Eighth Quarter

Verification Report

Puget Sound Energy Third Party Management Audit

Presented to the:

Washington Utilities and Transportation Commission Staff

And

Puget Sound Energy

Prepared by:

David Berger Associates

December 30, 2011

**Table of Contents**

[Executive Summary 5](#_Toc260053326)

[Introduction and Summary 8](#_Toc260053327)

[Methodology 17](#_Toc260053328)

[Implementation Status 18](#_Toc260053329)

[Specific Recommendations 27](#_Toc260053330)

[I. Safety 27](#_Toc260053331)

[II. Training 37](#_Toc260053332)

[III. Contracts 41](#_Toc260053333)

[IV. Auditability 70](#_Toc260053334)

[V. Surveillance 82](#_Toc260053335)

[VI. Resources 103](#_Toc260053336)

[Appendix A 115](#_Toc260053337)

[Document Requests 115](#_Toc260053338)

[Interview Requests 125](#_Toc260053339)

**List of Figures**

Figure 1 – PSE Leak Data for 2007 to 09/2010 ……………………………………………………. (Page 28)

Figure 2 – Average Number of Days for Map Updating ………………………………………. (Page 59)

Figure 3 – Locating Timeliness ……………………………………………………………………………. (Page 65)

Figure 4 – Damages per 1000 Locates .……………………………………………………………….. (Page 66)

Figure 5 – Main Leaks per Mile Eliminated …………………………………………………………. (Page 83)

Figure 6 – Service Leaks per 1000 Services Eliminated ……………………………………….. (Page 83)

Figure 7 – Estimated Customer Growth 2010 to 2015 ………………………………………… (Page 106)

Figure 8 – First Level Supervisor Field Time ………………………………………………………… (Page 111)

**List of Abbreviations**

49 CFR 192 – Code of Federal Regulations relating to gas utilities

DBA – David Berger Associates

DIMP – Distribution Integrity Management Program/Plan

DR – Document Request

Jacobs Audit – A third party audit the result of a settlement agreement between the UTC and PSE under Case PG-060215

LDC – Local Distribution Company

PHMSA – Pipeline and Hazardous Material Safety Administration of the US DOT

PSE – Puget Sound Energy

SP – Service Provider

USDOT – United States Department of Transportation

UTC – Utilities and Transportation Commission of the State of Washington

WAC – Washington Administrative Code

**Executive Summary**

First Quarter Report – March 2010:

During this first reporting period a working team from Puget Sound Energy (PSE) and Utilities and Transportation Commission Staff (staff) was formed to review and disposition all of the 71 recommendations from the Jacobs Engineering (Jacobs) Third Party Audit of PSE operations and management practices/processes. The review team consisted of Duane Henderson and Helge Ferchert of PSE and David Lykken of staff and David Berger, a UTC Staff consultant.

These individuals met every Friday morning throughout February and March and will continue to meet until all 71 recommendations were reviewed and either agreement and/or modifications were made to the implementation plan. Several of the recommendations were already in progress and as of the end of the first quarter of 2010 there were several recommendations that have been completed.

Once a recommendation is completed, staff or their consultant will then verify its completion and implementation. Once a recommendation is verified as completed and implemented, staff and a PSE representation will sign off on the full implementation and thus there will be a written record of concurrence of completion for each recommendation implemented. For a listing of the status of each recommendation, see the table called “Implementation Status”.

By the end of the first quarter of 2010, the UTC staff and PSE have agreed upon the implementation plans and timing of 66 of the 71 Jacobs recommendations. Of the remaining 5 recommendations, three have not had an initial review and two are being modified based on comments from the UTC staff. Once all of the recommendations have be reviewed and accepted, the implementation phase will begin. This will entail requesting and reviewing data requests for verification of completion and performing interviews to determine if the recommendation was fully implemented and that the anticipated results were forthcoming. This process is expected to take at least 8 quarters and not be completed until December 2011 at the earliest.

Second Quarter Report – June 2010:

During the second reporting period, the remaining recommendations were reviewed and agreement was reached on the implementation plans. DBA started the document/data request process on April 12, 2011 and it was agreed by all parties that 15 working days was a reasonable time to receive the requested documents/data (see the Introduction and Summary section of this report for a summary of document and interview requests). There will also be interview requests which will be filled by either in person interviews or telephone interviews depending on which is the most effective. In some situations, phone interviews may be followed up with in person interviews in order to enhance the interaction and reduce the time and necessity of repeat interviews. Where possible, there also may be some document requests as a result of an in person or phone interview.

Another facet of the implementation plan verification may require on-site inspection of crews, equipment or vehicles to determine the extent of the implementation and how well the training of field crews was received.

Third Quarter Report – September 2010:

During this reporting period several document requests (DR) and one interview request (IR) were processed. The DRs related to implementation plans that PSE had indicated in the recommendation review would be completed or have a phase completed within the first three quarters of 2010. The review of these recommendations and verification of the completion (or phase completion) is documented on the Implementation Status table and in each of the individual recommendations that have been verified. The submitted DRs were dated August 10th and August 14th. As agreed, PSE responded within the three week time period.

In addition, on site interviews were conducted during the week of September 20th with several individuals at the Bellevue Headquarters and both PSE and Pilchuck field supervisors and field crews[[1]](#footnote-1). Unfortunately not all of the requested interviews could be completed during this week and some interviews will be completed via telephone interviews over the next several weeks. Until all of the interviews are completed, the conclusions and information will not be added to the report. It is anticipated that since these interviews will be completed early in the next quarter, that the conclusions from the interviews, which will assist in verifying the implementation of recommendations will be included in the 4th Quarterly Implementation Report due to be submitted on December 31, 2010.

Several recommendations were considered verified and closed out during this reporting period:

* Recommendation 4.2.5.2 - Establish stretch goal targets seeking 100% compliance with the natural gas state and federal regulations and no fines. Setting high targets helps to demonstrate PSE wants to achieve full gas safety compliance.
* Recommendation 4.2.5.3 - Modify the Operations Metrics Report developed by Performance Excellence by creating a separate category for Gas Safety Compliance. This will help to create a higher profile and visibility for compliance related metrics.
* Recommendation 6.2.4.4 - PSE and the SP’s should establish a Joint Task Force to consider Utility contractor management and SP management processes, such as Billing, to assess System Safety impacts and to look to redesign processes to reduce or remove the System Safety risks.
* Recommendation 6.4.4.2 - Create a contractual basis for the Locating SP Probation Concept and establish objective rules as to its application.

Work on several other recommendations is under way to verify that these have implemented. Below is a listing of these recommendations.

* In the section pertaining to Safety: 4.4.3.3
* In the section pertaining to Training: 5.4.1
* In the section pertaining to Contracts: 6.3.4.5, 6.3.4.6, 6.3.4.7, 6.3.4.8, 6.3.4.11, 6.3.4.14, 6.4.4.1, 6.4.4.3, 6.5.4.2
* In the section pertaining to Auditability: 7.5.2, 7.6.7.1
* In the section pertaining to Surveillance: 8.2.8.1, 8.3.5.5, 8.4.7.5

Fourth Quarter Report – December 2010:

During this reporting period several document requests (DR) and one interview request (IR) were submitted and processed. One interview request from the previous quarter was closed out using telephone interviews for individuals who not available during the time that onsite interviews were performed. The purpose of these interviews was to verify the changes to the safety culture at PSE and one of their SP’s, Pilchuck. In addition to the hold over interviews from September (completed in October), there was an interview request completed in November. These telephone interviews (conducted in both October and November) covered mainly supervisory and management employees of PSE and a Vice President of Pilchuck.

Several recommendations were considered verified and closed out during this reporting period:

* Recommendation 8.2.8.1 - In order to enable a more robust Continuing Surveillance Program, improve communications between System Control and Protection, and System Maintenance Planning. If significant improvements in communication are not achievable, conduct an Organizational Assessment to fully evaluate the benefits of both organizations reporting to the same SVP or Director.
* Recommendation 8.2.8.2 - System Maintenance Planning should allow System Control and Protection the full 120 days allowed by UTC to repair cathodically protected facilities when verifiable delays in permit processing are encountered.
* Recommendation 8.3.5.1 - In order to play a greater role in identifying trends and enabling new programs and program adjustments, and facilitating the evaluation of recent year data, efforts should be made to complete the System Performance Programs Annual Review closer to the beginning of the calendar year than the current June issuance date.
* Recommendation 8.4.7.2 - A greater focus on the use of Continuing Surveillance information for internal auditing and a proactive approach to management of the Gas System is needed. PSE should use the annual Continuing Surveillance Report to identify trends, initiate proactive measures, and track subsequent progress. The end result would be enhanced system integrity and a reduced need for settlement agreements and settlement-related audits.
* Recommendation 8.4.7.3 - In the interest of coordinating all aspects of Continuing Surveillance, PSE should coordinate various departments (if not consolidated in response to Recommendation 8.2.8.1) concerning Continuing Surveillance, and appoint a manager to report on Continuing Surveillance to the Gas Compliance Steering Committee.
* Recommendation 8.4.7.5 - The annual Continuing Surveillance Review as specified in the Gas Operating Standards should be performed and become the major indicator of the state of the Gas System.

PSE continued to work additional recommendations based on the time schedule proposed and agreed upon in early 2010 when each recommendation was reviewed and accepted. Below is a listing of recommendations that PSE has completed or worked on in addition to the ones listed above or in previous reports.

* In the section pertaining to Safety: 4.4.3.2
* In the section pertaining to Training:
* In the section pertaining to Contracts: 6.3.4.9
* In the section pertaining to Auditability: 7.2.4.1, 7.2.4.2
* In the section pertaining to Surveillance: 8.2.8.1, 8.3.5.2, 8.3.5.4, 8.4.7.3
* In the section pertaining to Resources: 9.3.6.1, 9.4.6.1, 9.4.6.4, 9.5.2.1

A new summary on the progress that PSE has made to date on changing the safety culture is presented in a new discussion subsection in the Safety section. Eventually each section will have a similar discussion subsection to summarize the progress made in implementing the recommendations under that particular grouping.

Fifth Quarter Report – March 2011:

Additional Document and Interview requests were processed during this quarter. Work continued on verifying the progress that PSE has been making in implementing the agreed recommendations. At the close of the prior quarter, PSE had comments/concerns regarding three recommendations. Further verification work on these three recommendations will be performed during the next two quarters to complete these recommendations.

During the quarter the following recommendations were verified as being completed:

* Recommendation 4.2.5.1 – Develop and implement a Corporate Goal concerning Gas System Safety. Goal should include supporting objectives, actions and measures to fully communicate and demonstrate senior management’s gas system safety intent. Implementation of this goal should result in cascading a gas system safety proactive approach throughout the organization.
* Recommendation 4.2.5.4 – Develop for each position with gas safety compliance responsibilities a complete and up- to-date position description. Position descriptions should clearly convey compliance- related responsibilities as well as other organizational accountabilities.
* Recommendation 6.3.4.4 – Contract metrics need to be expanded to include measures such as conformance to PSE procedures as a result of actual observations. In order to meet the first requirement of the QC/QA Programs, which is to confirm and document work, material and services comply with the contract, the requirements of the published Standards, Plans, Specifications and Pipeline Safety Regulations.
* Recommendation 6.3.4.7 – Currently when the PSE QA Inspector is attempting to locate and SP crew significant time is lost, and if dispatch is contacted the element of surprise, useful in discovering disorderly jobsite conditions, is lost. Consequently consideration should be given towards GPS equipment to assist in locating the Service Provider crews or some other method that accomplishes the above need.
* Recommendation 6.3.4.8 – The SP should explore the possibility of fielding QC staff from supervision as opposed to using bargaining unit employees as QC Inspectors. This change would the overall integrity of the QC process.
* Recommendation 6.3.4.9 – PSE and the SPs should take the opportunity to educate QC and QA staff on public communication and mark their vehicles as each respective company’s Quality Control/Quality Assurance Inspection Team.
* Recommendation 6.3.4.12 – PSE should introduce the incentive scheme after all proposed changes are made to the contract and metrics, and then only if it is convinced the need is still there. A lot of what is required for a successful Outsourcing Contract can be delivered via focused and effective management, once the recommended changes have been made.
* Recommendation 6.3.4.13 – PSE should strive to meet the AGA’s Best Practice of completing as-built updates within 60 days. Reviewing the Billing Process to enable the removal of the as-built and D-4 documents from the billing package as soon as they are received will ensure the updated maps are expedited. A copy should be kept in the invoice folder for reference and completeness. The accuracy of the information on the as-built and D-4, aside from issues surrounding amounts of materials used, etc. should be dealt with through the QC/QA Process.
* Recommendation 6.3.4.14 – Enhance the Paperwork Correction Process utilizing a cross functional PSE SP team. The goal would be to eliminate sending needed corrections back to the field by developing parameters for corrections and establishing a basis for recording corrections. The veracity of the process developed could be assessed by periodic audits.
* Recommendation 6.3.4.15 – Review the field paperwork process and make a recommendation for reducing volume and streamlining the information captured. This recommendation scope could also include assessing electronic capture of data.
* Recommendation 7.5.5.2 – Move the quarterly Leak Audits and D-4 Audits from the Target Audit List to the Routine Audit List to continue to randomly inspect records for Compliance.
* Recommendation 8.2.8.1 – In order to enable a more robust Continuing Surveillance Program, improve communications between System Control and Protection, and System Maintenance Planning. If significant improvements in communication are not achievable, conduct an Organizational Assessment to fully evaluate the benefits of both organizations reporting to the same SVP or Director (the organization of this new group was reviewed and verified).
* Recommendation 8.3.5.5 – PSE should create a feedback mechanism to capture root analysis on poor or no locates, including tracking “Near-Miss” Data which could also provide important Continuing Surveillance information regarding the accuracy of locates.
* Recommendation 8.3.5.6 – PSE should adopt Common Ground Alliance’s Best Practices that will enhance locator accuracy and timeliness, and incorporate them into goals reflected in the Locator Contracts. This includes establishing objective measures for locator accuracy and timeliness and then establishing targets for year-over-year improvement.
* Recommendation 9.3.6.1 – PSE should expedite the development of a Strategic Workforce Planning Study to define the work force required to implement company business strategies and identify actions needed to meet those requirements. The analysis should reveal gaps between the work- force needed and the workforce supply forecasted to be available and identify critical positions as well as certain key employees.
* Recommendation 9.3.6.2 – The company should initiate vehicle recordkeeping that includes maintaining a history of vehicle breakdowns and repair costs. This history should be periodically reviewed to determine vehicle replacement needs.

Also during the quarter the following recommendations were reviewed but could not be verified as completed or closed (these are in addition to recommendations verified above or commented in previous quarterly reports):

* In the section pertaining to Safety: 4.4.3.1
* In the section pertaining to Training: 5.4.2
* In the section pertaining to Contracts: 6.3.4.10
* In the section pertaining to Auditability:
* In the section pertaining to Surveillance: 8.4.7.4
* In the section pertaining to Resources:

A new summary on Continuing Surveillance has been added to highlight the progress made on these recommendations. PSE has enhanced their Continuing Surveillance Report by combining it with the annual System Performance Report and by creating a new organization, Gas System Integrity, which includes most of the organizations that have responsibility for system safety and implementing issues highlighted in the Continuing Surveillance Report.

Sixth Quarter Report – June 2011:

Additional Document and Interview requests were processed during this quarter. Work continued on verifying the progress that PSE has been making in implementing the agreed recommendations.

During the quarter the following recommendations were verified as being completed:

* Recommendation 4.4.3.3 – Review the Safety Goal-Setting Process and where appropriate introduce more aggressive goal-setting practices.
* Recommendation 5.4.3 – Establish a common, uniform process to assess and assure training programs among PSE and the Service Providers can be evaluated and measured in an objective, consistent manner.
* Recommendation 6.2.4.1 – Redirect management of the Service Provider Model to ensure that Outsourcing Activities reflect sufficient communication, logistics, and oversight that will result in fulfillment of PSE’s responsibilities for System Safety.
* Recommendation 6.2.4.2 – Update the Outsourcing Contract by clearly describing that PSE takes direct responsibility for matters involving System Safety.
* Recommendation 6.3.4.1 – To properly allocate responsibilities and understanding, redraft the contract to clearly articulate the Utility/SP relationship to better define the liabilities as reflected in the requirements of the Washington Administrative Code.
* Recommendations 6.3.4.5 – The QC/QA Programs need to be refocused to enable more site visits to observe procedures during Construction and Operations and Maintenance Procedures. Post-Construction Inspections of connections made under hard surface are a last resort which would only become necessary if critical procedures inspections are not completed.
* Recommendation 6.3.4.6 – The scope of the QC/QA metrics should be expanded to include Site and Public Safety, paperwork accuracy, units completed, and more on-site crew work inspections. The existing check list used should be amended so that deviations are not the main focus.
* Recommendation 6.4.4.1 – Consider developing a leading type metric to measure miss-locates. A possible surrogate for this measure could be the number of downtime claims from a third-party contractor from attempting to find the main themselves or waiting for the Locator to return to site.
* Recommendation 6.4.4.3 – Establish and continue a QA Program to audit the Locators’ QC Programs.
* Recommendation 6.5.4.2 – PSE should establish a continuing program to QA audit the Leak Survey QC Programs.
* Recommendation 7.2.4.2 – Create a Records Section in every Gas Operating Standard. If no records are required for the operating standard, clearly indicate no records required.
* Recommendation 9.4.6.3 – Conduct a study of how and where First-Line Supervisors spend their time. Determine which existing supervisory and administrative tasks can be reassigned and/or appropriate staffing needs, so that First-Line Supervisors have the ability to routinely spend 50% of their time with field crews and service personnel. Develop a list of appropriate field related responsibilities along with the means to ensure supervisor accountability.

Also during the quarter the following recommendations were reviewed but could not be verified as completed or closed (these are in addition to recommendations verified above or commented in previous quarterly reports):

* In the section pertaining to Safety:
* In the section pertaining to Training: 5.4.1
* In the section pertaining to Contracts:
* In the section pertaining to Auditability: 7.2.4.1, 7.4.4.1, 7.4.4.3
* In the section pertaining to Surveillance: 8.2.8.3
* In the section pertaining to Resources: 9.4.6.4

A new discussion section under the Contracts area has been included. This section provides a discussion on the progress that PSE has made in administrating the service provider contracts and the enhanced quality assurance/control implemented on all field work. Although there are still some outstanding recommendations to be completed and verified, considerable progress has been made on these very important recommendations.

Seventh Quarter Report – September 2011:

Additional Document and Interview requests were processed during this quarter. Work continued on verifying the progress that PSE has been making in implementing the agreed recommendations.

During the quarter the following recommendations were verified as being completed or not required:

* Recommendation 4.4.3.1 – Identify safety systems or processes that would benefit from a Benchmarking/Best Practice Study. Develop and implement a plan to conduct a specific number of Benchmarking/Best Practice Studies over a given period of time.
* Recommendation 5.4.2 – Identify training systems or processes that would be benefit from a Benchmarking/Best Practice Study. Introduce and incorporate accepted methodologies or the results of such studies into the work environment.
* Recommendation 6.2.4.3 – Update the Outsourcing Contract by defining the relationship PSE intends to have and maintain with the Service Provider.
* Recommendation 6.3.4.2 – Prepare guidelines for the operation and management of the contract so it can be used as an operations manual for Contractor Management. The goal of the guidelines should be to maintain the partnering relationship between PSE and the SP while reinforcing system safety and the decisions that can impact it (not required).
* Recommendation 6.3.4.10 – PSE should develop a training program to pass knowledge to contract managers about system safety and the kinds of decisions that can impact it. Training sessions should begin with the history of code violations and settlements to instill a sense of urgency for the importance of doing jobs in conformance to the gas operating standards. There should also be training on business drivers and the kinds of reactions that will arise from management decisions and demands that might impact safety.
* Recommendation 7.2.4.1 – Convert Procedures and Standard manuals to an electronic field format, or collect and redistribute manuals with current information and standardized bindings. Develop employee Accountability and Audit Process for Procedures and Standards revision accuracy.
* Recommendation 7.6.7.1 – Initiate PSE QA Audits on Locating Service Providers to minimize the likelihood of non-compliance. Include in the audits, metrics that measure near-miss as well as inaccurate locates.
* Recommendation 9.4.6.1 – Revise the Operating Standards for Continuing Surveillance 2575.2700 to reflect the significant observation role the Manager Quality Assurance and Inspections has in Continuing Surveillance.

Also during the quarter the following recommendations were reviewed but could not be verified as completed or closed (these are in addition to recommendations verified above or commented in previous quarterly reports):

* In the section pertaining to Safety: 4.4.3.2
* In the section pertaining to Training: 5.4.1
* In the section pertaining to Contracts: 6.3.4.11
* In the section pertaining to Auditability: 7.4.4.1
* In the section pertaining to Surveillance: 8.3.5.2, 8.3.5.4
* In the section pertaining to Resources:

A new discussion section under the Training area has been added to review the progress that PSE has made in several areas of training. Many of the training recommendations are covered under other areas such as Contracts and Continuing Surveillance and cover not only worker training for regulatory tasks but also training relating to contract administration, and how to interact with customers or the general public when performing audits on company or service provider crews. Two out of the three listed recommendations under this section have been closed and the remaining recommendation is well underway and anticipated to be completed and closed by the end of 2011.

As of the end of September, 2011 the following recommendations remain open and under review for verification:

* In the section pertaining to Safety: 4.4.3.2
* In the section pertaining to Training: 5.4.1
* In the section pertaining to Contracts: 6.3.4.11
* In the section pertaining to Auditability: 7.4.4.1, 7.4.4.3
* In the section pertaining to Surveillance: 8.2.8.3, 8.3.5.2, 8.3.5.4, 8.4.7.4
* In the section pertaining to Resources: 9.4.6.4

Eighth Quarter Report – December 2011:

During the quarter an additional document request was made to close out some of the 10 remaining open recommendations from the Jacobs Audit that was completed in 2009. During the quarter the following recommendations were verified as being completed or not required:

* Recommendation 5.4.1 – Institute a centralized administrative system to enable effective communication of information by decentralized training teams.
* Recommendation 6.3.4.11 – PSE should review its system-facing metrics to identify new metrics that deliver a measure of assurance of system safety. These will likely not involve easy counting measures as they will be focused on assurance and validation rather than deviations or failures.
* Recommendation 7.4.4.1 – Utilizing the IT business case justification process, elevate the priority of the initiative to move Compliance Maintenance Programs managed in Access, such as H2RL, Atmospheric Corrosion Inspections, and Valve Inspections, to SAP.
* Recommendation 8.2.8.3 – PSE should revise the System Condition Reporting Programs for its employees and SPs in a manner that is useful for reporting a variety of conditions; with all parties’ responsibilities well known, and with clear communication to all parties of the program’s usefulness in promoting System Safety. Recommended improvements to consider should include: a single form, comprehensive training, clear responsibilities, increased use of Information Technology, established a prioritization procedure and updated Gas Operating Standards.
* Recommendation 8.3.5.4 – Improve coordination or consider reorganization of damage control responsibilities among the several organizations involved to create a more unified management process. A task force similar to the Gas Compliance Steering Committee would provide an effective format for the communication of damage control information and coordination of monitored efforts.
* Recommendation 8.4.7.4 – Efforts to consolidate information to provide a workable Continuing Surveillance System should receive a higher priority.
* Recommendation 9.4.6.4 – Review and communicate the criteria for incident command with all PSE and SP staff so that the PSE leadership role is clearly understood; consider incorporating incident command observations into the Quality Assurance Program.

The two remaining discussion sections have been added to the report, Auditability and Resources. In each area PSE has essentially completed most if not all of the recommendations.

As of the end of December, 2011 the following recommendations remain open and under review for verification:

* In the section pertaining to Safety: 4.4.3.2
* In the section pertaining to Training: No recommendations remain open
* In the section pertaining to Contracts: No recommendations remain open
* In the section pertaining to Auditability: 7.4.4.3
* In the section pertaining to Surveillance: 8.3.5.2
* In the section pertaining to Resources: No recommendations remain open

This will be the last quarterly report. Effective with this report all future reports will be semi-annually starting with the June 2012 report.

**Introduction and Summary**

Puget Sound Energy (PSE) and Washington Utilities and Transportation Commission (UTC) contracted with a mutually agreed third party audit firm, Jacobs Engineering (Jacobs), to perform a selective management audit on PSE. Starting in 2008, Jacobs interviewed PSE and UTC individuals and reviewed related documents. This management audit was the result of a settlement agreement reached in 2007-2008 from a case in which a PSE Service Provider (SP) was found to be improperly performing an assigned task (see docket PG-060215).

Jacobs work plan was divided into six initial tasks and an optional task:

* Safety Culture of PSE
* Safety and other Training
* SP contracts
* Compliance auditing
* Continuing Surveillance
* Sufficiency of Resources

Optional task after recommendation report accepted:

* Implementation of Recommendations

Besides the requirement to have a third party audit PSE’s management practices and processes with regard to system safety, PSE and its SP were required to establish, where it was not currently present, a robust and effective Quality Assurance and Quality Control program for company and SP crews and processes.

This report covers the final task, Implementation of Recommendations which is based on the recommendations in a final report from Jacobs at the end of 2009. David Berger Associates was designated to assist each of the parties in implementing and verifying the implementation of agreed recommendations. Starting in February 2010, PSE and UTC began having weekly meetings either in person or via telephone to discuss and review each of the 71 Jacobs (61 distinct recommendations, 10 duplicates) recommendations and develop an implementation timetable for each.

It is anticipated that the implementation phase will take 8 quarters or 2 years to essentially complete. Over this period, quarterly and semi-annual reports will be issued to track and document the progress made in addressing, implementing and verifying each recommendation from the Jacobs report.

Below is a summary listing of the document and interview requests by date. A full listing of each request is located in the Appendix A.

|  |  |  |  |
| --- | --- | --- | --- |
| **Request Date** | **Data Request** | **Response Due Date** | **Date Response Received** |
| 4/12/2010 | Requested 12 documents to verify implementation | 5/3/2010 | 5/3/2010 to 5/7/2010 |
| 8/10/2010 | Requested 11 documents to verify implementation | 8/31/2010 | 9/1/2010 to 9/18/2010 |
| 8/12/2010 | Requested 11 documents to verify implementation | 9/4/2010 | 8/16/2010 to 9/18/2010 |
| 10/20/2010 | Requested 10 documents to verify implementation | 11/10/2010 | 11/3/2010 to 11/11/2010 |
| 12/13/2010 | Requested 11 documents to verify implementation | 1/10/2011 | 1/10/2011 to 1/21/2011 |
| 1/21/2011 | Requested 19 documents to verify implementation | 2/11/2011 | 2/9/2011 to 2/11/2011 |
| 2/18/2011 | Requested 6 documents to verify implementation | 3/11/2011 | 3/11/2011 to 3/18/2011 |
| 3/22/2011 | Request 9 documents to verify implementation | 4/12/2011 | 4/11/2011 to 4/15/2011 |
| 5/6/2011 | Request 6 documents to verify implementation | 5/27/2011 | 5/17/2011 to 5/25/2011 |
| 5/27/2011 | Request 3 documents to verify implementation | 6/17/2011 | 6/14/2011 |
| 8/31/2011 | Request 5 documents to verify implementation | 9/21/2011 | 9/21/2011 |
| 11/21/2011 | Request 4 documents to verify implementation | 12/12/2011 | 12/16 and 12/21/2011 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Date of Request** | **Number of Interviews** | **Interview Pertaining** | **Requested Date(s) for Interview** |
| 8/10/2010 | 17 | Safety Culture and Changes since Jacobs Audit | 9/21/2010 to 10/13/2010 |
| 10/20/2010 | 5 | System Safety and Safety Culture Changes | TBA via Telephone |
| 12/13/2010 | 2 | System Safety and Safety Culture Changes | TBA via Telephone |
| 3/21/2011 | 2 | System Safety and Safety Culture Changes | TBA via Telephone |
| 6/20/2011 | 6 | System Safety and Safety Culture Changes | 7/19/2011 to 7/21/2011 |

# Methodology

Each Jacobs Audit recommendation will be initially evaluated by both UTC Staff and PSE. As part of the evaluation, the recommendation will be dispositioned as to one of three categories: Implement as is; Implement but with some change; do not implement. For each recommendation being implemented, either as is or with some change, a completion date has been proposed with some interim dates, if applicable.

Starting in February 2010, representatives of UTC Staff and PSE met each Friday to disposition and discuss each recommendation. This process will last until all recommendations are reviewed and disposition with acceptable completion dates. Each recommendation is placed on a form with sign off positions for acceptance, changes and final completions. Where a recommendation is a duplicate of another, the duplicate is not accepted but the accepted recommendation number is referenced. Thus there will be 61 recommendations to be dispositioned during the early phase of the implementation process. At each meeting, an updated list of the recommendations was discussed and a status will be generated so that all parties will understand where each recommendation stands. Recommendations not accepted by the UTC staff will be resubmitted by PSE with the changes requested, other modifications to make the implementation of the recommendation acceptable to both parties, and/or a suitable explanation on why the modification should be accepted based on additional information. Under the terms of the settlement agreement, this process must come to a mutually agreeable solution or the commission itself may become involved in the resolution.

Once all of the recommendations have been dispositioned, periodic meetings will be held to update the status on each. In between these meetings, David Berger Associates (DBA) will be preparing and transmitting document requests and conducting interviews to verify the completed recommendations and verify that interim target dates are being met.

In addition to the recommendations, two tables have been prepared and are included in this report. One table has a listing showing the status of accepted recommendations (completion date, complete, completion verified). The other table is a listing of all of the document and interview requests (see Appendix A).

On a quarterly basis, a report (this report) will be prepared by DBA to quantify the status of each recommendation and determine if the recommendation is currently on target for completion and verification. After 8 quarters (two years) a determination will be made to continue the report, change the time frame to semi-annually, or discontinue the report due to having implemented all of the recommendations (and verifying same).

Below is a table showing the status of each reviewed recommendation as of the end of the current quarter (the first completion data will be added during the 3rd quarterly report). This chart will be changed based on the status of each recommendation. When all of the recommendations have been reviewed and accepted, the next table showing which recommendations have been completed and which have been both completed and verified will be used. Use of these tables should simplify determining the status of each of the 61 active recommendations.

# Implementation Status

PSE Recommendation Status

Completion Dates and Verification

| **No.** | **Rec No.** | **Recommendation** | **Complete on** | **Complete** | **Verification** |
| --- | --- | --- | --- | --- | --- |
| **Chapter 4, Safety** | | | | | |
|  | 4.2.5.1 | Develop and implement a Corporate Goal concerning Gas System Safety. Goal should include supporting objectives, actions and measures to fully communicate and demonstrate senior management’s gas system safety intent. Implementation of this goal should result in cascading a gas system safety proactive approach throughout the organization | 12/31/10 | Yes | Yes – DR 255 |
|  | 4.2.5.2 | Establish stretch goal targets seeking 100% compliance with the natural gas state and federal regulations and no fines. Setting high targets helps to demonstrate PSE wants to achieve full gas safety compliance. | 1/1/10 | Yes | Yes – DR 201, 208 247 and 248 |
|  | 4.2.5.3 | Modify the Operations Metrics Report developed by Performance Excellence by creating a separate category for Gas Safety Compliance. This will help to create a higher profile and visibility for compliance related metrics. | 3/31/10 | Yes | Yes – DR 202 & 247 |
|  | 4.2.5.4 | Develop for each position with gas safety compliance responsibilities a complete and up- to-date position description. Position descriptions should clearly convey compliance- related responsibilities as well as other organizational accountabilities. | Phase I – 9/30/10  Phase II – 12/31/10 | Yes | Yes – DR 257 |
|  | 4.4.3.1 | Identify safety systems or processes that would benefit from a Benchmarking/Best Practice Study. Develop and implement a plan to conduct a specific number of Benchmarking/Best Practice Studies over a given period of time. | 1/1/11 | Yes | Yes – DR 258 & IR 228 |
|  | 4.4.3.2 | Introduce a series of gas system metrics-measures that are leading and permit root-cause analysis. Rigorous use of these metrics will help to anticipate and prevent safety incidents or the degradation of safety performance. | 10/31/10 | No See DR 238, 276 & 303 |  |
|  | 4.4.3.3 | Review the Safety Goal-Setting Process and where appropriate introduce more aggressive goal-setting practices. | 1/1/10 | Yes | Yes – DR 203, 256 & 277 |
| **Chapter 5, Training** | | | | | |
|  | 5.4.1 | Institute a centralized administrative system to enable effective communication of information by decentralized training teams. | 3/31/11 | Yes | Yes – See DR 289 & 298 |
|  | 5.4.2 | Identify training systems or processes that would be benefit from a Benchmarking/Best Practice Study. Introduce and incorporate accepted methodologies or the results of such studies into the work environment. | 1/1/11 | Yes | Yes – DR 259 |
|  | 5.4.3 | Establish a common, uniform process to assess and assure training programs among PSE and the Service Providers can be evaluated and measured in an objective, consistent manner. | 3/30/11 | Yes | Yes – DR 280 |
| **Chapter 6, Contracts** | | | | | |
|  | 6.2.4.1 | Redirect management of the Service Provider Model to ensure that Outsourcing Activities reflect sufficient communication, logistics, and oversight that will result in fulfillment of PSE’s responsibilities for System Safety. ~~In implementing this recommendation, determine the extent to which the original financial benefits of the Service Provider concept still exist~~. | 2/1/11 | Yes | Yes – DR 281 |
|  | 6.2.4.2 | Update the Outsourcing Contract by clearly describing that PSE takes direct responsibility for matters involving System Safety | Interim 4/1/11  Final 12/31/11 | Yes | Yes – DR 290 |
|  | 6.2.4.3 | Update the Outsourcing Contract by defining the relationship PSE intends to have and maintain with the Service Provider. | 12/31/11 | Yes | Yes – DR 295 |
|  | 6.2.4.4 | PSE and the SPs should establish a Joint Task Force to consider Utility contractor management and SP management processes, such as Billing, to assess System Safety impacts and to look to redesign processes to reduce or remove the System Safety risks. | 2/28/10 | Yes | Yes – DR 204 |
|  | 6.3.4.1 | To properly allocate responsibilities and understanding, redraft the contract to clearly articulate the Utility/SP relationship to better define the liabilities as reflected in the requirements of the Washington Administrative Code. | Interim 4/1/11  Final 12/31/11 | Yes | Yes – DR 291 |
|  | 6.3.4.2 | Prepare guidelines for the operation and management of the contract so it can be used as an operations manual for Contractor Management. The goal of the guidelines should be to maintain the partnering relationship between PSE and the SP while reinforcing system safety and the decisions that can impact it. | NA – DBA will determine if this recommendation needs to be implemented via interviews with PSE and SP personnel. | See DR 295 and IR 229 | Guidelines for management of SP Contracts are not deemed necessary by DBA |
|  | 6.3.4.3 | To allocate greater representation to PSE, redraft the Contract Terms concerning the contract committees. This change will reflect current practice. | Recommendation not accepted |  |  |
|  | 6.3.4.4 | Contract metrics need to be expanded to include measures such as conformance to PSE procedures as a result of actual observations. In order to meet the first requirement of the QC/QA Programs, which is to confirm and document work, material and services comply with the contract, the requirements of the published Standards, Plans, Specifications and Pipeline Safety Regulations. | 12/31/10 | Yes | Yes – DR 260 |
|  | 6.3.4.5 | The QC/QA Programs need to be refocused to enable more site visits to observe procedures during Construction and Operations and Maintenance Procedures. Post-Construction Inspections of connections made under hard surface are a last resort which would only become necessary if critical procedures inspections are not completed. | 1/1/10 | Yes | Yes – DR 205, 212 & 278 |
|  | 6.3.4.6 | The scope of the QC/QA metrics should be expanded to include Site and Public Safety, paperwork accuracy, units completed, and more on-site crew work inspections. The existing check list used should be amended so that deviations are not the main focus. | 9/30/10 | Yes | Yes – DR 206 & 282 |
|  | 6.3.4.7 | Currently when the PSE QA Inspector is attempting to locate and SP crew significant time is lost, and if dispatch is contacted the element of surprise, useful in discovering disorderly jobsite conditions, is lost. Consequently consideration should be given towards GPS equipment to assist in locating the Service Provider crews or some other method that accomplishes the above need. | 3/31/10 | Yes | Yes – DR 212 & 213 |
|  | 6.3.4.8 | The SP should explore the possibility of fielding QC staff from supervision as opposed to using bargaining unit employees as QC Inspectors. This change would the overall integrity of the QC process. | 6/30/10 | Yes | Yes – DR 214 & 247 |
|  | 6.3.4.9 | PSE and the SPs should take the opportunity to educate QC and QA staff on public communication and mark their vehicles as each respective company’s Quality Control/Quality Assurance Inspection Team. | 9/30/10 | Yes | Yes – DR 239 & 245 |
|  | 6.3.4.10 | PSE should develop a training program to pass knowledge to contract managers about system safety and the kinds of decisions that can impact it. Training sessions should begin with the history of code violations and settlements to instill a sense of urgency for the importance of doing jobs in conformance to the gas operating standards. There should also be training on business drivers and the kinds of reactions that will arise from management decisions and demands that might impact safety. | 12/31/10 | Yes | Yes – DR 261 & 279 |
|  | 6.3.4.11 | PSE should review its system-facing metrics to identify new metrics that deliver a measure of assurance of system safety. These will likely not involve easy counting measures as they will be focused on assurance and validation rather than deviations or failures. | 7/31/10 | Yes | Yes – DR 215, 272 & 304 |
|  | 6.3.4.12 | PSE should introduce the incentive scheme after all proposed changes are made to the contract and metrics, and then only if it is convinced the need is still there. A lot of what is required for a successful Outsourcing Contract can be delivered via focused and effective management, once the recommended changes have been made. | 1/1/10 | Yes | Yes – DR 207 |
|  | 6.3.4.13 | PSE should strive to meet the AGA’s Best Practice of completing as-built updates within 60 days. Reviewing the Billing Process to enable the removal of the as-built and D-4 documents from the billing package as soon as they are received will ensure the updated maps are expedited. A copy should be kept in the invoice folder for reference and completeness. The accuracy of the information on the as-built and D-4, aside from issues surrounding amounts of materials used, etc. should be dealt with through the QC/QA Process. | 12/31/10 | Yes | Yes – DR 262 |
|  | 6.3.4.14 | Enhance the Paperwork Correction Process utilizing a cross functional PSE SP team. The goal would be to eliminate sending needed corrections back to the field by developing parameters for corrections and establishing a basis for recording corrections. The veracity of the process developed could be assessed by periodic audits. | 4/1/10 | Yes | Yes – DR 216 & 262 |
|  | 6.3.4.15 | Review the field paperwork process and make a recommendation for reducing volume and streamlining the information captured. This recommendation scope could also include assessing electronic capture of data. | 12/31/10 | Yes | Yes – DR 263 |
|  | 6.3.4.16 | Assess the benefits and costs associated with using a roving inspector to visit larger job sites to QA and complete as-built drawings and D-4 Forms to Mapping as is done on large scale pipeline jobs. | Recommendation not accepted |  |  |
|  | 6.4.4.1 | Consider developing a leading type metric to measure miss-locates. A possible surrogate for this measure could be the number of downtime claims from a third-party contractor from attempting to find the main themselves or waiting for the Locator to return to site. | 6/30/10 | Yes | Yes – DR 217, 228 & 283 |
|  | 6.4.4.2 | Create a contractual basis for the Locating SP Probation Concept and establish objective rules as to its application. | 3/31/10 | Yes | Yes – DR 218 |
|  | 6.4.4.3 | Establish and continue a QA Program to audit the Locators’ QC Programs. | 1/1/10 | Yes | Yes – DR 219 & 284 |
|  | 6.5.4.1 | PSE should develop a consistent system for the collection of data/map errors found in the field by perhaps capturing these corrections directly from maps/as-built drawings or D-4 Forms used in the field. | 12/31/10 | Yes | Yes – DR 264 |
|  | 6.5.4.2 | PSE should establish a continuing program to QA audit the Leak Survey QC Programs. | 3/31/10 | Yes | Yes – DR 220 & 285 |
| **Chapter 7, Auditability** | | | | | |
|  | 7.2.4.1 | Convert Procedures and Standard manuals to an electronic field format, or collect and redistribute manuals with current information and standardized bindings. Develop employee Accountability and Audit Process for Procedures and Standards revision accuracy. | 9/30/10 and 3/31/11  Date finalized and date published and issued to field. | Yes | Yes – DR 240, 292 & 296 |
|  | 7.2.4.2 | Create a Records Section in every Gas Operating Standard. If no records are required for the operating standard, clearly indicate no records required. | 9/30/10 and 3/31/11 Date finalized and date published and issued to field. | Yes | Yes – DR 241 & 293 |
|  | 7.3.4.1 | Review construction service provider foreman generated paperwork for streamlining opportunities and implement recommendations. | N |  | Covered under 6.3.4.14 |
|  | 7.3.4.2 | Review all paper forms used by PSE field operations staff and the service providers to determine if they are still relevant and reduce the amount of manual recordkeeping. | N |  | Covered under 6.3.4.15 |
|  | 7.4.4.1 | Utilizing the IT business case justification process, elevate the priority of the initiative to move Compliance Maintenance Programs managed in Access, such as H2RL, Atmospheric Corrosion Inspections, and Valve Inspections, to SAP. | Phase I – 12/31/10  Phase II – 6/30/11 | Yes | Yes – DR 286 & 299 |
|  | 7.4.4.2 | Increase awareness of Map Revision Request Form for both PSE and service provider employees and establish metrics to hold employees accountable for compliance. | 12/31/10 | Yes | Yes – DR 265 |
|  | 7.4.4.3 | Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding. | Under Review | See DR 275 & 300 |  |
|  | 7.5.5.1 | In order to support the efficient use of QA&I staff, develop an improved tracking system that will aid in locating service provider crews. | N |  | Covered under 6.3.4.7 |
|  | 7.5.5.2 | Move the quarterly Leak Audits and D-4 Audits from the Target Audit List to the Routine Audit List to continue to randomly inspect records for Compliance. | 7/1/10 | Yes | Yes – DR 221 |
|  | 7.6.7.1 | Initiate PSE QA Audits on Locating Service Providers to minimize the likelihood of non-compliance. Include in the audits, metrics that measure near-miss as well as inaccurate locates. | 6/30/10 | Yes | Yes – DR 222 & DR 297 |
|  | 7.7.4.1 | Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding. | N |  | Covered under 7.4.4.3 |
| **Chapter 8, Surveillance** | | | | | |
|  | 8.2.8.1 | In order to enable a more robust Continuing Surveillance Program, improve communications between System Control and Protection, and System Maintenance Planning. If significant improvements in communication are not achievable, conduct an Organizational Assessment to fully evaluate the benefits of both organizations reporting to the same SVP or Director. | 6/30/10 | Yes | Yes - DR 223, 230, 246 & IR 207 |
|  | 8.2.8.2 | System Maintenance Planning should allow System Control and Protection the full 120 days allowed by UTC to repair cathodically protected facilities when verifiable delays in permit processing are encountered. | 6/30/10 | Yes | Yes - DR 224 |
|  | 8.2.8.3 | PSE should revise the System Condition Reporting Programs for its employees and SPs in a manner that is useful for reporting a variety of conditions; with all parties’ responsibilities well known, and with clear communication to all parties of the program’s usefulness in promoting System Safety. Recommended improvements to consider should include: a single form, comprehensive training, clear responsibilities, increased use of Information Technology, established a prioritization procedure and updated Gas Operating Standards. | Non IT – 3/31/11  IT – 12/31/11 | Yes | Yes – DR 274 for non IT  See DR 287 & 305 |
|  | 8.2.8.4 | Continue to aggressively evaluate the cost-benefit of investing in a GIS system to Aggregate System Information for analysis. Implementation will also better enable compliance with DIMP Regulations. | N |  | Covered under 7.4.4.3 |
|  | 8.3.5.1 | In order to play a greater role in identifying trends and enabling new programs and program adjustments, and facilitating the evaluation of recent year data, efforts should be made to complete the System Performance Programs Annual Review closer to the beginning of the calendar year than the current June issuance date. | 5/1/10 | Yes | Yes - DR 225 & 231 |
|  | 8.3.5.2 | PSE should examine and rectify its process for accounting of eliminated leaks. | 6/30/10 | No - See DR 226 |  |
|  | 8.3.5.3 | Continue to aggressively evaluate the cost-benefit of investing in a GIS system to Aggregate System Information for analysis. Implementation will also better enable PSE to determine the root-causes and prevent damages and leaks. | N |  | Covered under 7.4.4.3 |
|  | 8.3.5.4 | Improve coordination or consider reorganization of damage control responsibilities among the several organizations involved to create a more unified management process. A task force similar to the Gas Compliance Steering Committee would provide an effective format for the communication of damage control information and coordination of monitored efforts. | 3/31/10 | Yes | Yes – DR 227 &301 |
|  | 8.3.5.5 | PSE should create a feed back mechanism to capture root analysis on poor or no locates, including tracking “Near-Miss” Data which could also provide important Continuing Surveillance information regarding the accuracy of locates. | 6/30/10 | Yes | Yes – DR 228 |
|  | 8.3.5.6 | PSE should adopt Common Ground Alliance’s Best Practices that will enhance locator accuracy and timeliness, and incorporate them into goals reflected in the Locator Contracts. This includes establishing objective measures for locator accuracy and timeliness and then establishing targets for year-over-year improvement. | 9/30/10 | Yes | Yes – DR 266 |
|  | 8.4.7.1 | PSE should add clarification to the record regarding certain categories of UTC-reportable incidents as described in Section 4.2 UTC Reportable Incidents for the purpose of Continuing Surveillance. | Recommendation not being implemented |  |  |
|  | 8.4.7.2 | A greater focus on the use of Continuing Surveillance information for internal auditing and a proactive approach to management of the Gas System is needed. PSE should use the annual Continuing Surveillance Report to identify trends, initiate proactive measures, and track subsequent progress. The end result would be enhanced system integrity and a reduced need for settlement agreements and settlement-related audits. | 5/1/10 | Yes | Yes - DR 229, 225 & 231 |
|  | 8.4.7.3 | In the interest of coordinating all aspects of Continuing Surveillance, PSE should coordinate various departments (if not consolidated in response to Recommendation 8.2.8.1) concerning Continuing Surveillance, and appoint a manager to report on Continuing Surveillance to the Gas Compliance Steering Committee. | 6/30/10 with 8281 | Yes | Yes - DR 230 |
|  | 8.4.7.4 | Efforts to consolidate information to provide a workable Continuing Surveillance System should receive a higher priority. | 3/30/11 with 8.2.8.3  Now 12/31/11 | Yes | Yes – DR 287 & 306 |
|  | 8.4.7.5 | The annual Continuing Surveillance Review as specified in the Gas Operating Standards should be performed and become the major indicator of the state of the Gas System. | 5/1/10 | Yes | Yes - DR 231 |
| **Chapter 9, Resources** | | | | | |
|  | 9.2.4.1 | Develop and implement a Corporate Goal concerning Gas System Safety. Goal should include supporting objectives, actions and measures to fully communicate and demonstrate senior management’s Gas System Safety intent. Implementation of this goal should result in cascading a Gas System Safety proactive approach throughout the organization. | N |  | Covered under 4.2.5.1 |
|  | 9.3.6.1 | PSE should expedite the development of a Strategic Workforce Planning Study to define the work force required to implement company business strategies and identify actions needed to meet those requirements. The analysis should reveal gaps between the work- force needed and the workforce supply forecasted to be available and identify critical positions as well as certain key employees. | 9/30/10 Study complete | Yes | Yes – DR 242 & 250 |
|  | 9.3.6.2 | The company should initiate vehicle recordkeeping that includes maintaining a history of vehicle breakdowns and repair costs. This history should be periodically reviewed to determine vehicle replacement needs | 12/31/10 | Yes | Yes – DR 267 |
|  | 9.3.6.3 | The company should initiate recordkeeping of employee double-ups required as a result of a shortage of functional vehicles. These records should be periodically reviewed to determine the appropriate number of spare vehicles in any given location. | 12/31/10 | Yes | Yes – DR 268 & 267 |
|  | 9.4.6.1 | Revise the Operating Standards for Continuing Surveillance 2575.2700 to reflect the significant observation role the Manager Quality Assurance and Inspections has in Continuing Surveillance. | 9/30/10 and 3/31/11  Date finalized and date published and issued to field. | Yes | Yes – DR 243 |
|  | 9.4.6.2 | Add clarity in how Compliance Activity responsibilities are delegated and how individuals are held accountable throughout the organization. | N |  | Covered under 4.2.5.4 |
|  | 9.4.6.3 | Conduct a study of how and where First-Line Supervisors spend their time. Determine which existing supervisory and administrative tasks can be reassigned and/or appropriate staffing needs, so that First-Line Supervisors have the ability to routinely spend 50% of their time with field crews and service personnel. Develop a list of appropriate field related responsibilities along with the means to ensure supervisor accountability. | 12/31/10 Study Complete  3/30/11 Implement Study Results | Yes | Yes – DR 288 |
|  | 9.4.6.4 | Review and communicate the criteria for incident command with all PSE and SP staff so that the PSE leadership role is clearly understood; consider incorporating incident command observations into the Quality Assurance Program. | 4/1/10 Training Complete  9/30/10 QA to Evaluate | Yes | Yes – DR 232, 294 & 302 |
|  | 9.4.6.5 | Elevate the priority of the initiative to move Compliance Maintenance Programs managed in Access, such as H2RL, Atmospheric Corrosion Inspections, and Valve Inspections to SAP. | N |  | Covered under 7.4.4.1 |
|  | 9.5.2.1 | Expedite the XEM database under development, so that all Compliance Reports for Gas Operations can be combined into a single report. | 1/1/10 | Yes | Yes – DR 233 & 252 |

# Specific Recommendations

## I. Safety

**Discussion:**

The safety culture with regard to system and public safety at PSE was evaluated using several methods. One method was to review and comment on each individual recommendation in this section (see below) and another method was to interview[[2]](#footnote-2) various employees at both PSE and one of their SP’s (Pilchuck). These interviews were held at all levels of both organizations, from officers of the company to helpers in the field.

System and public safety relate to how PSE manages its gas infrastructure so as to minimize the risk of adverse situations and consequences to their customers, the general public, their employees, and the environment from both short and long term harm and/or physical damage. This is separate (but by no means meant to be more important) from employee or worker safety. Some of the issues that would be a system or public safety problem would be leaks, the timeliness to repair all types of leaks, lack of adequate supply pressure during heavy usage periods, recurrent problems that need a more global or larger set of solutions (such as a known premature failure of a component but only performing repairs on the individual component as it fails), etc. System safety is also linked with Continuous Surveillance, Resource Allocation and other areas that were targets of this audit.

The results of the interviews show that there has been a change in the culture of PSE since the audit initially was undertaken. This change appears to be more pronounced at the higher levels and the communication of the importance of this change is not always filtering down into the field level positions (the officer and director level of PSE were very emphatic that the new owners were very committed to safety via communications and deeds while the field level said they did not see any change from before the audit or the old ownership as a public company prior to a new President and Board of Directors). A majority of the PSE management level employees realized that the relationship between the company and the UTC staff needed improvement and since the Jacobs Management Audit (3rd party audit) was started and completed, the communications and the relationship between these parties has improved. Several interviewees stated that although the relationship is better, there is still room for additional improvement and they were hopeful that this would occur as the verification step of the 3rd party audit process was completed.

As mentioned earlier, leaks and leak repairs are an indication on how a company may be taking system and public safety into account. The number leaks shows how well the system is currently operating or being maintained while the timeliness of leak repairs for non-immediate action leaks and the number of re-grades can indicate how PSE is managing the issue not from a cost but rather from a safety or “do the right thing” perspective. Below is a graph showing the leak and re-grade history from 2007 through Sept 2010 (the 2010 numbers have been normalized for an entire year).



Figure 1 – PSE Leak Data for 2007 to 09/2010[[3]](#footnote-3)

The number of Class A (Type 1, Class 1) leaks has shown a reduction for the period. These are the most serious leaks and by regulation must be repaired immediately because they have the highest risk to public safety. Typically these are leaks that have migrated to a building foundation wall and could (or have) further migrated into a building and thus could cause an explosion hazard. The Class B (Type 2, Class 2) leaks have also shown some improvement. These are leaks that do not pose an immediate hazard but could do so in the future and must be repaired with a certain period. The Class C (Type 3, Class 3) leaks which do not pose a current threat have not change much from 2008 to date. Since these leaks do not pose a current threat, they must be regularly checked but do not have to be repaired on any time schedule. The number of re-checks during the period has decreased which is an indication that PSE is removing non-hazardous leaks from the backlog (non-hazardous leaks may or may not have to be repaired but do have to be periodically re-checked to determine if they have become more severe).

Overall, except for re-graded leaks, the number of active and found leaks is decreasing which is due to a combination of repairing active leaks and replacing leak prone mains and services. Replacement of mains and services is typically a method that gas operators use to effectively reduce the number of leaks per mile of installed pipe and improve the safety of their gas systems.

**Recommendation 4.2.5.1**, Develop and implement a Corporate Goal concerning Gas System Safety. Goal should include supporting objectives, actions and measures to fully communicate and demonstrate senior management’s gas system safety intent. Implementation of this goal should result in cascading a gas system safety proactive approach throughout the organization.

**Background:**

Jacobs examined PSE's Corporate Goals to determine if Gas Safety Compliance was reflective of the company’s settlement experience[[4]](#footnote-4). The only two 2009 Corporate Goals that somewhat relates are the goal dealing with Optimized Generation and Delivery, which states “... build or replace infrastructure in a way that meets our customer's needs…” and the goal dealing with Own It, which states “… meets or exceeds any internal or external compliance obligation.’ In light of PSE's settlement agreement history, we find these goals inadequate. PSE needs to develop a goal with supporting objectives, actions and measures to fully communicate senior management's intentions. This goal will help set the tone and cascade throughout the organization PSE’s system safety intent, as well as the company's desire to become more proactive with regard to system safety compliance issues.

**Status:**

Goal set to be completed and implemented by 12/31/2010.

**Conclusions:**

PSE has developed a corporate goal regarding gas system safety for 2011. This goal, presented below, specifically tasks all PSE, service provider, and contractor employees with performing their respective job duties in a safe and compliant manner.

*At Puget Sound Energy the safe and compliant operation and maintenance of our gas system is paramount to the safety of our customers, the public, the community and our operational employees. PSE’s management, supervisors, Service Providers, Contractors and employees are accountable for conducting gas operations and maintenance tasks in a safe and compliant manner and promoting continuous improvement at all times.*

*To do this we must be constantly aware of conditions in the areas in which we work that can create a hazardous situation to our customers, the public, the community and our employees. Each employee of PSE, our Service Providers and Contractors is responsible and accountable for performing work that complies with all Federal and State Pipeline Safety Regulations and PSE’s Gas Standards. No job is so important that it cannot be done in a safe and compliant manner.*

This new corporate goal fulfills the requirements of the recommendation. This recommendation is considered implemented and verified and thus is considered closed[[5]](#footnote-5).

**Recommendation 4.2.5.2**, Establish stretch goal targets seeking 100% compliance with the natural gas state and federal regulations and no fines. Setting high targets helps to demonstrate PSE wants to achieve full gas safety compliance.

**Background:**

Jacobs found it interesting that a company with PSE's settlement history only seeks 95% compliance with the Regulator and only seeks to avoid excessive fines. In Jacobs’ experience the only appropriate goals are 100% compliance and no fines. PSE needs to set its targets higher to help demonstrate it wants to achieve full gas safety compliance. For 2010, PSE has increased the target for compliance to 97% and has argued that this is a SMART (Specific, Measurable. Achievable, Realistic and Timely) goal since it includes both outside (UTC, US DOT) and internal (self, Compliance Auditors, Service Provider Audits, etc.) audits.

**Status**:

The new 97%/100%/100% goals for compliance, self-reporting and remediation were implemented with the 2010 goals which were effective 1/1/2010.

**Conclusions:**

PSE set the new goals for 2010 for both PSE employees and Service Providers (SP) at 97% for compliance with all inspections by both company and non company inspectors. The compliance covers regulatory requirements, company requirements and SP requirements for safety, procedures, tools, paperwork and customer satisfaction. As of the end of the first quarter, all PSE and SP crews were over the 97% threshold for compliance.

The second and third numbers in this goal refer to self-reporting of deficiencies to regulators and self remediation when a deficiency is identified. For both of these goals, all of the PSE and SP crews are meeting the goals.

Based on have these goals specified in 2010 performance metrics and the first quarter results, it is believed that this recommendation has been implemented and verified.[[6]](#footnote-6)

The year end 2010 performance metrics were reviewed[[7]](#footnote-7) and following metrics were provided: Gas Compliance PSE – 98.8%; Pilchuck – 98.9%; Potelco – 98.1%. This recommendation is verified and closed.

**Recommendation 4.2.5.3,** Modify the Operations Metrics Report developed by Performance Excellence by creating a separate category for Gas Safety Compliance. This will help to create a higher profile and visibility for compliance related metrics.

**Background:**

With regard to the Gas Safety Compliance Metrics that gets reported back to the COO. In reviewing the 2008 PSE's Performance Excellence the Operations Metrics Report under the category, Compliance and Safety, in addition to the Gas Response Time, there are several safety measures including near-miss ratio, recordable injuries and loss-time injuries. Similarly, when reviewing the 2009 Operations Metrics Report we find the same category, Compliance and Safety, with an expanded number of compliance metrics as well as safety metrics. Based on the company's history, with settlement agreements, it needs to create a higher profile and visibility for compliance related metrics.

**Status**:

This goal was implemented with the 2010 Operations Metrics Report on 3/31/2010.

**Conclusions:**

A copy of the first quarter 2010 corporate Operations Metric Report was obtained and there is a new section entitled “Gas Compliance and Leaks” which tracks the gas compliance metrics and the number of leaks on the system. There is also another section devoted to Employee Safety.

The “Gas Compliance and Leaks” area tracks the following metrics: PSE Gas Compliance; Pilchuck Gas Compliance’ Potelco Gas Compliance; and Number of Active Leaks. All four metrics through the end of the first quarter were better than the goal. The employee safety metrics tracked consisted of: Safety Experience Rate for Potelco (Quanta) on an annual basis; Safety Experience Rate for Pilchuck on an annual basis; Recordable Injury Rate for Pilchuck, monthly basis; Lost Time Injuries for PSE, monthly basis; Severity rate for PSE, monthly basis; and Near Miss Ratio for PSE, monthly basis. Currently all of the monthly basis metrics were being met by Pilchuck and Gas Operations.

Based on the changes in the Operations Metric Report, this recommendation is considered completed, verified[[8]](#footnote-8), and closed.

**Recommendation 4.2.5.4**, Develop for each position with gas safety compliance responsibilities a complete and up- to-date position description. Position descriptions should clearly convey compliance- related responsibilities as well as other organizational accountabilities.

**Background:**

The position descriptions PSE provided indicated those that had the responsibility to review records, identify trends, initiate follow-up work, or observe and report the condition of gas facilities during construction, operations and maintenance activities were primarily generic in nature. In addition, 2 out of the 11 management positions cited position descriptions were not available.

In order to clearly convey compliance-related responsibilities as well as other organizational accountabilities each position in the organization should have a complete and up-to-date position description.

**Status**:

PSE will review and include compliance related responsibilities into all applicable job descriptions and write new job descriptions where necessary. Phase I is for non-bargaining employees and Phase II is for employees covered under a collective bargaining agreement with the UA and will be negotiated with same. Phase I is targeted for completion on 9/30/2010 and Phase II by 12/31/2010.

**Conclusions:**

PSE has reviewed and updated all of the position descriptions for individuals or jobs that have responsibilities on the gas system with one of two additional requirements. One requirement is for individuals who have exclusive responsibility for the gas system and the other is for individuals who have company wide responsibilities. Below are tables provided by PSE showing which job descriptions are included for each of these two groups[[9]](#footnote-9).

Positions with Exclusive Gas Responsibilities

|  |  |
| --- | --- |
| Energy Distribution Compliance Mgr | Supv. Gas Operations Dispatch |
| Mgr Meter Services | Supv. Industrial Meter Operations |
| Supv. Customer Service | Supv. Instrumentation |
| Supv. Meter Shop and T&C | Supv. Maintenance Programs |
| Supv. ERG Ops & Maintenance | Supv. Pressure Control |
| Dir Gas Operations | Supv. Quality Control |
| Gas Operations Training Consultant | Corrosion Control Technician |
| Gas Ops Training Consul/Quality Control | Customer Field Service Inspector |
| Supv. Gas Operations Training | Customer Field Service Technician |
| Compliance Coordinator | Dispatcher – Gas Operations |
| Corrosion Technologist | Fitter - Corrosion Control |
| Electrical Administrator - Gas Ops | Fitter - Gas First Response |
| Gas Control Analyst | Gas Storage Technician - Jackson Prairie |
| Gas Controller | Gas Worker/Trainee |
| Maintenance Program Coordinator | Meter Repair Person – Industrial Meter Operations |
| Mgr Gas First Response | Meter Shop Repair Person |
| Mgr Gas System Operations | Operator - Gas Storage |
| Mgr Gas Systems Integrity | Propane Air Storage/LNG Plant Operator |
| Mgr Safety & Operations Training | Public Improvement Inspector |
| Mgr System Controls & Protection | Technician - Instrumentation |
| Quality Control Analyst | Technician - Pressure Control |
| Quality Control Consultant | Tool Repair and Calibration Technician |
| Sr. Gas Controller | Utility Worker I |
| Supv. Alternative Fuels | Utility Worker I – Automated Meter Reader (AMR) |
| Supv. Corrosion Control | Utility Worker II |
| Supv. Energy Measurement | Utility Worker - Gas Storage |
| Supv. Gas First Response | Sr. Geologist |

Positions with Multiple Compliance Responsibilities

|  |  |
| --- | --- |
| Administrative Assistant | Dir Contractor Management |
| Administrative Specialist | Dir System Planning |
| Customer Communications Mgr | Mgr Insurance & Claims |
| Mgr Gov & Community Relations | Mgr Labor Relations |
| Supv. Technical Communications | Mgr Energy Information Infrastructure |
| Consulting Contract Administrator | Mgr Meter Technology |
| Contract Administrator | Technical Specialist |
| Contract Manager | Emergency Planning Mgr |
| Mgr Contract Services | Emergency Planning Prog Mgr |
| Mgr Contractor Management | Mgr Fleet |
| Mgr Real Estate | Mgr Material Distribution |
| Mgr Right of Way Services | Resource Coordinator |
| Mgr Security | Commodities Specialist |
| Mgr Business Account Services | Mgr Construction Management |
| Mgr Customer Access Center | Mgr Mapping Records & Technology |
| Mgr Customer Construction | Mgr Quality Assurance & Inspection |
| Assoc Engineer | Mgr Quality Control & Training |
| Consulting Engineer | Mgr Standards & Compliance |
| Engineer | Mgr System Maintenance Planning |
| Engineering Analyst | Quality Assurance Inspector |
| Engineering Assistant | Sr. Construction Manager |
| Engineering Specialist | Supv. Maps & Records |
| Mgr Engineering | Supv. Quality Assurance & Inspections |
| Sr. Engineer | Construction Mgr |
| Sr. Engineer Specialist | Mgr Project Management |
| Supv. Engineering | Project Coordinator |
| Dir Compliance & Safety | Project Manager |
|  | Sr. Project Manager |

The addition to the job description of individuals with gas only responsibilities is:

*Responsible for gas safety compliance work and compliance with PSE’s Gas Operating Standards and Gas Field Procedures when engaged in operating, maintaining, constructing or engineering PSE’s natural gas system.*

For individuals with company wide responsibilities:

*Upholds the safety compliance standards inherent in PSE’s operating and/or field procedures related to work responsibilities.*

Several updated position descriptions were reviewed for both management and union positions and each had the new responsibilities. Based on this review and the addition of the new responsibilities in the position description, this recommendation is considered implemented, verified and closed.

**Recommendation 4.4.3.1**, Identify safety systems or processes that would benefit from a Benchmarking/Best Practice Study. Develop and implement a plan to conduct a specific number of Benchmarking/Best Practice Studies over a given period of time.

**Background:**

Benchmark/Best Practices Studies are informally considered by PSE. PSE has not incorporated a true Benchmarking/Best Practice Methodology to enhance or improve its systems or processes in the area of Safety. Although PSE has noted that the company does participate in some Benchmarking and Best Practice Studies, no clear evidence of an accepted methodology or the results of such practices can be seen as part of PSE’s Standard Work Procedures or within the work environment itself.

**Status**:

PSE will develop a benchmarking/best practices study and have such a plan ready to implement by 12/31/2010. Phase I will be to catalogue present processes by 5/31/2010; Phase II will be to analyze which processes would benefit from benchmarking, which will be completed by 6/30/2010 ; Phase III will be to develop and budget for the benchmarking plan by 10 /31/2010 and implement by 12/31/2010.

**Conclusions:**

PSE has selected one best practice from AGA to benchmark. This best practice concerns third party damage from excavators as part of a metric based on dig-ins per 1000 locates. To date PSE has not performed well on this metric and will continue to use AGA data along with other benchmarks as they become available. This single use of benchmarking on this important issue is good but PSE should consider other areas in which benchmarking against other operators would be useful[[10]](#footnote-10). PSE is working with the regional CGA (Common Ground Alliance) to evaluate more effective enforcement methods.[[11]](#footnote-11)

This recommendation is considered implemented, verified and closed.

**Recommendation 4.4.3.2**, Introduce a series of gas system metrics-measures that are leading and permit root-cause analysis. Rigorous use of these metrics will help to anticipate and prevent safety incidents or the degradation of safety performance.

**Background:**

Tracking trends and patterns for a given series of metrics would allow analysts to identify the direction and impact of a given series of events. Determining which metric and measures would be best served as leading indicators is the initial step, followed then by the frequency and unit of measure. Once these are established, a series of proactive steps could be recognized to modify behavior or adjust processes and not wait for annual or even quarterly lagging performance statistics.

**Status**:

PSE will review both PHMSA and CGA material to determine how other utilities are measuring safety performance. They assess how existing metrics compare and will select or modify metrics to better measure safety and compliance as a proactive rather than reactive. Phase I is to assess PHMSA and CGA metrics by 3/31/2010; Phase II is review current metrics and identify differences from Phase I metrics by 6/30/2010; Phase III is to develop and budget new metrics by 7/31/2010; Phase IV is to incorporate new or modified metrics by 10/31/2010 for inclusion with Recommendation 4431.

**Conclusions:**

PSE conducted several internal and external discussions regarding metrics that are appropriate as measures of system safety.  Based on these discussions, they have identified 4 high level categories of performance metrics.  These include Damage Prevention, Leakage, Response Time, and Health of the CP System.[[12]](#footnote-12)  The initial proposed metrics have been modified based on the information that was obtained during a pilot of what information was available and the usefulness of the information as a leading indicator of safety metrics.

For damage prevention, PSE is tracking the number of third party damages (TPD) per 1,000 locate requests. This metric should provide an indication of the effectiveness of the ‘call before you dig’ outreach program and how well the locate SP’s are responding to job orders. The metric will be continued to be monitored to determine if there are additional metrics that will provide more proactive measures to assist in reducing the number and consequences of TPD to the system.

For leakage, PSE is adding two additional metrics to the existing metrics:

* New Leak Found per Month per mile of main surveyed
* Active Leaks per Mile of Main

These additional metrics and the existing metrics will be evaluated as to which is the most effective in providing additional information to make decisions that could affect system safety.

On response time, PSE is already monitoring the time between an odor compliant call and arriving at the scene of the compliant. Thus PSE does not believe additional metrics are needed.

Lastly, PSE is proposing to add a metric to measure the health of the CP system on all cathodically protected mains and services. The metric would track on a monthly basis the number of CP readings that were acceptable vs. unacceptable and develop a reasonable relationship between good and bad readings. PSE is still evaluating the usefulness and how to track monthly readings on their system since some CP systems are read at different intervals.

During discussions with PSE [[13]](#footnote-13) on July 21, 2011, it was agreed that PSE would consider developing a leading indicator on cathodic protection and then start obtaining the necessary data.

This recommendation is still being implemented and thus can not be considered either implemented or verified.

**Recommendation 4.4.3.3**, Review the Safety Goal-Setting Process and where appropriate introduce more aggressive goal-setting practices.

**Background:**

Establishing specific goals that are strategic and aggressive, yet attainable against the industry averages would enhance PSE’s position, making the Utility more aware of their metric results and more proactive. Determining what the specific goal range should be, including a rationale for that goal level, identifying the ways and means in which the company intends to reach these goals, and establishing the necessary timeframes, budgets and a quality level for each goal in managing the effort will contribute to a more proactive strategic and tactical program. PSE’s objective is to improve their current position in the AGA Survey to the First Quartile Performance over the next 5 years. In order to achieve that objective, they will need to improve performance with a 4.5% reduction per year. However, PSE sets performance goals based on about a 2.5% improvement rate each year.

**Status**:

The three main personal safety statistics for the gas operations area have typically been better or significantly met the corporate safety goals. Over the last 5 or 6 years there has been a significant reduction in the number of incidents and the number of lost time incidents. The severity statistics has not shown such a dramatic and sustained reduction. Using linear analysis, the gas operations area has shown it can do better than the 2010 goals but as these goals are approaching negative numbers which is impossible. The overall corporate goals do show a reduction in all of the safety statistics. The goals were formalized for 2010 and are 3.46 for recordable accidents; 1.52 for lost time accidents; and a severity rate of 54.20 which for the corporation are 18%, 20% and 2.5% reductions from 2009.

**Conclusions:**

PSE started 2010 by improving on the corporate safety goals. For the first quarter of 2010, all three goals have been met. In the past the electric operating area has been the group that has had trouble meeting this corporate goal. PSE anticipates reducing the three goals for 2011[[14]](#footnote-14).

In 2010 PSE achieved the following actual safety statistics in the Gas Operations areas:

* 2.89 (goal of 3.46) for recordable accidents;
* 1.15 (goal of 1.52) for lost time accidents; and a
* 35.51 (goal of 54.20) severity rate.

For 2011 the corporate safety goals are[[15]](#footnote-15):

* 3.57 for recordable accidents[[16]](#footnote-16);
* 1.31 for lost time accidents; and a
* 25.89 severity rate.

For 2011 the separated Gas Operations safety goals are[[17]](#footnote-17):

Field Forces Office Personnel

Recordable incidents 4.07 0.52

Lost Time Accidents 2.03 0.07

Severity Rate 25.89 0.33

Many companies are now separating their safety statistics and metrics by exposure (field forces are considered a high exposure group while office personnel are low exposure) because of the significantly different environments they work in and a different types of safety problems/issues they are exposed to.

Based on the improvement in 2010 and the separation of safety metrics between field and office personnel, this recommendation is considered completed, verified and closed.

## II. Training

**Discussion:**

Training at PSE consists of several different elements. For some functions or tasks, PSE utilizes in-house training while for others, especially for its Service Providers, it uses a union-company arrangement called the PSE - UA Training Trust which is located at the local union or PSE depending on the training and the personnel. Tracking who is trained, how they are trained, who performed the training, and when re-training or re-certification is needed still is not centralized for all individuals who perform work on the PSE gas system. The paperwork issues, however, are greatly improved since the third party audit was performed.

As part of implementing the training recommendations, PSE has centralized, for company personnel, training records using a new Learning Management System (LMS). This system will meet all of the requirements for PSE employees by recording all of the necessary data on training and re-qualifications. The system was also uploaded with existing training records so there are historical records for each individual. For SP employees, the UA Trust and each SP are handling records retention and accessibility issues. PSE has changed some of the focus of how it is conducting and verifying competence with certain tasks (both covered and non-covered). It is using a computer based training system that was benchmarked with the Midwest Energy Association and then a practical test on a simulated gas system to verify competence. This new method should provide better training and retention since individuals will actually performing the tasks under the supervision of a training instructor.

Another facet of the PSE training program is professional training in several areas (these are highlighted in other areas of the implementation plan such as in contract management issues and quality assurance issues). A training session on compliance, gas system safety and retained responsibilities of the company under the service provider model was provided to both company contract management employees and some service provider employees. This training highlighted not only PSE issues but covered how federal and state regulations were based on actual incidents and how PSE would adhere to all regulations. It also reviewed PSE’s compliance record and went over the programs that had resulted from settlements with the regulators. Lastly, QA&I personnel were trained by customer service employees on interacting with customers and the general public so that they would be more cognizant of how their behavior can affect the public’s view of the company.

**Recommendation 5.4.1**, Institute a centralized administrative system to enable effective communication of information by decentralized training teams

**Background:**

Training at PSE is decentralized. The four primary training groups deliver training courses separately to the PSE staff. While this in of itself is not unusual as Subject Matter Experts from various disciplines develop and conduct quality instruction it seems the issue arises from an Administrative position. The four different groups training the staff do not operate from a common database where the staff’s transcripts, course schedules, offerings and descriptions may be stored and readily accessed by authorized individuals or the trainee. A Learning Management System (LMS) is being considered and of course would address this Administrative challenge though it has not yet been implemented. This will enhance effective communication among the training managers and trainees as well as maximize the development and delivery of training courses. Weaving and interfacing LMS into PSE must be considered. It simply cannot be purchased with out carefully considering how it will function and be applied.

**Status**:

PSE will be purchasing and installing a corporate Learning Management System with on line target date of 3/31/2011. Some of the milestones leading up to that target date are a March 2010 IT Steering Committee approval; an October 2010 configuration and installation; a December 2010 live date ; and converting existing records to the new system during the first quarter of 2011.

**Conclusions:**

The IT Steering Committee has approved the expenditure of funds to develop and implement a corporate Learning Management System (LMS) during their March 2010 meeting with a targeted completion date of January 2011 and conversion of existing records during the first quarter of 2011[[18]](#footnote-18). The subject software has been purchased and all OQ information on 400+ PSE employees has been entered into the system. The software vendor is currently beta testing additional functionality to track OQ renewal dates. This additional feature is expected to be fully functional sometime in the 3rd quarter of 2011[[19]](#footnote-19). The new system is operational, however there remain some issues regarding how to schedule re-qualifications on covered tasks[[20]](#footnote-20). In order to overcome this situation in the short term, PSE is manually tracking the dates and inputting them into the computer program. PSE is working to have these issues resolved as soon as the fourth quarter, 2011. The system only tracks PSE employees and not Service Provider employees (that is being done via the PSE - UA Training Trust and the individual SP. Training records from 4 PSE employees were reviewed[[21]](#footnote-21) regarding how well the new system was tracking assignments and requalification dates. These individuals included two management and two union individuals. Per PSE, records back to the 2005/2006 period were loaded into the system but older records are available elsewhere. The system appears to be tracking completion dates and now has requalification dates.

Now that the re-qualification issue is resolved this recommendation is considered implemented, verified and closed.

**Recommendation 5.4.2**, Identify training systems or processes that would be benefit from a Benchmarking/Best Practice Study. Introduce and incorporate accepted methodologies or the results of such studies into the work environment.

**Background:**

Lessons learned from other companies or associations will in the long-run enable and benefit PSE and its SPs. The initial investment to learn other ways of conducting business may deter a Benchmarking/Best Practice Study in the beginning but this investment must be weighed against inaction or recreating a system or practice without prior knowledge or experience of others externally having gone through a similar situation.

Even from an internal standpoint there were no Benchmarking/Best Practices Studies conducted from one division of PSE to another division of PSE. There were potential systems and practices observed that could be used internally by others but were not. This again prevents the genesis of a new and better learning generation to be communicated and therefore developed.

**Status**:

PSE will perform the necessary studies and analysis in phases. Phase I is to catalogue current processes by 5/31/2010. Phase II is to analyze which process would benefit from benchmarking by 6/30/2010. Phase II is to develop a benchmarking plan and budget by 10/1/2010; and Phase IV is implementing the benchmarking plans and studies by 12/31/2010.

**Conclusions:**

The PSE-UA Training Trust has made some significant recent changes in the some of the methods that are used to train and certify (for Operator Qualification, OQ) both PSE and SP individuals. The changes consist of using more on line training[[22]](#footnote-22) and additional performance evaluations (hands on and field evaluations of actual the work being performed). These two changes are going to be benchmarked to determine the effectiveness of the training vs. other organizations. The on line training modules are being obtained from the Midwest Energy Association[[23]](#footnote-23). Besides using the on line training modules, PSE has built some simulated field conditions at their training center and are now using this facility along with in the field evaluations to verify that the training is effective and that the employee is competent to perform the tasks[[24]](#footnote-24).

This recommendation is considered implemented, verified and closed.

**Recommendation 5.4.3**, Establish a common, uniform process to assess and assure training programs among PSE and the Service Providers can be evaluated and measured in an objective, consistent manner.

**Background:**

Once formal training is complete there remains a question of updating staff on the new information regarding Technical Standards and Safety. Assuring PSE’s requirements for courses, use of common terminology, standards, and testing results are being met is the goal here. Perhaps a color-coding system to identify priority of importance, level of criticality, or complexity could be created to establish greater or lesser attention to the post-training information as some information will be more critical than other information. The fact that post-training information is delivered and understood by those involved is most important. To improve and enhance the review, compliance and coordination of Service Provider’s Training Programs establishing a methodology that tracks confirmation of certain technical issues, techniques, etc. being covered by the SP would begin to identify that the information was delivered and understood. In addition to this, it is recommended that metrics-measures beyond compliance be introduced that go into identifying what the impact training has on Safety and Quality.

**Status**:

Establish a “Training Task Force” to identify the types of training provided by PSE and the service providers and map against PSE gas operating standards and procedures in the 3rd quarter of 2010. The task force will also identify training provided to new versus existing employees to better understand the entire development cycle.

4th Quarter, 2010; Establish a consistent methodology for evaluating training being provided.

1st Quarter, 2011; Implement identified evaluation methodology.

**Conclusions:**

PSE typically issues new standards and procedure manuals in the spring based on changes formalized in the fall of the prior year (there are updates year round if warranted). For 2011, the PSE standards and training departments revised how they are communicating changes to both PSE operational and SP personnel. Also included in these revised training procedures are new modules for the definition of a leak and how failed components removed from the gas distribution system are to be handled[[25]](#footnote-25).

For updates on gas standards and procedures, PSE prepared a PowerPoint presentation with narration and has instructed QA&I field inspectors to check that all crews have the latest version of the standards and procedures available on each job site. The two new training modules for the definition of a leak and how to remove and document failed components on the gas system are being distributed to company employees via PALMS (Performance And Learning Management System) on line and via a PowerPoint version for SP personnel. An existing stakeholder team will meet periodically to evaluate existing training methods and verification and make recommendations for changes.

Based on the implementation of the above changes, this recommendation is considered completed, verified and closed.

***III. Contracts***

**Discussion**

The use of a service provider model necessitates that there be a clear understanding between the parties of their roles and responsibilities. In no situation can the responsibility for system safety and regulatory requirements be moved from the owner/operator to the service provider. During the third party audit conducted by Jacobs, there appeared to be some confusion which party is ultimately responsible for the safety of the gas system. PSE uses SPs to do construction, leak repairs, leak survey, leak rechecks, mark-outs, and new service installations including meter setting.

PSE has been using the service provider model for several years and has decided which operations or functions are core to their business and which could be better handled by service providers. In some situations there may be a mixture of both company and SP personnel performing similar work. Because each local distribution company (LDC) runs their operations in a manner specific to the service territory and how they are organized, there can be no single ‘right way’ to decide what tasks are to be performed by SP vs. company employees. What does not change is that the LDC must have methods and procedures to measure and check on their SP in order to maintain control of their gas system and what changes are being made on it. The LDC must also ensure that the rate payers are getting value for their rates and that the SP is performing work in as an efficient manner as possible at the lowest cost. Each of these conditions require that the LDC take an active role in managing SP contracts and provide oversight from both a quality and cost perspective. One of the issues that the completed Jacobs audit found was that oversight of some of the SPs by PSE with regards to quality needed some enhancement.

PSE has significantly changed the QA/QC requirements for SPs and PSE internal personnel. PSE mandated that each SP develop and implement a QA/QC program to verify that all work was being performed per their contract with PSE and that such work met or exceeded the requirements of PSE standards and procedures. Where there were deficiencies, these were noted, tracked, corrected, and discussed with PSE. Where such out of specification work was problematic, additional corrective actions were taken and documented which may include having the offending employees no longer allowed to work on the PSE system. Metrics were developed and track by both the SP and PSE. In addition, PSE increased the frequency of unannounced field inspections when work was being performed to at least 50% of the inspections (this is for both SP and PSE employees) by the internal QA & I (Quality Assurance and Inspection) group. A series of quality metrics were developed and implemented in order to grade or judge how well an SP was performing their contractual tasks.

At one time some members of the contract management team believed that the SP had responsibility and accountability for system safety and if problems arose from any work they performed, PSE would be held harmless. This is not the situation per both Washington State and federal regulations in the WAC and 49CFR Part 192. PSE prepared and presented a new training module to PSE contract management staff on the requirements and responsibilities the company has under state and federal regulations and how PSE retains the ultimate responsibility for system safety. This new training also provides a basis on how and why certain regulations came into being and why it is important for PSE to be proactive in adopting and following all current and proposed regulations.

In order to manage and guide the SP to the meet the expectations of PSE, a series of metrics was developed to reward positive behavior. These metrics are used by PSE to ensure that each SP is doing what is contractually required and in some instances going above the contract in maintaining a safe environment, work place and gas system. There were some initial issues with how one or more of the SPs were complying with updates to PSE Standards and Procedures and these issues are being monitored by both the SP QA/QC group and the PSE QA & I group. Another issue that has been resolved is in obtaining as built drawings from the field for incorporation in system gas maps as soon as possible. Again, this issue has been resolved. There were no significant training issues with SP personnel, especially those doing construction and leak repairs since many of these individuals had worked for the PSE prior to moving to the SP. What was an issue is that some of these prior PSE employees may have brought their old method of doing some tasks which have changed. Training of the SP workforce is done via a common training group with the union (both PSE and SP personnel are trained by this group). Monitoring of the quality training is performed by PSE’s training department. The SP personnel are given both classroom OQ and on the job OQ evaluations which are considered a best practice in OQ training.

**Recommendation 6.2.4.1**, Redirect management of the Service Provider Model to ensure that Outsourcing Activities reflect sufficient communication, logistics, and oversight that will result in fulfillment of PSE’s responsibilities for System Safety.

**Background:**

The concept of Service Provider Outsourcing adopted here is not, in Jacobs’ opinion, bad or broken but it does need more definition, and the contract needs recasting to better define the scope and concept intended. The problem with the SP Construction Contracts is less in the concept than in the execution.

Interviews and general observations identify a lot of serious, dedicated people at the Utility, genuinely trying to make the process work; however, they have been focusing on small individual parts of processes and not on the whole concept. We understand that a process of review has now begun to look at the whole with a view to then re-assembling the constituent parts, and this should help if applied throughout the relationship.

The Contract Terms imply PSE believed the cost savings sought could be achieved. Performance in a number of areas, in particular productivity, quality and better crew utilization appears to have been improved over what was the norm at PSE. More recently, there is renewed focus on cost saving, improvements to SP management, emphasis on Quality Control, accuracy and timeliness in billing and reactions to UTC concerns.

**Status**:

PSE and the SP are making system safety a standing topic for the monthly operating and management committee meetings. This formalized and implemented during the February 2010 meetings.

**Conclusions:**

PSE and their SPs have adopted system safety and QA/QC issues as on-going agenda items for the monthly service provider operating committee meeting. Some typical items discussed are: quality and timeliness of as-built drawings; the importance of personal safety equipment; documentation and validation of training topics discussed and used; review of serious injuries; quality and construction issues (as necessary)[[26]](#footnote-26).

The monthly meeting agendas have been reviewed and found to contain all of the above.

Based on the review of several PSE and SP operating committee meeting agendas, this recommendation is considered implemented, verified and closed.

**Recommendation 6.2.4.2**, Update the Outsourcing Contract by clearly describing that PSE takes direct responsibility for matters involving System Safety.

**Background:**

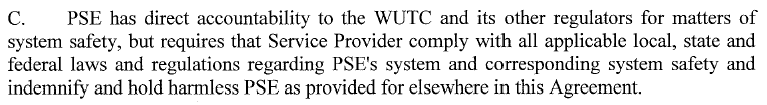
PSE’s initial response to the UTC Investigations of the Phantom Leak issue shows a willingness to seek to pass responsibility for safety-related responsibilities directly through to its SP, notwithstanding the requirements of the Washington Administrative Code. We have seen this view of responsibility and liability in the responses of contractor management people who do not always understand PSE’s responsibility. While it is certainly the case that the SP should be responsible and liable for the work it performs, there needs to be a wider collaborative understanding of the need to share responsibility and to act jointly on matters involving System Safety. This should be expressly contained in the Contract Terms with reference to the WAC and in the section on Contract Terms.

**Status**:

PSE plans to add language to the contracts in April/May 2010 to memorialize its responsibility and accountability for system safety and will make such language permanent in any renegotiated contracts. The proposed temporary language will be … *"Whereas, PSE has direct accountability to its regulators for matters of system safety but requires that Contractor adhere to applicable local, state, and federal regulations regarding the gas distribution system and corresponding system safety and indemnify and hold PSE harmless for any associate negligent actions"*

**Conclusions:**

PSE has recently changed one of their SP for performing maintenance and construction work on the gas system and the following is included in the newly signed contract:



A similar statement has also been inserted in to the existing contract with the other SP[[27]](#footnote-27).

This recommendation is considered complete, verified and closed.

**Recommendation 6.2.4.3**, Update the Outsourcing Contract by defining the relationship PSE intends to have and maintain with the Service Provider.

**Background:**

From Jacobs’ observations the SPs have taken on more work processes on either side of the construction activities, but the relationship remains the same as if they were still contractors. No information has been provided to support the idea that Outsourcing of the front and back room activities has led to any enhanced process efficiencies or benefits to the Utility, other than the extent to which it has provided enhanced work visibility to the SP for planning purposes. The Service Provider and PSE do not always focus attention on processes and the benefits of Process Improvements on System Safety when managing the Outsourcing Process.

Status:

PSE will incorporate additional language upon the renewal of all SP contracts which will state something similar to …*"PSE has entered into agreements with XXX to provide system construction, operation and maintenance, and emergency response services. PSE considers its relationship with XXX to be a long-term strategic alliance with a capable service provider rather than a short-term commercial relationship with a contractor”.*

**Conclusions:**

The new service provider contract[[28]](#footnote-28) that PSE has entered with InfraSource contains language that specifically defines the relationship, responsibilities and accountability of each party with respect to gas system safety, worker safety, public safety, and regulations of both US DOT and the State of Washington. The contract clearly defines that as the owner of the gas system, PSE is responsible for all facets of it operation and is liable for its continued safe operation.

This recommendation is considered implemented, verified and closed.

**Recommendation 6.2.4.4**, PSE and the SPs should establish a Joint Task Force to consider Utility contractor management and SP management processes, such as Billing, to assess System Safety impacts and to look to redesign processes to reduce or remove the System Safety risks.

**Background:**

PSE’s focus has been directed to solving individual problems and not necessarily the underlying systemic issue. Jacobs has observed steps taken by the Utility in reaction to UTC Settlement Agreements that are dealt with in isolation to the contract activities as a whole.

**Status**:

PSE participates in monthly operational and management committee meetings. Similar to actions that PSE intends to take in response to recommendation #6.2.4.1, PSE will continue to address these specific issues during these operational and management committee meetings. In response to this specific recommendation, PSE will incorporate these identified concerns as formal and specific agenda items to be reviewed in our monthly meetings. PSE will implement these actions in February 2010.

**Conclusions:**

During operational and/or management meetings in April 2010 with both SP's, PSE discussed and formulated additional improvements in the methodology designed to improve billing and system safety issues. Neither PSE nor the SP’s believe a special task force need be set up but would prefer to use the existing Operating and Management Committees. Copies of the first quarter meetings were reviewed[[29]](#footnote-29) and since 2008 PSE has assigned Operation Specialists to visit Pilchuck offices to review invoices and other paperwork issues prior to being submitted for payment. PSE has also informed Pilchuck place paperwork in certain order within the job folders to expedite the approval process.

Based on the documentation reviewed, this recommendation is considered complete and verified without setting up a separate task force.

**Recommendation 6.3.4.1**, To properly allocate responsibilities and understanding, redraft the contract to clearly articulate the Utility/SP relationship to better define the liabilities as reflected in the requirements of the Washington Administrative Code.

**Background:**

A prudent Utility, as the operator of record, is legally liable for the condition of its assets, and would normally show this regardless of contractual liabilities, especially given the potential safety risks. When asked how they assure themselves as to the skills and capabilities of the subcontractor, PSE said it has confidence that the QC/QA Program will alert them to any issues, yet as is seen in the QC/QA Section the program is not designed or set up to do those.

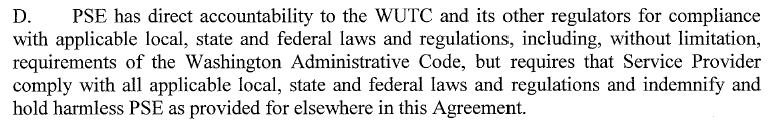
Another area of concern is the liability clauses. As written, they do not sufficiently recognize PSE’s obligation as the owner under the Washington Administrative Code. In order for all parties to understand their respective obligations regarding System Safety the liability terms should reflect the actual position.

**Status**:

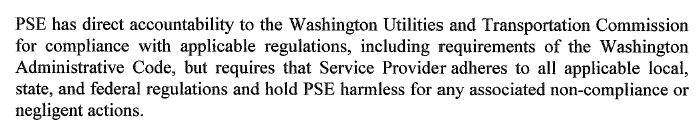
PSE intends to incorporate appropriate language in all new and renewed SP contracts. Until these contracts are renewed in late 2011, language such as …*"Whereas, PSE has direct accountability to the Washington Utilities and Transportation Commission for compliance with applicable regulations, including requirements of the Washington Administrative Code, but requires that Contractor adhere to all applicable local, state, and federal regulations and hold PSE harmless for any associated non-compliance or negligent actions"…* will be memorialized in meeting minutes with SP.

**Conclusions:**

The following paragraph has been included in a new service provider agreement that covers the accountability of PSE with regard to federal and state regulations.



For an existing SP agreement, the following has been added as an amendment:



Based on the inclusion of the above paragraphs in both the new and the existing SP contracts, this recommendation is considered complete, verified and closed[[30]](#footnote-30).

**Recommendation 6.3.4.2**, Prepare guidelines for the operation and management of the contract so it can be used as an operations manual for Contractor Management. The goal of the guidelines should be to maintain the partnering relationship between PSE and the SP while reinforcing system safety and the decisions that can impact it.

**Background:**

From time-to-time, the PSE Contractor Management Group has tried to alter the Contract Terms via a variety of mechanisms, lately by Memorandums of Understanding. These are part of the “band-aid” approach to problem solution that has been adopted as and has generally not been successful in resolving contract issues.

Certain specific Contract Terms concern Jacobs as they have potential safety consequences, such as the clause that expressly allows the SP to Outsource any kind of activity to subcontractors without the knowledge of, nor any need for the approval of the Utility. The SP is reminded in terms that if it should subcontract, the SP’s direct liability to PSE is unaffected by the introduction of a third-party. This tends to suggest the asset owner is in some way not a Utility and therefore is not responsible for the condition of the asset itself. The implication is that as long as it has the principal contractor on the hook for liability, it does not need to be concerned about the qualifications of a subcontractor.

PSE states it does agree that ultimately it is responsible for all work performed on its system, but it does not necessarily agree it must approve subcontractors not working directly on or affecting the safe operation of the gas system.

**Status**:

PSE’s Contractor Management personnel have found that the best guidelines for managing a contract, or a contract-based relationship, is the contract itself and its existing standards and procedures manuals.

PSE represents that its contracts including their process flow diagrams; and other contractual interface documents (along with its internal standards and procedures) serve as adequate “guidelines” for managing the contractually anticipated work and its attendant relationship. For example, and in the instant case of system safety, PSE’s standards and procedures describe the manner in which safe and compliant work is to be performed on its system. These same procedures describe the manner in which PSE’s service providers and contractor management personnel may, when appropriate, seek a modification to or a waiver to the standard.

The use of these contractual and its standards and procedures as governing guidelines is in implicit agreement with Jacob’s recommendations that recognize the contracts and standards as the appropriate place to establish relationships, accountabilities and management behaviors (for example see recommendations: #6.3.4.1, #6.2.4.2, #6.2.4.3, and #9.4.6.1, ).

**Conclusions:**

UTC and PSE agreed that this recommendation will not be implemented but that DBA would perform interviews of the affected individuals to determine that the implementation of the other referenced recommendations has effectively negated the need for this recommendation. During interviews with several individuals[[31]](#footnote-31) and a review of the new SP contract along with the new Interface Document[[32]](#footnote-32) it was evident that an additional guidance document was not needed. The Interface Document does contain all of the information that the proposed guidelines would have contained and is being used by both PSE Contract Management personnel and SP personnel.

This recommendation is not considered necessary and is closed without implementation.

**Recommendation 6.3.4.3**, To allocate greater representation to PSE, redraft the Contract Terms concerning the contract committees. This change will reflect current practice.

**Background:**

Another set of clauses describes the contract interface rules which are the first phase of the contract dispute resolution process. In practice, the first level committee has more PSE than SP members though this has not been formalized in the contract. This is appropriate and should be reflected in the contract. PSE should have an overriding presence to be able to exercise its rights and obligations in terms of the WAC.

**Status**:

As Jacobs points out in their final report, the contract calls for two committees to be established, in part to review and discuss opportunities to improve service to PSE customers, enhance reliability and to better comply with performance indices, PSE standards, regulatory requirements, and prudent utility practices. Since the inception of the contracts, the committees have allowed each party to appoint an equal number of individuals to serve. Each committee may, at times, invite any number of additional individuals to participate in discussions, for instance as subject matter experts, but this does not impact the make-up or the intent of the committees.

PSE recently restated its master services agreement with one SP (1 January 2010) and updated its representation sections. The following are excerpts from the sections dealing with the make-up of both the Operating Committee and the Steering Committee:

**12.2.2** Each Party shall appoint an equal number of individuals to serve on the Operating Committee. Unless otherwise agreed by the Parties, the Operating Committee shall consist of six (6) individuals…

**12.3.2** Each Party shall appoint an equal number of individuals to serve on the Steering Committee. Unless otherwise agreed by the Parties, the Steering Committee shall consist of six (6) individuals…

PSE is satisfied with its representation on these two committees and is not aware of any instance where either party has felt over or underrepresented. Equal representation is required to support the dispute resolution section of the contracts, i.e., if there was not equal representation there would be no need for any dispute resolution procedure in that the majority party would simply vote the dispute away.

**Conclusions:**

It was agreed that this recommendation did not need to be implemented. No further work is anticipated on this recommendation.

**Recommendation 6.3.4.4**, Contract metrics need to be expanded to include measures such as conformance to PSE procedures as a result of actual observations. In order to meet the first requirement of the QC/QA Programs, which is to confirm and document work, material and services comply with the contract, the requirements of the published Standards, Plans, Specifications and Pipeline Safety Regulations.

**Background:**

As there is no metric addressing document accuracy, PSE does not routinely audit the accuracy of information in any field document, including as-built drawings and D-4 Forms, focusing on metric driven requirements for document completeness. From time-to-time, PSE undertakes Target Audits on specific areas. Recently (late 2008) they targeted the accuracy of D-4 Records for audit. This involved the QC Inspectors taking a sample of D-4 Forms into the field and checking the accuracy of locations, measurements, etc. This in our opinion is an appropriate audit subject and one which should become a regular part of the program.

**Status**:

A task force is being established that will include members of QA&I, Contractor Management and SP representatives. Current metrics will be reviewed and enhanced so that a culture of compliance can be assured on all work performed on the gas system. New metrics will be developed and negotiated by third quarter 2010. They will be effective with the beginning of the contract year 2011.

**Conclusions:**

A new metric for 2011 has been added to the existing metrics for service providers. This new metric specifically monitors compliance with PSE standards and procedures. The metric requires a minimum of 10% of all of the work being performed by the SP be observed by the SP QA/QC group (or PSE QA/QC) and at least 97% of the work is in full compliance with PSE, UTC or US DOT procedures, standards or regulations.

The inclusion of this new metric (#11)[[33]](#footnote-33) addresses the recommendation and based on the list of 2011 SP metrics this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.5**, The QC/QA Programs need to be refocused to enable more site visits to observe procedures during Construction and Operations and Maintenance Procedures. Post-Construction Inspections of connections made under hard surface are a last resort which would only become necessary if critical procedures inspections are not completed.

**Background:**

Where site visits are conducted in the course of construction, actual procedures are not watched and followed through on all the necessary phases, so that there is no reliable or thorough validation of the quality of the procedures used on, or the product delivered in respect of, the buried facilities. When the procedure is observed it is usually more in passing than in detail; consequently there is still an imbalance between the QA teams’ ratio of work done versus work type. Once again, the inspections are concerned with cosmetics, and not with what really carries risk and complexity as the primary purpose has been to validate the metrics and not the construction procedures.

**Status**:

In 2009 PSE changed the process to require more (approximately 50%) inspections be performed during construction. The result for the year was PSE increased our work-in-progress inspections to 60% which increased the opportunity to audit procedural tasks. Per PSE, this recommendation has been implemented.

**Conclusions:**

During the first quarter of 2010 PSE QA/QC visited job sites where the crew was involved in performing the work 52% of the time for over 1000 SP audit items (a single visit to a crew can result in multiple audit items)[[34]](#footnote-34). For the year to date (as of the end of July) 58% of QA/QC inspections involved visits to jobs under construction as shown in the table below[[35]](#footnote-35).

|  |  |  |  |
| --- | --- | --- | --- |
| Gas Site Audit Inspections | Total Inspections | Crew on Site Inspections | Percent  COS |
| January 2010 | 146 | 88 | 60% |
| February 2010 | 111 | 70 | 63% |
| March 2010 | 204 | 119 | 58% |
| April 2010 | 181 | 94 | 52% |
| May 2010 | 116 | 75 | 65% |
| June 2010 | 145 | 83 | 57% |
| July 2010 | 66 | 30 | 45% |
| Year to Date Totals | 969 | 559 | 58% |
| August 2010 | 37 | 20 | 54% |
| September 2010 | 117 | 47 | 40% |
| October 2010 | 111 | 53 | 48% |
| November 2010 | 70 | 35 | 50% |
| December 2010 | 112 | 58 | 52% |
| Year End Totals 2010 | 1416 | 772 | 54% |

When crews are performing work and/or construction on high pressure gas mains, inspection visits during construction were 96% for 2010 through the end of July and a similar percent for the entire year.

Based on the 2010 year-end percentage of 54% of having QC/QC inspectors viewing crews when the work was being performed, this recommendation is considered implemented, verified and closed[[36]](#footnote-36).

**Recommendation 6.3.4.6**, The scope of the QC/QA metrics should be expanded to include Site and Public Safety, paperwork accuracy, units completed, and more on-site crew work inspections. The existing check list used should be amended so that deviations are not the main focus.

**Background:**

The PSE QA Program list, created to measure QC performance, is used by the SPs to conduct their QC Inspections. The QA Program allocates scores to each individual item on the list, which are all treated evenly so a butt-fusion joint scores the same as paint on a meter. This results in the QC Inspectors focusing closely on the items on the list which can ensure that they meet the minimum metric requirement. This results in attention being focused by all parties on the more cosmetic, easy to see surface issues and leads the QC Inspectors to seek to correct as many deviations as they can find ahead of the QA Inspections so as to minimize the number of deviations that can be recorded against the driver metric.

**Status**:

The majority of the actions have already been put in place. PSE and its service providers will amend the QA/QC checklists to include agreed upon site and public safety items. The new checklists will be implemented by 3rd quarter 2010.

**Conclusions:**

With the greater emphasis on having QA/QC inspectors view the actual work per Recommendation 6.3.4.5, PSE has instructed the inspectors to verify that the construction crews are following PSE procedures and process with regard to gas releases, cleaning plastic fittings prior to fusion, performing leak investigations, etc[[37]](#footnote-37).

The major changes to the QA/QC checklists between pre and post audits (pre 2009 to post 2010) are the inclusion of additional documentation on work zone safety, use of personal protective equipment, certification of flaggers, and traffic control requirements[[38]](#footnote-38).

The changes in the checklists when combined with the addition of service provider QA/QC requirements and having PSE QA&I inspecting more work while crews are on site performing the work (plus checking to ensure that the latest revision of PSE procedures and standards are being used and are available on site) has changed improved and enhanced the QA/QC metrics.

Based on the changes in the checklist and those encompassed in Recommendation 6.3.4.5, this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.7**, Currently when the PSE QA Inspector is attempting to locate and SP crew significant time is lost, and if dispatch is contacted the element of surprise, useful in discovering disorderly jobsite conditions, is lost. Consequently consideration should be given towards GPS equipment to assist in locating the Service Provider crews or some other method that accomplishes the above need.

**Background:**

During the audit, it was apparent that the PSE QA/QC inspectors were having some difficulty finding the location of SP crew without contacting the SP dispatcher. When the dispatcher was contacted it was believed that some element of surprise was lost and thus the value of some inspections was compromised.

**Status**:

PSE has already instituted steps which allow our QA Inspectors to more easily locate work being performed. Presently, we receive a daily log of all planned locations that the Service Provider crews are scheduled to work that day. This is the same log that is provided to the UTC each morning. The element of surprise is still available as the Service Provider does not know what time or at what location during the day our QA Inspectors may show up for an inspection.

**Conclusions:**

PSE uses the following methodology to locate SP crews for QA/QC inspections.

*“Each morning both Service Providers (Pilchuck and Potelco) email the list of jobs scheduled for that day to PSE. Since work is typically completed in the order shown on the daily crew logs, this aids QA&I Inspectors in determining where crews are likely to be located during different times of the day. In the event a crew has completed their work and moved on to their next job, the QA Inspector will usually perform a post construction audit and then catch up with the crew on their next job.”*

This method of finding SP crews appears to be working. Through the end of July 2010, PSE QA/QC inspectors have increased the percentage of inspections with crews onsite to 58% of their low and intermediate pressure inspections and 96% of their high pressure inspections[[39]](#footnote-39).

This recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.8**, The SP should explore the possibility of fielding QC staff from supervision as opposed to using bargaining unit employees as QC Inspectors. This change would the overall integrity of the QC process.

**Background:**

At one SP the QC Inspectors are bargaining unit and can thus make corrections in the field as they find them. This can be seen as an attempt by the SP’s to avoid as many deviations as possible and thus assist the achievement of the metrics. This in fact was openly stated to be the reason for this decision. However, if the purpose of QC is quality validation and assurance, it is difficult for someone who was recently a crew member or leader to be calling QC errors on crews, as he does not carry the appropriate level of authority.

**Status**:

PSE will explore this recommendation in the second quarter of 2010 with its service provider. However PSE’s policy is to measure the quality of the performance of its service providers, but to refrain from dictating how that performance shall be achieved.

**Conclusions:**

PSE does not believe that they should dictate to their SP’s on the use of bargaining unit employees as QC inspectors. Both of the current SP’s use both bargaining and non bargaining employees for QC purposes. Per PSE, there is an advantage in using bargaining employees that are fully qualified and trained in the crafts they are inspecting since these employees can repair/replace/ make safe any out of normal condition or quality problem that they find without having to wait for others. Also, per PSE, in the recent economic slow down, having bargaining employees function as QC inspectors gave additional flexibility to retain qualified and valuable employees in the bargaining unit[[40]](#footnote-40).

PSE and its SP’s therefore do not believe that this recommendation is necessary or needed based on the advantages that having a mixture of employees doing QC work vs. mandating that it only be performed by non bargaining unit employees. PSE believes that they have studied the situation and does not deem that a change is needed. This they believe does fulfill the intent of the recommendation.

PSE and the two main service providers met their QA/QC gas compliance goals for 2010[[41]](#footnote-41) and thus proved that this recommendation of making all of their QA/QC inspectors salaried is not necessary. Based on meeting or exceeding the 2010 compliance goals, this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.9**, PSE and the SPs should take the opportunity to educate QC and QA staff on public communication and mark their vehicles as each respective company’s Quality Control/Quality Assurance Inspection Team.

**Background:**

Customer education opportunities are being missed in the operation of the QC/QA Programs. More can and should be made of this to promote an appropriate level of understanding in the community.

**Status**:

PSE QA&I will partner with its Service Providers QC Staff to facilitate completion of training in public communications. The purpose of the training will be to educate the QA and QC Staff on how to address the public in matters of gas pipeline safety and explain their respective roles in ensuring that the gas system is safely constructed, maintained and operated. We believe the most effective approach for conducting this training will be through PSE’s Corporate Communications on instructing Staff on the proper means of communicating with the public.

The training will be developed by the end of the 2nd quarter and implemented by 3rd quarter 2010.

**Conclusions:**

PSE has implemented several programs to increase the public awareness of the job that the QA/QC groups and programs do for public and system safety[[42]](#footnote-42). Starting in 2010 PSE has made public communications a topic at QA&I staff meetings and in December 2010 will provide customer communications training to all QA&I staff members. This training will focus on how to address customer (and general public) questions and the proper way to interact with them. This training is also provided to gas customer service individuals that interact with the public on a daily basis. In addition, decals will be put on vehicles involved in QA&I inspections so the general public and customers will be aware of their presence.

In December 2010, 16 of 20[[43]](#footnote-43) QA & I individuals received custom training in dealing with PSE customers and the general public from a trainer in the customer call center. This training consisted of a slide presentation on how to deal with difficult and irate customers or the general public. Additionally company vehicles will have a Quality Assurance decal on them when the inspectors are in the field doing QA/QC checks on field crews (both company and service provider).

Based on having ¾ of the QA&I group trained, the use of QA decals on vehicles involved in performing audits of field crews, this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.10**, PSE should develop a training program to pass knowledge to contract managers about system safety and the kinds of decisions that can impact it. Training sessions should begin with the history of code violations and settlements to instill a sense of urgency for the importance of doing jobs in conformance to the gas operating standards. There should also be training on business drivers and the kinds of reactions that will arise from management decisions and demands that might impact safety.

**Background:**

During the interview process of contract managers and SP management it became apparent that due to the turn over within contract management and SP personnel there needed to be additional training so that newly promoted contract management SP personnel became familiar with their responsibilities and how their jobs via administration and execution of the SP contracts affected compliance and system safety.

**Status**:

PSE shall develop a training presentation directed at training its contractor management personnel on the topics of:

* Gas system safety and how administrative and field business decisions can impact overall system integrity,
* Compliance with gas operating standards and procedures and how these relate to the applicable federal and state pipeline safety regulations, and,
* Recent violations and resulting settlement agreements

PSE shall develop this presentation in the second quarter of 2010 and present this material to its service providers and in its regular contract committee meetings, and to its internal contractor management personnel during the third and fourth quarters of 2010.

**Conclusions:**

PSE has developed a training program[[44]](#footnote-44) for internal (PSE) contractor management personnel regarding gas system safety, compliance with PSE, UTC and US DOT procedures, standards and regulations. The slide presentation, dated 12/13/2010 reviews not only the importance of gas system safety but goes over the recent compliance issues between PSE and the UTC (by reviewing recent audits and settlements) and the facts to date on the San Bruno incident. Also included are additional information on the history of the regulations and the current status of each of UTC mandated compliance programs.

The training of contract management personnel and other field personnel on gas system safety and regulatory compliance was verified by interviewing several individuals. These interviews showed that the training was effective and assisted in understanding the roles and responsibilities of both PSE and the service providers.

This recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.11**, PSE should review its system-facing metrics to identify new metrics that deliver a measure of assurance of system safety. These will likely not involve easy counting measures as they will be focused on assurance and validation rather than deviations or failures.

**Background:**

The management of the metrics is a process in and of itself, and seems to be driving the asset management function rather than the other way around. It does not seem that full consideration was given to the overall needs of a Gas Distribution System when the metrics were designed. The metrics look top down and are about following those areas watched by the Regulator, which might result in customer-facing issues, or the needs of the QC/QA approach. If the system was looked at from the bottom up, a different set of metrics would emerge to deliver assurances on System Safety and enable real assurances about the impact of the contractor management role. The customer and UTC-facing metrics are all probably effective and are certainly important, but the system-facing metrics are decidedly not effective and need to be changed. The metrics need to deliver business critical measures which drive the right behaviors in both parties.

**Status**:

PSE will review system facing metrics by comparing how other utilities measure system safety. PSE will request assistance via a targeted survey. The deliverables and key milestones are:

1. Develop survey by March 31, 2010.
2. Receive survey responses by April 30, 2010.
3. Review survey responses by May 31, 2010.
4. Compare against PSE system safety metrics and identify differences and determine which metrics will be helpful by June 30, 2010
5. If metric is readily available, PSE will integrate it into existing metrics report by July 31, 2010.
6. If metric is not readily available, PSE will determine plan and budget to obtain metric by July 31, 2010.

**Conclusions:**

1. PSE determined that sending out a blanked survey to all AGA members may not result in obtaining meaningful data on similar utilities’ system safety metrics. With concurrence with the UTC staff, PSE developed a targeted questionnaire for similar sized utilities. The questionnaire consisted of 9 specific questions regarding system safety with the goal of determining if there were any existing systems facing metrics with regard to system safety. The questions consisted of a general question regarding system performance and continuing surveillance reports and their content.
2. Criteria or metrics to assist in determining repair vs. replace decisions
3. A metric that assisted in determining at what level non-hazardous leaks became a system safety issue
4. A metric to assist in determining repair or replace decisions for non-hazardous leaks vs. continued surveillance.
5. Time to update maps and associated targets to have the updates available for field personnel
6. Are over pressure incidents indications of system safety issues?
7. Methods to minimize over pressure incidents such as changing pressure settings for winter and summer operations.
8. The definition of system safety and any metrics used to determine if the system is being operated safely.
9. Targets and type of work monitored regarding system remediation and how are non-standard installations that were to specification in the past but now out of specification handled.

PSE contacted multiple companies and was able to interview and receive feedback from 3 companies. These

companies had between 300,000 and 700,000 customers and between 6,000 and 13,000 miles of main. Regarding system performance reports, the companies responded gave the following answers.

* 3rd Party Damages/1,000 locates,
* Percent of low CP reads per number of annual inspections,
* Response time to 3rd party leaks and odor calls,
* Number of total active leaks at year end by leak grade, and
* Changes depending on the requirements of their respective DIMP implementation.

For a metric on repair vs. replace decision making, there was no agreement on a set requirement but rather something that depends on each company’s situation. Typically a subject matter expert makes the decision.

Regarding replacement of non-hazardous leaking main, again it runs from some company’s do monitoring until it reaches a certain level while other companies may repair all leaks and others put non-hazardous leaking main into a future replacement category.

The time for completing mapping changes varies and the response was the time from when a job is completed to when it is mapped ranged from a minimum target of 2 weeks to a maximum of 6 months.

Over pressure incidents were considered a system safety issue if the MAOP plus the allowable allowance was exceeded but not an issue if the MAOP was exceeded but the final pressure was less than the MAOP plus allowance (i.e. the safety devices did not allow the pressure to build up past the allowance). In most situations operators did do a root cause to determine if they needed to reduce their set points on relief devices or make other operational changes.

PSE could not find other companies that have system facing metrics with regard to system safety but they are proposing to incorporate some of the issues highlight by the survey in addition to some metrics they are already compiling. There metrics (both existing and new) would consist of following and would be implemented later in 2010 into the monthly metrics reporting[[45]](#footnote-45).

* Numbers of 3rd Party Damages/1,000 locate requests.  PSE is currently tracking this performance metric on a monthly basis.   This is currently being reported monthly to the Gas Compliance Steering Committee.  PSE is planning to add this metric to the Gas System Safety section of the Operations Metrics monthly report.
* New Leaks Found per month per mile of main surveyed
* Active Leaks per mile of main
* Average response time to notification of a gas odor or gas leak is a metric that is frequently used to monitor system safety
* One potential measure of the health of the CP System would be the percent of low CP reads per number of annual inspections

One of the most important gas system safety metrics is the number of near misses with regard to 3rd party damages (and not just actual damages). Starting in April 2010 PSE started this metric and through the end of year 2010 there were the following results[[46]](#footnote-46).

|  |  |
| --- | --- |
| **Near Miss Reporting**  **April through December 2010** | |
|  |  |
| **Total Near Miss Reports** | **41** |
|  |  |
| By PSE Facility Type |  |
| Gas | 14 |
| Electric | 14 |
| Gas & Electric (combined) | 12 |
| Fiber | 1 |

Data from 2011 YTD (January through November yielded the following[[47]](#footnote-47):

**Third Party Damages per 1,000 Locate Requests**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Total Damages | Total Locate Requests | Damages per 1,000 Locate Requests |
| 2003 | 2011 | 146,394 | 13.74 |
| 2004 | 1912 | 150,826 | 12.68 |
| 2005 | 1856 | 160,453 | 11.57 |
| 2006 | 1955 | 168,643 | 11.59 |
| 2007 | 1802 | 185,479 | 9.72 |
| 2008 | 1438 | 174,940 | 8.22 |
| 2009 | 1031 | 162,108 | 6.36 |
| 2010 | 821 | 146,549 | 5.60 |
| 2011 YTD\* | 790 | 129,523 | 6.10 |

\*Through November of 2011.

**Near Misses per Month for 2011**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Gas | Electric | Combined | Other |
| **January** | 2 | 1 | 1 | 0 |
| **February** | 1 | 0 | 1 | 0 |
| **March** | 2 | 0 | 1 | 0 |
| **April** | 1 | 0 | 0 | 1 |
| **May** | 3 | 0 | 0 | 0 |
| **June** | 5 | 0 | 0 | 0 |
| **July** | 1 | 1 | 0 | 0 |
| **August** | 3 | 0 | 2 | 0 |
| **September** | 4 | 1 | 0 | 0 |
| **October** | 2 | 0 | 0 | 0 |
| **November** | 3 | 0 | 0 | 0 |
| **Total Near Miss\* Reports by Facility Type** | 27 | 3 | 5 | 1 |

\*Through November of 2011.



\*through the end of November 2011 and normalized by miles of main in system at end of 2010

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011\*** |
| **% Low CP Readings per Annual CP Readings** | 2.8% | 2.9% | 2.8% |

\* Through November 2011

This recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.12**, PSE should introduce the incentive scheme after all proposed changes are made to the contract and metrics, and then only if it is convinced the need is still there. A lot of what is required for a successful Outsourcing Contract can be delivered via focused and effective management, once the recommended changes have been made.

**Background:**

The Incentive Program does not alter the focus of the metrics and they are still not targeted at improvement. The program focuses attention on incentivizing the SPs to meet the minimum performance requirement of the metrics.

Jacobs was concerned that the program as designed simply reinforces the importance of the relevant metrics (which have not changed) by making them “Must Meet” and offering additional financial incentive to reach the same percentage level of performance as is currently required. Under the program it is possible for the SP to achieve the *same* level of financial reward as it currently does with a *reduced* level of performance.

**Status**:

PSE believes its current metric based incentive program already satisfies this recommendation. PSE has found it metrics based incentive programs to be an effective contract management tool. It is particularly effective in focusing its service providers on timely topical issues that were not envisioned in the original agreements. To address these timely issues, PSE renegotiates the metrics of its incentive programs on an annual basis. These annual negotiations have proven very effective in aligning PSE’s corporate goals with those of its service providers. Therefore, while the scope of the incentive programs may change, PSE does not foresee eliminating this program in the foreseeable future.

**Conclusions:**

The main change between 2009 and 2010 for the SP incentive program is that all of the metrics are now considered for compensation, not individually but as a group. The only other change was that two of the safety metrics were combined. PSE believes that this method of rewarding the SP on the total package, i.e. compliance, safety, customer satisfaction, etc. will yield favorable results and shows that each metric is important and should be targeted for acceptance[[48]](#footnote-48).

This recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.13**, PSE should strive to meet the AGA’s Best Practice of completing as-built updates within 60 days. Reviewing the Billing Process to enable the removal of the as-built and D-4 documents from the billing package as soon as they are received will ensure the updated maps are expedited. A copy should be kept in the invoice folder for reference and completeness. The accuracy of the information on the as-built and D-4, aside from issues surrounding amounts of materials used, etc. should be dealt with through the QC/QA Process.

**Background:**

The as-built and D-4 documents are completed by the crew leader in the field. One SP pays its crew leaders one hour of overtime each day to enable the completion of the documents. Often these are completed that night at home. Jacobs’ observations have discovered that it is not unusual for the documentation to be completed until the following weekend. Typically, the crew leader is working off notes taken at site. Despite the care taken to get the documents right, documents were found during the field observation process containing errors.

PSE reports that it is currently averaging approximately 66 days to get changes filed correctly from the field crews to the Mapping Department, 27.5 days to update the as-builts, and 15 days to return the information to the field crews.[[49]](#footnote-49) They state that this average timeframe (108.5 days) is above AGA averages, and AGA 60-day best practices, but below the 180-day maximum allowed by UTC. They also report that more than 99% of the more than 400 jobs received each month are updated within the 180-day maximum[[50]](#footnote-50).

**Status**:

PSE understands the need to provide accurate and timely maps and records to both field and office users. The 6 month window as stated in the WAC is viewed as a worst case scenario and PSE makes every effort to manage to a higher standard. PSE is currently revising the processes with internal departments and one service provider with a goal of achieving a 90 day target.

In parallel to that effort, a review of the AGA Best Practices mapping results will take place. This will allow PSE to understand the many forces at play and differing circumstances for the responders to the AGA Best Practice results. As PSE understands the systems, processes and resources that were available to those reporting 60 days, additional opportunities may become apparent that would allow PSE to align itself to a 60 day standard.

If it is determined that PSE can adopt some of the practices and processes of others that have achieved a higher standard, the Service Provider and PSE should develop in concert the most effective means to achieve that standard.

Using copies of as-builts may be an alternative and will be reviewed as part of the process.

**Conclusions:**

PSE will undertake the following activities to determine an agreeable standard and the means to achieve it.

1. Quarter 2, 2010: Revise the process to achieve a 90 day target for the updating of maps from as-builts.
2. Quarter 2, 2010: Review the most recent AGA best practices for mapping and contact those reporting 60 days or less to better understand their processes.
3. Quarter 3, 2010: Report results on achieving a 90 day target.

PSE has made significant progress in reducing the time from when a change is finished in the field until it is placed on maps. Using the 6 month compliance requirement of the WAC as the worst case, PSE is working to making most if not all map changes within 90 days of completion in the field.

To that end, PSE has been tracking the time to make map changes.



Figure2, Average Number of Days for Map Updating

Over the last two years the average time to make a mapping change has been reduced from 170 days to 70 days, a reduction of 100 days or almost 60%[[51]](#footnote-51). The goal of 60 day average is now very achievable.

Based on the significant improvement in updating maps, this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.14**, Enhance the Paperwork Correction Process utilizing a cross functional PSE SP team. The goal would be to eliminate sending needed corrections back to the field by developing parameters for corrections and establishing a basis for recording corrections. The veracity of the process developed could be assessed by periodic audits.

**Background:**

In 2008, there was a period of increased work volume at a SP and a corresponding increase in errors in field documents. To address the error problem, PSE Contractor Management imposed a process change on one SP requiring that all corrections, additions or amendments to work package documents had to be made in the field by the crew leader/team member who made out the original document. This was done because of concerns that corrections were being made in the office, either by a staff member telephoning the crew leader for the information, or that even corrections were being made up.

No impact or risk assessment was done to assess the consequence of the changed process or of the documentation required. No evidence of thought was observed as to how the requirements, primarily impacting field crews, might also impact safety. From our observations there did not appear to be any kind of realization there could be a safety impact from those managing the contract at the Utility. The PSE change driver was largely frustration at the failure on the part of SP staff to “get it right.”

**Status**:

PSE agrees with this recommendation and has been working since mid- 2008 with all of the stakeholders to improve the accuracy and timeliness of the record updating process. The strategy of sending invoicing materials back to the field for correction was implemented to avoid having uninformed office personnel making inaccurate corrections to material which would then be incorporated in PSE’s mapping processes. It has also been used as a method to better inform employees completing field paperwork of the standards and expectations with regard to completed paperwork. Partly in response to this requirement, a SP has added staff to perform quality control reviews of submitted paperwork. This review is performed immediately following the field work completion and prior to submittal of invoices to PSE. This greatly improves the opportunity to capture and correct any errors prior to the paperwork being submitted to PSE for processing. The implementation of these practices has been successful in improving the accuracy of its invoicing material as is demonstrated by the improvement (decrease) in the number of errors in the submitted paperwork. At the same time, PSE has been able to significantly improve the timeliness of mapping updates, cutting the average time from construction to map update approximately in half.

Having improved the accuracy and timeliness of the overall process, PSE intends to continue to evaluate its administrative processes to identify opportunities to further improve and streamline the process.

As a longer-term goal, PSE intends to continue its joint efforts to improve the accuracy and timeliness of the records updating process. PSE has discussed this desire with the service provider’s management on February 9 and February 10, 2010; and will memorialize this goal in the operating minutes of both its operating and steering committee minutes by April 1, 2010.

**Conclusions:**

PSE has been working with each SP for the last several years (since the audit pointed out the issue) to streamline and compress the paperwork process especially when errors are found. PSE’s initial response was to improve the accuracy of the paperwork so as to reduce the number of work orders/jobs being returned to the field for correction (PSE states the idea of returning jobs to the field for correction was to force the SP individuals to take ownership for the accuracy of the paperwork). As of 2010, PSE has changed the internal requirement that map updates be processed with 90 days of the completion of the work instead of the UTC allowed 180 days. As of the second quarter of 2010, the majority of mapping changes were completed within this 90 day window[[52]](#footnote-52).

Based on the significant reduction in the time from job completion to issuance of updated maps, this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.15**, Review the field paperwork process and make a recommendation for reducing volume and streamlining the information captured. This recommendation scope could also include assessing electronic capture of data.

**Background:**

The Paperwork Return Process instituted has resulted in more blocked bills. It is sometimes perceived by the SP as being irritating; especially since the issue causing the block can be as minor. The requirement does nothing to improve the accuracy of the underlying information and risks places an additional administrative burden on the field crews. The problem is exacerbated because the field crews are not paperwork specialists and the Billing Department has been understaffed.

**Status**:

The Manager, Contract Services will lead a review of the gas construction field paperwork process and make recommendations to increase efficiency by reducing paperwork volume and streamline the information captured.

* Complete a holistic review of gas construction field paperwork – 3rd Quarter, 2010. Review to include:

1. Review all paper forms used by PSE field operations staff and the service providers to determine:
   1. Relevancy
   2. Identify opportunities to reduce the amount of manual recordkeeping.
2. Identify opportunities to streamline service provider foreman generated paperwork.
3. Assess opportunities to capture electronic data.

Various departments will contribute input including Contractor Management, Gas Operations, Safety, Compliance, Mapping, Contract Services – Operations Analysis, Standards, etc.

* Review findings of study and any identified recommendations with UTC staff – October, 2010.
* Begin implementing identified efficiency process changes 4th Quarter, 2010.

**Conclusions:**

The PSE task force on paperwork reduction focused on speeding up the paperwork flow and on improving the quality of the existing paperwork so that rechecking and additional handoffs would not be necessary. These changes, already implemented have resulted in a reduction in the billing backlog from 6 months to 1 month. The task force instituted a paperwork guideline manual that has instructions on how to properly fill out the paperwork, copies of the necessary forms and other information to speed up the process. The service providers added a new QC position to check and review all field generated paperwork to eliminate some of the common errors, and set up a tracking system to locate all paperwork. The task force created a billing issues clarification worksheet that provides examples of issues and the solution[[53]](#footnote-53).

Although the task force did not eliminate duplicate paperwork it did reduce the time paperwork takes by ensuring that the paperwork is filled out correctly the first time. A side benefit of this is that average time for mapping field work has been reduced significantly from 170 days in January 2009 to 70 days in December 2010 (see Recommendation 6.3.4.13).

Based on the success of reducing paperwork time and handoffs, this recommendation is considered implemented, verified and closed.

**Recommendation 6.3.4.16**, Assess the benefits and costs associated with using a roving inspector to visit larger job sites to QA and complete as-built drawings and D-4 Forms to Mapping as is done on large scale pipeline jobs.

**Background:**

In 2008, there was a period of increased work volume at Pilchuck and a corresponding increase in errors in field documents. To address the error problem, PSE Contractor Management imposed a process change on Pilchuck requiring that all corrections, additions or amendments to work package documents had to be made in the field by the crew leader/team member who made out the original document. This was done because of concerns that corrections were being made in the office, either by a staff member telephoning the crew leader for the information, or by staff members possibly guessing what the crew leader had done.

The paperwork return process instituted has resulted in more blocked bills. It is sometimes perceived by the SP as being irritating; especially since the issue causing the block can be as minor. Examples include: a W left off the direction NW, where elsewhere in the document it clearly shows the direction is NW; one entry of a name missing in out of the nine repetitions required; and one missing date out of the 12 repetitions required. The requirement does nothing to improve the accuracy of the underlying information and risks places an additional administrative burden on the field crews. The problem is exacerbated because the field crews are not paperwork specialists and the Billing department has been understaffed.

**Status**:

There are several recommendations that already address forms and paperwork processes. As part of the review of gas construction field paperwork in response to recommendation 6.3.4.15, PSE will identify opportunities to streamline paperwork and will explore alternative methods of capturing data, including who prepares the information.

As discussed in response to recommendation 6.3.4.6, paperwork accuracy is already addressed in several ways by the service providers and PSE’s contractor management and quality assurance and inspection departments. PSE believes these actions are adequate to address the quality and completeness of the as-built drawings and D-4 forms.

**Conclusions:**

It was agreed that this recommendation did not need to be implemented. No further work is anticipated on this recommendation.

**Recommendation 6.4.4.1**, Consider developing a leading type metric to measure miss-locates. A possible surrogate for this measure could be the number of downtime claims from a third-party contractor from attempting to find the main themselves or waiting for the Locator to return to site.

**Background:**

The Weekly Locate Marking Accuracy/Quality Metric is measured solely by reference to numbers of damage claims, averaged over a period greater than one week. There is no measure of miss-locates or near-misses. This metric is miss-named, as it is not a measure of accuracy or quality. When miss-locates are encountered by construction crews there is normally a claim for downtime to cover the waiting time for a locator to come to the jobsite or for the time it takes the crew to find the gas pipe. This could provide a determination of miss-locates that would balance the damages measure to provide a broader gauge of accuracy and quality.

**Status**:

For purposes of responding to this recommendation, PSE defines miss-locates as locate marks that are not within the 24” tolerance zone. PSE considers the following metrics to be leading indicators of locate performance:

1. Short notice “crew on site” locate requests, received either through the one call center or directly to the locate contractor,
2. Complaint calls (or written correspondence) from excavators and/or PSE employees indicating locate concerns,
3. Damage claims to PSE seeking reimbursement for “Downtime”,
4. Locate contractors reporting of miss-locates identified through their Quality Control activities, and
5. Miss-locates identified through PSE’s Quality Assurance activities

By the end of 2Q2010, PSE will establish a monthly report tracking miss-locate information identified above. These reports will enable identification of trends and future focus areas and opportunities for improvement.

**Conclusions:**

PSE will develop a leading metric for locate marking accuracy per Recommendation 8.3.5.5. In order to have data to develop such a metric, in April 2010 PSE started compiling data on mark out issues noted by company crews, SP crews, damage reports, QA/QC inspectors, and others to determine if trends or other issues were developing causing miss marks which may or may not cause damages. This process has already yielded some results in that several company owned facilities, namely a fiber optic communication line and a diesel pipeline, were not included in the company’s locate contracts. There have also been some issues on when company representatives must be notified when work is being done near a high profile facility[[54]](#footnote-54).Under Recommendation 8.3.5.5, the process[[55]](#footnote-55) PSE has instituted is designed to capture information where facilities were not marked correctly or not marked at all but did not result in any damage to the PSE underground facilities. What is not going to be collected nor analyzed is that Pilchuck personnel systematically recheck all gas facilities[[56]](#footnote-56) prior to commencing work and thus any miss marks would be corrected and no damages will be result.

All PSE SPs are now reporting issues with accuracy and timeliness of mark-outs to contract management as near misses[[57]](#footnote-57). For each reported near miss, PSE will complete an analysis of the root cause and recommend corrective action if necessary.

This recommendation is considered implemented, verified and closed.

**Recommendation 6.4.4.2**, Create a contractual basis for the Locating SP Probation Concept and establish objective rules as to its application.

**Background:**

The Contract Performance is measured by reference to a series of metrics. The Contract Management Group and the SPs meet at least monthly to review the performance of the contract by reference to the metrics and to damage claims; this involves a point-by-point analysis of the metrics and claims, including the underlying causes of damage claims. This meeting also aims to deal with continuous improvement opportunities the SP’s might provide for PSE. Both SPs reported they saw it as their role and responsibility to bring new technologies and processes to this contract. The meeting is also designed to resolve issues and to agree to a solutions when found. As part of this process there is a non-contractual concept of probation introduced by the PSE contract manager, which can be imposed by PSE on a SP should a need be perceived, such as a drop in quality of locates leading to an increase in damages. Continuing failure could lead to contract termination or, as happened with Locating Inc., a loss of service territory. Where probation is set in place, the SP is required to report at least monthly as to progress on improvement. There is currently no contractual basis for this probation though the SPs do not seem to object to the concept and both have been through it at least once. There are no clear rules as to when probation will be triggered and it therefore is open to a subjective application.

**Status**:

In the past PSE has taken the interim step of placing the service provider on probation—that is, warning the service provider that it would terminate the agreement without a subsequent improvement in performance. And although PSE believes that it has the implicit right to place a contractor on probation, PSE is in the process of developing the explicit contract language and the rules for applying contractual probation. Upon completion, PSE will incorporate this language as an amendment in its locating agreements. The amendment will further formalize PSE’s past practice of administering performance probation along with other potential penalties e.g., loss of geographical territory (scope of work) and termination of contract where warranted.

The contract amendment is underdevelopment and will be incorporated in its locating contracts by March 31, 2010.

**Conclusions:**

In March of 2010 PSE added contract amendment #14 which provides for a probationary period if a locating SP does not meet the terms and the metrics for service. This amendment formally requires that a locating SP which does not perform to necessary metrics must provide PSE with a remediation plan/program with a set time frame. If the locating SP does not meet the new plan, the existing contract can be terminated. If the SP does meet the terms of the remediation plan/program, PSE will lift the probation provided all of the performance metrics are being met[[58]](#footnote-58).

This recommendation is considered implemented, verified and closed.

**Recommendation 6.4.4.3**, Establish and continue a QA Program to audit the Locators’ QC Programs.

**Background:**

The Locating Inc. QC Program is directed at instilling Damage Prevention Awareness to the individual Locate employee. When compared to the CLS Program, it is less focused on overall QC Awareness and is less focused on corrective action against poor performing employees. PSE does not carry out any kind of Quality Assurance Program over either of the SPs QC Program or activities. PSE reports they are considering introducing this activity.

**Status**:

QA&I have implemented a Monthly Audit Program with both Locate Companies.

In 2010, and going forward, QA&I will continue to closely monitor the locate contractors to ensure each contractor has adequate quality control processes in place. Through the monthly efforts the audit program will continue to evolve to ensure that QC procedures are effective.

Locate Contractor audits have occurred in the past. For example in 2007 QA&I audited 150 locate sites and completed tickets by Locating Inc. and Central Locating Service (CLS) over an 11 day period. Contractor work was also reviewed in 2008.

In June of 2009 QA&I implemented a routine audit process of both locate contractors.

For the remainder of the year QA&I inspectors audited completed locate tickets/sites on 2 or more days each month. The results were Locating Inc. was audited on 18 days and had a total of 129 sites/tickets checked. CLS was audited on 22 days and had a total of 125 sites/tickets checked. The results of each month’s audits were reviewed and discussed in the following month’s Quality Control meeting. This recommendation was implemented in 2009.

**Conclusions:**

* PSE has initiated a program for the QA&I group (PSE QA) to sample and verify locates from each SP on a monthly basis. The program essentially checks the accuracy of the locates a day after they are performed. The PSE inspector obtains a list of locates from the day before and selects at random several to inspect. The inspector attempts to do these inspections on as many individual locator personnel as possible. This is in addition to the QC program that each locating SP has established. Each locating SP QC program consists of the following:
* Customer Specific Requirements are fulfilled
* All facilities are accounted for.
* Marks are clear.
* Ticket completed on time
* Area marked matches the ticket

PSE verifies that the locating SP is both performing their respective duties properly and that they are auditing their quality[[59]](#footnote-59).

Since 2009 PSE Contractor Management and QA & I have been tracking locating SP performance vs. two metrics, timeliness and accuracy[[60]](#footnote-60). Below are graphics covering both metrics for each locating SP.



Figure 3, Locating Timeliness



Figure 4, Damages per 1000 locates

This recommendation is considered implemented, verified and closed.

**Recommendation 6.5.4.1**, PSE should develop a consistent system for the collection of data/map errors found in the field by perhaps capturing these corrections directly from maps/as-built drawings or D-4 Forms used in the field.

**Background:**

The general area of map revisions and corrections is of concern to us as the accuracy of records is not only required by law but is necessary to the safe management of the distribution system. PSE periodically delivers boxes of system maps to HCI for each phase of the survey. HCI uses the maps to locate the pipes. The Gas Map Revision Request Form is used now to correct errors. The type of error found, for example, could be that the gas main was found to be on the other side of the street. HCI reports they often find service lines incorrectly mapped, and that this is a bigger issue than wrongly mapped mains. This requires them to survey the entire area to ensure a proper survey.

**Status**:

PSE agrees that a key component to safe operations is accurate and timely updates of maps and records including a process for consistent capture and correction of data/map errors found in the field. PSE has a revision process and form (corporate form 3666) in place today that allows field personnel to alert the mapping department to apparent discrepancies in published maps and records. The process and form were reviewed with both PSE gas operations and Service Provider personnel within the last year.

In addition to the revision form and process, information on the gas system is gathered through as-builts and D4 cards that are completed as addition and retirement work is completed in the field, as well as on work orders completed for operations and maintenance work. Apparent discrepancies between existing records and recently completed paperwork are then resolved through additional research and communication with field personnel.

PSE will focus on evaluating the effectiveness of the existing form and process and the recent communication effort. Additional communication strategies will also be explored to increase the consistent understanding of the process.

The maps, records and technology department will undertake the following activities in assessing the effectiveness of the map revision form and process:

1. Quarter 2, 2010: Review the effectiveness of recent training by evaluating volume and completeness of revision forms received. Evaluate retention of instructions and documentation training with a subset of field users.
2. Quarter 3, 2010: Modify the instructions, process and form as appropriate, to address any identified gaps.
3. Quarter 4, 2010: Explore additional communication and training methods, including formal documentation within the Gas Operating Standards manual.

Deliverable includes:

1. Quarter 3, 2010: Documented map revision process with instructions including updates.
2. Quarter 4, 2010: Plan for incorporating the revision process into the Gas Standards or other appropriate form.

**Conclusions:**

PSE has completed the revisions to the map updating form, prepared written instructions on using the form, and provided training to operations and service provider personnel. As a result of this additional training and form revision, over 2000 map revisions were received and processed in 2010[[61]](#footnote-61). A sample of 500 revisions was evaluated for completeness and only 2 were deemed to have insufficient information for a map revision. In addition to the map revision form, PSE also relies on as built construction maps and D-4 forms for completed construction. PSE will make training on the map revision form as part of the yearly refresher training. PSE will now look at automating the process to reduce the paperwork and time lost in mailing forms into the mapping group.

These changes coupled with the reduction of 100 days for mapping changes (see Recommendation 6.3.4.13) show a significant improvement in keeping the system maps up to date. This recommendation is considered implemented, verified and closed.

**Recommendation 6.5.4.2**, PSE should establish a continuing program to QA audit the Leak Survey QC Programs.

**Background:**

The leak SP has a Quality Control Program as is required by the contract. They utilize a program jointly developed by PSE and the SP. It is based on QC inspections of SP personnel who perform leak surveys. At the time of writing there was no QA Process for SP QC efforts. We are informed that one is planned for the 2009 QA Program. Jacobs agrees that PSE should operate a QA Program on leak survey activities.

**Status**:

In June of 2009 QA&I implemented a routine audit process of Heath field processes including the leak survey. Typically each month a QA&I inspector spends part of a day with Heath Technicians observing the leak survey being performed.

During this time other processes such as the atmospheric corrosion inspections are also evaluated.

The results of each month’s findings are reviewed and discussed during the monthly Quality Control meeting. Any resulting mitigation plans are discussed with corrective action dates assigned.

This process is ongoing in 2010 and going forward to monitor the contractor’s work and ensure adequate quality control processes in place. During the 1st Quarter, 2010, PSE will complete a review of leak survey process and implement any identified enhancements.

**Conclusions:**

At PSE the leak survey contractor, Heath Consultants, performs several tasks. The main three are: 1) Leak survey; 2) 3 year atmospheric inspections; and 3) pipeline marker inspection. Between the PSE and Heath QA/QC programs all facets of each program are monitored. For example, on the atmospheric corrosion program the inspectors ride/walk with the technician and also do post visit inspections to verify that the condition was properly noted. PSE also leaves QA tags ahead of the technician and has them returned. For the period of May through July, 106 tags were left and 104 were returned (two tags were removed by others prior to the technician visiting the site). PSE inspectors also ride/walk along for leak survey to verify that the technician is following the procedures and that the equipment is functioning properly[[62]](#footnote-62).

Below is a listing of the QA inspections performed for a recent three month period on Heath technicians.

* 66 Post Reviews of randomly chosen sites to verify that Atmospheric corrosion, if found, was assessed and documented correctly
* 38 Field Evaluations were completed – Supervisor walked with technician during the work day to observe work being done
* 21 Follow ups performed on maps of services and mains turned in as completed
* 106 individual QA tags were placed in random locations for sites not yet surveyed by field technicians
  + (2 tags were missing upon return to site - removed by someone other than Heath)
  + (104 tags were successfully retrieved and returned to supervisor)

Discrepancies Found

* 1 Unsuccessful Field Evaluation in June resulting in employee termination due to conduct issues
* 1 Follow Up missed in 2nd quarter (April-May-June) & 1 Monthly new hire field evaluation missed in May
* Various technician documentation errors on daily paperwork including PSE reports listed above found by Heath and PSE such as; Incorrect addresses, meter #’s, issue listed on wrong form, etc.
* Various instances of corrosion rating inconsistencies
* PSE Post Review found 2 sites where Atmospheric Corrosion was rated incorrectly
* Meters in plain view reported as not found

Resolutions for Discrepancies

* Missed follow up and field evaluation have been completed and no discrepancies found – Project Manager working with supervisors to complete all required QA programs in time period required
* All documentation errors corrected
* Corrosion assessment refresher trainings provided for all field personnel
* Increased supervisory monitoring of paperwork on a daily basis
* Refresher training provided all field personnel regarding full investigation around buildings for meters that may be obscured by vegetation, debris, bins and/or covered by some kind of small structure
* Updated reviews of all of PSE’s current documentation requirements provided all personnel

Additional monitoring is performed on daily documentation including maps, equipment calibration records and Abnormal Operating Conditions reports turned in by field technicians (e.g., Hard To Reach Locations, Can’t Get in addresses, Horizontal Regulator Vents, etc.)

PSE has developed and implemented a field audit process for their leak survey SP. The process not only checks accuracy and verifies the work actually was performed but also looks at paperwork completeness, training, equipment calibration, etc. During 2011, QA field audits found a paper work error and record keeping issues with some leak detection equipment[[63]](#footnote-63).

This recommendation is considered implemented, verified and complete.

## IV. Auditability

**Discussion**

Historically, PSE has kept many of the compliance records on separate systems or via paper that could not be readily audited nor were easy to verify. This applied not only to compliance issues but to such important documents such as procedures and standards that were needed by non-company individuals such as service providers. At one time PSE believed that both company and SP field forces would be electronically connected so that all work could be monitored and the most up to date information would be instantly available. The cost and some other issues have prevented this total migration to an electronic system but over the last several years considerable strides have been made to improve the records being retained and making such records easier to audit (and verification of completion) for both company and SP completed jobs.

A method of ensuring that the non PSE field personnel had the most up to date procedures and standards was to provide them both electronically and via manuals for each service provider crew. As revisions were made these were also provided electronically and the service provider management has been instructed to update the manuals and the note the update in a change log (which is in each procedures and standards book). The SP quality control group is also charged with auditing that the procedures and standards being utilized are the most recent and include all of the updates.

Another issue was that some procedures did not specifically state that certain records had to be retained to comply with Washington State or Federal regulations. All of the standards were reviewed and those that did not have a suitable records retention section were updated (in most instances records were being kept but it was not specified in the standard).

PSE has determined and made a business case for implementing a GIS system for performing work and monitoring the gas system (the GIS system will be for both gas and electric). This system is in the process of being installed which includes moving and translating the existing data to the new system first via a pilot program for several plat areas and if successful then on a system wide migration. Additional functionality is being installed to assist in tracking and updating leaks and other issues so that the new system will provide more information in a seamless manner to effectively monitor the gas system for reliability and to improve gas system safety.

The last major issue concerned having compliance records on several different platforms or on individual PC’s rather than in the central database where it could be used and audited readily not only by UTC staff but also internally by QA&I and other PSE compliance groups and used by the system integrity group. The resources needed to migrate these stand alone databases to SAP had not been given sufficient priority. This has changed and as of 2011 all of the compliance program databases can be tracked in SAP and unified reports regarding the required inspections and the results of those inspections are available from the SAP database.

**Recommendation 7.2.4.1**, Convert Procedures and Standard manuals to an electronic field format, or collect and redistribute manuals with current information and standardized bindings. Develop employee Accountability and Audit Process for Procedures and Standards revision accuracy.

**Background:**

During the field observation portion of the project, it was observed that some service provider crews treated the Standards book carelessly with little regard to managing updates and change revisions

**Status**:

PSE understands that a portion of Jacobs’ recommendation (“Develop employee Accountability and Audit Process for Procedures and Standards revision accuracy.”) is to provide greater assurance that PSE’s Standards manuals contain the most current version of each *Gas Operating Standard* or *Gas Field Procedure*.

PSE will address the above recommendation through the revision or creation of a standard and supporting communication tools to ensure that all standards within the *Gas Operating Standards* and *Gas Field Procedures* manuals are current. As this solution will impact all subscribers of the subject manuals, PSE will be soliciting their input, which is in alignment with the process that is used to create or significantly update our *Gas Operating Standards* and *Gas Field Procedures*. The changes will be completed by 9/17/2010, and published in the 2011 *Gas Operating Standards* and *Gas Field Procedures* manuals which have proposed effective dates of 3/1/11. At a conceptual level, it is anticipated that the following actions will be taken:

1. Revise the current introduction to each manual (which is signed by a Sr. Officer) to include a statement that the user is accountable to keep the manual up to date.
2. Add a user tracking log to the *Gas Operating Standards* and *Gas Field Procedures* manuals to identify which standard has been replaced by an updated document, and the date on which this was done.
3. Revise or create a standard to clearly identify each employee’s responsibility for ensuring their manuals are kept up to date, to explain the responsibilities of the manual owner, and to explain the process and timing of the release of new or updated standards.
4. Perform periodic audits of employee’s manuals to verify compliance with the expectation to maintain them. Audits to be performed through ongoing QA/QC activities

**Conclusions:**

PSE has made the agreed changes in their Gas Operating Standards and Gas Field Procedures that are due to be published and made effective in the first quarter of 2011[[64]](#footnote-64). Many PSE field employees have access to the latest standards and procedures on laptop computers in their trucks and are able to down load the latest revisions from a central intra-net website. SP employees must rely on up to date hard copies that are required to be updated and carried on their vehicles for quick reference. Standard 2425.1075 (*Compliance with the Gas Operating Standards)* has been revised to explicitly require individuals to maintain up to date standards and procedures books. After March 2011, QA&I will perform inspections of standards and procedures manuals during all inspections to implement the changes to Standard 2425.1075.

PSE distributed the updated standards and procedures during the 1st quarter of 2011.

|  |  |  |
| --- | --- | --- |
| Organization | Gas Operating Standards Manual | Gas Field Procedures Manual |
| PSE | 509 | 471 |
| Pilchuck (now InfraSource) | 70 | 70 |
| Potelco | 20 | 20 |

Standards and procedures for the locating and leak survey SPs were also delivered during the 1st quarter but were limited to the sections that applied specifically to their respective work scopes.

During field audits conducted on July 20, 2011[[65]](#footnote-65) of InfraSource vehicles on job sites, it was verified that each location had the most current version of the PSE procedure and standards manuals.

This recommendation is considered implemented, verified and closed.

**Recommendation 7.2.4.2**, Create a Records Section in every Gas Operating Standard. If no records are required for the operating standard, clearly indicate no records required.

**Background:**

Various PSE Operating Standards establish the requirements for PSE’s Maps, drawings, and records of gas facilities, identify reporting requirements to state and federal agencies and describes how permanent Gas Leak Records shall be maintained in the LMS database. Most Operating Standards have a Records Section which specifies the Records Requirements pertaining to that Standard; however, some do not.

**Status**:

During the process of performing our yearly update of the *Gas Operating Standards Manual*, each standard that currently does not have a Records Section will be revised to either include a section that states the records requirements or revised to state that no records are required. All records revisions will be completed by 9/24/10 and published in the 2011 GOS manual, which has a proposed effective date of 3/1/11.

**Conclusions:**

PSE has completed a detailed review of each of the 132 standards within the *Gas Operating Standards* Manual to identify where a “records section” did not already exist. Sixty-five standards were identified that did not have a “records section” or a notation that no records are required. Of these 65 Operating Standards, 24 have been updated to indicate that no records are required, while 41 have been updated with specific records requirements. All of the Operating Standards that either needs a records section or need a notation that a records section is not required will be update and included in the 2011 version of the *Gas Operating Standards* Manual, which will become effective on March 1, 2011[[66]](#footnote-66). A spot check of several electronic versions of the revised Gas Operating Standards have been reviewed and found to contain the required records section.

This recommendation is considered implemented, verified and closed[[67]](#footnote-67).

**Recommendation 7.3.4.1**, Review construction service provider foreman generated paperwork for streamlining opportunities and implement recommendations.

**Background:**

Service providers initiate numerous documents to collaborate their time, materials and work completed. Once received it passes through several groups within one SP and eventually along with the invoice, gets entered into SAP. PSE Operations Specialists audit and check the invoices and associated documents for completeness and accuracy. The Verification System involves paper copies of all documents, including those included via electronic systems. Where errors or omissions are encountered, the paperwork is sent back to the foreman in the field to have the correction made. The process for auditing both construction SPs is essentially the same. PSE states its audit of the leak survey SP did not focus on these relationships between construction documentation and billing, as it was not an issue with leak surveying.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 6.3.4.15 which states “*Review the field paperwork process and make a recommendation for reducing volume and streamlining the information captured. This recommendation scope could also include assessing electronic capture of data.”*

**Conclusions:**

This recommendation has been eliminated; see Recommendation 6.3.4.15 for the conclusions.

**Recommendation 7.3.4.2**, Review all paper forms used by PSE field operations staff and the service providers to determine if they are still relevant and reduce the amount of manual recordkeeping.

**Background:**

The service providers’ records are still very paper-driven, which makes it more difficult to verify what was done, who did it, and was it done properly. The technology used by the service providers is also outdated compared to what is available for PSE employees. This appears to contradict the service provider model.

Late in 2008 a team of stakeholders was formed to review and improve the As-builds Process. After analyzing the process using available metrics several improvement initiatives are underway.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 6.3.4.15 which states “*Review the field paperwork process and make a recommendation for reducing volume and streamlining the information captured. This recommendation scope could also include assessing electronic capture of data.”*

**Conclusions:**

This recommendation has been eliminated; see Recommendation 6.3.4.15 for the conclusions.

**Recommendation 7.4.4.1**, Utilizing the IT business case justification process, elevate the priority of the initiative to move Compliance Maintenance Programs managed in Access, such as H2RL, Atmospheric Corrosion Inspections, and Valve Inspections, to SAP.

**Background:**

Access/Excel databases are used to maintain numerous Compliance Activities. Since these databases are generally stand-alone systems created to capture small data sets for a given amount of time and a limited number of users, PSE is using them far beyond what they were originally intended to do. When using Access as an enterprise-level application as PSE is, Access limitations in security, performance, and disaster recovery are noted.

**Status**:

Milestones Complete

* Planning started for migration project to SAP for the Gas Maintenance Databases identified in the Jacob’s report, September 2009
* Funding allocated as part of 2010 IT planning effort, November 2009
* Project Plan and project request created identifying four Gas Maintenance Databases for 2010 capital IT project. December, 2009
* Project Request submitted to IT Governance, January 2010
* Approved by IT governance March 2010

MS Access Database Review and Consolidation (Gas) IT Capital Project 2010 Deliverables.

1. Migrate three obsolete gas compliance Access databases (Hard to Reach, Service Valves and Pipeline Markers) into a PSE IT core technology including adding maintenance cycles and tracking.
2. Add Gas Operations Maintenance Programs new program (Docks and Wharves) to a PSE IT core technology with maintenance cycles and tracking.

Future Milestones

* Project Start, March-August 2010
* Project complete Phase 1 - December, 2010
  + Complete documenting the three Access database’s business processes and pain points, (Hard to Reach, Service Valves and Pipeline Markers)
  + Analyze, design, and document the requirements
  + Document the new business process and address the pain points and convert within the existing SAP Gas Compliance System framework
  + Code, configure, and convert the legacy data into the test System
  + Integration and user-acceptance testing
  + Train the users
  + Convert and implement code and configuration into production
* Project complete Phase 2 - June 2011.
  + Phase 2 targets the non-critical tasks, such as configuring new Maintenance Programming programs and reports.

**Conclusions:**

As of the end of March 2011, PSE has moved Hard to Reach Location, H2RL, Locate and Operate Service Valves and Pipeline Markers to the SAP database. The existing data on the Access databases was migrated and for H2RL and Locate and Operate Service Valves, SAP is being used to schedule the work. Pipeline Markers will soon be fully active and SAP will be used to schedule and track this program[[68]](#footnote-68). In tandem with the rollout, training for both office and field personnel are being performed.

PSE reports that all of the existing Access databases have been migrated to SAP and they are now being tracked and scheduled using the mainframe. Screen shots of the data entry for H2RL, leak and valve inspections, H2RL atmospheric corrosion inspections, H2RL pipeline markers, valve inspections for risers and curb valves, and pipeline markers were reviewed. The input screen for pipeline markers did not appear to have room for noting each marker but rather the entire run (the inspection sheet listed each marker)[[69]](#footnote-69).

This recommendation is considered implemented, verified and closed.

**Recommendation 7.4.4.2**, Increase awareness of Map Revision Request Form for both PSE and service provider employees and establish metrics to hold employees accountable for compliance.

**Background:**

Map revisions, initiated by Heath, Cathodic Protection, Instrumentation Isolated Gas Facilities, and other groups, are common. However, the use of the Map Revision Request Form has been inconsistent and to some extent unknown to construction service providers. When construction service providers wanted to correct a PSE map they made a notation directly on the map; however, these changes never reached the Maps, Records, and Technology group. Information gathered from interviews and data requests indicated that the Map Revision Request Form was rolled out in early 2006 without any formal documentation and introduction plan. Our field observations of locators, leak surveyors and service provider construction crews confirmed that mapping errors were fairly common.

**Status**:

PSE has an established map revision form (corporate form 3666) and reviewed the form and process with gas personnel in 2009. Map revisions are currently tracked in a database (MTS) within the Maps, Records & Technology (MRT) department, capturing the originator, date received and completed. PSE recognizes that forms and processes can become outdated and there exists an ongoing staff turnover. Recommendation 6.5.4.1 outlines PSE’s commitment to reviewing the form, instructions and documentation to ensure that it is current and relevant.

As the form and process are reviewed and potentially updated as part of 6.5.4.1 PSE will develop an ongoing plan to communicate any changes to the form and process. An important aspect to this plan is the continued message that accurate maps and records are critical to the success and safe operations at PSE, and that we are continuing to build a culture that recognizes and accepts this responsibility. We will consider the use of in person training, email distribution and MRT website publications. This plan will be developed and communicated by the end of Q4 which follows the change process in 6.5.4.1.

Determining the effectiveness of the map revision process will involve the development of a standard map revision reporting mechanism. The review of the current reporting capabilities of the MTS system, development of reporting requirements and then making any changes to the system should be completed by the end of Q2, 2010.

PSE anticipated at this time that we would report on:

Number and Type of revisions,

Revision form or process used,

Individual or company originator,

Result of the revision, i.e., did it lead to a map change.

**Conclusions:**

PSE has focused on ongoing training, reporting and communication to improve the mapping revision system and form. Training sessions were held in 2009 focusing on PSE gas field personnel, 17 sessions were held for 209 staff. In 2010, an additional 17 sessions were held covering 283 additional PSE, service provider and locating contractor personnel. These sessions reviewed the form and the newly created written instructions.

PSE is also creating an internal tracking system that will enhance PSE’s understanding of the number of revisions, who submitted them and whether the request resulted in a change to the maps. Information from this system will allow additional focused training to be created.

Communication is being improved on a number of fronts; the map revision form and instructions have been added to the internal mapping department web site, a reference to the form and process was added to gas operating standard 2500.0500, and an article describing the revision process and form is being developed for inclusion in the internal WORD publication for later this year. The mapping form and instructions will be added to the yearly refresher training that gas operations and service provider personnel receive.

As stated in Recommendation 6.5.4.1, a sample of 500 map revision forms was checked for completeness and only 2 forms needed additional information or work. Based on the results of that sampling, the over 2000 mapping revision forms received and processed in 2010, this recommendation is considered implemented, verified and closed[[70]](#footnote-70).

**Recommendation 7.4.4.3**, Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding.

**Background:**

Once the as-builts are received by the Maps, Records, and Technology group, they are first scanned and made available to users and then mapped and stored. PSE does not have the ability to integrate operating, maintenance, customer service data, etc. geospatially, undermining PSE’s ability to identify, prevent, mitigate and eliminate potential hazards to the public, employees and the system. Despite recent advances in web applications and adoption of broad band networks, making it possible to integrate GIS with other business processes, PSE is still in the process of evaluating the many benefits offered by enterprise-wide GIS.

PSE states that its IT Department must be responsive to many needs across the Utility. IT manages or sets project priorities through its business case justification process to allocate available budget dollars to projects.

**Status**:

PSE has completed a GIS assessment and planning for three implementation cases. The cases considered range from a baseline GIS (creating a central repository for network geospatial data) to a fully integrated technology solution with custom applications and significant process redesign. PSE takes a measured approach to IT projects, balancing needed resource commitments relative to organizational change impacts and other technology deployments. PSE has several major gas IT projects currently underway. These projects include; radio system upgrade (required due to FCC licensing), gas ACCESS database migration (Jacobs recommendation 7.4.4.1) and gas SCADA upgrade. In anticipation of an eventual GIS project, PSE is assembling a team of business users and IT analysts to identify business requirements and begin the software selection process. Formal project approval is expected by the end of 2010.

Develop requirements document for gas GIS – End of 3rd Quarter, 2010

Initiate capital project for gas GIS – End of 4th Quarter, 2010

Implementation plan to be developed considering data conversion strategy and system interface requirements. Final GIS implementation schedule to be documented once these decisions are made as part of the project planning process.

**Conclusions:**

PSE has approved the installation of a GIS system for gas operations. This system will utilize the GE Smallworld suite of products (the installation of the gas GIS has been approved independently of an electric outage system). Conversion of the gas data on plat and operations maps and the service data on D4 cards into the GIS system is expected to take up to 12 months with a target date of completion in mid 2012. Other legacy information will also be converted and imported into the gas GIS system[[71]](#footnote-71).

As of the end of the third quarter of 2011, the GIS system was proceeding into the pilot phase which will include a test of converting the existing data into a format for the new system. The pilot work involves taking 5 small areas within the PSE network and converting the maps and D4s into the GE Gas Distribution Office (GDO) system. As each area is completed, the configuration and conversion rules are reviewed and updated to ensure that the final conversion will meet PSE’s requirements. PSE is currently reviewing the fourth pilot area. Based on a successful pilot, the mid 2012 completion date for converting the entire PSE gas system is still on schedule[[72]](#footnote-72). This recommendation will not be closed until all modules and components of the GIS are fully functioning and available for routine use (for the gas system).

**Recommendation 7.5.5.1**, In order to support the efficient use of QA&I staff, develop an improved tracking system that will aid in locating service provider crews.

**Background:**

The Quality Assurance and Inspection Department (QA&I) evaluates the effectiveness of the Service Provider Quality Control Process by inspecting a sample of work performed by service providers. In 2009, PSE’s Gas Operations will initiate its own Quality Control Program and QA&I will develop a trailing process to verify the success of that program. Currently, the only Quality Control of PSE personnel is through Targeted Audits. Audit Reports focus on whether data is captured at an appropriate level and in a retrievable format. Also in 2009, QA&I plan to increase for the construction service providers the percent of crew on-site audits.

It is often difficult to locate service provider crews as they frequently change location during the day. Consequently, reaching the 50% goal for crew on site audits may prove to be challenging.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 6.3.4.7 which states “*Currently when the PSE QA Inspector is attempting to locate and SP crew significant time is lost, and if dispatch is contacted the element of surprise, useful in discovering disorderly jobsite conditions, is lost. Consequently consideration should be given towards GPS equipment to assist in locating the Service Provider crews or some other method that accomplishes the above need”.*

**Conclusions:**

See Recommendation 6.3.4.7 for conclusions.

**Recommendation 7.5.5.2**, Move the quarterly Leak Audits and D-4 Audits from the Target Audit List to the Routine Audit List to continue to randomly inspect records for Compliance.

**Background:**

Quarterly Target Audits on Leak Records and D-4s in the last couple of years have been very beneficial in identifying areas of weaknesses and improving the Leak Record Management and D-4 Process. However, opportunities exist for further improvement to ensure the service providers are consistently meeting PSE’s expectations, Standards, requirements and commitments made to the UTC. Since this is an area of continued concern, conducting these audits randomly as opposed to quarterly, along with establishing metrics for enhanced accountability, should minimize deviations from standard.

**Status**:

The Quarterly SP Leak Record audit was changed to a routine audit, January 1, 2010. Every quarter, QA&I samples approximately 10% of the leak tickets generated by one SP during the previous quarter. Sample size can increase if trends or audit findings dictate. One SP addresses areas of concern through a PSE generated formal audit report by responding to each identified variance item. Mitigation plans with agreed upon corrective action due dates are established, documented and followed up on for mitigation completion.

QA&I will develop a routine audit plan for D-4 audits that is similar to the Leak Record Audit process. The Audit Plan will be finalized by the end of 2nd Quarter 2010 with implementation to begin July 1, 2010.

**Conclusions:**

The 2010 PSE QA&I Audit Plan has moved the Leak Record and D-4 audits from the targeted list (which does not require continuous auditing but rather targets it periodically) to the routine list (which requires that audits be conducted on a routine basis). Below is a chart on the 2010 Audit Plan[[73]](#footnote-73).

|  |  |  |
| --- | --- | --- |
| **Proposed 2010 QA&I Target Audits** | | |
| \*Isolated Facilities (Casey and other QAI Inspectors) | | All Year |
|  | |  |
|  | | |
| Leak Self Audit Program 2625.1100 section 6 | | 1st Quarter |
| Leakage Action Program (leak eval and reeval) Heath and Maint Programs | | 1st Quarter |
|  | | |
| EPCR Cards and EPCR Self Audit Cards | | 2nd Quarter |
| Valve Inspections Performed by Pressure Control | | 2nd Quarter |
| 9 -Year Test Site Inspections | | 2nd Quarter |
|  | | |
| Valve Inspections Performed by Gas First Response | | 3rd Quarter |
| Critical Bond | | 3rd Quarter |
| Instrumentation Calibration Performed by Meter Network Services Group | | 3rd Quarter |
|  | | |
| Bridge and Slide (Docks, etc) Survey | | 4th Quarter |
| Regulator Station Inspection | | 4th Quarter |
| Instrument Accuracy Check and Calibration - PSE Instrumentation | | 4th Quarter |
| **Additional Candidate Target Audits Depending on Resource Availability** | | |
| Special Leak Surveys 2625.1100 section 5 | | Not Scheduled |
| GFR Leak Record Audit | | Not Scheduled |
| Valve Inspection – PCI | | Not Scheduled |
| Corrosion Control Test Site Inspections | | Not Scheduled |
| Leak Repair, Re-evaluation (this audit is depends on Routine Audit data) | | Not Scheduled |
| **Routine Audits** | | |
| Pilchuck Hot Spot Anode Audit | Ongoing as Routine Audit Process | |
| Locating Inc | Ongoing as Routine Audit Process | |
| CLS (Central Locating Service) | Ongoing as Routine Audit Process | |
| GFR AC Remediation | Ongoing as Routine Audit Process | |
| Heath Atmospheric Corrosion Inspections | Ongoing as Routine Audit Process | |
| Heath Leak Survey | Ongoing as Routine Audit Process | |
| Heath Pipeline Marker Patrol | Ongoing as Routine Audit Process | |
| PCI Leak Record Audit (4 times) | Each Quarter | |
| Quarterly D-4 Audit (Develop in 2010) | Quarterly Reports | |

\* It is anticipated that Isolated Facilities Audits may require 1–2 full time QA&I Inspectors during 2010 to review an adequate sample of the work to determine program success. A pilot audit was completed in January 2010.

PSE has also developed a monthly D-4 form checklist to aid inspectors who perform the routine audits on the D-4 cards filled out during the month. This change from periodic to routine audits will continue in 2011.

This recommendation is considered implemented, verified and closed.

**Recommendation 7.6.7.1**, Initiate PSE QA Audits on Locating Service Providers to minimize the likelihood of non-compliance. Include in the audits, metrics that measure near-miss as well as inaccurate locates.

**Background:**

The remaining service providers, Central Locating Services, Locating Inc. and Heath Consultants each have quality audits to proactively identify deficiencies in performance and correct those deficiencies before they result in either damage to facilities or improper leak survey methods. PSE states several audits of both Locating Service Providers have been performed since 2007. This was in direct response to subpar performance regarding timeliness and accuracy of locates. Currently, weekly audits of completed locates are performed.

**Status**:

For purposes of responding to this recommendation, PSE defines a near-miss as an occurrence of a miss-locate or an untimely locate that did not result in damage to the gas facility. A process already exists for capturing information and determining root cause of instances where miss-locates result in damage to the gas facility. A miss-locate locate means that a locate was performed; however the underground facility was not marked within the tolerance zone (2 feet). Miss-locate and inaccurate locate are synonymous.

As stated in response to recommendation 6.4.4.3, additional measures were implemented in June of 2009 to include regular field audits of completed locates.

A QA&I audit checklist is utilized to verify that locates are being conducted in accordance with PSE standards and government regulations. Timeliness and accuracy of locates is measured and feedback is provided in monthly QA/QC meetings.

PSE QA inspectors also utilize an additional checklist, when conducting audits of Service Provider work. Miss-locates are recorded and feedback is provided to the contractor performing the locate.

As Stated in Recommendation 8.3.5.5, by the end of 2Q2010, PSE will develop monthly reports to communicate findings resulting from the audits identified above. Trends and future focus areas will be discussed in the monthly QA/QC meetings with each of the locate contractors.

**Conclusions:**

PSE has started to audit and monitor both locating SP’s on a monthly basis. The monitoring also includes preparing, reviewing and sharing (with the locating SP’s) the metrics gathered on a monthly basis. During the month of July 2010, the following metrics were gathered for the locating SP’s.

1. Did the Locator respond within two working days? GOS 2425.1600 sec 6.1.2

2. If locate was late, does the ticket indicate the locator talked to the customer?

3. If the “Location of Work” is clear of gas utilities, did the locator write “No PSE Gas” at the “Location of Work”?

4. If all gas piping in the “Location of Work” was not adequately marked, or if any was missed, do the notes indicate alternate plans were made with the customer?

5. Do locate markings (flag or paint) include the word “PSE” to identify the company? GOS 2425.1600 sec 6.4.3.2

6. Do locate markings (flag or paint) identify the utility as gas (e.g. G or gas)? GOS 2425.1600 sec 6.4.3.2

7. Do locate markings identify the size of pipe (for each different size)? GOS 2425.1600 sec 6.4.3.2

8. Do locate markings identify the type (e.g. STW or PE) of pipe? GOS 2425.1600 sec 6.4.3.2

9. Do locate markings identify the pipe pressure (e.g. HP, IP, LP) of pipe? GOS 2425.1600 sec 6.4.3.2

10. Was locate accurate according to PSE MAPS when measured off or locator.

In 2010 the locating SP’s had scores between 100% and 0% for between 15 and 1 applicable locates (the 0% was for one locate that had some gas piping missed)[[74]](#footnote-74). PSE QA&I attempts to perform an audit on each SP locator at least once per month and verify that the locates are accurate and timely. Where there are problems with the accuracy or the timeliness, the locating companies are expected to contact the requester and update them on the progress and resolve any issues (such as not understanding the request or not being able to complete the assignment by the date requested). Periodically PSE QA&I inspectors do trailing audits on the locators and check that all the markings are per the request, that all of the required information is written on the markout (PSE requires that main size, material and owner, PSE be marked along with the location). Typical trailing audits were witnessed[[75]](#footnote-75). From January 1 through May 31, QA&I have performed many audits on both locating companies. Below are the results of those audits[[76]](#footnote-76):

PSE Quality Assurance & Inspection

Locate Contractor Summary Report

Locating, Inc.

YTD 2011 (May 2011)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Checklist | Results % | Satis- factory | Not-Satis-factory | Non Applic-able | Not Available |
| 1. Did the Locator respond within two working days? GOS 2425.1600 sec 6.1.2 | 94% | 99 | 6 | 0 | 0 |
| 2. If locate was late, does the ticket indicate the locator talked to the customer? | 90% | 28 | 3 | 74 | 0 |
| 3. If the “Location of Work” is clear of Gas and Power Utilities, did the locator write “No PSE Gas” or "No PSE Power" at the “Location of Work”? | 82% | 36 | 8 | 61 | 0 |
| 4. Do locate markings (flag or paint) include the word “PSE”, G for Gas or P for Power, the size, type and pressure of pipe? GOS 2425.1600 sec 6.4.3.2 | 78% | 29 | 8 | 68 | 0 |
| 5. Was Locate accurate to PSE maps? If not was a Gas Map Revision Request Form filled out? | 73% | 66 | 24 | 15 | 0 |
| 6. If exposed was locate accurate? | 92% | 73 | 6 | 26 | 0 |
| 7. Do the locate markings accurately match the written scope of the request? | 96% | 25 | 1 | 79 | 0 |

PSE Quality Assurance & Inspection

Locate Contractor Summary Report

USIC

YTD 2011

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Checklist | Results % | Satis- factory | Not-Satis-factory | Non Applic-able | Not Available |
| 1. Did the Locator respond within two working days? GOS 2425.1600 sec 6.1.2 | 91% | 105 | 10 | 0 | 0 |
| 2. If locate was late, does the ticket indicate the locator talked to the customer? | 88% | 72 | 10 | 33 | 0 |
| 3. If the “Location of Work” is clear of Gas and Power Utilities, did the locator write “No PSE Gas” or "No PSE Power" at the “Location of Work”? | 88% | 15 | 2 | 98 | 0 |
| 4. Do locate markings (flag or paint) include the word “PSE”, G for Gas or P for Power, the size, type, and pressure of pipe? GOS 2425.1600 sec 6.4.3.2 | 73% | 24 | 9 | 82 | 0 |
| 5. Was Locate accurate to PSE maps? If not was a Gas Map Revision Request Form filled out? | 84% | 87 | 17 | 11 | 0 |
| 6. If exposed was locate accurate? | 96% | 86 | 4 | 25 | 0 |
| 7. Do the locate markings accurately match the written scope of the request? | 94% | 47 | 3 | 65 | 0 |

This recommendation is considered implemented, verified, and closed.

**Recommendation 7.7.4.1**, Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding.

**Background:**

Despite recent advances in web applications and adoption of broad band networks, making it possible to integrate GIS with other business processes, PSE is still in the process of evaluating the many benefits offered by enterprise-wide GIS.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 7.4.4.3 which states “*Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding.*”

**Conclusions:**

See Recommendation7.4.4.3 for conclusions.

## V. Surveillance

**Discussion**

Continuing Surveillance is an important and critical part of system safety. The ability to discern trends and issues from sometimes fragmentary information is important to enhance and maintain system safety. Taking data from various sources within a company and integrating the individual bits into a meaningful conclusion requires that many organizations break down the barriers on free information exchanges. A simple and effective method of doing this is to have responsibilities for many of the pieces of continuing surveillance in one organization or reporting to one specific manager, director or executive.

PSE has had some issues with continuing surveillance as denoted in the original audit report and recommendations. Under both Washington State and Federal gas safety regulations (§192.613(a) and (b)) a gas operator “… shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions.” PSE has made several recent changes in their organization and reporting procedures to accomplish a systemic change in how they comply with this section of the regulations.

PSE has recently created a new position and named an individual that will be in charge and responsible for implementing changes based on the results of continuing surveillance evaluations. The position is titled Manager of Gas System Integrity. Within this new group are sections on Gas Planning, Corrosion Engineering, Integrity Management/Aging Infrastructure, Gas System Maintenance, and Program Management (which will coordinate projects and programs with Gas Operations, Construction Management and Contractor Management). This group will also develop and implement the gas DIMP requirements recently enacted. The different sections within this organization touch upon or are responsible for corrosion issues, main and service replacement planning, gas system planning, gas system maintenance, and implementation of DIMP requirements which include having an accurate inventory of the gas system pipe in service. By placing all of these activities under one individual and in one group, the barriers for free information flow and accountability and responsibility will be significantly enhanced.

Another change that PSE undertook based on the recommendations of the recently completed audit was combining the yearly Gas System Performance Report in the Continuing Surveillance Annual Report and moving the issuance of the report to April/May so that yearly funding and gas planning/engineering could be performed on issues that were highlighted for the upcoming budget cycle. This newly enhance report has areas that report on trends in system performance such as leak trends, material failures, pressure issues, etc. Such information is invaluable in order to make informed engineering judgments on replacement programs and pressure enhancement programs to increase gas system safety and reliability. Having this wealth of information in one location is also an enhancement as is the inclusion of the status of maintenance and replacement programs and mandated (via consent agreements, UTC programmatic agreements or regulations) system work.

One of key parts of Continuing Surveillance is looking at trends for many of common or routine maintenance activities to determine if more or less emphasis needs to be placed on any individual activity. An example would be to track not only the number of leaks on the system per unit measure but also the number repaired or eliminated (some leaks are eliminated without repair when the main or service are replaced). Below are graphs of these measures which show a reduction in the number of leaks repaired but when that is integrated with the number identified (see Figure 1, page 24) it gives the full picture of what is actually occurring.



Figure5 Main Leaks per Mile Eliminated



Figure 6 Service Leaks per 1000 Services Eliminated

**Recommendation 8.2.8.1**, In order to enable a more robust Continuing Surveillance Program, improve communications between System Control and Protection, and System Maintenance Planning. If significant improvements in communication are not achievable, conduct an Organizational Assessment to fully evaluate the benefits of both organizations reporting to the same SVP or Director.

**Background:**

There are a multitude of organizational units within PSE that are involved in Continuing Surveillance activities, potentially posing hierarchical barriers to communication. The Blue Card Program is just one of several inputs into the decision process to determine what items are addressed in any given year. The evaluation of Leakage Data, CP System Performance and Exposed Pipe Condition Reports also play in developing PSE’s annual maintenance effort. Programs such as Bare Steel Pipe Replacement and WSSAP continue to be refined and formalized as PSE and the industry move to a more risk based decision process as envisioned in DIMP. Some of the coordination problems noted in the findings are rooted in the fact that the primary organizations involved, System Maintenance Planning, and System Control and Protection, are situated in two different organizational hierarchies. Other communication problems appear to be caused by the lack of a unified Automated Record System.

System Maintenance Planning has stated that they are committed to improving communication system with System Control and Protection, and cite a variety of programs including attendance at safety and staff meetings with Gas First Response, authoring future articles for an internal newsletter, and establishing an interactive website for monitoring work request information and encouragement of its use. This website, however, was not mentioned to us by any field personnel.

Jacobs approached the possibility with System Maintenance Planning that because there are so many distinct programs involving Continuing Surveillance, they may be disjointed. System Maintenance Planning responded that all the programs do in fact work together, and the reason why they have separated the programs is to track their spending for each area for budgeting purposes.

**Status**:

Steps have already been taken to improve the communications between System Control and Protection and System Maintenance Planning. In 2009, System Maintenance Planning attended 12 Gas Operations staff meetings, spent 8 days performing continuing surveillance inspections (e.g. leak surveys, bridge and slide patrols) with Gas Operations employees, and spent 6 days on continuing surveillance remediation projects visiting with Service Provider and Gas Operations crews. Additionally, during 4th quarter 2009, System Maintenance Planning released its first continuing surveillance remediation report and authored two articles in PSE’s publication *The Word* on the status of the Blue Card Program. In 2010, System Maintenance Planning will match the number of days spent with Gas Operations personnel in 2009, author three more articles in *The Word* on the status of the Blue Card Program, and continue to release its continuing surveillance remediation report to Gas Operations every quarter.

Additionally, a review of the work processes to ensure PSE collects, maintains, and monitors system observations and takes appropriate actions as needed was initiated in November 2009. Through this review an Organizational Assessment is being conducted to evaluate opportunities to address near term needs as well as ensuring a thoughtful integration of DIMP throughout the organization. Improving communications amongst the key areas, including System Controls and Protection and System Maintenance Planning, is one of the key objectives in this review.

If this organizational assessment does not result in a consolidation of the various departments, then System Planning will assess different implementation strategies to improve communications between the departments.

* Organizational Assessment: Complete by end of 1st quarter 2010.
* Implement Organizational Changes: Implement by end of 2nd quarter 2010.
* Contingency Plan: Begin end of 1st quarter 2010 if necessary. Complete end of 2nd quarter 2010.

**Conclusions:**

PSE formed a team to review[[77]](#footnote-77) some of the issues that appeared to prevent the two groups (System Control and Protection and System Maintenance Planning) from working well together. This team believes the following issues are the underlying causes for the communications and working relationship failures with respect to system safety between the named groups.

Four root causes to process weaknesses were discovered:

1.      Inconsistent accountability to define scope, strategy, and measure of success for all remediation programs,

2.      Inconsistent accountability to manage job design when engineering services are required,

3.      Inconsistent accountability to report metrics to all stakeholders, and

4.      Inconsistent communication between stakeholders.

There also did not seem to be an overall group that took ownership and responsibility for not only system issues with regard to maintenance and failures but integrated this data to develop an enhanced view of system safety via system integrity (encompassing both transmission integrity management and distributing integrity management, TIMP and DIMP). PSE has formed such a group and named a manager whose job description includes: *Focal point for gas system integrity activities related to the transmission and distribution gas system. Directs the planning, prioritization, and implementation of inspection and maintenance activities, remediation projects and programs to meet gas system integrity plans and programs focused on safety and compliance of the natural gas transmission and distribution system. Utilizes engineering data, system models, and decision tools to proactively identify delivery system reinforcement needs, and justify solutions that are in alignment with the company’s business and regulatory environment. Responsible for gas safety compliance work and compliance with PSE’s Gas Operating Standards and Gas Field Procedures when engaged in operating, maintaining, constructing or engineering PSE’s natural gas system.*

Both System Control and Protection and System Integrity report through the Operations chain of command to the Vice President of Operations. PSE believes that the System Integrity will have accountability, ownership and responsibility to manage the gas system in a manner that will provide additional regard to system safety and will be able to spot and react/anticipate trends that could affect gas system safety and the safety of the general public.

Based on the naming of an individual as Manager of Gas System Integrity and the changes in the organization[[78]](#footnote-78), this recommendation is completed, its implementation verified and closed.

**Recommendation 8.2.8.2**, System Maintenance Planning should allow System Control and Protection the full 120 days allowed by UTC to repair cathodically protected facilities when verifiable delays in permit processing are encountered.

**Background:**

There was internal frustration in regard to a lack of communication as indicated in interviews with subunits of System Control and Protection. These frustrations are based primarily on the perceived lack of use of Continuing Surveillance information collected during the performance of operations and maintenance tasks, and the setting of Maintenance Program deadlines by System Maintenance Planning. A specific example regarding the setting of deadlines is the purported insistence of System Maintenance Planning on the remediation of cathodic protection within 90 days in all cases, when the UTC allows 120 days if certain provisions are met.

**Status**:

System Control and Protection will work with System Maintenance Planning to create an efficient and streamlined process for documenting corrosion repair orders that exceed 90 days by June 30, 2010, ensuring capture of pertinent data.

**Conclusions:**

PSE has modified Standard 2600.1900 (Remedial Measures for Corrosion Control) which spells out the instances under WAC 480-93-110 when cathodic protection remedial measures can take longer than the mandated 90 days in section 4.2:

*4.2 An additional thirty days may be allowed for remedial action if due to circumstances beyond the Company's control, the Company cannot complete remedial action within 90 days.*

*4.2.1 Examples of circumstances allowing the Company to exceed the 90 day time frame include right‐of‐way permitting issues, availability of repair materials, or unusually long investigation or repair requirements.*

*4.2.2 Documentation indicating that an additional 30 days are required for remediation shall be retained and available for inspection by the Commission upon request. The documentation shall include evidence that:*

*4.2.2.1 The remedial action was started in a timely manner;*

*4.2.2.2 All efforts were made to complete remedial action within 90 days; and,*

*4.2.2.3 The reason for the additional 30 days.*

PSE will continue to stress that the normal timeframe for completing cathodic protection remedial work is 90 days but in the above mentioned circumstances an additional 30 days (for a total of 120 days) is allowable providing there is justification.

Based on the implementation of Standard 2600.1900 in March 2010, this recommendation is considered implemented, verified and closed[[79]](#footnote-79).

**Recommendation 8.2.8.3**, PSE should revise the System Condition Reporting Programs for its employees and SPs in a manner that is useful for reporting a variety of conditions; with all parties’ responsibilities well known, and with clear communication to all parties of the program’s usefulness in promoting System Safety. Recommended improvements to consider should include: a single form, comprehensive training, clear responsibilities, increased use of Information Technology, established a prioritization procedure and updated Gas Operating Standards.

**Background:**

Other frustrations were voiced in regard to the disposition of Blue Cards and the Work Request Forms, which are for the most part generated by System Control and Protection, and Service Provider Field Technicians. Blue Cards and Work Requests are transformed into actual scheduled work by System Maintenance Planning, with the exception of some Work Requests which go directly to the SP. There is a perceived lack of communication or feedback regarding what happens to a Blue Card or Work Request after a submitted by the Field Technician. This has resulted in GFR employees stating to us that they feel PSE is not giving high enough priority to remediation. The same employees spoke to us with pride about the importance that PSE places on worker safety. If PSE truly believes the vast majority of Blue Cards or Work Requests do not comprise conditions that would affect System Safety, then PSE needs to better communicate the reasons for the low prioritization of the work back to the employees who submitted the cards.

It is evident why we have heard dissatisfaction from submitters about the speed of remediation work. Out of 640 Work Requests submitted in 2008, only 23 Work Requests were completed in 2008. If System Maintenance Planning has legitimate reasons for delaying the vast majority of the Work Requests to later years, we have seen strong indications that the communication of those reasons to the submitters can be improved.

Since PSE has begun efforts in improving communication, especially in regard to a website for tracking Work Requests and Blue Cards, perhaps the card itself could also do a better job of explaining what type of information PSE would like to collect. We do not believe, however, that the card should be limited to reporting imminent safety problems. On the contrary, the card should be an important collector of Continuing Surveillance information of use to PSE.

**Status**:

PSE will work with all stakeholders to evaluate opportunities to revise current forms used for reporting system conditions. This will include evaluating whether to use a single form or revise existing forms. Implementation of any changes will include conducting comprehensive training, defining clear responsibilities, evaluating Information Technology opportunities, and making appropriate updates to the Gas Operating Standards.

* Evaluate existing forms, assess opportunities to revise, and obtain input from stakeholders: End of 3rd quarter 2010.
* Finalize recommendations: End of 1st quarter 2011.
* Implement recommendations: Non-IT solutions to begin 2nd quarter 2011. IT solutions to be determined when the recommendations are finalized.

**Conclusions:**

PSE formed a team with Gas System Integrity (GSI) as the lead which includes Gas Standards, Gas Operations Training, Gas First Response, QA & I, Contractor Management and Service Providers to revise the Blue Card (Form 3704). The revision is designed to streamline the use of the card by deleting the references to non-standard conditions (these are conditions that were acceptable at the time of installation but are no longer being used) to target on continuing surveillance items, and unsafe and unsatisfactory conditions. These changes are also being made in the respective operating standards and should have the following effect:

* Eliminate non-standard condition reporting via this card
* Added check boxes for issues that are currently be tracked under continuing surveillance such as PVC relief vents, lack of MSA supports, buried relief vents, etc.
* Added check boxes for additional unsatisfactory conditions such as foreign bond wire or other contact to PSE facility, shallow cover over a main, etc.
* Add a statement that all unsafe conditions are to be reported directly to Gas First Response
* Included addition information on what activities are already underway when the condition was discovered
* Eliminate reporting conditions requiring no action
* Adjust the reporting on certain atmospheric corrosion conditions
* Provide an alternative reporting mechanism for work with compliance timeframes

To assist in rolling out these changes, GSI intends to publish progress reports on the elimination of unsatisfactory conditions, issue articles in the company magazine pertaining to the changes in blue card program, and meet with gas operations and service provider personnel to provide instruction and feedback on the improved blue card condition reporting program.

Below is the latest update on how PSE is implementing the improvements and streamlining to the “Blue Card” program[[80]](#footnote-80).

|  |  |  |  |
| --- | --- | --- | --- |
| **Improvement** | **Implementation Plan** | **Status** | **Target Completion Date** |
| Gas Operating Standard Revisions | Implementation complete, see Data Request 274 for scope. | Complete | March 1, 2011 |
| Form 3704 Revision | Implementation complete, see Data Request 274 for scope. | Complete | March 1, 2011 |
| Eliminate Reporting of Conditions Requiring No Action | Implementation complete, see Data Request 274 for scope. | Complete | March 1, 2011 |
| Provide Alternative Reporting and Routing for Work with Compliance Timeframes | New report form and data requirements have been finalized and approved by stakeholders. Remaining work includes finalizing process for routing information to stakeholders. | Nearly Complete | May 1, 2011 |
| Adjust the Reporting of Certain Findings on Atmospheric Inspections | New report form and data requirements have been finalized and approved by stakeholders. Remaining work includes finalizing process for routing information to stakeholders. | Nearly Complete | May 1, 2011 |
| Update Procedure for Atmospheric Corrosion Assessment | Initial field investigation by engineering staff has been completed to better understand the maintenance issues and to create a plan for how to address them. Next steps include working with Standards and Gas Operations Training to develop new field procedures that will clarify the requirements for assessing and reporting AC on meters that may be partially obstructed. GSI is leading this effort with a series of development meetings beginning in April 2011. | In Progress | December 31, 2011 |
| Program Communication | In 2011, GSI has attended 5 Gas Operations staff meetings with 10 more planned for the remainder of the year. In April 2011, GSI will be issuing program updates for 1Q to Gas Operations via The WORD newsletter and a spreadsheet documenting remediation progress on Blue Card reports. Two more WORD articles and remediation updates are planned for 2011. See DR 274 for additional details on program communication. | In Progress | Ongoing |

The targeted completion date for all of the tasks is now 12/31/2011.

Per PSE, Form 4595, the “Joint Atmospheric Corrosion Monitoring and Service Regulator Vent Report” used for documenting findings discovered during atmospheric corrosion monitoring, was updated in August 2011 to incorporate reports of improperly buried MSA components and meters with obstructed views identified during the inspections. This eliminates the generation of approximately 2,350 reports per month on Form 3704, “Reporting Abnormal or Unusual Operating Conditions on Gas Facilities” (the “Blue Card”). Form 4595 is routed directly to the buried MSA program. Thus, the “Blue Card” is now being utilized for the main purpose it was designed. Although the number of other issues included in the 2011 totals is still significant, there has been an increase in the percentage of “Blue Cards” being acted on[[81]](#footnote-81).

This recommendation is considered verified, completed and closed.

**Recommendation 8.2.8.4**, Continue to aggressively evaluate the cost-benefit of investing in a GIS system to Aggregate System Information for analysis. Implementation will also better enable compliance with DIMP Regulations.

**Background:**

Maintenance Operations Groups under System Control and Protection, located in the Operations Centers, manage and maintain the bulk of the Compliance Program Data and Records, but there appear to be too many databases working in silos. The need for a GIS-based system for tracking all Continuing Surveillance related to particular facilities is evident. A System Control and Protection Supervisor reports that based on the data, they cannot query what type of work was done in a particular location. If there was a leak repair, it is tracked in LMS and not tied to the H2RL Database. This is one reason why the H2RL Database needs to be put in SAP. The issue of the need for consolidated Geographic Information System (GIS) based recordkeeping is addressed further in the Auditability of Records Section.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 7.4.4.3 which states “*Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding.*”

**Conclusions:**

See Recommendation7.4.4.3 for conclusions.

**Recommendation 8.3.5.1**, In order to play a greater role in identifying trends and enabling new programs and program adjustments, and facilitating the evaluation of recent year data, efforts should be made to complete the System Performance Programs Annual Review closer to the beginning of the calendar year than the current June issuance date.

**Background:**

In general terms, the Continuing Surveillance Process described in the Annual Review by PSE would apply to a Continuing Surveillance Program that is compliant with the regulatory definitions of Continuing Surveillance. However, there is a lack of evidence this process is applied throughout PSE in the evaluation of all construction, Operation and Maintenance Programs. If a consolidated Continuing Surveillance Program were in place with GIS-based information, we believe that PSE could manage many more preventive Maintenance Programs, and report a greater span of preventative and re-meditative actions under Continuing Surveillance in future Annual Reviews.

**Status**:

Timely identification of trends that may emerge during the year is important and is addressed in response to recommendations 4.2.5.1, 9.2.4.1, 4.4.3.2, 6.3.4.11 and 8.3.5.1. These recommendations address system safety metrics that will be monitored on a routine basis.

In addition to this analysis, System Planning is developing an annual Continuing Surveillance Report which will take the gas system performance information previously contained in the System Performance report. The report will identify trends, describe the plan to initiate any new proactive measures, and track subsequent progress.

This change will facilitate completing this report by May 1 each year. This is the appropriate timing considering this is a high level performance analysis that will provide insight into high level future plans. It is expected that this analysis will either validate the direction we have been headed in or identify areas that need increased activities.

If increased activities are warranted, these would be included in the budget process for funding for the following calendar year. As the budget process occurs in the Spring and Summer, completing the report by May 1 provides adequate time to incorporate any findings into the budget process.

This report will not identify individual issues that require immediate action. Individual issues will continue to be identified and remediated through existing processes.

* Complete Continuing Surveillance Report: Complete by May 1, 2010.
* Implement any new proactive measures: In accordance with the schedule to be identified in the Continuing Surveillance Report.

**Conclusions:**

For 2010, the 2009 Continuing Surveillance Report was prepared and presented on May 1, 2010[[82]](#footnote-82) so that the recommendations could be included in the 2011 budget proposals. This report is now a combination of both continuing surveillance data and the information previously contained in the PSE System Performance Report. This single report is the basis for how well all facets of the PSE gas system performed in the previous period and contains information on what trends have been observed in the prior period or periods. The report provides a snap shot of the composition of the gas system on materials and installation dates and discerns which materials or vintages of materials are problematic. It also reviews any ongoing capital or maintenance programs that are designed to address system safety issues.

The section on System Trends goes into leak trends, incident reporting trends, system condition report (blue card) trends and third party damage trends. In the section on Gas System Maintenance Programs, the report describes the yearly and historic achievement of each individual maintenance or capital program and some of the expected and realized benefits (such as reduced leak activity for cast iron and bare steel replacements). PSE is committed to publishing this report on a yearly basis no later than April 30th each calendar year.

A review of the Continuing Surveillance Report shows that it fulfills the requirements of implementing this recommendation and with its issuance on April 30, 2010 it verifies that the recommendation was implemented.

**Recommendation 8.3.5.2**, PSE should examine and rectify its process for accounting of eliminated leaks.

**Background:**

PSE appears to be eliminating leaks in a manner to keep active leaks at steady levels for all grades. Class A Active Leaks, which could potentially pose the greatest safety threat, are eliminated on a timely basis. The recent reduction in active Class B leaks is commendable, and one could reasonably expect that a more rigorous application of leak detection, as is claimed by PSE, would result in an increase in active Class C leaks, which are deemed non-hazardous. However, further investigation may be needed to determine if Continuing Surveillance information is being fully utilized to prevent the increase in Active Leaks.

**Status**:

PSE will examine the leak reporting process and document methodology that explains how the active leak count is created on a monthly basis. This will be completed by the end of the 2nd quarter in 2010.

**Conclusions:**

PSE reviewed the methodology used in documenting the number of leaks found, repaired, eliminated and reclassified and has determined that the reason the leak count varies and is inconsistent is that all of these processes are ongoing. Some of the processes may be delayed and thus a leak may be eliminated or reclassified but the paperwork is late being entered and thus the past appears to be changed. PSE stated that there are manual methods to correct leak counts but these would be tedious and may not yield any better results.

PSE will continue to review the situation and attempt to determine if there is a better method or process it could use to get more consistent leak counts and results on a month to month basis.

This recommendation will remain open and not verified to provide PSE with additional time to determine if there can be some systemic improvement in the leak record keeping process that will eventually yield more consistent results on active leaks and eliminated leaks[[83]](#footnote-83). PSE believes that they can improve the leak count consistency by using a leak management module in the proposed GIS system[[84]](#footnote-84). The current system while adequate does have some timing issues with when leaks are reported and when they are cleared thus occasionally having inconsistent numbers at different times. The system can be ‘trued up’ using manual methods at month or yearend but a new system should automate many of those functions and yield more consistent data month end to month end.

This recommendation while essentially implemented via manual methods will remain open until the GIS system module or other enhancement to the leak management system has been acquired and the process will be automated to the extent required to provide consistent and accurate leak information.

See Recommendation 7.4.4.3 for conclusions on the main GIS system implementation status.

**Recommendation 8.3.5.3**, Continue to aggressively evaluate the cost-benefit of investing in a GIS system to Aggregate System Information for analysis. Implementation will also better enable PSE to determine the root-causes and prevent damages and leaks.

**Background:**

The underlying cause of these leaks, if linked by a GIS-based system to particular facilities or conditions, could result in some type of preventive maintenance reducing overall leakage of the Gas System.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 7.4.4.3 which states “*Commit to establishing a firm target date to conclude evaluating the cost benefits associated with an enterprise-wide GIS. Assuming positive evaluation results, further commit to establishing an aggressive implementation plan with appropriate funding.*”

**Conclusions:**

See Recommendation 7.4.4.3 for conclusions.

**Recommendation 8.3.5.4**, Improve coordination or consider reorganization of damage control responsibilities among the several organizations involved to create a more unified management process. A task force similar to the Gas Compliance Steering Committee would provide an effective format for the communication of damage control information and coordination of monitored efforts.

**Background:**

PSE has active programs to reduce Third-Party Damages to its system through public awareness and improvement of its contractors’ ability to provide timely and accurate locations. Although PSE establishes seemingly high performance measures for its Locating Contractors, the sheer volume of calls result in a large number of damages due to missed or inaccurate locates, even at these high performance levels. PSE is also apparently making a large effort to improve Locating Contractor Performance.

**Status**:

PSE is committed to improving coordination of damage control responsibilities per the above recommendation and thus does not believe that reorganization is necessary in order to accomplish this. The Manager, Gas Compliance and Regulatory Audits (GCRA) has been assigned leadership responsibility and accountability starting in the creation and planning for 2010 through the yearly goal setting process. An example is representative in one such goal which specifically states *“Lead and facilitate regular stakeholder meetings with goal of continuously improving messaging, communication, etc. (Deliverable: every quarter, starting by the end of second quarter) Agenda would include topics on overall state of damage prevention as demonstrated through the new damage prevention monthly report, updates from leads of each respective stakeholder business unit, etc.”.* The Manager, Gas Compliance and Regulatory Audits has begun working on this goal by reaching out to all internal and external groups directly and indirectly involved in Damage Prevention activities and confirming the specifics related to what and how they support the program. Examples of external groups includes: WUCC, UULC, AGA, WUTC and the CGA. Examples of PSE internal stakeholders includes: Risk Management, Contractor Management and Administration, Customer Service, Municipal and Community Relations, Standards, Corporate Communications, Maps and Records and Gas Operations.

**Conclusions:**

PSE has revised Standard 2425.1600 to better specify that the Gas Compliance and Regulatory Audit (GCRA) group and its manager has the responsibility and accountability for the damage prevention program[[85]](#footnote-85). The additions in the responsibility section (2.1 and 2.2) clearly state that the manager of GCRA is responsible for tracking and reporting on damage prevention activities and issues. The GCRA group has started a monthly metric on damage prevention that is used as a communication tool throughout the company to focus attention on this issue.

PSE has made several changes in past couple of years to the GCRA group. It was a separate group from the electric compliance group, then it was combined and most recently it has been made independent again and the reporting structure changed in that it now reports, along with the electric compliance group, to the Director of Compliance who in turn reports to the General Counsel or in special situations the Director of Compliance may directly report to the Board of Directors or the CEO[[86]](#footnote-86).

Based on these changes, this recommendation is considered implemented, verified, and closed.

**Recommendation 8.3.5.5**, PSE should create a feed back mechanism to capture root analysis on poor or no locates, including tracking “Near-Miss” Data which could also provide important Continuing Surveillance information regarding the accuracy of locates.

**Background:**

The percentage of damages attributable to locate contractor errors appears to be greater than the national average. PSE does not track “Near-Miss” Data which could provide important Continuing Surveillance information regarding the accuracy of locates. The Common Ground Alliance is an authoritative industry organization on the subject of utility Damage Prevention, in its latest Best Practices[[87]](#footnote-87); the following applies to the tracking of near-misses: “The requested data is standardized and consists of minimum essential information that can be analyzed to determine what events could, or did, lead to a damaged facility. This means that collected data should include damage information, downtime and near-misses.”

**Status**:

PSE has in place a feedback mechanism to capture information relating to miss-locates and untimely locates. The sources of this information include; “crew on site” locate requests (where a crew calls in indicating there are inaccurate or no locating marks on site), calls from excavators and/or PSE employees reporting unacceptable locates, “downtime” claims received from excavators seeking recovery of lost productivity, as identified in our response to recommendation 6.4.4.1.

By the end of March, 2010, the feedback mechanism will be communicated to contractors working for PSE and they will be encouraged to report miss-locates and untimely locates to PSE for incorporation in PSE’s tracking processes.

By the end of 2Q2010, PSE will develop monthly reports tracking the activity in each of the areas identified above. These reports will enable the identification of trends and future focus areas and opportunities for improvement. These reports will be included in the monthly QA/QC meetings with each of the locate contractors.

**Conclusions:**

PSE has created a feedback mechanism in partnership with their SP locating companies to track, categorize and determine the root cause of near misses with regard to locates performed on the gas system. Below is a synopsis of that process[[88]](#footnote-88).

*PSE’s Contractor Management has implemented new requirements for its contractors. The new process below demonstrates that PSE and PSE’s Locating contractors are closely partnered in utilizing continuous improvement and root cause analysis techniques and methodologies in order to gain much valuable field and administrative details and insight, thus further enabling our ability to prevent further system damage.*

***“Near Miss” Locate rules, requirements and process for documentation collection and reporting.***

***Definition:***

*“Near Miss” locates are defined as any situation whereas a PSE facility was in a position that could have resulted in a damage but for investigated reason a damage did not occur.*

*Examples:*

* *Upon excavation, marks found to be off by more than tolerance but no damage.*
* *Locate contractor call to site to complete scope of locate missed (untimely locate)*
* *Excavation performed without locate request, facilities exposed but no damage*

***Desired Outcome:***

*Findings provide an opportunity to improve damage prevention model.*

***Rules:***

1. *Request must include at minimum, address and reported by contact information.*
2. *Contractor Management rep will confirm receipt of information to requestor*
3. *All “near miss” locates will be investigated and findings/resolution must be documented in report.*

***Process:***

***PSE Locate Contractors****.*

*Both locate contractors will collect "near miss" locate information through a number of means ranging from on-site field inspections, after the fact field audits, customer calls, damage investigations, etc.*

* *Information will be collected and documented on a spreadsheet in excel format approved by PSE. The information will be presented and discussed at monthly quality control meeting, then cut and pasted on “master” report kept by PSE Contractor Management.*

***PSE Personnel****: (1st response, field reps, call center, quality assurance, engineering, etc)*

*All “near miss” locate information from PSE personnel will be directed to PSE Contractor Management individual responsible for master report.*

* *Information will be collected, investigated and findings recorded in master report.*

***Other PSE Contractor’s****: (Pilchuck, Potelco, Heath, etc)*

*All “near miss” locate information from PSE personnel will be directed to PSE Contractor Management individual responsible for master report.*

* *Information will be collected, investigated and findings recorded in master report.*

***External Customers****: (muni’s, agencies, customers, public, etc)*

*All “near miss” locate information from PSE personnel will be directed to PSE Contractor Management individual responsible for master report.*

* *Information will be collected, investigated and findings recorded in master report.*

*The "Near Miss" report will be available upon request to the Contractor Management representative responsible for its up-keep and maintenance. As applicable, "Near Miss" report will be discussed at monthly Quality Control Program meetings, including locate contractors, leak survey contractors, service provider's (Potelco and Pilchuck), as well as any internal PSE department or external customer effected by this activity.*

*The "Near Miss" report will be used to identify improvement opportunities as each occurrence will be thoroughly investigated and a detailed "root cause" analysis performed. Trends will be easily identified and stakeholders will have an opportunity to provide timely and valuable input which will be used to improve PSE damage prevention efforts.*

Starting in April of 2010 PSE tracked ‘near misses’ with regard to system (both gas and electric) locates. Under the conclusions in Recommendation 6.3.4.11 is a chart showing the total ‘near miss’ locates from April to July of 2010. This is move in the correct direction but PSE also must determine how many bad or wrong locates are being caught by their construction SP when these service providers redo the locates to ensure that they will not damage any PSE or other underground facilities. During a field interview[[89]](#footnote-89) Pilchuck foremen stated they redo every locate just to be sure there are no errors. They also stated that the locates were improving but they still did not want to be responsible for damaging underground facilities due to using inaccurate locates.

This recommendation is considered implemented, verified and closed.

**Recommendation 8.3.5.6**, PSE should adopt Common Ground Alliance’s Best Practices that will enhance locator accuracy and timeliness, and incorporate them into goals reflected in the Locator Contracts. This includes establishing objective measures for locator accuracy and timeliness and then establishing targets for year-over-year improvement.

**Background:**

1) PSE has active programs to reduce third-party damages to its system through public awareness and improvement of its contractor’s ability to provide timely and accurate locations. Although PSE establishes seemingly high performance measures for its locating contractors, the sheer volume of calls result in a large number of damages due to missed or inaccurate locates, even at these high performance levels. PSE is also apparently making a large effort to improve locating contractor performance.

2) PSE does not track near misses per CGA’s 9-2 (see Recommendation 8.3.5.5 regarding near misses).

**Status**:

PSE has spent considerable time researching which of the Common Ground Alliance’s Best Practices are directly related to Jacob’s Recommendation. Specifically, we cross referenced those Best Practices which are intended at enhancing locator accuracy and timeliness and found that in total there are eleven such recommendations and an additional nine that are referenced as Locating and Marking Best practices.

The eleven noted below that are those closely related to locator accuracy and timeliness:

* Locators utilize available facility records at all times
* If a facility locator becomes aware of an error or omission, then the facility locator provides information for updating records that are in error or to add new facilities.
* Locators Are Properly Trained. Locator Training Is Documented.
* Visual Inspection Is Completed During The Facility Locating Process.
* Facilities Are Adequately Marked For Conditions.
* Information On Abandoned Facilities Is Provided When Possible.
* Electro-Magnetically, Active/Conductive Locating
* Communication Is Established Between All Parties.
* Documentation Of Work Performed On A Locate Is Maintained.
* Forecasting/planning For Predictable Workload Fluctuations. A Plan Is Developed For Dealing With Unpredictable Fluctuations.
* Underground Facility Owners/Operators Have A Quality Assurance Program In Place For Monitoring The Locating And Marking Of Facilities.

In order to ensure ourselves that we thoroughly compare and examine PSE’s practices and to CGA’s Best Practices, PSE is recommending that we would begin this effort through an Assessment Phase. This would allow both PSE and the UTC the opportunity to review the findings, gaps and recommendations (as applicable) and agree on an appropriate implementation schedule. 1) Review and document each of the 20 CGA Best Practices to the practices performed at PSE. This would be done by performing a review of PSE’s GOS and GFP’s as well as performing interviews as necessary. 2) Document any gaps that may exist between CGA’s Best Practices and PSE’s practices. 3) Document PSE managements review and decisions of the gaps. If PSE management has determined that improvements are prudent and would improve locator accuracy and timeliness, document and provide the UTC a recommended implementation schedule to carry out such improvements to the Locator contracts.

Key Milestone Date: End of 3rd Quarter, 2010.

**Conclusions:**

PSE has reviewed the twenty (20) locator best practices from the 7th revision of CGA Best Practices manual. PSE then check where in the current locator contracts, GOS, or other documents these practices were located. Below is a listing of the findings of the review[[90]](#footnote-90).

|  |  |  |
| --- | --- | --- |
| **#** | **CGA Best Practice Statement** | **Ref. Doc** |
| 4-1 | Locators Utilize Available Facility Records At All Times. | Contract document |
| 4-2 | If A Facility Locator Becomes Aware Of An Error Or Omission, Then The Facility Locator Provides Information For Updating Records That Are In Error Or To Add New Facilities. | Contract document |
| 4-3 | A Uniform Color Code And Set Of Marking Symbols Is Adopted Nationwide. | GOS 2425.1600 6.4.3 |
| 4-4 | A Single Locator Is Used For Multiple Facilities. | Contract document (10+ years) |
| 4-5 | Locators Are Properly Trained. Locator Training Is Documented. | Contract provision/Training document/QC plan |
| 4-6 | Locates Are Performed Safely. | Contractor Safety Manual on file with PSE |
| 4-7 | Visual Inspection Is Completed During The Facility Locating Process. | Contract and training document |
| 4-8 | Facilities Are Adequately Marked For Conditions. | Contractor training Document |
| 4-9 | Positive Response Is Provided To Facility Locate Requests. | API- RP 1162, contractor metrics |
| 4-10 | Multiple Facilities In The Same Trench Are Marked Individually And With Corridor Markers. | GOS 2425.1600 |
| 4-11 | Information On Abandoned Facilities Is Provided When Possible. | Contract document |
| 4-12 | Electro-Magnetically, Active/Conductive Locating | QC program |
| 4-13 | The Facility Owner/Operator Is Identified | GOS 2425.1600.(6.4.3.2) |
| 4-14 | Communication Is Established Between All Parties. | Contract/QC program |
| 4-15 | Documentation Of Work Performed On A Locate Is Maintained. | Contract/QC program |
| 4-16 | A Damaged Facility Is Investigated As Soon As Possible After Occurrence Of Damage. | Contract/QC program |
| 4-17 | Forecasting/planning For Predictable Workload Fluctuations. A Plan Is Developed For Dealing With Unpredictable Fluctuations. | QC program |
| 4-18 | Underground Facility Owners/Operators Have A Quality Assurance Program In Place For Monitoring The Locating And Marking Of Facilities. | Contract/QC program |
| 4-19 | Trenchless Excavation. | API RP 1162 |
| 4-20 | Locating & Marking in Navigable Waterways | GOS 2525.2500 and 2425.1600 |

Some comments on the responses for selected best practice discussions in Document Request No. 266.

- For best practice 4-2, mapping errors, PSE has completed training on using the map error forms for both PSE and service provide and contractor personnel.

- Best practice 4-4, single locator, is only used within the service territory that PSE has both gas and electric service. In other areas there may be more than one locating service employed.

- PSE requires photographs of the marked areas to verify that a visual inspection was performed under practice 4-7.

The implementation of the 20 best practices should reduce not only the number of damages to PSE gas facilities but also the number of near misses which PSE has started to compile.

This recommendation is considered implemented, verified and closed.

**Recommendation 8.4.7.1**, PSE should add clarification to the record regarding certain categories of UTC-reportable incidents as described in Section 4.2 UTC Reportable Incidents for the purpose of Continuing Surveillance.

**Background:**

Continuing Surveillance includes the collection and evaluation of historical data in order to survey patterns and trends which could indicate future problems. Our examination of the log of incidents reportable to the UTC found some areas where that information could be improved. It should be noted the information reported was apparently in compliance with the requirements set by the UTC. If PSE has collected additional information on these past incidents, which would be expected in regard to a Continuing Surveillance Program, then they should be able to provide additional data.

**Status**:

The referenced table is a summary of telephonic reporting requirements and the “Description” is in general, consistent with WAC 480-93-200 and CFR 191.3. The reference to media coverage was deleted in the 2009 edition of the Gas Operating Standards. This table is used simply as a list for reporting purposes. It is not intended for use as part of the continuing surveillance activities. Information on causes of leaks is contained within the Leak Management System (LMS).

**Conclusions:**

This recommendation will not be implemented.

**Recommendation 8.4.7.2**, A greater focus on the use of Continuing Surveillance information for internal auditing and a proactive approach to management of the Gas System is needed. PSE should use the annual Continuing Surveillance Report to identify trends, initiate proactive measures, and track subsequent progress. The end result would be enhanced system integrity and a reduced need for settlement agreements and settlement-related audits.

**Background:**

Jacobs believes from observations the emphasis of PSE in regard to the use of Continuing Surveillance information is on compliance with UTC settlements, not a proactive management of its system. This belief is further evidenced by PSE’s list of “discretionary” Maintenance Programs where all but one was remediation of discovered problems.

**Status**:

System Planning is developing an annual Continuing Surveillance Report which will include the gas system performance information previously contained in the System Performance report. This new report will include additional information and will be a comprehensive system performance report. The report will identify trends, describe the plan to initiate any new proactive measures, and track subsequent progress.

System Planning will also work with Quality Assurance and Internal Auditing to identify opportunities to use these resources to enhance system integrity knowledge and will include any relevant findings in future Continuing Surveillance Report**s.**

* Develop plan outline and work process for an annual Continuing Surveillance Report by May 1, 2010.
* Complete first Continuing Surveillance Report: Complete by May 1, 2010.
* Implement any new proactive measures in accordance with the schedule as identified in the Continuing Surveillance Report.

**Conclusions:**

Below are the conclusions from Recommendation 8.3.5.1 which also apply to this recommendation[[91]](#footnote-91).

*For 2010, the 2009 Continuing Surveillance Report was prepared and presented on May 1, 2010[[92]](#footnote-92) so that the recommendations could be included in the 2011 budget proposals. This report is now a combination of both continuing surveillance data and the information previously contained in the PSE System Performance Report. This report is the basis for how well all facets of the PSE gas system performed in the previous period and contains information on what trends, have been observed in the prior period or periods. The report provides a snap shot of the composition of the gas system on materials and installation dates and discerns which materials or vintages of materials are problematic. It also reviews any ongoing capital or maintenance programs that are designed to address system safety issues.*

*The section on System Trends goes into leak trends, incident reporting trends, system condition report (blue card) trends and third party damage trends. In the section on Gas System Maintenance Programs, the report describes the yearly and historic achievement of each individual maintenance or capital program and some of the expected and realized benefits (such as reduced leak activity for cast iron and bare steel replacements).*

A review of the Continuing Surveillance Report shows that it fulfills the requirements of implementing this recommendation and with its issuance on April 30, 2010 it verifies that the recommendation was implemented.

**Recommendation 8.4.7.3**, In the interest of coordinating all aspects of Continuing Surveillance, PSE should coordinate various departments (if not consolidated in response to Recommendation 8.2.8.1) concerning Continuing Surveillance, and appoint a manager to report on Continuing Surveillance to the Gas Compliance Steering Committee.

**Background:**

The Gas Compliance Steering Committee Meetings provide an excellent forum for communicating Continuing Surveillance information, but as their title suggests, and work has evidenced, there is more emphasis on complying with UTC Audits and Regulatory Reporting than Internal Auditing that could be based on knowledge gained and organized through the Continuing Surveillance Process. Another example is although the GC&RA Manager would like to see improvements in the aggregation of information in one system, and a major improvement planned is the use of XEM, a program related to SAP, it will be limited to tracking compliance items only. Likewise, we have seen evidence of a major undertaking to increase the Auditability of Leak Repair Records. The lack of a unified Continuing Surveillance Tracking System appears to be a root-cause of a lesser degree of emphasis on proactive internal auditing. PSE’s organizational structure and separation of data is better suited to respond to compliance-driven audits of particular programs.

**Status**:

See Plan under Recommendation 8.2.8.1.

**Conclusions:**

PSE performed an organizational assessment and determined that a new position, Manager of Gas System Integrity was needed to coordinate all of the aspects of gas integrity including capacity planning, integrity management, maintenance planning, compliance program development and management, and responsibility for preparing the annual Continuing Surveillance Report. This change was effective on July 2010 when a manager was named.

Based on the naming of an individual and the changes in the organization, this recommendation is completed and its implementation verified[[93]](#footnote-93).

**Recommendation 8.4.7.4**, Efforts to consolidate information to provide a workable Continuing Surveillance System should receive a higher priority.

**Background:**

Jacobs has found no report meeting all of the requirements for an annual Continuing Surveillance review conducted by PSE as specified in Section 6.1 and 6.2 of the Gas Operating Standards for Continuing Surveillance. PSE states the records review is part of the process conducted by the Senior Engineering Specialist to identify trends on the number and severity of issues. PSE describes this process as an on-going review to categorize work for budgeting purposes[[94]](#footnote-94). They also maintain, while no annual report is produced, the output of the budgeting process is evidence the review is performed[[95]](#footnote-95).

Looking at the meaning of Continuing Surveillance defined by this report:

* Collection of system knowledge
* Maintaining and monitoring of records
* Acting on that knowledge to ensure system safety

The budgeting process emphasizes the last item. It does not meet the requirements for a Continuing Surveillance Annual Review, especially in regard to Section 6.2, lacking a complete annual review of ongoing system conditions recorded during construction and operation. In regard to maintenance, Continuing Surveillance Data was found to be collected on a variety of systems and in a variety of locations, which may be unified with great effort in the budget process.

**Status**:

PSE supports the value of consolidating information where cost effective for continuing surveillance. However, continuing surveillance information can vary from the summary/trending level to detailed data bases.

In the short term, information for high level trending will be consolidated manually through the preparation of the annual Continuing Surveillance Report. The implementation of the Continuing Surveillance Report is below.

In the long term, consolidation of data bases and detailed information will be reviewed and evaluated for cost effective solutions that may include IT solutions, including GIS. The schedule for this effort is unknown at this time.

The annual Continuing Surveillance Report which will include the gas system performance information previously contained in the System Performance report. This new report will include additional information and will be a comprehensive system performance report. The report will identify trends, describe the plan to initiate any new proactive measures, and track subsequent progress.

* Develop plan outline and work process for an annual Continuing Surveillance Report by May 1, 2010.
* Complete first Continuing Surveillance Report: Complete by May 1, 2010.
* Implement any new proactive measures in accordance with the schedule as identified in the Continuing Surveillance Report.

The evaluation of potential technology opportunities will be performed in conjunction with efforts associated with recommendation 8.2.8.3, currently scheduled for the end of 1st Quarter, 2011. Implementation of potential technology solutions to be determined when recommendations are finalized.

**Conclusions:**

The new Continuing Surveillance Report includes the trend analysis and conclusions previously in the System Performance Report and thus allow for being able to draw conclusions on how well the gas system is operating from both a performance and safety basis. The further enhancement by organizing a Gas System Integrity group having responsibility and accountability for most gas system issues will further improve system safety by removing some of the barriers for information exchanges and cross responsibilities.

The substandard condition report, Form 3704 (“Blue Card”), has been modified to include only those issues that relate to either unsafe conditions on the system or unsatisfactory conditions. Where there are issues that should be reported via another method, alternative reporting methods have been put in place. The form can now be fully utilized in the annual Continuing Surveillance Report[[96]](#footnote-96).

This recommendation is considered implemented, verified and closed.

**Recommendation 8.4.7.5**, The annual Continuing Surveillance Review as specified in the Gas Operating Standards should be performed and become the major indicator of the state of the Gas System.

**Background:**

The gas portion of the System Performance Programs Annual Review also does not meet the requirements of an annual Continuing Surveillance Review. It is focused primarily on settlement-related programs, and performance issues.

**Status**:

System Planning is developing an annual Continuing Surveillance Report which will include the gas system performance information previously contained in the System Performance report (see recommendations 8.3.5.1 and 8.4.7.2). This new report will include additional information and will address all of the items as required by GOS 2575.2700. The report will be the major indicator of the state of the Gas System and will identify trends, describe the plan to initiate any new proactive measures, and track subsequent progress.

* Develop plan outline and work process for an annual Continuing Surveillance Report by May 1, 2010.
* Complete first Continuing Surveillance Report: Complete by May 1, 2010.
* Implement any new proactive measures in accordance with the schedule as identified in the Continuing Surveillance Report.

**Conclusions:**

The 2009 Continuing Surveillance Report[[97]](#footnote-97) dated April 30, 2010 provides insight into the recent operations of the gas system with regard to two important issues, leaks and third party damage. The executive summary provides a broad overview of the system and current issues. There is a section that provides statistics over the last several years on the make-up of the system and some of the programs that are being funded to reduce the leak rate, such as the completed cast iron replacement program and the ongoing bare steel replacement program. The report highlights the materials and conditions that are causing the majority of the leaks and offers some solutions for reducing the leak rate. It also highlights some of the causes of excavation damage and what the company is doing to improve its damage prevention program and reduce the damages resulting from such events.

The report is broken down into sections, one dealing with leaks and their cause. The top three causes of leaks on the PSE system are Excavation (first, second and third party damage), other (where the cause is not known either because the form was not filled out or that the leak was repaired without actually excavating at the point of leakage, such as repaired by insertion, etc), and corrosion. PSE states that the highest leak rates by material are now caused by pre-1972 wrapped steel and pre-1990 plastic pipe for pipe materials.

The current programs that PSE has implemented are:

* Bare Steel Replacement (due to be completed in 2014)
* Wrapped Steel Service Assessment Program (WSSAP, due to have all priority services mitigated by the end of 2010)
* Pre 1972 STW Main Replacement ( replaced as WSSAP services are replaced or based on leakage)
* Isolated Facilities (which consist of several components)
  + Sidewalk Regulators due to be replaced by 2015
  + Above Ground Regulators to be replaced or mitigated as identified
  + Steel Services in Casings due to be mitigated by 2015
  + Extended Service Lines in Mobile Home Communities due to be replaced/mitigated by 2015
* Regulator Station Remediation
* Converted Single Service Farm Tap Program (due to be converted by 2014)
* Regulator Station Pipe Support Mitigation
* Regulator Station Over Pressure Protection
* Industrial Meter Set Remediation
* Establish Remediation Programs for Form 3704 (aka Blue Cards, highlighted in submitted cards) some current programs
  + Buried MSA Remediation
  + Traffic Protection Enhancements
  + Rock and Debris on Buried Pipe
  + Shallow Main and Service Remediation
* Older PE Pipe Replacement (replacement of older, pre 1986 DuPont PE piping)
* Mobile Home Community Encroachment Surveys
* Bridge and Slide Remediation
* Atmospheric Corrosion in Hard to Reach Bridges
* Aging High Pressure Valve Mitigation
* Double Insulated Flange Valve Mitigation
* High Voltage Alternating Current (HVAC) Mitigation Program
* Transmission Integrity Management Program

Many of the above programs are the result of regulatory requirements or inspections but regardless the net result is that PSE is now integrating the data that is obtained by various sources (leak survey, public reporting, company employee reporting, blue card, regulatory inspection, QA/QC inspections, etc) and formulating programs to address and anticipate future system safety concerns or issues.

Based on the issuance of the Continuing Surveillance Report on April 30, 2010 and the organizational changes made in July 2010 (creation of a Manager of Gas System Integrity with specific responsibility for the continuing surveillance report), this recommendation is considered implemented and verified.

## VI. Resources

**Discussion**

Resources with regard to gas system safety do not only refer to capital or operational funding but also include computer or IT resources, management focus and other so called soft issues. The capital and operational expenditures are still the most important. How all of these critical resources are divided between competing corporate businesses and functions is critical to the safety of the gas system. Many combination utility companies favor one business over another in some instances. Some may apportion resources by the percentage of revenue each business generates or some other factor that is not subjective. In many combination utilities, the capital needs of the electric business take priority over other businesses and the IT needs of corporate support groups such as finance and customer service take priority over those of operating groups. Developing and implementing a good balance between these competing organizations for these finite and limited resources in always a balancing act.

At PSE there appeared a trend that the gas business was not being given sufficient resources, especially with regard to IT in the past and that compromises with regard to some issues on gas system safety were being made. The evidence of these compromises could be the number of mandated settlement agreements that PSE and its regulator made in the past to resolve gas system safety issues. One specific example was the lack of computing support to move tracking mandated safety program reporting from ad hoc tracking on personal computers onto the mainframe so that automatic updates and reports could be generated. Another was on how continuing surveillance, i.e. recurring issues or problems, were not being properly tracked and reported due to the discrete and isolated nature that data was being stored.

Other specific areas of resource needs were how much time first line supervisors were spending actually in the field assisting their subordinates rather than preparing or filling out paperwork, whether there were sufficient tools for employees to use to perform their duties (tools in this situation mean all ‘things’ necessary such as vehicles, specialized tools, mechanical tools, hand tools, computers, cars, etc.), if there are sufficient trained employees to handle not only the current work load but also future growth since training a qualified gas worker may take several years and an aging workforce is expected to have significant retirements in the next several years. Another area that needs sufficient resources is the quality control and quality assurance area that can provide feedback on improving operations and ensuring that corporate procedures, standards and processes are being properly implemented.

All of the recommendations that the Jacobs Third Party Audit made in these areas have been all implemented and verified as complete except for the installation and commissioning of a GIS system and the included leak management module. These additional resources have allowed for the SAP database to be populated and used to track mandated program status, additional QA&I inspections to be performed on field crews (both company and SP), and the purchasing and implementation of a companywide GIS system (for both gas and electric).

**Recommendation 9.2.4.1**, Develop and implement a Corporate Goal concerning Gas System Safety. Goal should include supporting objectives, actions and measures to fully communicate and demonstrate senior management’s Gas System Safety intent. Implementation of this goal should result in cascading a Gas System Safety proactive approach throughout the organization.

**Background:**

Jacobs finds the high number of mandated Settlement Agreements between PSE and the UTC staff to be unusual and not typical of the relationship that exists between the Regulator and the Utility in other states and jurisdictions. In our experience, utilities want to be proactive and take the lead in maintaining the safety of its Gas Distribution System – not just follow the Regulator’s mandates. The historical frequency of needed Settlement Agreements is an indication that PSE should examine its strategic perspective, goals and objectives directed at maintaining the Safety Compliance of its Gas Distribution System. Consequently, we examined PSE's Corporate Goals to determine if gas Safety Compliance was reflective of the company’s settlement experience[[98]](#footnote-98). The only 2009 Corporate Goal that somewhat relates is the goal dealing with Optimized Generation and Delivery, which states “... build or replace infrastructure in a way that meets our customer's needs…” In light of PSE's settlement agreement history, we find this goal inadequate. PSE needs to develop a goal with supporting objectives, actions and measures to fully communicate senior management's intentions. This goal will help set the tone and cascade throughout the organization PSE’s system safety intent, as well as the company's desire to become more proactive with regards to System Safety Compliance issues.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 4.2.5.1 which states “*Develop and implement a Corporate Goal concerning Gas System Safety. Goal should include supporting objectives, actions and measures to fully communicate and demonstrate senior management’s gas system safety intent. Implementation of this goal should result in cascading a gas system safety proactive approach throughout the organization.*”

**Conclusions:**

See Recommendation 4.2.5.1 for conclusions.

**Recommendation 9.3.6.1**, PSE should expedite the development of a Strategic Workforce Planning Study to define the work force required to implement company business strategies and identify actions needed to meet those requirements. The analysis should reveal gaps between the work- force needed and the workforce supply forecasted to be available and identify critical positions as well as certain key employees.

**Background:**

In order to determine staffing requirements, PSE utilizes several different approaches to establish needs. These approaches are based on attrition data and detailed work unit and cost information. Work is also underway to develop a five-year plan that incorporates both staffing and budgeting needs.  Jacobs was advised the plan will take into consideration various business and cost drivers to get the clearest view of what the future needs of the organization may be. So as to provide well-trained ready replacements for known attrition and anticipated vacancies, PSE developed and implemented in 2006 the Gas Worker Program. The Gas Worker Program addresses the personnel anticipated to retire in the next 10 years.  The Gas Worker Program is designed to provide necessary training and the opportunity for knowledge transfer for senior journey-level positions.

**Status**:

Gas Operations will conduct a study to determine expected attrition over the next five years and identify gaps between workforce needed and workforce supply forecasted. This study will include identifying critical positions in both the represented and non-represented workforce. This study will be completed by 09/30/2010.

**Conclusions:**

PSE has completed a detailed workforce strategic study[[99]](#footnote-99) to evaluate the potential gaps in the current workforce and future issues as many of the highly trained employees take normal retirement (at age 65). The study also assumed 3 employees (or 1% of 280 critical employees) per year would not remain in their critical jobs (promotion to non critical job, reassignment, resignation, etc.). The training time for a gas operations worker from start to journey person is 2 years and there is an additional year to senior journey person. In order to calculate the number of employees that must be hired and trained an 85% success rate for training was used which per PSE was consistent with past performance of the training program. Below is a chart that shows the current training groups and the future groups for the next 5 years and the resulting number of fully qualified individuals that would be in the critical job classifications.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **June**  **'10** | **YE**  **2010** | **YE**  **2011** | **YE**  **2012** | **YE**  **2013** | **YE**  **2014** | **YE**  **2015** |
| **Total Key Positions** | 280 | 280 | 280 | 280 | 280 | 280 | 280 |
| **Key Position with Gas Workers**  **Posted to vacancies as trained**  **and available** |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | 268 | 276 | 283 | 282 | 280 | 277 |

Per the referenced Strategic Workforce Study, PSE plans to hire and train 10 individuals per year for 2011 and 2012 and then go to 12 per year thereafter.

What PSE has not factored into this plan is system growth which will affect the need for additional critical job individuals[[100]](#footnote-100). PSE has seen an average growth rate of 13,800 customers per year from 2006 to 2009 and originally estimated an average growth rate of 18,400 new customers per year for 2011 through 2015. The estimated growth rates for these out years will probably be significantly less due to the general state of the economy in both Washington State and the nation. If one takes ½ of the estimated growth rate as being achieved (probably less in the early years and greater in the later years) then from 2009 to 2015 the gas system may add 46,000 customers from 2010 to 2015. This number of customers may require additional trained and qualified company employees since it represents approximately a 7% growth in customers. Based on the 2010 key positions of 280 individuals, each key individual covers an average of 2500 customers, adding 46,000 new customers would require 18 more key positions if there no increase in productivity. Even with a 2 % increase in productivity across all individuals, PSE would still have to additional personnel or contract out additional work to their service providers. Below is a graph of the estimated customer growth.



Figure 7, Cumulative Customer Growth for 2010 to 2015[[101]](#footnote-101)

Although PSE has completed this recommendation and it has been verified, PSE still should revisit their initial assumptions on system growth and add more individuals for the lengthy training period to account for system growth.

This recommendation is considered implemented, verified and closed.

**Recommendation 9.3.6.2**, The company should initiate vehicle recordkeeping that includes maintaining a history of vehicle breakdowns and repair costs. This history should be periodically reviewed to determine vehicle replacement needs.

**Background:**

Dissatisfaction with certain problematic trucks was expressed and the fact that there lack of availability could occasionally result in doubling of crews. Upon specific questioning the company indicated it does not keep records regarding vehicle breakdowns; nor does it maintain records as to when there is a need to double-up journeyman workers due to lack of available vehicles. The company is of the belief that the need to double-up workers occurs infrequently.

A review of the SP vehicle fleet data shows clearly that it has gradually grown and that significant maintenance expenditures have occurred consistently throughout the last five years. Our numerous field observations confirm that in general both the PSE and SP fleets are well-maintained.

**Status**:

Fleet already has a program in place that captures this recommendation. In the 3rd quarter each year, Fleet gathers the following data from SAP on every PSE vehicle: mileage, amount owed on the vehicle, market data on value of each vehicle by class, maintenance data and duty type of each vehicle, i.e., highway use, frequent stops, severe duty. Each vehicle is assigned a score based on their individual data, and any vehicle in the top quartile is a candidate for replacement.

**Conclusions:**

PSE’s method of determining which vehicles need replacement in the fleet is summarized below[[102]](#footnote-102):

*Beginning in November, 2010, fleet and gas operations commenced a series of discussions to identify vehicle needs for the coming year. Fleet presented a list of candidate vehicles to be replaced based on mileage and maintenance experience. This list was supplemented with specific requests from gas operations supervisors based on first-hand experience with the existing vehicles. Additionally, new vehicle requests to accommodate known staffing changes were identified. Through this process, fleet and gas operations arrived at an agreed vehicle purchase plan for 2011.*

Based on the formalized method of prioritizing fleet replacements and the input of gas operations, this recommendation is considered implemented, verified and closed.

**Recommendation 9.3.6.3**, The company should initiate recordkeeping of employee double-ups required as a result of a shortage of functional vehicles. These records should be periodically reviewed to determine the appropriate number of spare vehicles in any given location.

**Background:**

Dissatisfaction with certain problematic trucks was expressed and the fact that there lack of availability could occasionally result in doubling of crews. Upon specific questioning the company indicated it does not keep records regarding vehicle breakdowns; nor does it maintain records as to when there is a need to double-up journeyman workers due to lack of available vehicles. The company is of the belief that the need to double-up workers occurs infrequently.

A review of the SP vehicle fleet data shows clearly that it has gradually grown and that significant maintenance expenditures have occurred consistently throughout the last five years. Our numerous field **observations** confirm that in general both the PSE and SP fleets are well-maintained.

**Status**:

While occurring on occasion, doubling up of employees due to vehicle breakdowns is not viewed as a serious problem that results in mandated safety and maintenance work not getting done. In many instances, double-ups are beneficial as they provide training and mentoring opportunities for employees. Also, depending on the type of work being performed, two man crews may be required. Currently Gas Operations has a full fleet of vehicles for our employees responsible for compliance and safety work. There are also appropriate spares at each operating base as determined by management. Keeping track of the number of times that vehicle breakdowns result in doubling up of employees will not be performed, as this is a management decision, given the number of vehicle options available. However, in conjunction with recommendation 9.3.6.2, an annual review of vehicle needs and maintenance issues will be performed. Gas Operations management will review vehicle requirements periodically and request additional or replacement vehicles as required in the 4th quarter of each year.

**Conclusions:**

See the response to Recommendation 9.3.6.2 for how PSE determines the number of vehicles to replace and add each year[[103]](#footnote-103).

This recommendation is considered implemented, verified and closed.

**Recommendation 9.4.6.1**, Revise the Operating Standards for Continuing Surveillance 2575.2700 to reflect the significant observation role the Manager Quality Assurance and Inspections has in Continuing Surveillance.

**Background:**

Not specifically included in PSE Operating Standards for Continuing Surveillance 2575.2700, but playing a significant observation role is the QA/QC group, which reports to the Manager Quality Assurance and Inspections.

**Status**:

Section 2.3 of Standard 2575.2700 (*Continuing Surveillance*) already requires that the Quality Assurance and Inspection Organization (whose employees fall under the definition of someone who performs “construction, operation, or maintenance activities” on “pipeline facilities”) report unsafe, unsatisfactory, or non-standard conditions. In addition, the Manager of the QA&I Organization is fully aware of their responsibility for executing the requirements within section 2.3 of the Standard, and has confirmed that employees of the Organization are in fact reporting unsafe, unsatisfactory, or non-standard conditions as required by Section 2.3 of the Standard.

As a result of the above, PSE does not believe there is a risk that the QA&I Organization will not comply with Section 2.3 of the Standard.

However, in the interest of continuous improvement, PSE proposes to act upon the recommendation by adding detail into the Standard, and issuing supplementary clarifications to employees, as noted in the following section.

In section 2.3 of Standard 2575.2700 (*Continuing Surveillance*), PSE will add “inspection” to the list of work activities, in order to more clearly identify the QA&I Organization’s role in observing pipeline facilities for unsafe, unsatisfactory, or non-standard conditions. PSE will also evaluate the benefits of adding verbiage immediately following section 2.3 to provide specific examples of activities that may provide an opportunity to observe pipeline facilities for unsafe, unsatisfactory, or non-standard conditions. The evaluation will be completed during the process of performing our yearly update of the *Gas Operating Standards Manual*. Since the intent of our action is simply to offer a clarification, all proposed revisions to the Standard, including the specific change noted above, will be made during the process of performing our annual update of our *Gas Operating Standards Manual*. The process will be completed by 9/24/10, and the updated Standard will be published in the 2011 GOS manual which has a proposed effective date of 3/1/11.

**Conclusions:**

Additional discussions on the impact of adding “inspection” to the list of work activities in the revised standard[[104]](#footnote-104) are needed. These additional discussions will consist of interviewing some QA/QC inspectors and reviewing the job description of the Manager of QA & I.

The job description of the Manager of QA &I does not contain anything that would indicate this individual has any responsibilities for continuing surveillance. It specifies “*Responsible for the overall quality assurance program that ensures the work performed on PSE’s energy delivery system complies with company standards and work practices. Ensures that contractor and internal work group quality control programs are adequate and implemented.* *Through audits and inspections, ensures that the design, construction, operation and maintenance of the energy delivery system is compliant with company standards and that quality control programs are effective. Communicates the findings of the program to key stakeholders including, gas and electric operations, contractor management, standards & compliance, and the service providers. Supervises department staff, resolves performance issues and provides feedback to employees as necessary. Upholds the safety compliance standards inherent in PSE’s operating and/or field procedures related to work responsibilities.*” Only the last sentence can be inferred to pertain to continuing surveillance through upholding safety compliance standards. While it appears that the reference to “inspection” in the subject procedure on continuing surveillance may be construed as minor, there are sufficient references and explanations[[105]](#footnote-105) that refer back to the responsibilities of the Manager of Quality Assurance and Inspection. These references require that this individual take an active role in any continuing surveillance issue and that the QA&I play an important role. Additionally the reorganization and the naming of a Manager, Systems Integrity enhances this small change in wording.

This recommendation is considered implemented, verified and closed.

**Recommendation 9.4.6.2**, Add clarity in how Compliance Activity responsibilities are delegated and how individuals are held accountable throughout the organization.

**Background:**

In order to assess whether the responsibility for obtaining the needed gas compliance outcomes was well communicated, Jacobs reviewed the position descriptions of each manager/supervisor with gas Safety Compliance responsibilities and a Job Title to Standard Number Cross-Reference Guide, which is a cross-reference of responsibilities of every Operating Standard in which each specific job title is mentioned. The review of the position descriptions indicated they were typically generic with exact gas compliance responsibilities either not fully described or specifically stated. The 14 page cross-reference list was complete, but overwhelming and not particularly practical as a means of communicating Safety Compliance responsibilities.

**Status**:

This recommendation requires the completion of several recommendations that have already been responded to. Examples include adding direct reference to compliance responsibilities to job descriptions, modifications to contract language and operating meetings expressing system safety focus, shift in QC/QA inspections to more crew observations, and the implementation of xEM to assign individual accountability to certain compliance tasks. In addition, PSE has expanded the gas compliance and regulatory audit department, further strengthening the focus and involvement in day to day operating decisions.

**Conclusions:**

No further action is required beyond responses already submitted to recommendations:

4.2.5.4; 6.2.4.1; 6.3.4.5; 6.3.4.10; 8.2.8.1; 9.5.2.1.

**Recommendation 9.4.6.3**, Conduct a study of how and where First-Line Supervisors spend their time. Determine which existing supervisory and administrative tasks can be reassigned and/or appropriate staffing needs, so that First-Line Supervisors have the ability to routinely spend 50% of their time with field crews and service personnel. Develop a list of appropriate field related responsibilities along with the means to ensure supervisor accountability.

**Background:**

Dispatch Operations have a real-time view of the location of the field worker, the work location and the status of work as they make their dispatching decisions. However, they are currently able to only control a portion of the workflow. This is due to the fact that certain task types are currently not viewed. Supervisors in the Gas First Responder organizations have a variety of responsibilities that prevent them from spending time out in the field. Three supervisors indicated that less than 5% of their workday is spent in the field and this time is usually confined to Gas Emergency Oversight. Supervisors it seems must depend on others to assess how well their direct reports perform. Potentially having supervisors without a strong knowledge of their employees could negatively impact Compliance Safety.

**Status**:

PSE agrees that there is value in first line supervisors spending time in the field, but we are unable to validate that 50% is the correct percentage given the other field oversight currently utilized. Customer Field Service Inspectors, Public Improvement Inspectors, Corrosion Technicians and Technologists, Quality Assurance (QA) Inspectors and Quality Control (QC) Inspectors provide substantive field oversight in addition to the time spent in the field by first line supervisors. The level of performance (as measured through regular compliance metrics and QC and QA reports) may suggest field personnel are receiving adequate oversight to serve their needs and the Company’s expectations. However, the Company is interested in determining whether or not it should change its field oversight practices.

PSE will conduct a study to identify what type of field oversight is performed and how much time is spent by first line supervisors, Customer Field Service Inspectors, Public Improvement Inspectors, Corrosion Technicians, QA Inspectors and QC Inspectors in oversight of Gas First Response Fitters, Customer Field Service Technicians and Corrosion Fitters. Representatives from the Performance Excellence Department will conduct interviews of a sampling of managers, first line supervisors and field personnel. Information gathered will be used to better understand concerns and identify potential gap areas relating to the effectiveness of supervisory and oversight roles. This information will then be used to address gap areas.

2nd Quarter, 2010: Develop scope and study approach (May include additional internal and external interviews to validate the expected amount of time to be dedicated to field oversight and evaluation of current time allocated to these activities).

4th Quarter, 2010: Complete study.

1st Quarter, 2011: Analyze data, summarize findings, and identify recommendations, if any. The results of this work to be presented and discussed with the UTC staff.

**Conclusions:**

As recommended, PSE undertook to study how much time and what activities their first line supervisors were performing with a target to determine if they were spending sufficient time with their crews. The result of the study found that some of the clerical and other activities that first line supervisors were required to perform could be better done by others thus freeing up the supervisors to spend additional time on field operations matters. Some of the activities removed from the supervisors were dealing with employee uniforms, fleet issues with truck design and equipment installation. This additional time was filled with having first level supervisors do more field observations for OQ re-qualification. Additional reports were also provided to assist in having first level supervisors to focus in on root causes for excessive field response times on odor complaints. Some of the additional burdens on the supervisors were reduced by having the QA &I perform additional field audits on both SP and company personnel while they were performing tasks in the field.

The table presented below is from the study.

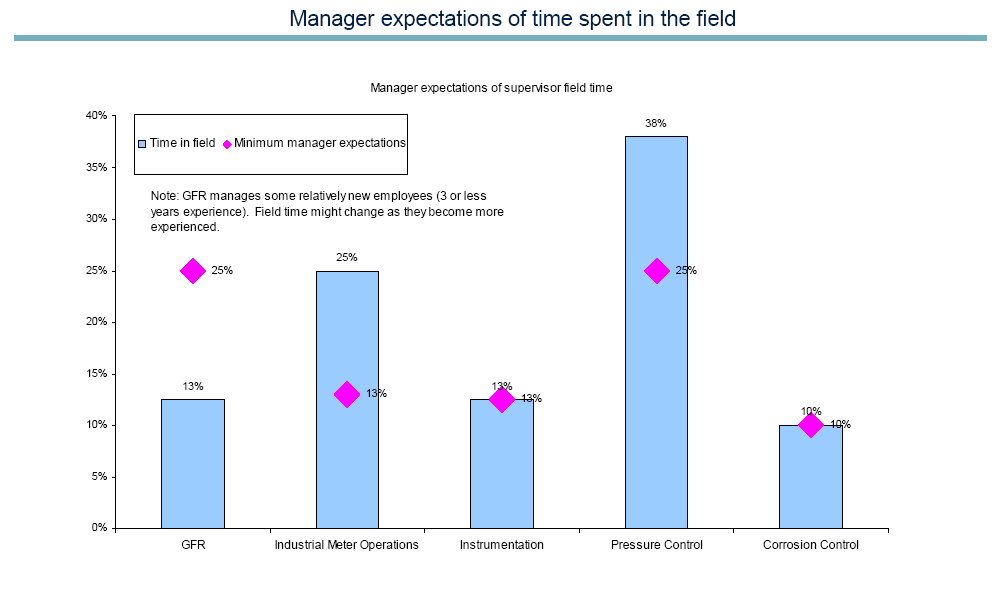


Figure 8, First level Supervisor Field Time[[106]](#footnote-106)

As one can see supervisor field time runs from 10% to 38% while manager expectations are from 10% to 25%. While there is no perfect number since the time mentoring, assisting or evaluating employees is a function of the jobs being performed, the employee’s experience and other factors, clearly the more time a supervisor can spend with employees the better for the employee especially inexperienced ones.

PSE should review the data and determine if first level supervisors are spending sufficient time in the field with their employees.

This recommendation is considered implemented, verified and complete.

**Recommendation 9.4.6.4**, Review and communicate the criteria for incident command with all PSE and SP staff so that the PSE leadership role is clearly understood; consider incorporating incident command observations into the Quality Assurance Program.

**Background:**

On three occasions, in response to gas emergencies, Jacobs had the opportunity to observe PSE employees collaborating with SP employees. In each instance it was difficult to decipher who was actually in charge, even though PSE's procedures clearly identify their incident command role.

**Status**:

Gas Operations Training will provide training to SP's on Incident Command and the Service Provider role in IC as a support agency. The service providers will then be expected to provide training to their key personnel (typically foremen) on incident command and their role. Documentation of successful training includes copies of training materials used, roster of employees receiving the training and observation of service provider training by PSE personnel. Service providers will also be invited to participate in table top exercises conducted with first response agencies (fire and police).

Key Milestone Dates:

02/05/2010: Provide training to service providers in incident command roles.

04/01/2010: Service providers complete training of key personnel in incident command roles.

Ongoing: Include service providers in periodic table top exercises with first response personnel.

Quality Control will investigate the value of implementing a quality control program for emergency response, which will include evaluation of the implementation of the IC structure during emergency response activities.

Key Milestone Dates:

Ongoing: After action reviews of emergency response to major incidents, to include evaluation of the use of Incident Command.

09/30/2010: Quality Control to review value of QC program on Emergency Response and suggest implementation timeframe, if applicable. Results to be presented to PSE’s Gas Compliance Steering Committee for acceptance.

**Conclusions:**

PSE provided Emergency Response training records for their SP’s in the spring of 2010 (on 2/5 and 3/10/10). These records showed PSE and the SP trained their personnel on the incident command structure and that PSE had responsibility for the emergency situation as soon as any PSE personnel were present. To further verify that the training was effective, during several interviews[[107]](#footnote-107) with both PSE and SP first responders the subject of responsibility for incident command was discussed. In all discussions, each interviewee stated that when any PSE personnel arrived on the scene of an incident, they immediately became the incident commander and had full responsibility for that incident.

Once QA&I determines if the emergency response program requires a QC follow up and if so is completed, then this recommendation can be evaluated for implementation and verification[[108]](#footnote-108). PSE QC has started to audit the leak evaluation, leak repair and on site incident command activities to evaluate the effectiveness of emergency response training and recently completed incident command re-training[[109]](#footnote-109). Besides monitoring leak response, a combination of QA&I, QC, engineering and operations personnel are now doing lessons learned and post incident reviews to determine what areas of the response, process, standards or procedures may need some revision. At an incident in June of 2011 it was determined to having more accurate lists of qualified individuals for specific tasks was needed (and possibly having more individuals trained for weekend call outs). Another lesson learned on this incident was that better availability of large diameter steel was necessary[[110]](#footnote-110).

Based on the responses to the document requests this recommendation is considered implemented, verified and completed.

**Recommendation 9.4.6.5**, Elevate the priority of the initiative to move Compliance Maintenance Programs managed in Access, such as H2RL, Atmospheric Corrosion Inspections, and Valve Inspections to SAP.

**Background:**

A variety of information systems, including paper, are used to keep track of Gas Safety Compliance Program information. Numerous interviewees indicated it was often difficult to collect and integrate certain information. SAP is customized for each group and there is no one person that covers the entire program some of SAP's outputs include: contractor notifications, inspection reports, work orders, G1 notification for initial inspection, G2 notification to notate failed inspection and M5 notification to respond to a failed inspection. Some interviewees would like to see SAP have the ability to interface with other systems. Several interviewees recommended getting all Compliance Programs out of the Access databases and into SAP.

**Status**:

Eliminate this recommendation.

This recommendation is covered under 7.4.4.1 which states “*Utilizing the IT business case justification process, elevate the priority of the initiative to move compliance maintenance programs managed in Access, such as H2RL, atmospheric corrosion inspections, and service valve inspections, to SAP.*”

**Conclusions:**

See Recommendation 7.4.4.1 for conclusions.

**Recommendation 9.5.2.1**, Expedite the XEM database under development, so that all Compliance Reports for Gas Operations can be combined into a single report.

**Background:**

PSE was able to provide a year-end summary for each of the compliance-maintenance activities performed by Gas Operations in 2008. In total PSE performed in excess of 33,000 Compliance Inspections and repairs. Only 34 inspections and repairs were completed pass due achieving a compliance rate of better than 99.99%. Almost half of the past due activities were a result of exceeding the 90-120 day remediation requirement for cathodic protection readings.

Clearly in 2008 excellent results were achieved in meeting the maintenance and inspection compliance schedule; however, we are concerned that PSE was unable to document performance in previous years.

**Status**:

As of December 2009 xEM has been fully implemented. The software module is designed to assist in the scheduling and tracking of all internal and State audit related compliance tasks. 34 end-users were trained and 93 compliance related activities are currently being tracked. A single report of those activities could be produced upon request. Gas Compliance and Regulatory audits will continue to maintain and refine the system to ensure overall organizational compliance.

**Conclusions:**

PSE has implemented xEM for tracking all compliance related programs and issues since the beginning of 2010. Per PSE[[111]](#footnote-111) the only outstanding compliance issue is the follow of the recommendations from the recently completed Jacobs Third Party Audit and the status of those recommendations. These last compliance issues are scheduled to be incorporated into the subject software program by the end of September 2010. A copy of a print out from the xEM system[[112]](#footnote-112) showed the tracking of compliance issues, including the recommendations of the Jacobs Audit was included. The report provides the following information: the name of the compliance issue; the category; the type of facility; the assignee; the owner (the manager responsible; the status; and the due date. PSE now must keep this tool up to date with changes to the organization and other requirements.

This recommendation is considered implemented, verified and closed.

[Appendix A](#_Appendix_A)

[Document Requests](#_Document_Requests)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DR Number** | **Request Date** | **Data Request** | **Response Due Date** | **Date Response Received** | **Comments** |
| 200 | 4/12/2010 | Please provide an electronic copy of the most recent organization chart of gas operations, compliance, contract management and other relevant groups to the Jacobs audit. The location of the individuals of each group also should be provided. | 5/3/2010 | 5/3/2010 | This is required to begin to formulate an interview schedule with the appropriate individuals. |
| 201 | 4/12/2010 | Please provide an electronic copy of the 2010 goals/metrics for the gas business unit and the results for the first quarter of 2010 with regard to safety and compliance. | 5/3/2010 | 5/5/2010 | Recommendation 4252 |
| 202 | 4/12/2010 | Please provide an electronic copy of the most recent operations metrics report showing how safety has its own category | 5/3/2010 | 5/3/2010 | Recommendation 4253 |
| 203 | 4/12/2010 | Please provide an electronic copy of the first quarter safety goal results | 5/3/2010 | 5/3/2010 | Recommendation 4433 |
| 204 | 4/12/2010 | Please provide an electronic copy of the 2010 PSE and SP meetings showing how billing and system safety process issues are resolved. | 5/3/2010 | 5/3/2010 | Recommendation 6422 |
| 205 | 4/12/2010 | Please provide an electronic copy of the total number of QA/QC inspections made on SPs and what percentage were made during construction or maintenance operations in the first quarter of 2010 | 5/3/2010 | 5/3/2010 | Recommendation 6345 |
| 206 | 4/12/2010 | Please provide an electronic description on how the QA/QC metrics have been changed (and provide examples) to focus more attention on system and public safety issues rather than deviations. | 5/3/2010 | 5/6/2010 | Recommendation 6346 |
| 207 | 4/12/2010 | Please provide a description on how the outsourcing incentive scheme works and the changes that were made between 2009 and 2010 to increase the focus on system and public safety. Please send all of the incentives in use for all SPs in 2010 | 5/3/2010 | 5/3/2010 | Recommendation 63412 |
| 208 | 4/12/2010 | Please provide an electronic copy of the number of audit items in the compliance metric for the first quarter of 2010 and how many were deficient.(See DR #2) | 5/3/2010 | 5/7/2010 | Recommendation 4252 |
| 209 | 4/12/2010 | Please confirm that the IT Steering Committee approved the purchase of LMS and any details on the system such when it will be anticipated to be used, populated with existing data, etc. | 5/3/2010 | 5/7/2010 | Recommendation 541 |
| 210 | 4/12/2010 | Please provide an electronic organization chart for each of the service providers and include the normal location for each individual | 5/3/2010 | 5/5/2010 | This is required to begin to formulate an interview schedule with the appropriate individuals. |
| 211 | 4/12/2010 | Please provide a listing of PSE and service provider locations along with their addresses and a telephone number. | 5/3/2010 | 5/3/2010 | This is required to begin to formulate an interview schedule with the appropriate individuals. |

The second set of Document Requests:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 212 | 8/10/2010 | Please provide copies of the percentage of QA/QC inspections made while construction activities were being performed in 2010, by month for YTD 2010 | 8/31/2010 | 9/1/2010 | Recommendation 6.3.4.5 |
| 213 | 8/10/2010 | Please provide a narrative on how PSE QA/QC inspectors are able to find SP crews in the field and the percentage of times they are unable to locate them without either call them or not inspecting them at all. | 8/31/2010 | 9/1/2010 | Recommendation 6.3.4.7 |
| 214 | 8/10/2010 | Please provide the status and rational for either making QC inspectors management employees at one SP or leaving them as bargaining unit employees. | 8/31/2010 | 9/2/2010 | Recommendation 6.3.4.8 |
| 215 | 8/10/2010 | Please provide copies of the targeted survey and the results regarding implementing additional system facing metrics. | 8/31/2010 | 8/16/2010 | Recommendation 6.3.4.11 |
| 216 | 8/10/2010 | Please provide a narrative on how the PSC - SP paperwork correction process has been streamlined to eliminate sending all corrections back to field thus speeding up the updating of maps | 8/31/2010 | 9/2/2010 | Recommendation 6.3.4.14 |
| 217 | 8/10/2010 | Please provide a justification on why a lead type metric tracking miss markouts was or was not accepted. | 8/31/2010 | 9/2/2010 | Recommendation 6.4.4.1 |
| 218 | 8/10/2010 | Please provide documentation showing that there is a contractual basis for a probationary period for markout contractors | 8/31/2010 | 9/1/2010 | Recommendation 6.4.4.2 |
| 219 | 8/10/2010 | Please provide a narrative on how PSE is performing quality control/quality assurance on markout contractors and the most recent results. | 8/31/2010 | 9/10/2010 | Recommendation 6.4.4.3 |
| 220 | 8/10/2010 | Please provide a narrative on how PSE is performing quality control/quality assurance on the leak survey contractor and the most recent results | 8/31/2010 | 9/7/2010 | Recommendation 6.5.4.2 |
| 221 | 8/10/2010 | Please provide an updated copy of the PSE QA/QC plan showing that quarterly leak and D-4 audits are now considered routine and not targeted audits | 8/31/2010 | 9/7/2010 | Recommendation 7.5.5.2 |
| 222 | 8/10/2010 | Please provide the latest QA audits performed on the locating service providers | 8/31/2010 | 9/10/2010 | Recommendation 7.6.7.1 |

The third set of Document Requests:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 223 | 8/12/2010 | Please provide a narrative on the steps taken to improve the communication between System Control and Protection, and System Maintenance Planning and the results of the organizational assessment to fully evaluate the benefits of both organizations reporting to the same SVP or Director. | 9/2/2010 | 9/3/2010 | Recommendation 8.2.8.1 |
| 224 | 8/12/2010 | Please provide documentation showing that System Control and Protection has the full 120 days to effect corrosion control corrective actions when adverse situations are encountered | 9/2/2010 | 8/16/2010 | Recommendation 8.2.8.2 |
| 225 | 8/12/2010 | Please provide the date that the System Performance Programs Annual Review was performed in 2010 and the anticipated scheduled date in 2011, if available. | 9/2/2010 | 8/16/2010 | Recommendation 8.3.5.1 |
| 226 | 8/12/2010 | Please provide documentation that PSE has changed/enhanced/improved the methodology it uses to for eliminating leaks. | 9/2/2010 | 9/8/2010 | Recommendation 8.3.5.2 |
| 227 | 8/12/2010 | Please provide the latest organizational and oversight changes to enhance the company's damage prevention program. | 9/2/2010 | 9/18/2010 | Recommendation 8.3.5.4 |
| 228 | 8/12/2010 | Please provide how PSE is performing root cause analysis on near miss situations for locating contractors. | 9/2/2010 | 9/18/2010 | Recommendation 8.3.5.5 |
| 229 | 8/12/2010 | Please provide a narrative on how PSE is using continuing surveillance data to improve system safety and anticipate system problems. | 9/2/2010 | 9/1/2010 | Recommendation 8.4.7.2 |
| 230 | 8/12/2010 | Please provide the name of the manager in charge of monitoring and coordinating all of the various components of the continuing surveillance program and their respective duties regarding this task. | 9/2/2010 | 8/16/2010 | Recommendation 8.2.8.1 & Recommendation 8.4.7.3 |
| 231 | 8/12/2010 | Please provide a copy of the 2010 Continuing Surveillance Report | 9/2/2010 | 8/16/2010 | Recommendation 8.4.7.5 |
| 232 | 8/12/2010 | Please provide a list of employees and SP employees that have received updated incident command training. | 9/2/2010 | 8/16/2010 | Recommendation 9.4.6.4 |
| 233 | 8/12/2010 | Please provide two or more recent compliance reports from the xEM database showing which compliance activities are being tracked, the number completed and the number either completed late or that need corrective action. Also provide a list of those compliance activities that still need to be migrated to the xEM database. | 9/2/2010 | 9/18/2010 | Recommendation 9.5.2.1 |

The fourth set of Document Requests:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 234 | 10/20/10 | Please provide the following leak history data: 1) the number of class A, B, and C leaks (as found) for years 2007, 2008, 2009, and through Sept 2010. | 11/10/10 | 11/3/10 | System Safety |
| 235 | 10/20/10 | Please provide the following leak history data: 1) the number of class A, B, and C leaks reclassified for years 2007, 2008, 2009, and through Sept 2010. | 11/10/10 | 11/3/10 | System Safety |
| 236 | 10/20/10 | Please provide the number of re-checks for leaks on Class B and C leaks for years 2007, 2008, 2009, and through Sept 2010. | 11/10/10 | 11/3/10 | System Safety |
| 237 | 10/20/10 | Please provide the number of phantom for years 2007, 2008, 2009, and through Sept 2010. | 11/10/10 | 11/3/10 | System Safety |
| 238 | 10/20/2010 | Please provide a listing of the leading gas system metrics that have been developed for inclusion in 2011, how they were developed, what they are intended to measure and why they will be included in the overall metrics. | 11/10/10 | 11/5/10 | Recommendation 4.4.3.2 |
| 239 | 10/20/10 | Please provide a narrative on how PSE will increase the awareness and public education of the QA&I group's field inspection to the general public. | 11/10/10 | 11/8/10 | Recommendation 6.3.4.9 |
| 240 | 10/20/10 | Please provide information on how PSE is going to assure that all field employees have the most current and up to date standards and what process PSE is going to use to audit that this is actually occurring. | 11/10/10 | 11/11/10 | Recommendation 7.2.4.1 |
| 241 | 10/20/10 | Please provide verification that PSE has added a records section for each standard that was deficient in having one (provide a list of each standard that was/will be updated to include such a section). | 11/10/10 | 11/10/10 | Recommendation 7.2.4.2 |
| 242 | 10/20/10 | Please provide an electronic copy of the recently completed Strategic Workforce Planning study to determine gaps in PSE's work force. | 11/10/10 | 11/10/10 | Recommendation 9.3.6.1 |
| 243 | 10/20/10 | Please provide a copy of the proposed updated Continuing Surveillance Standard 2575.2700 showing the role that the Manager of QA&I has in continuing surveillance. | 11/10/10 | 11/15/10 | Recommendation 9.4.6.1 |

The fifth set of Document Requests:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 244 | 12/13/10 | Please provide a copy of the year-end number of leaks by class for Years 2007 through 2010 | 1/10/11 | 1/10/11 | System Safety |
| 245 | 12/13/10 | Please provide a copy of the training given the QA&I inspectors on customer communications and listing of who attended and who did not. | 1/10/11 | 1/21/11 | Recommendation 6.3.4.9 |
| 246 | 12/13/10 | Please provide a copy of the latest organization chart showing the groups responsible for system integrity (DIMP) | 1/10/11 | 1/10/11 | Recommendation 8.2.8.1 |
| 247 | 12/13/10 | Please provide a copy of the year end numbers for 2010 for the safety metrics for both the gas business and PSE as whole. | 1/10/11 | 1/21/11 | Recommendation 4.2.5.3 |
| 248 | 12/13/10 | Please provide a copy of the year end numbers for 2010 for the metrics relating to compliance, self reporting and mitigations (the 97/100/100 goals) | 1/10/11 | 1/21/11 | Recommendation 4.2.5.2 |
| 249 | 12/13/10 | Please provide the number of miles of main and the number of services replaced (inserted, lined, etc.) in years 2007 through 2010. | 1/10/11 | 1/10/11 | System Safety |
| 250 | 12/13/10 | Please provide the number of new customers for 2006 to 2010 and the anticipated number of new customers for the next 5 years. | 1/10/11 | 1/12/11 | Recommendation 9.3.6.1 |
| 251 | 12/13/10 | Please provide the outcome of the QA/QC determination if emergency response issues should be part of the on going QA/QC program. | 1/10/11 | 1/21/11 | Recommendation 9.4.6.4 |
| 252 | 12/13/10 | Please provide confirmation that all of the tracking of compliance issues (such as compliance with the Third Party Audit recommendations) for 2011 are now contained in the xEM program and provide a recent example | 1/10/11 | 1/21/11 | Recommendation 9.5.2.1 |
| 253 | 12/13/10 | Please provide an electronic copy (either through emails or via a disk) of the 2011 Gas Operating Standards Manual, when available. | 1/10/11 | 1/10/11 | Recommendation 7.2.4.2 |
| 254 | 12/13/10 | Please provide the number of damages per 1000 locates for the years 2003 to date | 1/10/11 | 1/12/11 | Recommendation 6.3.4.11 |

The sixth set of Document Requests:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 255 | 1/21/2011 | Please provide a copy of the new 2011 corporate goal concerning gas system safety and how this new goal will demonstrate senior management’s commitment to gas system safety. | 2/11/2011 | 2/9/11 | Recommendation 4.2.5.1 |
| 256 | 1/21/2011 | Please provide an electronic copy of the year end Gas Operations goals and metrics and the proposed goals/metrics for 2011 | 2/11/2011 | 3/18/11 | Recommendation 4.2.5.3 |
| 257 | 1/21/2011 | Please provide electronic copies of all revised position descriptions (and highlight changes) to show the incorporation of gas safety and compliance responsibilities and accountability. | 2/11/2011 | 2/9/11 | Recommendation 4.2.5.4 |
| 258 | 1/21/2011 | Please provide a list of safety systems or process that have/will be benchmarked and the results of such studies. | 2/11/2011 | 2/9/11 | Recommendation 4.4.3.1 |
| 259 | 1/21/2011 | Please provide a list (and the rationale for selecting) of training systems or process that will be benchmarked. | 2/11/2011 | 2/9/11 | Recommendation 5.4.2 |
| 260 | 1/21/2011 | Please provide a list of the new contract metrics that have been develop to measure compliance with PSE procedures during the observation of the work being performed. | 2/11/2011 | 2/11/11 | Recommendation 6.3.4.4 |
| 261 | 1/21/2011 | Please provide an electronic copy of the training program being provided to contract management personnel concerning gas system safety and the decisions that can impact it. | 2/11/2011 | 2/9/11 | Recommendation 6.3.4.10 |
| 262 | 1/21/2011 | Please provide an update on how well PSE is implementing the AGA best practice on updating drawings in 60 days. | 2/11/2011 | 2/9/11 | Recommendation 6.3.4.13 |
| 263 | 1/21/2011 | Please provide an update on the paperwork reduction study and any conclusions implemented. | 2/11/2011 | 2/11/11 | Recommendation 6.3.4.15 |
| 264 | 1/21/2011 | Please confirm that PSE has implemented a consistent method of collecting map errors and how that has improved mapping accuracy. | 2/11/2011 | 2/9/11 | Recommendation 6.5.4.1 |
| 265 | 1/21/2011 | Please provide a narrative on how PSE has increased the awareness of the map revision request form for both company and SP employees. | 2/11/2011 | 2/9/11 | Recommendation 7.4.4.2 |
| 266 | 1/21/2011 | Please provide documentation that PSE has adopted the Common Ground Alliances Best Practices with regard to locator accuracy and timeliness and has incorporated them into the locator contracts. | 2/11/2011 | 2/9/11 | Recommendation 8.3.5.6 |
| 267 | 1/21/2011 | Please provide a narrative showing that PSE has vehicle recordkeeping showing breakdowns and vehicle availability and has used these records to purchasing new vehicles | 2/11/2011 | 2/9/11 | Recommendation 9.3.6.2 |
| 268 | 1/21/2011 | Please provide a narrative showing that PSE has vehicle recordkeeping showing breakdowns and crews double ups to justify additional spare vehicles at locations. | 2/11/2011 | 2/9/11 | Recommendation 9.3.6.3 |
| 269 | 1/21/2011 | Please provide copies of 2005 to 2009 PHMSA year end reports. | 2/11/2011 | 2/9/11 | Continuing Surveillance |
| 270 | 1/21/2011 | Please provide a copy of the 2010 PHMSA year end report when available. | 2/11/2011 | 3/16/11 for Dist. | Continuing Surveillance |
| 271 | 1/21/2011 | Please provide an explanation on why system growth was not taken into account in the recently completed Strategic Workforce Planning study. | 2/11/2011 | 2/9/11 | Recommendation 9.3.6.1 |
| 272 | 1/21/2011 | Please provide an estimate of the 'near misses' per 1000 locates for years 2003 to 2010 (a near miss would be a dig in that does NOT result in any damages), | 2/11/2011 | 2/9/11 | Recommendation 6.3.4.11 |
| 273 | 1/21/2011 | Please provide an electronic copy of the most recent job description and responsibilities for the Manager of Quality Assurance and Inspection. | 2/11/2011 | 2/9/11 | Recommendation 9.4.6.1 |

The seventh set of Document Requests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 274 | 2/18/2011 | Please provide a narrative and any background information on how PSE is improving and consolidating the system condition reporting programs (Blue Cards) for both PSE and SP employees. Background information should include where possible actual statistics and the outcomes of accepted condition reports plus any feedback, general information and methods of promoting and enhancing the program. | 3/11/2011 | 3/11/11 | Recommendation 8.2.8.3 |
| 275 | 2/18/2011 | Please provide an update on how the PSE investigation of implementing a GIS system is progressing. Please include any interim reports and other information that shows progress has/is being made. Also provide an updated schedule on the potential funding, purchase or development, and activation of a GIS system. | 3/11/2011 | 3/11/11 | Recommendation 7.4.4.3 |
| 276 | 2/18/2011 | Please provide a list of the new metrics that PSE has implemented in 2011 (see DR 238) that are leading and allow for root cause analysis. Also provide which organization is tracking these goals, how/where they are being reported, and how often the report is issued. | 3/11/2011 | 3/11/11 | Recommendation 4.4.3.2 |
| 277 | 2/18/2011 | Please provide a copy of the safety goals for the gas operating unit for 2011 and describe how the goals have changed based on the positive experience of 2010. | 3/11/2011 | 3/18/11 | Recommendation 4.4.3.3 |
| 278 | 2/18/2011 | Please provide the full year 2010 percentage of QA/QC inspections occurring when crews were performing the work for both routine work and high pressure work in 2010. | 3/11/2011 | 3/11/11 | Recommendation 6.3.4.5 |
| 279 | 2/18/2011 | Please provide a list of the contractor management personnel who have undergone the compliance training program per Recommendation 6.3.4.10 | 3/11/2011 | 3/11/11 | Recommendation 6.3.4.10 |

The eighth set of Document Requests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 280 | 3/22/2011 | Please provide a narrative and any background information on how PSE is establishing a common uniform system to assess and assure training programs can be evaluated and measured in an objective and consistent manner (applies to both PSE and Service Providers). | 4/12/2011 | 4/15/11 | Recommendation 5.4.3 |
| 281 | 3/22/2011 | How has PSE redirected the Service Provider model to ensure that Outsourcing Activities reflect sufficient communication, logistics, and oversight that will result in fulfillment of PSE’s responsibilities for System Safety? | 4/12/2011 | 4/15/11 | Recommendation 6.2.4.1 |
| 282 | 3/22/2011 | Please provide a comparison of QC/QA checklists from 2009 to those of 2011 (pre Jacobs Audit to post audit recommendation implementation). | 4/12/2011 | 4/11/11 | Recommendation 6.3.4.6 |
| 283 | 3/22/2011 | Please provide a narrative on whether the construction and maintenance service providers still are doing self locates to check on the locator service provider. | 4/12/2011 | 4/15/11 | Recommendation 6.4.4.1 |
| 284 | 3/22/2011 | Please provide documentation that the locate service providers are both performing consistently and that there is improvement with both the accuracy and timeliness of their work. | 4/12/2011 | 4/15/11 | Recommendation 6.4.4.3 |
| 285 | 3/22/2011 | Please provide an update on effectiveness of the QC/QA program of the leak survey service provider. | 4/12/2011 | 4/11/11 | Recommendation 6.5.4.2 |
| 286 | 3/22/2011 | Please provide an update on how the project to move compliance maintenance programs managed in Access to SAP is progressing. | 4/12/2011 | 4/11/11 | Recommendation 7.4.4.1 |
| 287 | 3/22/2011 | Please provide the recommendations and timetable for implementation of the improvements to the system condition reporting programs for both PSE and SP employees. | 4/12/2011 | 4/11/11 | Recommendation 8.2.8.3 |
| 288 | 3/22/2011 | Please provide a copy of the first line supervisor time management study and what recommendations are being implemented | 4/12/2011 | 4/11/11 | Recommendation 9.4.6.3 |

The ninth set of Document Requests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 289 | 5/06/2011 | Please provide an update on how the conversion of existing records into the LMS (Learning Management System) is progressing. | 5/27/2011 | 5/17/11 | Recommendation 5.4.1 |
| 290 | 5/06/2011 | Please provide an update on how PSE has updated the language in service provider contracts to reflect that PSE has responsibility for system safety. | 5/27/2011 | 5/25/11 | Recommendation 6.2.4.2 |
| 291 | 5/06/2011 | Please provide an update on how PSE has updated the language in service provider contracts to reflect that PSE has responsibility and liability for the gas system under the Washington Administrative Code (WAC). | 5/27/2011 | 5/25/11 | Recommendation 6.3.4.1 |
| 292 | 5/06/2011 | Please verify that updated standards and procedures books and/or electronic copies have been distributed to both company and service provider employees. A method of verification is to list the number of copies of each distributed and how many to company and service provider employees (not each employee but by class of employee and employer). | 5/27/2011 | 5/17/11 | Recommendation 7.2.4.1 |
| 293 | 5/06/2011 | Please verify that updated standards and procedures books and/or electronic copies have been distributed to both company and service provider employees. A method of verification is to list the number of copies of each distributed and how many to company and service provider employees (not each employee but by class of employee and employer). | 5/27/2011 | 5/17/11 | Recommendation 7.2.4.2 |
| 294 | 5/06/2011 | Please provide any documentation that shows that QA/QC has reviewed and provided feedback on any emergency response activities. | 5/27/2011 | 5/17/11 | Recommendation 9.4.6.4 |

The tenth set of Document Requests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 295 | 5/27/2011 | Please provide a copy of the recently signed service provider contract (InfraSource) relevant sections so that the following can be verified: 1) PSE clearly defines the relationship between the service provider and PSE; 2) PSE provides sufficient guidance with process flow diagrams and descriptions so that contract management personnel can easily determine roles and responsibilities in enforcing the provisions of the contract. | 6/17/2011 | 6/14/11 | Recommendation 6.2.4.3 and Recommendation 6.3.4.2 |
| 296 | 5/27/2011 | Please provide the number of inspections performed and the number of discrepancies found by QA&I on field crews (both SP and PSE) having the most up to date standards and procedure at work locations. | 6/17/2011 | 6/14/11 | Recommendation 7.2.4.1 |
| 297 | 5/27/2011 | Please the latest QA&I audits performed on the locate service providers (additional to DR #222) | 6/17/2011 | 6/14/11 | Recommendation 7.6.7.1 |

The eleventh set of Document Requests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 298 | 8/31/2011 | Please provide the training records of 4 employees chosen at random (the names can be blanked out). Two of the four should be union/field workers (one a fitter and the other a gas service technician or first responder) and two management employees (one a gas service supervisor and the other a member of QA&I). If possible the records should be for the last 10 years and should show when refresher training is scheduled for covered tasks and other mandated training | 9/21/2011 | 9/21/11 | Recommendation 5.4.1 |
| 299 | 8/31/2011 | Please provide computer screen shots of the SAP computer display (which replaced Access) for the following regulatory and inspections programs: Hard to Reach Location, H2RL, Locate and Operate Service Valves and Pipeline Markers plus any other inspections made on the gas system being scheduled and tracked via SAP. | 9/21/2011 | 9/21/11 | Recommendation 7.4.4.1 |
| 300 | 8/31/2011 | Please provide an update on the status of the GIS program for gas. | 9/21/2011 | 9/21/11 | Recommendation 7.4.4.3 |
| 301 | 8/31/2011 | Please provide an update on what the new structure of the gas compliance group is and what programs they are responsible for, and under what organization they report. Also provide electronic versions of organization charts showing where this organization reports and who reports to it. | 9/21/2011 | 9/21/11 | Recommendation 8.3.5.4 |
| 302 | 8/31/2011 | Please provide an electronic copy of an audit performed by the QA&I group on a recent gas incident. | 9/21/2011 | 9/21/11 | Recommendation 9.4.6.4 |

The twelfth set of Document Requests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 303 | 11/21/11 | Please provide a copy of the leading indicator that PSE has selected for cathodic protection and a narrative on how it will be measured, the usefulness of the information and who is responsible for tracking the data and implementing any changes that are necessary | 12/12/2011 | 12/21/11 | Recommendation 4.4.3.2 |
| 304 | 11/21/11 | Please provide a copy of 11 months (January through November 2011) of the following metrics: number of 3rd party damages per 1000 markout requests; number of near misses per month; number of new leaks per mile of main surveyed; number of active leaks per mile of main; percent of low CP readings per number of annual CP readings. | 12/12/2011 | 12/16/11 | Recommendation 6.3.4.11 |
| 305 | 11/21/11 | Please provide a narrative on how the blue card and other enhancements are handling substandard conditions with regard to atmospheric corrosion. In addition please provide the year to date (January through November 2011) statistics on the number of blue cards submitted, the percentage accepted, and the percentage of issue/substandard conditions resolved. | 12/12/2011 | 12/16/11 | Recommendation 8.2.8.3 |
| 306 | 11/21/11 | Please provide any additional comments besides those in DR #305 regarding how improvements in substandard reporting are being used in the annual Continuing Surveillance Report | 12/12/2011 | 12/16/11 | Recommendation 8.4.7.4 |

## [Interview Requests](#_Interview_Requests)

The first set of Interview Requests:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IR Number** | **Date of Request** | **Interview Topics** | **Anticipated Length** | **Interviewee(s)** | **Requested Date(s) for Interview** | **Scheduled Date/Time/Place** |
| 200 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | S McLain | 9/21/10 in Bellevue | 9/21/2010 at 1 PM |
| 201 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | H Shapiro\* | 9/21/10 in Bellevue | 10/13/2010 at 10 AM |
| 202 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | M Hobbs\* | 9/21/10 in Bellevue | 9/21/2010 at 10 AM |
| 203 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | W Gould\* | 9/21/10 in Bellevue | 9/22/2010 at 4 PM |
| 204 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | S Keaton\* | 9/21/10 in Bellevue | 10/13/2010 at 8 AM |
| 205 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | H Ferchert\* | 9/21/10 in Bellevue | 9/21/2010 at 8 AM |
| 206 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | C McGrath\* | 9/21/10 in Bellevue | 9/21/2010 at 2 PM |
| 207 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | D Henderson\* | 9/21/10 in Bellevue | 10/11/2010 at 10 AM |
| 208 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | R Sheetz | 9/21/10 in Bellevue | 9/21/2010 at 9 AM |
| 209 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | S Lippert | 9/21/10 in Bellevue | 9/21/2010 at 11 AM |
| 210 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | D Moffett | 9/21/10 in Bellevue | 9/23/2010 7:30 AM in Tacoma |
| 211 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | D Lagerquist | 9/21/10 in Bellevue | 9/21/201 at 3 PM |
| 212 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | C Wallace\* | 9/21/10 in Bellevue | 10/11/2010 at 8 AM |
| 213 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | PSE Field Supervisor | 9/22/10 in Tacoma or Kent | 9/22/2010 in Georgetown |
| 214 | 8/10/2010 | Safety Culture & Changes since Audit | Rest of Day | PSE Field Crews | 9/22/10 in Tacoma or Kent | 9/22/2010 in N/S Seattle Area |
| 215 | 8/10/2010 | Safety Culture & Changes since Audit | 45 | Pilchuck Field Supervisor | 9/23/10 in Kent or Lakewood | 9/23/2010 in Tacoma |
| 216 | 8/10/2010 | Safety Culture & Changes since Audit | Rest of Day | Pilchuck Field Crews | 9/23/10 in Kent or Lakewood | 9/23/2010 in Tacoma Area |

The second set of Interview Requests:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 217 | 10/20/2010 | System Maintenance | 45 | Paul Riley | 11/9/10 at 10 AM PT | 11/9/10 at 10 AM PT |
| 218 | 10/20/2010 | SP Model | 45 | B. Nelson Pilchuck | 11/9/10 at 11 AM PT | 11/9/10 at 11 AM PT |
| 219 | 10/20/2010 | SP Model | 45 | Bob Stafford Contract Manager for Pilchuck | 11/8/10 at 8 AM PT | 11/8/10 at 8 AM PT |
| 220 | 10/20/2010 | Compliance | 45 | Antoinette Imad Compliance Engineer | 11/8/10 at 10 AM PT | 11/8/10 at 10 AM PT |
| 221 | 10/20/2010 | QA&I | 45 | Jerry Halsen, QA&I Supervisor | 11/10/10 at 7 AM PT | 11/10/10 at 7 AM PT |

The third set of Interview Requests:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 222 | 12/13/2010 | Compliance | 45 | Cathy Koch | TBA by telephone after 1/1/11 | 1/19/11 at 8:30 AM PT |
| 223 | 1/4/2011 | Continuing Surveillance Standard | 45 | Duane Henderson and Team | TBA by telephone in January | 1/20/11 at 10 AM PT |

The fourth Set of Interview Requests:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 224 | 3/21/2011 | Quality Control | 30 to 45 minutes | Carl Baggenstos, Keith Miller, Jerry Halsen | During W/S March 28 | 3/28/11 at 7:30 AM PT via Telephone |
| 225 | 3/21/2011 | Continuing Surveillance, Mains and Service Replacements | 30 to 45 minutes | Randy Busch, Stephanie Kreshel | During W/S March 28 | 3/28/11 at 8:30 AM PT via Telephone |

The fifth Set of Interview Requests:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 226 | 6/20/2011 | Quality Control of Locating SP | All Day | PSE QA Inspector | During W/S July 18 | 7/19/11 |
| 227 | 6/20/2011 | Site visits with InfraSource | All Day | SP Supervisor | During W/S July 18 | 7/20/11 |
| 228 | 6/20/2011 | Review Open Recommendations | 1 Hour | Duane Henderson | During W/S July 18 | 7/21/11 at 11 AM |
| 229 | 6/20/2011 | Review SP Contract | 1 Hour | Peter Schwartz | During W/S July 18 | 7/21/11 at 9 AM |
| 230 | 6/20/2011 | Review Leak Reporting | 1 Hour | Stephanie Kreshel | During W/S July 18 | 7/21/11 at 8 AM |
| 231 | 6/20/2011 | Review Training Program Benchmarking | 1 to 2 Hours | Joe MacDuff | During W/S July 18 | 7/21/11 at 10 AM |

1. See IR #200 through IR #216 for the specific interviews and notes. [↑](#footnote-ref-1)
2. Interview Requests 200 to 221 [↑](#footnote-ref-2)
3. See response to DR #234 to #237 [↑](#footnote-ref-3)
4. See Document Request #84 [↑](#footnote-ref-4)
5. See response to DR #255 [↑](#footnote-ref-5)
6. See response to DR #201 and #208 [↑](#footnote-ref-6)
7. See response to DR #247 and DR #248 [↑](#footnote-ref-7)
8. See response to DR #202 and DR #247 [↑](#footnote-ref-8)
9. See response to DR #257 [↑](#footnote-ref-9)
10. See response to DR #258 [↑](#footnote-ref-10)
11. See IR #228 [↑](#footnote-ref-11)
12. See response to DR #238 and DR #276 [↑](#footnote-ref-12)
13. See IR #228 [↑](#footnote-ref-13)
14. See response to DR #203 [↑](#footnote-ref-14)
15. See response to DR #256 and DR #277 [↑](#footnote-ref-15)
16. Per response to DR #256 PSE has separate safety statistics for office and field personnel, field statistics are presented here [↑](#footnote-ref-16)
17. See response to DR #277 [↑](#footnote-ref-17)
18. See response to DR #209 for confirmation of IT Steering Committee approval of LMS [↑](#footnote-ref-18)
19. See response to DR #289 [↑](#footnote-ref-19)
20. See IR #231 [↑](#footnote-ref-20)
21. See response to DR #298 [↑](#footnote-ref-21)
22. On line training is only available to PSE employees but not to service provider employees being trained by the PSE-UA Training Trust [↑](#footnote-ref-22)
23. See response to DR #259 [↑](#footnote-ref-23)
24. See IR #231 [↑](#footnote-ref-24)
25. See response to DR #280 [↑](#footnote-ref-25)
26. See response to DR #281 [↑](#footnote-ref-26)
27. See response to DR #290 [↑](#footnote-ref-27)
28. See response to DR #295 [↑](#footnote-ref-28)
29. See response to DR #204 [↑](#footnote-ref-29)
30. See response to DR # 291 (and DR #290) [↑](#footnote-ref-30)
31. See IR #228 and IR #229 [↑](#footnote-ref-31)
32. See response to DR #295 [↑](#footnote-ref-32)
33. See response to DR #260 [↑](#footnote-ref-33)
34. See response to DR #205 [↑](#footnote-ref-34)
35. See response to DR #212 [↑](#footnote-ref-35)
36. See response to DR #278 [↑](#footnote-ref-36)
37. See response to DR #206 [↑](#footnote-ref-37)
38. See response to DR #282 [↑](#footnote-ref-38)
39. See responses to DR #212 and #213 [↑](#footnote-ref-39)
40. See response to DR #214 [↑](#footnote-ref-40)
41. See response to DR #247 [↑](#footnote-ref-41)
42. See response to DR #239 [↑](#footnote-ref-42)
43. See response to DR #245 [↑](#footnote-ref-43)
44. See response to DR #261 and DR #279 [↑](#footnote-ref-44)
45. See response to DR #215 [↑](#footnote-ref-45)
46. See response to DR #272 [↑](#footnote-ref-46)
47. See response to DR #304 [↑](#footnote-ref-47)
48. See response to DR #207 [↑](#footnote-ref-48)
49. PSE telephone conversation, September 30, 2009. [↑](#footnote-ref-49)
50. See response to DR #192 [↑](#footnote-ref-50)
51. See response to DR #262 [↑](#footnote-ref-51)
52. See response to DR #216 and DR #262 [↑](#footnote-ref-52)
53. See response to DR #263 [↑](#footnote-ref-53)
54. See responses to DR # 217 and DR #228 [↑](#footnote-ref-54)
55. See response to DR #228 [↑](#footnote-ref-55)
56. Conversations with Pilchuck construction crews on September 23, 2010 in IR #216 [↑](#footnote-ref-56)
57. See response to DR #283 [↑](#footnote-ref-57)
58. See response to DR #218 and Amendment to Section 14 of locating contracts [↑](#footnote-ref-58)
59. See response to DR #219 [↑](#footnote-ref-59)
60. See response to DR #284 [↑](#footnote-ref-60)
61. See response to DR #264 [↑](#footnote-ref-61)
62. See response to DR #220 [↑](#footnote-ref-62)
63. See response to DR #285 [↑](#footnote-ref-63)
64. See response to DR #240 and DR # 292 [↑](#footnote-ref-64)
65. See IR #226 [↑](#footnote-ref-65)
66. See response to DR #241 [↑](#footnote-ref-66)
67. See response to DR #293 (and DR #292) [↑](#footnote-ref-67)
68. See response to DR #286 [↑](#footnote-ref-68)
69. See Response to DR #299 [↑](#footnote-ref-69)
70. See response to DR #265 [↑](#footnote-ref-70)
71. See response to DR #275 [↑](#footnote-ref-71)
72. See response to DR #300 [↑](#footnote-ref-72)
73. See response to DR #221 [↑](#footnote-ref-73)
74. See response to DR #222 [↑](#footnote-ref-74)
75. See IR #226 [↑](#footnote-ref-75)
76. See response to DR #297 [↑](#footnote-ref-76)
77. See response to DR #223 and DR #230 [↑](#footnote-ref-77)
78. See response to DR #246 [↑](#footnote-ref-78)
79. See response to DR #224 [↑](#footnote-ref-79)
80. See response to DR #287 [↑](#footnote-ref-80)
81. See response to DR #305 [↑](#footnote-ref-81)
82. See responses to DR #225 and 231 [↑](#footnote-ref-82)
83. See response to DR #226 [↑](#footnote-ref-83)
84. See IR #230 [↑](#footnote-ref-84)
85. See responses to DR #227 and July 2010 Damage Prevention Program metrics [↑](#footnote-ref-85)
86. See response to DR #301 [↑](#footnote-ref-86)
87. http://www.commongroundalliance.com/Content/NavigationMenu/Best\_Practices/Best\_Practices\_2008/Best\_Practices\_Version\_5\_0.htm [↑](#footnote-ref-87)
88. See response to DR #228 [↑](#footnote-ref-88)
89. See IR #216 [↑](#footnote-ref-89)
90. See response to DR #266 (which contains a full listing of each best practice and discussion how PSE is using it) [↑](#footnote-ref-90)
91. See response to DR #229 [↑](#footnote-ref-91)
92. See responses to DR #225 and DR #231 [↑](#footnote-ref-92)
93. See responses to DR #230 and IR #207 [↑](#footnote-ref-93)
94. See IR #51 [↑](#footnote-ref-94)
95. PSE Comments dated May 9, 2009 on Draft Report [↑](#footnote-ref-95)
96. See response to DR #306 [↑](#footnote-ref-96)
97. See response to DR #231 [↑](#footnote-ref-97)
98. See response to DR #84 [↑](#footnote-ref-98)
99. See response to DR #242 [↑](#footnote-ref-99)
100. See response to DR #250 [↑](#footnote-ref-100)
101. See response to DR #250 [↑](#footnote-ref-101)
102. See response to DR #267 [↑](#footnote-ref-102)
103. See responses to DR # 267 and DR #268 [↑](#footnote-ref-103)
104. See response DR #243 [↑](#footnote-ref-104)
105. See IR #228 [↑](#footnote-ref-105)
106. See response to DR #288 [↑](#footnote-ref-106)
107. See IR #200 to #216 [↑](#footnote-ref-107)
108. See response to DR #251 [↑](#footnote-ref-108)
109. See response to DR #294 [↑](#footnote-ref-109)
110. See response to DR #302 [↑](#footnote-ref-110)
111. See response to DR #233 [↑](#footnote-ref-111)
112. See response to DR #252 [↑](#footnote-ref-112)