions that are specified in section 5.9 of NACE RP0502-2002.

Praxair must amend its Integrity Management ECDA Direct Examination process and procedures to ensure the ECDA procedures require the performance of an evaluation

of the indirect inspection data, the results from the remaining strength calculation, and root cause analysis to evaluate the criteria and assumptions used to categorize the need for repairs and classify the severity of individual indications. Additionally, the amended procedures must adequately address the following:

- Specifying more restrictive criteria when conducting ECDA Direct Examination for the first time
- Requirements to perform internal notifications when there are changes in the ECDA Plan including changes that affect the severity classification, the priority of direct examination, and the time frame for direct examination of indications

**10. §192.925(b)(4) Post assessment and continuing evaluation.** In addition to the requirements in ASME/ANSI B31.8S section 6.4 and NACE RP 0502-2002, section 6, the plan's procedures for post assessment of the effectiveness of the ECDA process must include—

- i. Measures for evaluating the long-term effectiveness of ECDA in addressing external corrosion in covered segments; and
- ii. Criteria for evaluating whether conditions discovered by direct examination of indications in each ECDA region indicate a need for reassessment of the covered segment at an interval less than that specified in § 192.939. (See Appendix D of NACE RP0502-2002.)

Praxair must amend its Integrity Management ECDA post assessment and continuing evaluation process and procedures to provide requirements for determining reassessment intervals in accordance with NACE RP0502. The Praxair ECDA Plan does not use the largest non unique anomaly found in the remaining life calculation. Additionally, the amended procedures must provide specific criteria or guidance for performing the post assessment and ensuring feedback at all appropriate opportunities throughout the ECDA process to demonstrate feedback and continuous improvements.

**11. § 192.933(a) General requirements.** An operator must take prompt action to address all anomalous conditions that the operator discovers through the integrity assessment. In addressing all conditions, an operator must evaluate all anomalous conditions and remediate those that could reduce a pipeline's integrity. An operator must be able to demonstrate that the remediation of the condition will ensure that the condition is unlikely to pose a threat to the integrity of the pipeline until the next reassessment of the covered segment. If an operator is unable to respond within the time limits for certain conditions specified in this section, the operator must temporarily reduce the operating pressure of the pipeline or take other action that ensures the safety of the covered segment. If pressure is reduced, an operator must determine the temporary reduction in operating pressure using ASME/ANSI B31G or RSTRENG or reduce the operating pressure to a level not exceeding 80% of the level at the time the condition was discovered. (See Appendix A to this part 192 for information on availability of incorporation by reference information). A reduction in operating pressure cannot exceed 365 days without an operator

**providing a technical justification that the continued pressure restriction will not jeopardize the integrity of the pipeline.**

Praxair must amend its Integrity Management Discovery of Condition process to ensure that the in-line inspection procedures contain or reference the requirements for documentation of the discovery date.

**12. § 192.933(d)(3) Monitored conditions. An operator does not have to schedule the following conditions for remediation, but must record and monitor the conditions during subsequent risk assessments and integrity assessments for any change that may require remediation:**

- i. A dent with a depth greater than 6% of the pipeline diameter (greater than 0.50 inches in depth for a pipeline diameter less than NPS 12) located between the 4 o'clock position and the 8 o'clock position (bottom 1/3 of the pipe).**
- ii. A dent located between the 8 o'clock and 4 o'clock positions (upper 2/3 of the pipe) with a depth greater than 6% of the pipeline diameter (greater than 0.50 inches in depth for a pipeline diameter less than Nominal Pipe Size (NPS) 12), and engineering analyses of the dent demonstrate critical strain levels are not exceeded.**
- iii. A dent with a depth greater than 2% of the pipeline's diameter (0.250 inches in depth for a pipeline diameter less than NPS 12) that affects pipe curvature at a girth weld or a longitudinal seam weld, and engineering analyses of the dent and girth or seam weld demonstrate critical strain levels are not exceeded. These analyses must consider weld properties.**

Praxair must amend its Integrity Management Monitored Conditions process and procedures to describe how anomalies that are classified as "monitored conditions" will be recorded and monitored.

**13. § 192.933(c) Schedule for evaluation and remediation. An operator must complete remediation of a condition according to a schedule that prioritizes the conditions for evaluation and remediation. Unless a special requirement for remediating certain conditions applies, as provided in paragraph (d) of this section, an operator must follow the schedule in ASME/ANSI B31.8S (ibr, see §192.7), section 7, Figure 4. If an operator cannot meet the schedule for any condition, the operator must justify the reasons why it cannot meet the schedule and that the changed schedule will not jeopardize public safety. An operator must notify OPS in accordance with §192.949 if it cannot meet the schedule and cannot provide safety through a temporary reduction in operating pressure or other action. An operator must also notify a State or local pipeline safety authority when either a covered segment is located in a State where OPS has an interstate agent agreement, or an intrastate covered segment is regulated by that State.**

Praxair must amend its Integrity Management Schedule for evaluation and remediation process to ensure that other threat conditions listed on Table 4 of ASME B31.8S are scheduled and remediated if necessary.

**14. § 192.937(b) Evaluation.** An operator must conduct a periodic evaluation as frequently as needed to assure the integrity of each covered segment. The periodic evaluation must be based on a data integration and risk assessment of the entire pipeline as specified in §192.917. For plastic transmission pipelines, the periodic evaluation is based on the threat analysis specified in 192.917(d). For all other transmission pipelines, the evaluation must consider the past and present integrity assessment results, data integration and risk assessment information (§192.917), and decisions about remediation (§192.933) and additional preventive and mitigative actions (§192.935). An operator must use the results from this evaluation to identify the threats specific to each covered segment and the risk represented by these threats.

Praxair must amend its Integrity Management Integrity Evaluation process and procedures to specifically describe how these evaluations will be carried out using assessment results, data integration, risk assessment results, remediation data, and preventive/mitigative action information as require by §192.937(b). Additionally, amended procedures must specify the process for using this information to support determination of assessment intervals, assessment methods, or other integrity decisions.

**15. § 192.935(a) General Requirements.** An operator must take additional measures beyond those already required by Part 192 to prevent a pipeline failure and to mitigate the consequences of a pipeline failure in a high consequence area. An operator must base the additional measures on the threats the operator has identified to each pipeline segment. (See § 192.917) An operator must conduct, in accordance with one of the risk assessment approaches in ASME/ANSI B31.8S, Section 5, a risk analysis of its pipeline to identify additional measures to protect the high consequence area and enhance public safety. Such additional measures include, but are not limited to, installing Automatic Shut-off Valves or Remote Control Valves, installing computerized monitoring and leak detection systems, replacing pipe segments with pipe of heavier wall thickness, providing additional training to personnel on response procedures, conducting drills with local emergency responders and implementing additional inspection and maintenance programs.

Praxair must amend its Integrity Management Additional Preventive and Mitigative Measures process and procedures to ensure they have a systematic, documented decision-making process that is used to decide what preventive and mitigative measures are to be implement based on input from relevant parts of the organization. The evaluations of preventive and mitigative measures must specify how these evaluations will use risk assessment results to identify measures and determine where they should be implemented.

**16. § 192.935(b)(1) Third party damage. An operator must enhance its damage prevention program, as required under §192.614 of this part, with respect to a covered segment to prevent and minimize the consequences of a release due to third party damage. Enhanced measures to an existing damage prevention program include, at a minimum-**

- i. Using qualified personnel (see § 192.915) for work an operator is conducting that could adversely affect the integrity of a covered segment, such as marking, locating, and direct supervision of known excavation work.**
- ii. Collecting in a central database information that is location specific on excavation damage that occurs in covered and non covered segments in the transmission system and the root cause analysis to support identification of targeted additional preventative and mitigative measures in the high consequence areas. This information must include recognized damage that is not required to be reported as an incident under Part 191.**
- iii. Participating in one-call systems in locations where covered segments are present.**
- iv. Monitoring of excavations conducted on covered pipeline segments by pipeline personnel. If an operator finds physical evidence of encroachment involving excavation that the operator did not monitor near a covered segment, an operator must either excavate the area near the encroachment or conduct an above ground survey using methods defined in NACE RP-0502-2002 (ibr, see §192.7). An operator must excavate, and remediate, in accordance with ANSI/ASME B318.S and § 192.933 any indication of coating holidays or discontinuity warranting direct examination.**

Praxair must amend its Integrity Management Enhanced third party damage process and procedures to ensure the requirement, where physical evidence of encroachments that Praxair personnel have not monitored, that these areas be either excavated or that above ground techniques as outlined in NACE RP0502 be employed.

**17. §192. 947(d) Documents to support any decision, analysis and process developed and used to implement and evaluate each element of the baseline assessment plan and integrity management program. Documents include those developed and used in support of any identification, calculation, amendment, modification, justification, deviation and determination made, and any action taken to implement and evaluate any of the program elements.**

Praxair must amend its Integrity Management processes and procedures to require that documents be developed and maintained to support the many decisions, analyses, and processes that are carried out to support the IM plan. Documents that must be included are those needed to support identification, calculation, amendment, modification, justification, deviation and determination made, as well as actions taken to implement and evaluate any of the program elements.

**18. § 192.909(a) General. An operator must document any change to its program and the reasons for the change before implementing the change.**

Praxair must amend its Integrity Management Plan's Management of Change processes and procedures to ensure that it adequately addresses requirements contained in ASME B31.8S, section 11 and that the reasons for program changes be clearly documented before they are implemented. Additionally, the amended process must ensure that the baseline assessment plan be tracked for changes and the reasons for such changes.

**19. §192.911 An operator's initial integrity management program begins with a framework (see CFR: 192.907) and evolves into a more detailed and comprehensive integrity management program, as information is gained and incorporated into the program. An operator must make continual improvements to its program. The initial program framework and subsequent program must, at minimum, contain the following elements. (When indicated, refer to ASME/ANSI B31.8S for more detailed information on the listed element.)**

**I. A quality assurance process as outlined in ASME/ANSI B31.8S, Section 12.**

Praxair must amend its Integrity Management Quality Assurance processes and procedures to ensure that it adequately requires that responsibilities for the integrity management program be formally defined so as not to allow one individual to have several responsibilities for Quality Control and approve their own reports. The amended Quality Assurance plan must fully document the criteria for assessing the use of outside resources to conduct processes that affect the quality of the integrity management program. Additionally, Praxair must amend its IM Plan to ensure that determination of how "should" statements from ASME B31.8S or other standards incorporated by reference will be treated in their IM program.

**20. § 192.915(a) Supervisory personnel. The integrity management program must provide that each supervisor whose responsibilities relate to the integrity management program possesses and maintains a thorough knowledge of the integrity management program and of the elements for which the supervisor is responsible. The program must provide that any person who qualifies as a supervisor for the integrity management program has appropriate training or experience in the area for which the person is responsible.**

Praxair must amend its Integrity Management Quality Assurance processes and procedures to ensure that it adequately requires the establishment of minimum

training or experience for personnel with key responsibilities for implementing IM program elements, specifically supervisory personnel.

Response to this Notice

This Notice is provided pursuant to 49 U.S.C. § 60108(a) and 49 C.F.R. § 190.237. Enclosed as part of this Notice is a document entitled *Response Options for Pipeline Operators in Compliance Proceedings*. Please refer to this document and note the response options. Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b). If you do not respond within 30 days of receipt of this Notice, this constitutes a waiver of your right to contest the allegations in this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue a Final Order.

If, after opportunity for a hearing, your plans or procedures are found inadequate as alleged in this Notice, you may be ordered to amend your plans or procedures to correct the inadequacies (49 C.F.R. § 190.237). If you are not contesting this Notice, we propose that you submit your amended procedures to my office within 60 days of receipt of this Notice. This period may be extended by written request for good cause. Once the inadequacies identified herein have been addressed in your amended procedures, this enforcement action will be closed.

In correspondence concerning this matter, please refer to **CPF 4-2009-1010M** and, for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,



R. M. Seeley  
Director, Southwest region  
Pipeline and Hazardous  
Materials Safety Administration

Enclosure: *Response Options for Pipeline Operators in Compliance Proceedings*