SemGroup

March 29, 2012

Mr. Rod Seeley
Director, Southwest Region
Pipeline Hazardous Materials and Safety Administration
8701 South Gessner Rd.
Suite 1110
Houston, Texas 77074

Re: CPF 4-2012-5002M

Dear Mr. Seeley:

On November 14-19, 2010, a representative from your office inspected the integrity management procedures of SemGroup, L.P. As a result of this inspection your office issued a Notice of Amendment, dated February 24, 2011. The Notice of Amendment identified several plans or procedures that the PHMSA representative felt required amendment. SemGroup has reviewed the Notice of Amendment and offers the following response.

1. **195.452 Pipeline integrity management in high consequence areas.**
   Small Leak Analysis

"The inspection team encourages SemGroup continue with this small leak analysis and make appropriate changes to segment identification as necessary".

RESPONSE: *SemGroup is enhancing our procedure to account for tank volumes in the drain down calculations during the time period between leak detection and pump shut down and valve closure. We are also in the process of checking and if necessary updating our Process and Instrumentation Drawings (P&IDs) for our facilities. These drawings record any equipment changes and provide information needed to perform future leak analysis for each segment and associated facilities. Results from past small leak analysis show that none of the small leak scenarios exceeded the full rupture/spill flows or volumes. However, per PHMSA's notice, SemGroup will use the updated equipment information to conduct additional small leak analyses to update the segment identification by the end of 2012.*

2. **195.452 Pipeline integrity management in high consequence areas.**
   Pressure Tests and Corrosion Control Program

"SemGroup does not state in its IMP that SemGroup will assess the effectiveness of its corrosion control program for segments hydrostatically assessed... PHMSA Pipeline Safety inspectors will pay particular attention to the adequacy of corrosion control programs for pipelines for which pressure testing is used."

RESPONSE: *SemGroup's Corrosion Control Program is a key component to ensuring the effectiveness of our Integrity Program and is therefore fully integrated as documented in our Plan. SemGroup has modified our IMP plan to explain more clearly how the assessment of the effectiveness of pipeline corrosion management activities will be conducted. See Attachment A.*

3. 195.452 Pipeline integrity management in high consequence areas.
Risk Ranking Analysis

"SemGroup uses a risk ranking analysis that does not clearly differentiate the relative risks of different pipeline segments. The risk results reviewed by the team indicated that adjacent pipeline segments that have different types and quantities of HCA's have the same relative risk score. A segment that affects multiple RCA's directly could present a higher risk than a segment that affects only one HCA indirectly. The thirteen HCA attribute columns on the SemGroup risk ranking spreadsheet are effectively reduced to a single yes or no and provide very little differentiating information to risk ranking, such as physical direct pathways. A segment that has one of the thirteen columns indicated would have the same risk as one that had all thirteen columns indicated per the SemGroup risk ranking spreadsheet."

RESPONSE: *SemGroup's risk model does differentiate the relative risks of different pipe segments. These individual segments do have their own risk score; however, it is true that each HCA is treated with the same weight and therefore individual pipe segments containing all of the same attributes except HCA type would have the same risk score. SemGroup has developed a plan to enhance this risk algorithm to weight each type of HCA differently, in this order of criticality: HPA, OPA, DW, ECO, NAV. Additionally, if two or more HCA types exist on a segment, SemGroup will provide an additive weighting to these, which will potentially reflect a higher risk score, based on the type of HCA. SemGroup will complete these modifications to our risk model by August 1, 2012.*

4. 195.452 Pipeline integrity management in high consequence areas.
Risk for Facilities

"The SemGroup approach to analysis of risk for facilities that affect HCA's does not appear to be comprehensive or clearly documented."

RESPONSE: *The facilities risk model is comprehensive and appropriately documented and if it appeared otherwise this is because the program is, as contemplated under the IM program, evolving as we obtain additional data or revise methodologies based on experience and learning's. SemGroup evaluated a number of approaches to analyze risk for facilities and implemented a model in 2008. We reworked the model algorithms extensively then further evolved the risk analysis to adopt the different approach in late 2011 known by industry as the Hazop Methodology. This methodology incorporates a disciplined method designed to develop safer more reliable facilities including: i) provide better understanding of the facility and it's operation; ii) develop an action plan to correct any problems; and, iii) track actionable items to*

assure proper completion. SemGroup has begun implementation of the process by checking and if necessary updating all Process and Instrumentation Diagrams (P&IDs). The first two facilities are planned to be completed in May 2012 and the rest will be completed by year end. See Attachment B for a copy of the Hazop Methodology.

5. 195.452 Pipeline integrity management in high consequence areas. Leak Detection Capability Processes

"SemGroup does not have a clearly documented Leak Detection Capability Evaluation process. SemGroup needs to formalize procedures for operator response to leak detection system indications. SemGroup needs to provide a direct link from its IMP to leak detection system and control room procedures that address IM requirements."

***RESPONSE**: SemGroup does have formal procedures to identify leaks when and where they occur relative to HCAs. The Integrity Management Plan specifically references leaks 52 times with regard to the following: i) methods of leak indication and detection using the SCADA System, regular aerial patrols, and foot patrols; ii) leak detection thresholds and capabilities; iii) processes for SCADA System operators to detect and notify pipeline integrity when pressure or volume discrepancies occur; iv) leak occurrences relative to impacting HCAs, v) patterns and frequencies to update the HCA risk model; vi) determine root causes of leaks to establish preventative and mitigative measures for leaks that could potentially impact HCAs, and; vii) processes for integration of leak data with Pipeline Integrity and the HCAs for continuing risk evaluation.*

We are in the process of formalizing internal communication procedures that currently take place between the Manager of Pipeline Systems Maintenance, who oversees all pipeline leaks, the Control Room Supervisor, who oversees the operation of the pipeline Control Center and the Pipeline Integrity Specialist. These procedures will be included in the OME manual and will be referenced in the IMP. These procedures ensure prompt notification of complete leak information to the Integrity Specialist who is responsible, together with Engineering and Operations, for developing appropriate preventative and mitigative responses designed to protect HCAs. The Integrity Specialist also ensures that the leak information, including root causes, is input into the Integrity Risk Model. SemGroup will finalize these procedures by August 1, 2012.

6. 195.452 Pipeline integrity management in high consequence areas. What Records Must Be Kept?

"SemGroup does not have a statement in its IMP that documentation is obtained from a previous pipeline owner/operator when acquisitions are made. Obtaining records from previous pipeline operators will enable SemGroup to operate pipelines acquired from previous operators more safely."

RESPONSE: SemGroup has revised its IMP to include a statement regarding the transfer of pertinent documentation when pipelines are acquired. See Attachment B.

SemGroup appreciates the opportunity to address these items, and appreciates the insight and recommendations made by PHMSA that help us improve our program. We are committed to continuous evaluation and improvement of the Pipeline Integrity Program and processes.
Should you have any additional questions or need additional information please contact Edith Coen at 918-640-3384.

Very truly yours,

\s\Peter L. Schwiering

Peter L. Schwiering

Peter L. Schwiering
President, Rose Rock Midstream, L.P.

Cc: Edith Coen, Director Health Safety & Environmental, SemGroup Corporation
Tommy Green, Manager Engineering and Construction, Rose Rock Midstream, L.P.
Jim Ponder, Pipeline Integrity Specialist, Rose Rock Midstream, L.P.

Pressure Test Criteria

Criteria that may indicate that a hydrotest will be the preferred method for integrity assessment include:

- If a seam test is needed
- If there are short segments of pipe
- If the pipeline is smaller diameter
- When pipeline availability is sufficient to complete a hydrotest
- When pipeline dents are unlikely

When hydrostatic testing is used as the assessment technique, additional monitoring will need to be done to assess pipeline corrosion. This assessment will be done by graphing and reviewing pipe to soil potentials, leak/failure history, coating type, age of pipe, soil type and coupon reports. When available, APB/SRB analysis, residual chemical amounts and under film corrosion. In soil types known to cause corrosion, dig results will be used.

ERW and SCC

2.01 Items 4

Most SemGroup pipeline ERW seams are not considered to be susceptible to failure due to the low operating pressures. For the same reason Stress Corrosion Cracking is not seen as a problem on most SemGroup Pipelines. This assumption will be reviewed for each pipeline segment to verify that it is correct as SemGroup responds to the information gained from the internal inspections.

Very few of the SemGroup pipelines operate at pressures greater than or equal to 60% SMYS. This indicates they are not susceptible to Stress Corrosion Cracking. Those pipelines that operate between 50% and 60% SMYS have no reports of signs of SCC when they have been excavated. Two pipelines which do operate above 60% SMYS are the White Cliffs pipeline and the KS-OK pipeline. The White Cliffs line was put into service during 2009 and is not yet susceptible to SCC, while the KS-OK line is a 4" pipeline was researched and documented below.

Stress Corrosion Cracking on KS-OK Line

Stress Corrosion Cracking on SemGroup's 4" Kansas to Oklahoma Pipeline

There are two common forms of Stress Corrosion Cracking (SCC), High pH SCC (aka Carbonate/Bicarbonate SCC) and Low or Near-Neutral pH SCC. Several factors can affect a pipeline's susceptibility to this type of corrosion, but the three conjoint components that must be present are a susceptible material, a specific chemical environment, and tensile stress.

According to PHMSA, the following are potential risk indicators and should be taken into account when reviewing a pipeline for SCC:

High pH SCC

- Known SCC history (failure, non-failure, in service and during testing)
- Pipeline and Coating Characteristics
- Steel grades X-52, X-60, X-65, X-70, and possibly X-42
  - Age $\geq$ 10 years
  - Operating stress > 60% SMYS
  - Pipe temperature > 100°F (typically < 20 miles d/s of pumps)
  - Damaged pipe coating
- Soil Characteristics
  - Soil pH range: 8.5 to 11
  - Alkaline carbonate/bicarbonate solution in the soil
  - Elevated soil temperature contributing to elevated pipe temperature
- Polarized cathodic potential range: -600 to -750 mV, $Cu/CuSO_4$

Low or Near-Neutral pH SCC

HAZOPS STUDY

Hazop Methodology

General:

The hazop study is a disciplined method of providing the evaluation team with the means to visualize the different ways that a plant, process, or piece of equipment can fail, malfunction, or be improperly operated. The hazop technique provides opportunities for personnel to think creatively concerning the ways in which hazards or operating problems might arise in a facility or process. Within the hazop, the process under investigation is systematically questioned to determine the consequences of deviations from the design intent. The premise of the hazop technique is that a problem can exist if the process deviates from the design intent.

Preparation

The Owner is to provide a process description to the Hazop Facilitator in advance of the hazop review meeting.

Ideally the P&IDs should be provided to the Hazop Facilitator who will divide them into nodes before the initial evaluation team meeting, if that is not possible then the evaluation team will divide the facility into nodes during the initial meeting. Copies of the marked up P&IDs, showing the nodes, are to be distributed by the Owner to the team members.

Evaluation team members are to be selected by the Owner in advance of the initial hazop review meeting from a wide spectrum of individuals who are experienced with the different aspects of the facility, or other similar facilities and processes. These should include operations, maintenance, engineering, management, health / safety and environmental; including subject matter experts in mechanical equipment, hydraulics, process analysis, controls, electrical power and structures.

Team Members:

The hazop study will begin with the introduction of each evaluation team member, including a brief description of their experience and their role in the study. This will be followed by an introduction by the facilitator to the purpose and methodology to be used in the study, and a description of the facility, the processes involved, and experiences with similar facilities.

Kick-off Meeting:

The agenda for the kick-off meeting will be:

1. Introduction of the facilitator and the evaluation team members
2. Purpose of the hazop analysis
3. Hazop schedule and attendance
4. Hazop methodology

5. Hazop references
    - Process description
    - Process flow diagrams (PFDs)
    - Process and Instrumentation Diagrams (P&IDs)
    - Other similar facilities operated by the company and relevant history
    - Laws and regulations
    - Company policies, procedures and specifications
6. Scope of the hazop
    - Description of the facility including location
    - Areas and equipment included
7. Risk Ranking Matrix
8. Severity Ranking
9. Likelihood Ranking
10. Hazop Assumptions
11. Safeguards
12. Process hazards, especially as relates to chemical releases
13. Past incidents at this or similar facilities
14. Modes of operation
15. Hazop nodes

Assumptions:

The following assumptions will hold for the hazop review:

1. Process design calculations are correct: Process calculations are assumed to have been checked during engineering design reviews. The team may choose to challenge the basis of any calculation.
2. Equipment is fit for its intended use: Equipment is assumed to be fit for its intended use during normal operating conditions. The team may challenge whether the equipment is suitable for abnormal conditions that may occur.
3. Trained operators will be used: Operators are assumed to be properly trained and available to respond to process indications and alarms. Otherwise the process indications and alarms cannot be considered as safeguards.
4. Written operating procedures are correct: Any human action that is different from a correct written procedure is an error with potential to

create a deviation. Discussion during the review may reveal that a given procedure is actually incorrect.

5. Policies will be enforced: The Owner's policies will continue to be followed and enforced as administrative safeguards / controls. The team reserves the right to seek evidence that current practices are consistent with the policies.
6. A single check valve will not prevent reverse pressure: It may be assumed that a single check valve will prevent reverse flow, but it will prevent the transmission of pressure in the reverse direction across the valve.
7. Any unlocked valve has the potential to be operated at any time: This assumption will hold regardless of the likelihood of occurrence.
8. Blind or physical disconnections are legitimate, reliable methods for removing equipment from service.
9. Listed safeguards are in place.

Safeguards:

The following may be considered as safeguards:

1. Piping and pressure vessels:
   - Piping and pressure vessel specifications
   - Design code considerations
   - Corrosion / erosion allowances in piping and equipment
   - Welding procedures / welder and procedure qualification tests
   - Gasket specifications
   - Stress relief
   - Required inspection and documentation
2. Pumps and compressors:
   - Pump and compressor specifications
   - Pump and compressor seals specified for the fluids being handled and the operating conditions
   - Seal leak detection system in place
3. Valves:
   - Valve specifications
   - Design code considerations
   - Seal and packing specifications
   - Fail safe settings for critical valves upon loss of utilities
4. Corrosion Prevention:

- Periodic non-destructive testing and inspection of piping, vessels, equipment and structures
- Periodic application of exterior paint and protective coating on piping, equipment, vessels and structures

5. Equipment Maintenance:
   - Preventative maintenance systems, including:
     i. Rotating equipment vibration monitoring
     ii. Lubricating schedule
     iii. Seal inspection schedule
     iv. Data base for equipment failures
6. Maintenance Safety:
   - Maintenance work order and permit systems for:
     i. Hot work
     ii. Hazardous work
     iii. Vessel / confined space entry
     iv. Line breaking
7. Control Systems:
   - Distributed control system
8. Instrument Testing:
   - Set point deviation alarms for process variables
   - Periodic testing and calibration of process instrumentation
   - Log of instrument calibrations, hardware and software modifications
   - Testing of alarm devices
   - Log of alarm testing and changes
   - Descriptive log of all emergency (critical) switch and alarm set points for auditing actual settings for reconfiguring settings after a control system failure
9. Relief Valves:
   - Periodic relief valve removal, disassembly and testing
   - Locks on block valves upstream and downstream of relief valves to prevent accidental closing
10. Handling of Hazardous Vapors:
    - Hydrocarbon relief / blow down system that vents to flare

11. Process Isolation:
    - Manual isolation valves for critical components, located in safe areas
    - Remotely operated isolation valves for pumps and compressors
12. ESD Systems:
    - Emergency shutdown systems for shutting down the supply of fuel or process gas, and for blowing down pressurized gas piping.
13. Common Cause Failure Protection:
    - Equipment redundancy
    - Instrument redundancy
    - Testing and inspection of redundant systems
    - Uninterruptible power supply for critical instrumentation and process components
    - Backup power generators
14. Containment:
    - Pump drip pan or basin
    - Rainwater run-off containment
    - Spill control guidelines
    - Tank containment dikes to NFPA requirements
15. Suppression and Extinguishing Systems:
    - Manual pull station fire and gas alarms
    - Automatic start fire pumps
    - Fixed and swivel monitor nozzles
    - Fire extinguishers in control rooms rated for electrical fire
    - CO_2, halon flood systems
    - Foam system for hydrocarbon storage tanks
    - Fire extinguishers, fire hydrants, hose boxes located throughout the facility
16. Process Fire Protection:
    - Steam flood system for fired heaters
17. Remote Monitoring:
    - Video monitoring of critical equipment, including flares
    - Gas detectors throughout the facility

18. Personnel Protection:
    - Personal protective equipment (PPE), including:
        i. Self contained breathing apparatus
        ii. Escape packs
        iii. Respirators
        iv. Personnel hazardous vapor monitors
        v. Protective clothing
    - Periodic inspection and testing of PPE and personal safety items, including:
        i. Self contained breathing apparatus
        ii. Safety showers
    - Site and unit specific health and hygiene program, including periodic testing of personnel exposure levels

19. Emergency Response:
    - Remote emergency communications system, including:
        i. Hand-held, two way radios
        ii. Buddy system for critical or hazardous operations
        iii. Emergency communications procedures
        iv. Telephones
    - Dedicated fire brigade
    - Cooperative fire brigade
    - Fire drills
    - Facility and unit contingency plan
    - Emergency disaster response drills
    - Emergency procedures for special incidents

20. General Documentation:
    - Detailed process documentation (current PFDs, P&IDs, Electrical Single Line Diagrams, etc.)
    - Operations documentation that is current and clearly states the procedures
    - Management of change procedures, including an auditing program
    - Documented safety programs

- Unit status communications systems, transferred with each shift change, including:
    i. Logged shift notes
    ii. Status sheets
- Site and unit specific safety program with documentation of major, minor and near miss incidents
- Lessons learned program with documentation

21. Training and Certification:

- Formal operator training and retraining with documentation
- Certification or qualification program with documentation
- Process overview training with documentation

Nodes:

Each facility will be divided into nodes. Nodes are locations within the facility where process deviations may occur. The nodes will generally progress from the inlet of the facility to the outlet. Each process stream will be examined both for its dependence on other streams and as an independent stream.

Each node will generally have its end points where the process conditions could potentially change; for example from the discharge of a pump to the inlet of a control valve, from the outlet of a control valve to the inlet of a vessel, etc.

The facility P&IDs will be the main documents for identifying the end points of the nodes, but they may be supplemented by other drawings (e.g. plot plans, electrical single lines, piping drawings).

Conditions:

The cornerstone of the hazop investigation is the deviation. A deviation occurs if the process parameter being studied is outside of the desired range for the parameter. Guide words are combined with the process parameter to describe a hypothetical deviation from the process intent.

Process parameters include:

- Pressure
- Temperature
- Flow
- Level
- Corrosion / Erosion

Guide words include:

- High
- Low

- Reverse
- No

Conditions are examined for:

- Start-up
- Shut-down
- Phase change
- Power failure
- Ambient conditions

Risk Ranking

In order to risk rank the hazard scenarios, the project risk register scenario process will utilize a Risk Ranking Matrix (Table 1), together with the risk ranking analysis ranking criteria shown in Tables 2 and 3 below. The study will approach risk ranking as follows:

1. The Severity Number: 1 to 4, with 4 being the most severe and 1 being the least severe, will be selected assuming "no safeguards are in place", to determine the severity of the consequences of an event asking "how severe could this event be without safeguards?" The severity ranking answers the question "So what?" If the subject event does occur, what will be the impact of the event? The definitions used to determine the severity of a risk are shown in Tables 2.1, 2.2, 2.3 and 2.4. This number will be recorded in the "Severity" (S) column of the Hazop Record sheet.

2. The Likelihood Number: 1 to 4, with 4 being the most frequent, and 1 being the least frequent, will be selected assuming "safeguards are in place". The likelihood will be estimated on the basis of the listed potential consequences occurring using the qualitative likelihood definitions shown in Table 3. This number will be recorded in the "Likelihood" (L) column of the Hazop Record sheet.

3. The Risk Ranking Matrix is used to establish an acceptable minimum risk ranking base line (see Table 1). The risk number, 1 to 5, with 5 being the highest and 1 being the lowest will be selected from the table and recorded in the "Risk" (R) column of the Hazop Record sheet. For those scenarios that fall into the "High Risk" profile ranking categories (i.e. Risk Ranking of 3 or higher) highlighted in red (grey if printed in black and white), there will be at least one "Action" provided that when completed will reduce the risk for the scenario to an acceptable level (i.e. Risk Ranking of 2 or less).

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TABLE 1: Risk Assessment Matrix

		RISK RANKING (see note)			
SEVERITY	Major (4)				
	Significant (3)	(3,1) **2**			
	Moderate (2)	(2,1) **1**	(2.2) **2**		
	Minor (1)	(1,1) **1**	(1,2) **1**	(1,3) **2**	
		Remote (1)	Occasional (2)	Probable (3)	Frequent (4)
		LIKELIHOOD			

NOTE: Risk Ranking of 3 or greater requires at least one "Action"

TABLE 2.1: Severity Criteria, Public Concern

Rating	Consequences
4	**MAJOR** World wide negative news coverage, public demonstrations
3	**Serious** Negative local news coverage, permit delays
2	**Minor** Negative phone calls, letters to company
1	**Incidental** Minor public inconvenience that generates no concern

TABLE 2.2: Severity Criteria, Financial

Rating	Consequences
4	**MAJOR** Financial losses, including capital loss, lost profit opportunity, legal liability, medical and emergency response costs totaling more then $1,000,000
3	**Serious** Financial losses, including capital loss, lost profit opportunity, legal liability, medical and emergency response costs totaling between $100,000 and $1,000,000

2	**Minor** Financial losses, including capital loss, lost profit opportunity, legal liability, medical and emergency response costs totaling between $10,000 and $100,000
1	**Incidental** Financial losses, including capital loss, lost profit opportunity, legal liability, medical and emergency response costs totaling less then $10,000

TABLE 2.3: Severity Criteria, Environmental

Rating	Consequences
4	**MAJOR** Wide spread(1), irreversible damage to: • Ecologically important habitat(2) or • Potable ground water
3	**Serious** Wide spread(1), reversible damage or limited irreversible damage to: • Highly valued pristine areas or • Ecologically important habitat(2) or • Potable ground water
2	**Minor** Wide spread(1), irreversible damage to low quality, undeveloped land, or limited, reversible damage to: • Highly valued pristine areas or • Ecologically important habitat(2) or • Potable ground water
1	**Incidental** Wide spread(1), irreversible damage to developed property, or limited reversible damage to: • Low quality, undeveloped land or • Environment with low ecological importance

(1) Wide spread damage is such that at least several months are required to clean up the damage.

(2) Ecologically important habitat includes wetlands, marine sanctuaries, areas with threatened or endangered species, and areas important to the socio-economic health of local communities

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TABLE 2.4: Severity Criteria, Health and Safety

Rating	Consequences
4	**MAJOR** At least one fatality or permanently disabling injury / illness to employee or public.
3	**Serious** Injury or illness to employee or public requiring long term hospitalization or rehabilitation. Effects are reversible.
2	**Minor** Injury or illness to employee or public with possible lost time from work. Effects are reversible.
1	**Incidental** Temporary inconvenience to employee or public such as a rash, headache or nausea. Some first aid may be required.

TABLE 3: Likelihood Criteria

Rating	Likelihood
4	**Frequent** Likely to Occur repeatedly in the life of the system.
3	**Probable** Could occur several times in the life of the system.
2	**Occasional** Unlikely to occur more than once in the life of the system.
1	**Remote** Possible, but not likely to occur in the life of the system.

Hazop Matrix

A recommended action will be made for each process condition that is evaluated. For those conditions that have an acceptable risk rating, the recommendation will be "no action". For those conditions that have an unacceptable risk rating, one or more actions will be recommended that will reduce the risk to an acceptable level. For each of these actionable recommendations an individual will be assigned who will be responsible for assuring that the recommendations are carried out. A Hazop Action Record will be filled out for each actionable recommendation.

HAZOPS STUDY

Hazop Attendance

Fill in the location where the hazop analysis is being conducted, the name and brief description of the facility being analyzed and the names of the individuals on the evaluation team. Each team member is to initial the sheet for each day that he attends the hazop analysis sessions. The Hazop Facilitator is to replace the numbered Days cells with actual dates of the sessions.

Hazop Action Record

The initial analysis will proceed by filling in the information cells on the Hazop Record. Fields 1 thru 7 below will be filled in by the Hazop Facilitator prior to the start of the formal analysis sessions. Data in the remaining fields are to be entered by the Hazop Scribe as determined by the team members during the analysis session(s). Data to be entered as follows:

1. Facility: Description of the facility being analyzed: facility name, function, location, etc.

2. Date: Date or dates on which the analysis is being conducted

3. Session: Session number for the analysis covered by the Record sheet

4. Drawing / Sheet No. /Rev No.: Drawing, sheet number, revision number being used to conduct the analysis.

5. Nodes: List of the nodes being covered in the analysis.

6. Description: Description of the nodes being covered in the analysis

7. Other Reference Documents: List any other reference documents that are being used in the evaluation

8. No. of Action Items; No. of Action Items Open; No. of Action Items Completed; % of Action Items Open; % of Action Items Completed: These fields will be filled in automatically by the program as action items are assigned and completed.

9. Node No.: Node number assigned to the deviation being analyzed. Nodes are to be numbered by any method that is appropriate to the facility and the analysis that is being carried out.

10. Guide Word: Selected from a drop down list (High, Low, Reverse, No, Other). Fill in the appropriate Guide Word for Other.

11. Parameter: Selected process parameter from a drop down list (Temperature, Pressure, Flow, Level, Corrosion/Erosion). Other parameters may be manually filled in if needed.

12. Condition: Selected from a drop down list (Start-up, Shut-down, Phase Change, Power Failure, Ambient Conditions). Other Conditions may be manually filled in if needed.

13. Cause: Manually fill in the cause of the deviation (e.g. equipment failure, operator error, wrong valve opened, etc.). . Each Deviation can have multiple Causes, each will be noted individually and analyzed and documented separately.

14. Consequences: Manually fill in the expected consequences of the Deviation. Each Deviation can have multiple Consequences, each will be noted individually and analyzed and documented separately.

15. Safeguards: Manually fill in a description of any available Safeguards. Enter "None" if there are no Safeguards.

16. Comments: Manually fill in any additional relevant information.

17. S; Fill in the Severity rating from Tables 2.1, 2.2, 2.3, and 2.4 above. Fill in the highest severity rating selected from these tables.

18. L: Fill in the Likelihood rating from Table 3 above.

19. R: The Risk rating will be automatically calculated from the Severity and Likelihood ratings entered. Any Risk Rating of 3 or greater will require at least one Action that will lower the Risk rating to a 2 or below. Risk Ratings of 2 or less may have an Action assigned, at the option of the evaluation team.

20. Action No.: An Action No. will be assigned to be carried to the Hazop Action Response and Hazop Closure Record sheets.

21. Action Description: Manually fill in a brief description of the Action to be undertaken. The description here should be brief and simple. The detailed Action description will be developed by the "Action By" person outside of the general meeting and filled in on the Hazop Action Response form (see below).

22. Action By: Fill in the name of the individual who will be responsible for developing the detailed Action Description on the Hazop Action Response, and for having the Action carried out.

23. Completed (Date): Enter the date when the Action is completed.

Hazop Action Response Sheet

This sheet provides the detailed back-up for the Actions that are recorded on the Hazop Record sheet. Multiple sheets may be used for a given action, if required. The Hazop Scribe is to complete fields 1 thru 11 of this sheet. The Individual who is assigned to complete the Action and his supervisor are to complete fields 12, 13, 14, 15, 17 and 18 of this sheet. Either the Hazop Scribe, the Action By individual, his supervisor or other appropriate person may make entries in field 16 (Comments). Data to be entered as follows:

1. Action by: Copy the "Action by" name from the Hazop Record sheet.
2. Action No: Copy the "Action No." from the Hazop Record sheet.
3. Document Reference: Copy the "Drawing/ Sheet no. / Rev no." from the Hazop Record sheet.
4. Revision No.: Start with 0, and increase the Revision by 1 each time this sheet has new information added.
5. Date: Enter the date of the current revision.
6. Node No.: Copy the "Node No." from the Hazop Record sheet.
7. Due By: Enter the due date that the Action is to be completed.
8. Meeting Date: Enter the date of the hazop session during which the "Action" was discussed
9. Facility: Copy the Facility description from Hazop Attendance sheet.
10. Node Description: Enter a brief description of the Node that the Action applies to.
11. Condition: Copy the "Condition" from the Hazop Record sheet
12. Cause: Enter a detailed description of the cause of the Deviation.
13. Consequence: Enter a detailed description of the Consequences of the Deviation. Reference may be made to Tables 2.1, 2.2, 2.3 and 2.4 above for this.
14. Safeguards: Enter a detailed description of any safeguards that are in place which could prevent the Deviation from occurring, or could prevent or minimize the Consequences. Enter "None" if there are no safeguards.
15. Action Description: Enter a detailed description of the Action to be taken in order to reduce the Risk to an acceptable level.

16. Comments: Provide any additional Comments relevant to the Deviation, Cause, Consequence, Safeguards, Action, etc.

17. Completed (date): Enter the date when the Action is completed. Copy that date to the Hazop Record sheet.

18. Signature: The person identified in the "Action by" field is to sign this sheet verifying that the assigned Action has been completed.

Hazop Action Closure Record

This sheet provides a summarized status report on the progress being made toward completing all actions that were identified during the hazop analysis. One individual is to be assigned, generally the Owner's Project Manager or Safety Manager, to continually track the progress until all actions have been satisfactorily completed. Data is to be entered as follows:

1. Facility: Copy the Facility description from the Hazop Action Response Sheet.

2. Node No.: Copy the Node number from the Hazop Record Sheet.

3. Action No.: Copy the "Action No." from the Hazop Record Sheet.

4. Action By: Copy from the "Action By" field on the Hazop Record Sheet.

5. Issued On: Enter the date that the Action was assigned to the individual named in the "Action By" field.

6. Due By: Copy from the "Due By" field on the Hazop Action Response Sheet.

7. Completed On: Copy from the "Completed (date)" field on the Hazop Action Response Sheet.

Wrap-up Report, Facilitator

The Hazop Facilitator will prepare a written report summarizing the Hazop analysis sessions, and submit to the Owner. This report will include any additional recommendations and comments on the analysis by the facilitator.

Progress Reports

The Owner will assign an individual, generally Owner's Project Manager, or Safety Manager, to prepare and distribute to all stakeholders a periodic report on the progress being made toward completing all Actions that resulted from the hazop analysis.

Wrap-up Report, Owner

The Owner will assign an individual, usually the Owner's Project Manager, or Safety Manager, to prepare a written report when all of the Actions are completed, summarizing the hazop analysis and the outcomes achieved, as well as any additional recommendations, comments and improvements for future hazop analyses that the Owner may carry out.

9. Record Keeping

9.1. Scope

This Section covers the records and supporting documentation that are part of SemGroup's Integrity Management Program.

9.2. Background

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195.452(j)

All records and other documentation that demonstrate compliance with the requirements of the integrity management regulations must be kept for the useful life of a pipeline.

9.3. Company Compliance

FAQ 8.10
Appendix C.VI
8.05 Items 1, 2, 5, 6

The following records will be kept by SemGroup for review:

1. A written integrity management program
2. Documents to support the decisions and analyses, including any modifications, justifications, variances, deviations and determinations made, and actions taken, to implement and evaluate each element of the integrity management program
3. A process for identifying which pipelines could affect a high consequence area and a document identifying all pipeline segments that could affect a high consequence area
4. A plan for baseline assessment of the line pipe that includes each required plan element
5. Modifications to the baseline plan and reasons for the modification
6. The use of and support for an alternative practice
7. A framework addressing each required element of the integrity management program, updates and changes to the initial framework and eventual program
8. A process for identifying a new high consequence area and incorporating it into the baseline plan
9. A process for identifying population changes around a pipeline segment
10. An explanation of methods selected to assess the integrity of line pipe
11. The process for review of integrity assessment results and data analysis by a person qualified to evaluate the results and data
12. The process and risk factors for determining the baseline assessment interval
13. The results of the baseline integrity assessment
14. The process used for continual evaluation
15. The risk factors used for determining the frequency of evaluation
16. The process for integrating and analyzing information about the integrity of a pipeline
17. The information and data used for the information analysis
18. The results of the information analysis and periodic evaluations
19. The process and risk factors for establishing continual reassessment intervals
20. A justification to support any variance from the required reassessment intervals
21. Integrity assessment results and anomalies found
22. A process for evaluating and remediating anomalies
23. A criteria for remedial actions
24. Actions taken to evaluate and remediate the anomalies
25. Other remedial actions planned or taken
26. The schedule for evaluation and remediation of anomalies, with justification to support deviation from required remediation times

27. Risk analysis used to identify additional preventive or mitigative measures, records of preventive and mitigative actions planned or taken
28. The criteria for determining EFRD installation
29. The criteria for evaluating and modifying leak detection capability
30. The methods used to measure the program's effectiveness

These elements often consist of more than one source of documentation and/or records. The section for each element describes required documentation, supporting reports, etc. and lists the location where all documentation can be accessed. See each section for listings specific to each element.

8.05 Item 9

SemGroup will also obtain all pertinent documentation regarding integrity management for any pipelines which are purchased from other companies. SemGroup will review all available documentation on newly purchased pipelines and determine and document any gaps in this documentation relative to its compliance with integrity management regulations. If gaps exist, steps will be taken to secure any missing documentation and/or document the reason this documentation is missing.