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December 9, 2016

237-3-3

Venoco: Santa Clara Unit
Lease Renewal Assessment

Mr. Dave Durflinger
CITY OF CARPINTERIA
5775 Carpinteria Avenue
Carpinteria, CA 93013

Dear Dave:

As requested, we have completed the review of the responses to the review comments as well as the updated support documents provided in the Venoco letter, dated September 20, 2016 to assess the current, short term integrity of the Venoco's Santa Clara Unit, 10" Gas Pipeline (M-1) and the 10"/12" Oil Pipeline (M-2) transporting Gas and Oil between the Offshore Platforms and the facility in Carpinteria.

Based upon the review of the additional documents provided and the original submittals, it is concluded that currently, both, the 10" Gas Pipeline (M-1) and the 10"/12" Oil Pipeline (M-2) transporting Gas and Oil between the Offshore Platforms and the facility in Carpinteria are not in any imminent danger of failure. This current, short term assessment is based upon the following:

- None of the metal loss anomalies identified by the recent Smart Pig Surveys require any de-rating of the pipelines. The pipelines are fit for service for their specified Maximum Allowable Operating Pressure (MAWP) for each pipeline.
- The normal operating pressures for both pipelines are well below the specified MAWP for each pipeline.
- The gas pipeline is now transporting PUC quality fuel gas for platform use instead of sour gas from platform to shore. The PUC quality gas is dry and not corrosive.

The Attachment I summarizes the documents review and the Attachment II provides detail review comments for the each of the documents reviewed.

It is recommended that the City require Venoco to address the following:

- Provide justification for the significant revisions to the Gas Pipeline Smart Pig Survey Reports resulting in the significant reduction in the number of anomalies and their severities.
- Have pro-active repair and maintenance program. All 40% or more metal loss anomalies need to be confirmed or repaired. The tool tolerance of 10%-15% makes them more vulnerable to failure.
- Revalidate the Pipeline Specific Operations Manuals (PSOMs) in a timely manner. PHMSA requires these manuals to be revalidated annually. Address the review comments provided in the attachment.
- Provide the latest re-validated Process Hazards Analyses (PHA-HAZOPS) for both pipelines including the Actions required and their resolutions.
- Incorporate the detailed review comments provided in the Attachment II, updating the documents.

Sincerely

ROBERT BROWN ENGINEERS



Jay Sheth

JS/hs
Attachments

ATTACHMENT I DOCUMENT REVIEW SUMMARY

Gas Pipeline (M-1)

The Smart Pig Survey Reports (2013 and 2015) for the Gas Pipeline (M-1) has been revised. Both surveys now show significantly reduced number of anomalies with significant reduction in the metal loss and severity. As delineated in the attached specific comments, provide justification for these reduced corrosion anomalies reported in the revised survey reports. The gas pipeline is now in a sweet gas (PUC quality) service. It transports the gas from the Carpinteria Facility for the Platform use. Since the Gas Pipeline no longer carries the Produced Gas to Shore and it transports sweet dry gas (no H₂S or water) to the Platform (reverse flow), the gas pipeline should not be prone to internal corrosion. However, environment for the external corrosion still exists.

Oil Pipeline (M-2)

Venoco has addressed and repaired both anomalies at the Platform. The ROV Surveys (2011 and 2013) show the pipelines are adequately protected by the Cathodic Protection for the external corrosion.

Venoco states that the 50% anomaly at a log distance of 40,027.8' is well below any action "trigger". However, this anomaly requires action as per 49 CFR Part 195.452(h) (4) (iii) (E) (Pipeline Integrity Management in High Consequence Area): 180-day conditions – An area of general corrosion with a predicted metal loss greater than 50% of the nominal wall.

The anomaly at 82,077.4' is External metal loss of 49.1%. Venoco states that this anomaly is not active and well below any action "trigger". This anomaly has increased from 43.7% in 2010 to 49.1% in 2014. This makes this anomaly active. Also, with the tool tolerance of +/-, this anomaly could be 59.1%. Venoco should pro-actively evaluate this anomaly.

Venoco is due for 2016 Smart Pig survey for this pipeline. Venoco may have conducted the survey. Provide the 2016 Survey Report for review. This survey would provide the status of these anomalies to ensure the continued M-2 pipeline integrity.

2015 Side Scan Sonar Survey

The Side Scan Sonar (SSS) Survey for the pipelines do not show any excessive free spans. As per the attached comments, validate the maximum allowable free spans for these pipelines.

Oil and Gas Pipelines: Pipeline Specific Operation Manuals (PSOMs)

Venoco has updated the 2014 Gas and Oil Pipelines PSOMs Appendix IV and Appendix VII, respectively. However, Venoco has not addressed a number of comments provided and discussed in the City of Carpinteria letter, dated January 22, 2016. Address these comments. Annually, these PSOMs are required to be re-validated in a timely manner, reflecting the current operation and regulations.

ATTACHMENT II DETAILED DOCUMENTS REVIEW COMMENTS

APPENDIX I: May 8, 2015 M-1 Gas Pipeline Smart Pig Survey Report (Revised, June 23, 2016)

- Address what was revised from the original survey report submitted. The original report had 5 anomalies in the range of 40-45% with the deepest anomaly at 49%. All 5 of these anomalies have disappeared in the new revised report. Now the deepest anomaly is 39% as opposed to 49% and at a totally different location.
- Address why the report was re-evaluated by the vendor with the results drastically different than the original report. With the reported anomalies with a threshold of 20% or greater, the anomaly count has reduced from 173 (original report) to only 61 (the revised report). The Executive Summary does not provide details for this re-evaluation. Include the basis and justification for this re-evaluation in the Executive Summary.

APPENDIX II: May 18, 2013 M-1 Gas Pipeline Smart Pig Survey Report (Revised June 23, 2016)

- Address what was revised from the original survey report submitted. The original report had the deepest anomaly 45%. However, the revised Survey reported the deepest anomaly of 32%. This 45% anomaly is now reported to be only 18% deep. The 32% deep anomaly is at a different location.
- Address why the report was re-evaluated by the vendor with the results drastically different than the original report? With the reported anomalies with a threshold of 20% or greater, the anomaly count has reduced from 150 (original report) to only 45 (the revised report). The Executive Summary does not provide details for this re-evaluation. Include the basis and justification for this re-evaluation in the Executive Summary.
- The survey reported about 17,670 ft with the velocity exceeding the 10 ft/sec criteria which is about 22% of the run (total survey length of 81,831 ft). Within these over speed sections, normal tool tolerances may not apply and the results may not be valid. Provide assurance that the pipeline integrity is not affected by these velocity criteria exceedances.

APPENDIX III: Side Scan Sonar Pipeline Inspection Survey, April 14-28, 2015

The 2015 Side Scan Survey did not report any free spans exceeding the maximum allowable free span limit. The 2011 ROV Survey Report states that the maximum allowable free span for the oil pipeline is 126.73'. However, Venoco September 20, 2016 response letter states that the maximum allowable free span for this pipeline is 166'. Confirm and validate the maximum allowable free span with the

calculations.

APPENDIX IV: 2016 Gas Pipelines - Pipeline Specific Operations Manual (PSOM)

The 2016 Gas Pipelines PSOM Manual has been updated from the 2014 PSOM submitted with the original submittal in December 2015. As per Venoco, currently this pipeline is in sweet gas (PUC Quality, dry gas) service with the gas flowing (in reverse direction) from Shore to Platform Grace. This is not reflected in the 2016 PSOM. A number of review comments provided for the 2014 PSOM revision in the City of Carpinteria's letter, dated January 22, 2016 have not been addressed. Address the comments provided below, a majority (if not all) of them have been repeated from the 2014 PSOM review comments and these are not merely "grammatical correction" comments.

1. General Comment: The PSOM does show the change in service: Sweet Gas from Shore to the Platform from Produce Gas from the Platform to Shore. Update the description.
2. TOC, Page 1 of 1: For Section 17.10, correct, "Bureau of Ocean Energy Management Regulation, and Enforcement (BOEMRE)" to "Bureau of Safety, Environment and Enforcement (BSEE)".

Section 17.02, Page 2 of 2, Outside Agencies, #4: Correct, "Bureau of Ocean Energy Management Regulation, and Enforcement (BOEMRE)" to "Bureau of Safety, Environment and Enforcement (BSEE)".
3. Section 17.03, Page 2 of 9: Under the Maximum Allowable Operating Pressure, ANSI 600# has a rating of 1,440 psig. If the 740 psig MAOP is based upon the flange rating, than the correct flange rating to ANSI 300# which rated for 740 psig. Update the PSOM.
4. Section 17.03, Page 3 of 9: Since the M-1 pipeline is now sending sweet gas to Platform Grace, update the title and facility name to "Carpinteria Gas Plant to Platform Grace Pipeline (M-1)" and "Shore to Grace Pipeline (M-1)", respectively.
5. Section 17.03, Page 5 of 9: Provide the type of External Protective Coating details for the M-1 Pipeline.
6. Section 17.03, Page 8 of 9: For M-29, it states, "The pipeline is limited by the pressure rating of 600# flanges. Therefore, the MAOP for M-29 = 1415 psig". However, Section 17.03, Page 2 of 9 (see comment, #2 above) shows the MAOP of 740 psig; 300# flanges have the 740 psig rating. Update the PSOM.
7. Section 17.03, Page 8 of 9: Based upon the $P = 1,188$ psig, the S_A is calculated to be $1,188 \times 10.75/2 (0.365) = 17,495$ psig and the percent of SMYS is calculated to be $17,495/35,000 = 50\%$. Update the PSOM.
8. Section 17.05.6C, Page 3 of 3: Section 403.3 is not included in the PSOM. The flaring at Platform Grace is not discussed in this PSOM. Update the PSOM.

9. Section 17.07, Page 1 of 1: The DOT Inspection and Report Schedules are not provided on the following page, as stated. Provide and include them in this PSOM.
10. Section 17.08.11, Page 3 of 7: For the consistency, provide similar guidelines Table as provided in the Hazardous Liquid Pipelines PSOM.
11. Section 17.08.11E, Page 5 of 7, 1st paragraph: Update, “Actions that should be taken” to “Actions that shall be taken”.
12. Section 17.08.11G, Page 6 of 7, 1st Paragraph: Update, “the operator should” to “the operator shall”.
13. Section 17.08.12, Page 7 of 7: For consistency, provide similar table for details as provided in the Hazardous Liquid Pipelines PSOM.
14. Section 17.08.12B, Page 7 of 7: There are no pipeline pumps for the gas pipeline. Delete, the “pumps”.
15. Section 17.09.1, Page 1 of 3: This section cites all Hazardous Liquid Pipeline requirements, 49 CFR Part 195 Sections and not the Gas Pipeline requirements, 49 CFR Part 192 Sections. Update the PSOM.
16. Section 17.09.4, Page 1 of 3: Provide copy of the Hazard Analysis (HAZOP/MOC) for review, updated with the change in service (PUC gas to the Platform).
17. Section 17.09.5, Page 1 of 3, Summary Contents: All cited references are for the Hazardous Liquid Spill and not for the Gas Release. Update the table with the appropriate 49 CFR Part 192 Sections.
18. Section 17.09.11, Page 3 of 3, 2nd and 3rd Paragraphs: There is no oil spill (or spill) associated with the gas pipeline. Update the PSOM for the gas release instead of a liquid spill.
19. Section 17.09.12, Page 3 of 3: The reference Section 195.402(e) (8) for Pipeline Transfer of Highly Volatile Liquid is not valid for the gas pipeline. Update the PSOM.
20. Section 17.10.1, Page 1 of 4, Reference Table 17.10-1: For the gas pipeline,
 - For MAOP, delete 1) ANSI Code B.31.4, Liquid.
 - For Valve and Pressure Device Maintenance, delete in 5) Oil Pumps.
 - For Valve and Pressure Device Maintenance, delete in 6) witnessed by SLC staff, since this table is a BSEE requirement.

APPENDIX V: 2016 DOT Gas Pipeline Operations & Maintenance Procedures

In 2016, the DOT Gas Pipeline Operations & Maintenance Procedures have been updated as per the

meeting the PHMSA and CPUC requirements.

APPENDIX VI: 2016 DOT Hazardous Liquid Pipeline Operations & Maintenance Procedures

In 2016, the DOT Gas Pipeline Operations & Maintenance Procedures have been updated as per the PHMSA meeting the PHMSA and CSFM requirements.

APPENDIX VII 2016 Oil Pipelines Specific Operations and Manual (PSOM)

This manual (assigned as Appendix VII) was submitted by Venoco via email on October 20, 2016 since it was not included in the September 20, 2016 submittal. The 2016 Oil Pipelines PSOM Manual has been updated from the 2014 PSOM submitted with the original submittal in December 2015. A number of review comments provided for the 2014 PSOM revision in the City of Carpinteria's letter, dated January 22, 2016 have not been addressed. Address the comments provided below, a majority (if not all) of them have been repeated from the 2014 PSOM review comments and these are not merely "grammatical correction" comments.

1. Section 17.01.1, Page 1 of 2: The cited reference, 192.402(c) (13) is for the Gas Pipeline. Use and update the PSOM with appropriate reference for the Hazardous Liquid Pipeline.
2. Section 17.01.4, Page 1 of 2, 1st Paragraph: Correct, "49 CFR Part 192" to "49 CFR Part 195" for the Hazardous Liquid Pipeline. The 1968 Natural Gas Pipeline Safety Act referenced for the Hazardous Liquid Pipeline is not relevant. Update the PSOM.
3. Sections 17.03, Page 7 of 9: Correct, "49 CFR 192.619" to appropriate 49 CFR Part 195 Section.
4. Entire Section 17.05 has been revised; however, the revision date is not updated from 3/2014. Update the revision date.
5. Section 17.05.4A, Page 1 of 6: Update, "should" to "shall" (3 places).
6. Section 17.05.5C, Page 3 of 6: Update "will" to "shall" in (A), (C) and (E) where appropriate.
7. Section 17.05.6A, Page 4 of 6: Update, "would" to "shall" in (A), (B), (C) and (D).
8. Section 17.05.6A-1, Page 4 of 6: Update, "would" to "shall" in (A), (C) and (D).
9. Section 17.05.6C-1, Page 6 of 6: Update, "will" and "should" to "shall" in (A).
10. Section 17.07A, DOT Inspection and Report Schedule: Provide DOT Inspection and Report Schedules for the Hazardous Liquid Pipeline. The schedules provided are for the DOT Gas Pipelines, such as Gas Integrity Management (IMP) and not the Hazardous Liquid Management (IMP). Correct, "MMS" to "BSEE" in the schedules provided (11 places). Define "PSA".
11. Section 17.09.4, Page 1 of 4: Provide copy of the recent Hazard Analysis (HAZOP/MOC) for review.

12. Section 17.10.1, Page 1 of 4, Reference Table 17.10-1: For the Hazardous Liquid Pipeline,

- For MAOP, delete 1) ANSI Code B.31.8, Gas.
- For Valve and Pressure Device Maintenance, delete in 5) Gas Compressors.
- For Valve and Pressure Device Maintenance, delete in 6) witnessed by SLC staff, since this table is a BSEE requirement.