JACOBS CONSULTANCY

Puget Sound Energy
Gas Safety Audit Report

Prepared For
Puget Sound Energy

November 20, 2009

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For Jacobs Consultancy

Frank DiPalma
Director, Utilities Practice

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1.0 Executive Summary

1.1 Background

Puget Sound Energy (PSE, “Company”, or “Utility”) and the Washington Utilities and Transportation Commission (UTC, “Commission” or “Staff”) mutually agreed to retain Jacobs Consultancy Inc. (Jacobs Consultancy or Jacobs) to conduct an audit of PSE's mandated gas safety program. The need for the third-party audit results from a cooperative effort on the part of the UTC and PSE to have an authoritative assessment of PSE’s mandated gas safety activities as well as viable key recommendations for PSE to implement. The settlement agreement that resulted in this audit resulted from a 2008 enforcement action resulting from Pilchuck falsifying leak records.

UTC’s enforcement history with PSE consists of numerous settlement agreements and penalties. Each of these settlements came about because UTC staff documented multiple instances of safety rule violations, which had been previously, acknowledged but despite PSE's commitment, the company was unable to correct. The Company's commitment has resulted in numerous compliance programs.

Since September 7, 2007, PSE and UTC have been collaborating to address improvements to work processes, quality of service and system performance for aspects of PSE’s operations, including gas operations and service provider (SP) oversight. By working together on this audit, PSE and staff hoped to forge a more effective working relationship highlighted by joint problem solving, information sharing and mutual respect.

PSE is Washington State’s largest and oldest energy utility with approximately 2600 employees serving more than one million electric customers and nearly three quarters of a million natural gas customers. PSE's natural gas system contains nearly 12,000 miles of main and over 790,000 services.

1.2 Objective and Scope

The objective of the independent third-party audit is to conduct an assessment of PSE's mandated gas safety activities. As a result of the audit, PSE and UTC will be provided with an authoritative assessment of PSE's gas safety compliance program as well as a series of recommendations for PSE to consider implementing.

The audit evaluation is to include PSE's gas operations and those of its service providers. The evaluation will take into account current industry practices and standards and Jacobs Consultancy's experience for process improvements opportunities based on its knowledge of other effective and efficient industry practices.

In addition, a series of field observations of PSE's service providers and employees performing a large variety of work is to be conducted. The types of work to be observed will vary from new and replacement construction to various operations, inspections and maintenance activities performed on the distribution gas system. These observations reflect both PSE and its SP's attitude towards maintaining a safe and compliant culture, demonstrate the effectiveness of standards, procedures and Operator Qualification (OQ) training, provide a perspective on how negotiated contracts are interpreted and complied with, reveal how field records are originated, and provide an insight as to the adequacy of gas safety compliance program resources

The study is broken down into two phases. Phase 1 consists of six tasks, while Phase 2 consists of a single task.

Phase 1– Audit of Mandated Safety Programs and Activities

Task A – Safety and Compliance

The objective of this task was to conduct a review of PSE's programs, structures and incentives to maintain a "Culture of Safety and Compliance." This effort focused on the organization's approach to the safety of the gas system - as well as its culture and philosophy toward individual worker and its interactions with the general public.

Task B – Training

The objective of this task was to conduct a review of PSE's training programs. This effort focused on the organization's approach toward training as related to safety and compliance.

Task C – Contracts

The objective of this task was to review service provider contracts entered into by PSE to determine how PSE's outsourcing philosophy, contract awards, the contract terms and the behaviors generated by the contract terms impact on PSE's mandated gas safety programs and obligations.

Task D – Compliance Auditing

The objective of this task was to conduct a review of PSE's methods for tracking and documenting work for compliance auditing by both PSE and the UTC.

Task E – Continuing Surveillance

PSE and the UTC prescribed this section of the safety audit to review whether PSE's practices related to continuing surveillance are effective and result in the Company taking the appropriate action when needed. This effort focused on the organization's actual approach toward continuing surveillance by reviewing PSE's processes for periodic examination of records and visual examination of facilities through construction, operations, and maintenance activities, as well as its supporting culture and philosophy.

Task F – Sufficiency of Resources

This task's objective was to conduct a review of the sufficiency of resources Puget Sound Energy (PSE) provides for its gas safety compliance program. The review entails two distinct activities. The first activity is to explore the adequacy of the resources PSE devotes to its mandated safety programs. The second activity is to assess how effectively PSE monitors its mandated safety programs for compliance.

Phase 2 – Post Implementation Evaluation and Assessment

Task G – Return Evaluation

At the conclusion of the study and implementation period, Jacobs Consultancy will return to evaluate the effectiveness and completeness of the implementation of its recommendations. This evaluation will be shared with the Commission.

1.3 Approach

The general approach methodology used in reviewing and evaluating PSE's approach to Phase 1, Tasks A, B, C, D, E, and F, specifically with respect to PSE's gas safety compliance program, involved acquiring information from PSE through interviewing employees and service provider personnel, reviewing document responses regarding resource adequacy and observing field personnel in the performance of completing mandated safety activities and programs. Our approach was then divided into subtasks as described below:

- **Data Collection—**we collected data emanating from the initial response to data requests provided by the Utility, from our research and from matters arising in the course of interviews. This information was input into our Web-based document control facility (eRoom).
- **Initial Analysis/Cleaning—**in this subtask, we performed our initial analysis on the data provided by PSE and SPs. We identified any gaps or inconsistencies in the data and identified missing or questionable data. We made appropriate corrections, based on clarifications from PSE, to the data to provide as consistent

a data set as possible.

- **Additional Data Requests—**based on our Initial Analysis/Cleaning, we formulated additional requests for specific data, data explanations and other information deemed necessary for consistent data. In total 193 documents were requested and received.
- **Data Analysis and Cleaning—**in this subtask, we incorporated the additional data received and continued data cleaning efforts to assure consistent and meaningful information to support further analysis.
- **Conducted Further Interviews—**as a result of the additional data collected, and from earlier interviews conducted, further interviews were done to enable more detailed and specific questioning. In total over 100 individuals were interviewed in 76 interviews.
- **Observations—**numerous field observations were conducted both of PSE and service provider personnel; in addition, direct observations were supplemented with informal discussions as well attendance at meetings and work sessions to directly observe discussions and information exchange.

1.4 Conclusions

4.1.1 RFP Areas of Investigation

The original RFP, dated May 8, 2008 required that the consultant evaluate PSE's gas operations and those of its service providers against current industry practices and standards and make recommendations on opportunities for process improvements or changes, including recommendations based on practices of other utilities. Specifically, the consultant was instructed to determine answers to six specific areas of investigation. The following is a summary of Jacobs' opinion regarding these research areas. For a detailed report, please refer to the Conclusion Sections for each research area.

Research Question A:

PSE has programs, structures and incentives (implicit and explicit) in-place to maintain a "Culture of Safety and Compliance" for PSE and its contractors and the extent to which PSE is responsive to employees or contractor employees bringing safety issues to management.

Jacobs Opinion:

PSE does have 25 gas safety compliance programs, numerous organization structures and supporting staff, as well as employee incentives in place. However, not all compliance programs are as effective as they should be and communications between the various organizations are not as effective as they need to be. Management employee incentives are reflected in gas safety compliance reporting metrics, however service provider's incentives related to gas safety compliance need to be developed.

Research Question B:

The training PSE provides to or requires of its employees and contractor personnel for compliance with its standards and procedures is appropriate and effective

Jacobs Opinion:

Training at PSE is decentralized with subject matter experts from various disciplines developing and conducting quality instruction. PSE's service providers each have training programs in place that involve OQ and Non-OQ training. Although training is effective, it can be improved through centralized administration, benchmarking and standardized assessments.

Research Question C:

PSE's contracts with its contractors are structured to ensure that gas facilities are installed, repaired or replaced properly, safely and cost-effectively.

Jacobs Opinion:

The contracts are structured around the traditional contractor activities enhanced by the addition of front-end and back-end processes resulting in extensive outsourcing. Although field observations generally confirm that gas facilities are installed, repaired or replaced properly, many of the back-end processes contribute to additional complexities in managing the overall workforce.

Research Question D:

The methods that PSE employs to track and document work allow for auditing of such work for compliance by both PSE and the UTC.

Jacobs Opinion:

The data connected with the various compliance programs can be electronic or paper-driven and the data stored in Access or SAP databases. 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 various methods and systems used to manage data make it difficult to properly manage gas assets for compliance.

Research Question E:

PSE's practices related to 49 CFR 192.613 (Continued Surveillance) are effective and result in the company taking the appropriate action when needed.

Jacobs Opinion:

PSE's system safety, from a number of incidents per mile of main perspective, compares well when compared to other similar utilities. However, communication problems within the company make achieving system safety and compliance more difficult and contribute to a disjointed approach to continuing surveillance.

Research Question F:

PSE has provided sufficient resources to its gas safety compliance program to adequately and effectively monitor its mandated safety activities and programs for compliance, whether those programs are implemented by PSE employees or contractor employees.

Jacobs Opinion:

PSE's capital and O&M expenditures are consistent with a utility's obligation to balance maintaining a safe gas distribution system in a cost-effective manner and in 2008 PSE was able to achieve the maintenance and inspection compliance schedule. However, PSE was unable to document schedule compliance performance in previous years; and the responsibility for obtaining the needed gas compliance outcomes was not well communicated.

4.1.2 Recurring Concerns

In investigating the above research areas, several concerns regarding PSE's safety compliance emerged. These concerns are supported by the analysis and conclusions contained in the various sections of this audit report. In total there are five primary recurring areas of concern. To fully address PSE's opportunities to improve on its gas compliance, we have aligned our 71 recommendations with the respective area of concern. Recommendations emerging from the conclusions for each section may overlap with recommendations from other sections. While reinforcement of a

recommendation based on a different perspective is gratifying, there are only 61 distinct Recommendations.

1. **The management style with regard to gas safety compliance is more reactive than proactive. Although the Company participates in industry best practices forums, we do not see those best practices initiated in the workplace.**

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.

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.

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.

6.3.4.13 PSE should strive to meet the AGA 60-day average reported in the best practices study. 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.

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.

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.

9.3.6.1 PSE should expedite the development of a Strategic Workforce Planning Study to define the workforce required to implement company business strategies and identify actions needed to meet those requirements. The analysis should reveal gaps between the workforce needed and the

workforce supply forecasted to be available and identify critical positions as well as certain key employees.

2. Extensive outsourcing contributes to additional complexities to managing the overall workforce. Procedures with regard to gas safety compliance do not clearly demonstrate that the Company is ultimately responsible for the actions of its service providers.

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.

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.

6.2.4.2 Update the outsourcing contract by clearly describing that PSE takes direct responsibility for matters involving system safety.

6.2.4.3 Update the outsourcing contract by defining the relationship PSE intends to have and maintain with the service provider.

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.

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.

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

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 procedure inspections are not completed.

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 improve the overall integrity of the QC process.

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.

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.

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.

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.

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.

6.4.4.2 Create a contractual basis for the locating SP probation concept and establish objective rules as to its application.

6.4.4.3 Establish and continue a QA program to audit the locators' QC programs.

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.

6.5.4.2 PSE should establish a continuing program to QA audit the leak survey QC programs.

7.3.4.1 Review construction service provider foreman-generated paperwork for streamlining opportunities and implement recommendations.

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.

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.

7.6.7.1 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.

3. The various methods and systems use to manage data make it difficult to properly manage assets. The Information Technology Business Case process does not place sufficient priority on gas safety compliance related initiatives.

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.

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 service valve inspections, to SAP.

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.

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.

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.

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.

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.

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

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.

8.4.7.4 Efforts to consolidate information to provide a workable continuing surveillance system should receive a higher priority.

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.

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.

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.

9.5.2.1 Expedite the xEM database under development. This software will provide electronic reminders to designated individuals when compliance reports or actions in response to regulatory requirements are necessary.

4. Communication problems within the Company makes achieving system safety and compliance more difficult and contributes to a disjointed approach to continuing surveillance.

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

6.3.4.7 Currently, when the PSE QA inspector is attempting to locate the SP crew significant time is lost. If dispatch is contacted for a location, the element of surprise which is 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.

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.

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.

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.

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.

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.

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.

8.2.8.2 System Maintenance Planning and System Control and Protection should work together to minimize the documentation required when a corrosion order exceeds the 90 day requirement, but is completed within the 120 days allowed by UTC and PSE standards.

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.

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.

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.

5. Goals, position accountabilities and measurement processes are not clearly defined and ultimately contribute to the Company's inability to clearly focus on gas safety compliance.

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.

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.

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.

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.

4.4.3.3 Review the safety goal-setting process and, where appropriate, introduce more aggressive goal-setting practices.

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 need to comply with the contract, the requirements of the published standards, plans, specifications and pipeline safety regulations.

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 checklist used should be amended so that deviations are not the main focus.

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.

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.

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.

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.

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.

9.4.6.1 Revise the operating standards for Continuing Surveillance 2575.2700 to reflect the significant observation role the Manager of Quality Assurance and Inspections has in continuing surveillance.

9.4.6.2 Add clarity in how compliance activity responsibilities are delegated and how individuals are held accountable throughout the organization.

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.

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.

4.1.3 Section Content Summaries

The following discussion briefly summarizes the contents for each task.

Section 4.0 Safety Compliance Culture (Task A – Safety)

This section deals with corporate and operational compliance goals, organizational accountabilities, and service provider accountabilities; the organizations safety compliance support as demonstrated by its standards, training and safety compliance reporting mechanisms; the organizations worker safety programs starting with the mission statement, leadership and culture and includes discussion on manuals, training, policies, and procedures as well as several industry comparison metrics; the section concludes with UTC enforcement directives and PSE's response to those directives.

Section 5.0 Training (Task B – Training)

This section deals with PSE's training programs, alignment of the training units, the operational leadership, communication and culture; the functional management and administration including manuals, regulations, standards, policies and procedures and records management. In addition, this section includes four types of training: safety, technical, non-OQ technical training and employee development are presented for PSE, Pilchuck, Potelco, Central Locating Services, Locator Inc. and Heath.

Section 6.0 Contracts (Task C – Contracts)

This section deals with PSE's outsourcing model , how the contracts were awarded and how they are working today; construction service provider contracts including contract design, quality control and quality assurance programs, contract behaviors and management, metrics and incentives; facility locating service provider contracts and leak survey provider contracts. For each of the non-construction service provider contracts we present a discussion of the contract itself, how it is managed, the metrics employed and the quality control programs utilized.

Section 7.0 Compliance Auditing (Task D – Compliance Auditing)

This section deals with PSE's and its service provider’s records management practices; we also examine PSE's various records management systems including: SAP, leak management, CustomerLinX, PCAD, Meter Data Warehouse, Access/Excel databases, PSE maps and paper records. In addition, this section includes: PSE's internal audits of records, Pilchuck, Potelco, Central Locating Services, Locator Inc., and Heath quality control of records and certain industry comparisons.

Section 8.0 Continuing Surveillance (Task E – Continuing Surveillance)

This section deals with the current PSE Continuing Surveillance program, trends, compliance and reporting. Within the current program we discussed the organization structure and the respective roles and coordination between System Maintenance Planning and System Control & Protection. Continuing Surveillance Trends includes both leak and damage trends, while continuing surveillance compliance and reporting addresses UTC Reportable Incidents, internal compliance audits, settlement-related reports and discretionary programs.

Section 9.0 Sufficiency of Resources (Task F – Sufficiency of Resources)

This section deals with gas safety compliance programs, adequacy of resources, how effectiveness is monitored and concludes with the 2008 safety compliance program status. Within adequacy of resources we present details regarding capital and O&M expenditures, PSE's and the service provider's workforce, vehicles, tools and equipment. Monitoring effectiveness addresses the role of various PSE management and staff, the compliance oversight process information systems utilized and performance improvement efforts.

1.5 Recommendations

The PSE management team has numerous initiatives in place and is monitoring and achieving gas safety compliance results in many areas. However, the high number of mandated settlement agreements between PSE and the UTC staff is an indication PSE should examine its strategic perspective and reaffirm the goals, objectives and activities directed at maintaining the safety compliance of its gas distribution system. Our recommendations support an increased system safety strategy through gas compliance-related initiatives and opportunities to further improve on the direction set forth by management.

1.5.1 Overlapping Recommendations

To fully address PSE's opportunities to improve on its gas compliance, we have presented 71 recommendations in the body of the report and summarized them in Appendix A. Recommendations emerging from the conclusions for each section may overlap with recommendations from other sections. While reinforcement of a recommendation based on a different perspective is gratifying, there are only 61 distinct recommendations.

A summary of the 10 overlapping recommendations follows:

Paperwork Correction Process (2) - 6.3.4.14 and 7.3.4.1
Streamlined Field Generated Paperwork (2) - 6.3.4.15 and 7.3.4.2
Consistent Compliance Maintenance Program Database (2) - 7.4.4.1 and 9.4.6.5
Evaluate and Commit to GIS (4) - 7.4.4.3, 7.7.4.1, 8.2.8.4, and 8.3.5.3
Locate Service Provider Crews (2) - 6.3.4.7 and 7.5.5.1
Establish Corporate Goal (2) - 4.2.5.1 and 9.2.4.1
Communicate Position Accountabilities (2) - 4.2.5.4 and 9.4.6.2
Enhance Goal Setting Practices - 4.2.5.2 and 4.4.3.4

High Priority Recommendations

Jacobs has evaluated its recommendations for potential impact on three key attributes: People, Processes and Systems. Each of these attributes will be impacted, if PSE is to successfully increase gas safety compliance and enhance public safety. However, the potential impact on each attribute will vary by recommendation. Jacobs developed a rating methodology to approximate the effect on each attribute based on our current knowledge of PSE, the issues facing the organization, our knowledge of issues facing similar companies, and our collective industry experience. For each recommendation we assessed the potential impact on a scale of 1 to 5, with 1 being minimal or no impact and 5 being extensive impact. Then using a weighted average, we calculated the resultant score for each recommendation. The resultant score then enabled us to prioritize the recommendations.

For example, the first high priority recommendation number 4.2.5.1, which concerns the development and implementation of a Corporate Goal regarding gas system safety was rated a high priority. The scale of 1 to 5 applied to each attribute is as follows:

- People - This attribute was rated a 5, as the Corporate Goal as described should have a direct and significant impact on employee behavior and motivation.
- Processes - This attribute was rated a 3, goal setting is a major process unto itself, however it is employees who are most impacted that will actually affect change.
- Systems - This attribute was rated a 1, as there is little or no IT systems required demonstrating senior management's concerns in this area.

This prioritization methodology is somewhat of an art as opposed to a science, but it does serve to provide an indication of relative importance associated with a specific recommendation.

Figure 1 identifies 20 high priority recommendations. However, within the 20 recommendations there are five overlapping recommendations, so we actually have 15 distinct recommendations. The recommendations that appear more than once are:

Evaluate and Commit to GIS (4) - 7.4.4.3, 7.7.4.1, 8.2.8.4, and 8.3.5.3
Consistent Compliance Maintenance Program Database (2) - 7.4.4.1 and 9.4.6.5
Establish Corporate Goal (2) - 4.2.5.1 and 9.2.4.1

Figure 1 - High Priority Recommendations

No	Recommendation	Priority
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.	High
6.2.4.1	Redirect management of the service provider model to ensure outsourcing activities reflect sufficient communication, logistics, and oversight that will result in fulfillment of PSE's responsibilities for system safety.	High
6.2.4.2	Update the outsourcing contract by clearly describing that PSE takes direct responsibility for matters involving System safety.	High
6.2.4.3	The Utility 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.	High
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.	High
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.	High
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.	High

7.4.4.1	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.	High
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.	High
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.	High
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.	High
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.	High
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.	High
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.	High
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.	High
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.	High
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.	High
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	High

	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.	
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.	High
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.	High

2.0 Introduction

2.1 Background

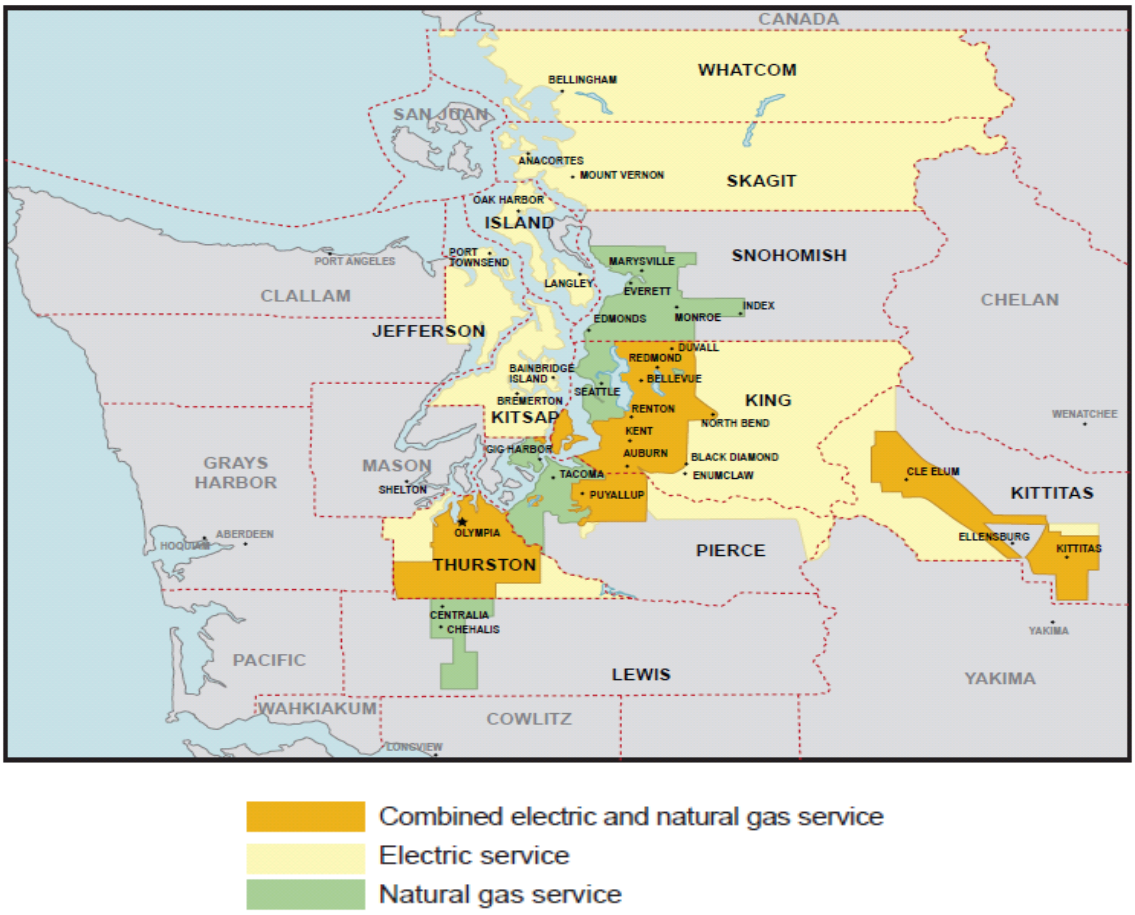
Puget Sound Energy (PSE, “Company”, or “Utility”) and the Washington Utilities and Transportation Commission (UTC, “Commission” or “Staff”) mutually agreed to retain Jacobs Consultancy Inc. (Jacobs Consultancy or Jacobs) to conduct an audit of PSE's mandated gas safety program. The need for the third-party audit results from a cooperative effort on the part of the UTC and PSE to have an authoritative assessment of PSE’s mandated gas safety activities as well as viable key recommendations for PSE to implement. The settlement agreement that resulted in this audit resulted from a 2008 enforcement action resulting from Pilchuck falsifying leak records.

UTC’s enforcement history with PSE consists of numerous settlement agreements and penalties. Twelve of the thirteen directives were issued or agreed-to between 2005 and 2008. The previous directive was thirteen years earlier in 1992. Each of these settlements came about because UTC staff documented multiple instances of safety rule violations, which had been previously documented, but despite PSE's commitment, the Company was unable to correct. The Company's commitment has resulted in numerous compliance programs.

Since September 7, 2007, PSE and UTC have been collaborating to address improvements to work processes, quality of service and system performance for aspects of PSE’s operations, including gas operations and service provider (SP) oversight. By working together on this audit, PSE and staff hoped to forge a more effective working relationship highlighted by joint problem solving, information sharing and mutual respect.

PSE is Washington State’s largest and oldest energy utility with approximately 2600 employees serving more than one million electric customers and nearly three quarters of a million natural gas customers. PSE's 6000 square mile service area contains more than 100 cities and towns within 11 Washington State counties. As shown in Figure 2, PSE's service territory extends from the north border with Canada to Puget Sound in the south and from the central Washington's Kittitas Valley west to the Olympic Peninsula. PSE's natural gas system contains nearly 12,000 miles of main and over 790,000 services.

Figure 2- Puget Sound Energy Service Territory



PSE is the core business of Puget Energy. Puget Energy is a subsidiary of Puget Holdings LLC, a Bellevue, Washington-based company. According to the Company's Website its corporate strategy emphasizes meeting the energy needs of the growing PSE customer base through incremental, cost-effective energy conservation, low-cost procurement of traditional energy resources and farsighted investment in energy delivery infrastructure.

2.2 Objective and Scope

The objective of the independent third-party audit is to conduct an assessment of PSE's mandated gas safety activities. As a result of the audit, PSE and UTC will be provided with an authoritative assessment of PSE's gas safety program and a series of recommendations for PSE to consider implementing.

The audit evaluation is to include PSE's Gas Operations and those of its service providers. The evaluation will take into account current industry practices and standards and Jacobs Consultancy's experience for process improvements opportunities based on its knowledge of other effective and efficient industry practices.

In addition, a series of field observations of Puget Sound Energy's (PSE) service providers and employees performing a large variety of work is to be conducted. The types of work to be observed varied from new and replacement construction to various operations, inspections and maintenance activities performed on the distribution gas system. The field observations in effect are a collection of observation data gathered by skilled and knowledgeable auditors of field crews executing gas facility construction and procedures. These observations reflect both PSE and its service provider's attitude towards maintaining a safe and compliant culture, demonstrate the effectiveness of standards, procedures and OQ training, provide a perspective on how negotiated contracts are interpreted and complied with, reveal how field are originated, and provide an insight as to the adequacy of gas safety compliance program resources.

This phase of the study is broken down into six tasks:

Section 4.0 – Safety Culture (Task A – Safety)

The objective of this task is twofold. The first is to assess, whether PSE has for its employees and its SPs, the programs, structures and incentives in place to maintain a culture of safety and compliance. The second is to examine the extent to which PSE is responsive to employees or service providers when system safety issues are brought to the Company's attention.

The first part of this task focuses on safety at PSE - its culture and philosophy toward the individual worker, its interactions with the general public, and, in particular, it's care of the gas distribution system. This review of PSE's safety culture examines PSE and their SPs' individual worker safety records, policies and procedures, as well as system safety. This section also discusses the UTC-initiated enforcement actions and how management has responded.

The second part of this task reviews the processes instituted to aid both PSE workers and SP employees in addressing system safety issues and concerns. This review incorporates an assessment of the mechanisms that have been created, what the company does with certain system safety information once received, and how or what is communicated back to the employee.

Section 5.0 – Training (Task B – Training)

The objective of this task was to conduct a review of PSE's training program. This effort focused on the organization's approach toward training as related to employee, public, and pipeline safety and compliance.

This review examined PSE and their SPs training process, policies, procedures and manuals, and in general observed the behaviors, attitudes, values and beliefs of the people involved. Additionally, the relationship between PSE and its SPs was given special attention and consideration to determine how effectively training is approached and what methods are common or different among the organizations.

Section 6.0 – Contracts (Task C – Contracts)

The objective of this task was to review service provider contracts entered into by Puget Sound Energy to determine how PSE's outsourcing philosophy, contract awards, the contract terms and the behaviors generated by the contract terms impact on PSE's mandated gas safety programs and obligations.

The review involved an examination of PSE's outsourcing and more specifically the three outsourced activities where the service provider concept has been applied: construction, facility locating and leak surveying. Each of the three outsource activities is then broken down into areas, which were identified by Jacobs to be the main areas where problems had either arisen, or to be areas of potential concern. This section includes quality control and quality assurance and related compliance issues.

Section 7.0 – Compliance Auditing (Task D – Compliance Auditing)

The objective of this task was to conduct a review of PSE's methods for tracking and documenting work for compliance auditing by both PSE and the Washington Utilities and Transportation Commission. This effort focused on the records that are required to be maintained to demonstrate compliance with all requirements of PSE gas operating standards, Washington Administrative Code and the Code of Federal Regulations.

This review involved an examination of PSE and their SPs' records management policies, procedures and systems. Specifically, we reviewed how PSE documents work for maintenance programs and compliance programs as well as the quality assurance audits conducted to ensure proper records management.

Section 8.0 – Continuing Surveillance (Task E – Continuing Surveillance)

The objective of this task was to conduct a review of PSE's continuing surveillance of natural gas system conditions. This effort focused on the organization's actual approach toward continuing surveillance by reviewing PSE's processes for periodic examination of records and visual examination of facilities through construction, operations, and maintenance activities, as well as its supporting culture and philosophy.

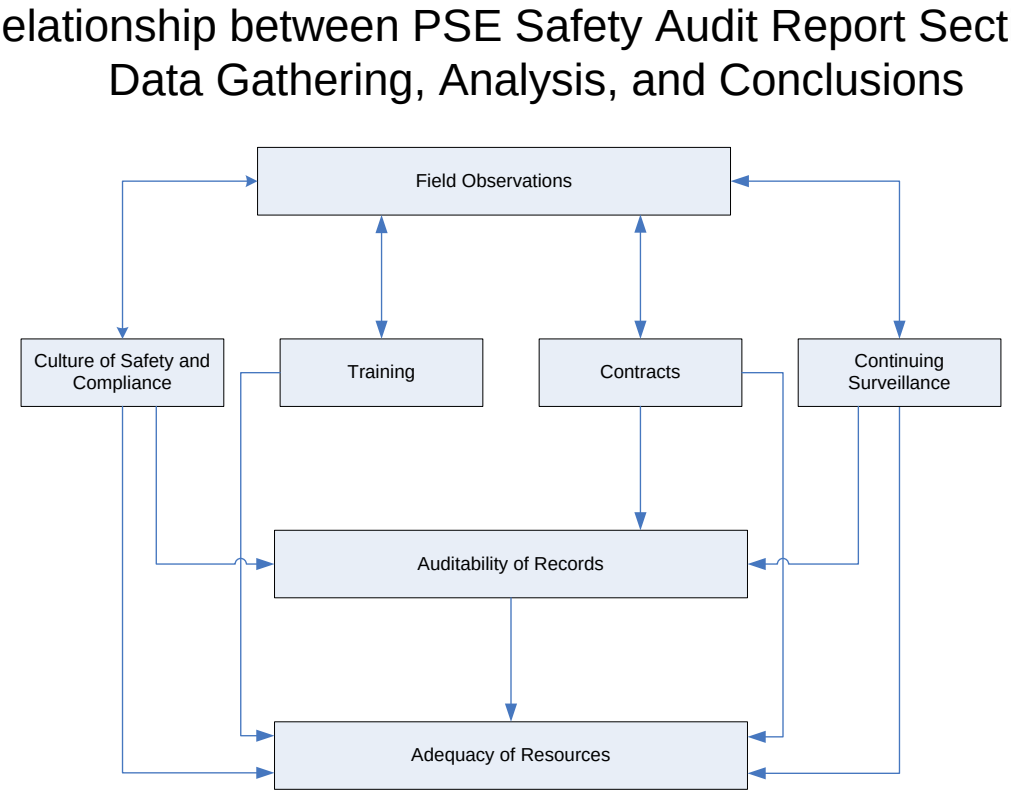
This review not only examined PSE and their SP's records, policies, and procedures, but also the implementation, performance, and values of the people involved. Examination of the use of PSE's "Blue Card" provided only a small part of the overall analysis. It was necessary to examine a large variety of operations and Maintenance Programs to provide an assessment of the elements of the overall continuing surveillance mission.

Section 9.0 – Sufficiency of Resources (Task F – Sufficiency of Resources)

This task's objective was to conduct a review of the sufficiency of resources PSE provides for its gas safety compliance program. The review entails two distinct activities. The first activity is to explore the adequacy of the resources PSE devotes to its mandated safety programs. The second activity is to assess how effectively PSE monitors its mandated safety programs for compliance. The review of the sufficiency of resources is intended to be independent of whether the safety activities and programs are implemented by PSE or service provider (SP) employees.

The review covers the following areas: adequacy of budget, workforce, vehicles tools and equipment; and identifies the compliance oversight process including staff, systems and efforts to improve performance.

Figure 3 - Relationship between Various Sections



Field observations were conducted observing PSE and service provider crews at work in new and replacement construction to various operations, inspections and maintenance activities as well as training. The complete analysis, summary and interpretation of observation results are contained in Appendix B - Field Observations. These observations formed the bases for the sections concerning Safety Culture, Training, Contracts, and Continuing Surveillance. Field observations also provided some direct evidence of adequacy of resources. Interviews and data requests provided further insight into items discussed in the Safety Culture, Training, Contracts, Continuing Surveillance, Auditability of Records, and Sufficiency of Resources Sections. The Continuing Surveillance and Contracts Sections are also closely linked to observations and findings in the Auditability of Records Section.

2.3 Approach

The general approach methodology used in reviewing and evaluating PSE's approach to Tasks A, B, C, D, E, and F, specifically with respect to PSE's gas safety compliance program, involved acquiring information from PSE through interviewing employees and service provider personnel, reviewing document responses regarding resource adequacy and observing field personnel in the performance of completing mandated safety activities and programs. Our approach was then divided into subtasks as described below:

- **Data Collection—**we collected data emanating from the initial response to data requests provided by the Utility, from our research and from matters arising in the course of interviews. This information was input into our Web-based document control facility (eRoom).
- **Initial Analysis/Cleaning—**in this subtask, we performed our initial analysis on the data provided by PSE and SPs. We identified any gaps or inconsistencies in the data and identified missing or questionable data. We made appropriate corrections, based on clarifications from PSE, to the data to provide as consistent a data set as possible.
- **Additional Data Requests—**based on our Initial Analysis/Cleaning, we formulated additional requests for specific data, data explanations and other information deemed necessary for consistent data. In total 193 documents were requested and received.
- **Data Analysis and Cleaning—**in this subtask, we incorporated the additional data received and continued data cleaning efforts to assure consistent and meaningful information to support further analysis.
- **Conducted Further Interviews—**as a result of the additional data collected, and from earlier interviews conducted, further interviews were done to enable more detailed and specific questioning. In total over 100 individuals were interviewed in 76 interviews.
- **Observations—**numerous field observations were conducted both of PSE and service provider personnel; in addition, direct observations were supplemented with informal discussions as well attendance at meetings and work sessions to directly observe discussions and information exchange.

2.4 Report Organization

Section 1.0 - Executive Summary provides an overview of Jacobs Consultancy's key conclusions and recommendations. Conclusions are presented as a response to the six specific areas of investigation as specified in the original RFP dated May 8, 2008. Details supporting each respective response can be found in the Conclusion Sections for each research area. In investigating these research areas, several concerns regarding PSE's safety compliance emerged. In total there are five primary recurring areas of concern. To fully address PSE's opportunities to improve on its gas compliance, we have in the Executive Summary aligned our 71 recommendations with the respective area of concern. Recommendations emerging from the conclusions for each section do overlap with recommendations from other sections, so there are only 61 distinct recommendations. In addition the Executive Summary contains a table listing high-priority recommendations. Numerous other recommendations are presented in the body of the report and are summarized in Appendix A. Also included in the appendix is Appendix B - Field Observations. This appendix contains the results of a series of field observations of PSE's service providers and employees performing a large variety of work.

The main body of the report is divided into six sections: Section 4.0 - Safety Culture, Section 5.0 - Training, Section 6.0 - Contracts, Section 7.0 - Audibility of Records, Section 8 - Continuing Surveillance and Section 9 - Sufficiency of Resources. Each section is further divided into key topical areas with supporting analysis of specific topics. The findings presented represent a strengths, weaknesses, opportunities and threats which directly tied into the facts obtained from our interviews and review of documents. The conclusions summarize and represent our assessment of related findings and our opinion regarding proposed opportunities associated with a specific topic. In many instances our conclusions lead to recommendations.

Section 3.0 Glossary, which immediately follows this section, contains a list of abbreviations and industry terms used throughout this report.

3.0 Glossary

A glossary of terms is set out below to familiarize the reader with the acronyms and industry terms used throughout this report.

3.1 Abbreviations

A&G costs	Administrative & General (accounting) Costs
AER	Application, Enrollment, Registration
AGA	American Gas Association
AI	“At Issue”
AMR	Automatic Meter Reading
BW	Business Warehouse
CAR	Corrective Action Request
CD	Compact Disc
CDC	Competitive Distribution Company
CERC	Certification of Energy Requirements Compliance
CFR	Code of Federal Regulations
CFR	Customer Field Representatives
CFS	Customer Field Service
CGA	Common Ground Alliance’s
CGI	Can’t Get In
CGM	Combustible Gas Monitor
CL	Cancelled Leaks
CLS	Central Locating Service Inc.
CLX	ConsumerLinX
CM	Corrective Maintenance
CO Gas	Carbon Monoxide Gas
COO	Chief Operating Officer
CP	Cathode Protection
CQCM	Contractor Quality Control Manual
CQCP	Contractor Quality Control Plan
D-1 Card	Yellow Card
DADMO	Delivery Asset Data Management Optimization
DART	Days Away, Restricted or Transferred
DIMP	Distribution System Integrity Management
DIRT	Damage Information Reporting Tool
DOT	Department of Transportation
DVD	Digital Video Disk
ECDA	External Corrosion Direct Assessments

ESIC	Executive Systems Integrity Committee
EUF	Extended Utility Facility
FCD	Field Completion Date
FCP	Field Completion
FERC	Federal Energy Regulatory Commission
FI	Flame Ionization
FPW	field Paperwork
GC&RA	Gas Compliance and Regulatory Audits
GFP	Gas Field Procedures (Standards)
GFR	Gas First Response
GIS	Geographic Information System
GOS	Gas Operating Standards
GPS	Global Positioning System
H2RL	Hard to Reach Locations
HCA	High Consequence Areas
HCI	Heath Consultants Inc.
HR	Human Resource
HVAC	High Voltage Alternating Current
IMO	Industrial Meter Operations
IMS	Inside Meter Survey
L&O	Locate & Operate
LI	Locating Inc.
LMS	Learning Management System
LMS	Leak Management System
LWCR	Total Lost Workday Case Rate
MAOP	Maximum Allowable Operating Pressure
MAT	Maintenance Activity Type
MC	Media Coverage
MDT	Mobile Data Terminal
MDW	Meter Data Warehouse
MEA	Midwest Energy Association
MOP	Max Operating Pressure
MOU	Memorandums of Understanding
MP	Maintenance Programs
MRT	Mapping Records and Technology department
MSA	Master Services Agreement
NAICS	North American Industry Classification System
NCC	New Customer Construction
NULCA	National Utility Locating Contractors Association

NUNLC	Northwest Utility Notification Location Center
O&M	Operations and Maintenance
OMD	Optical Methane Detectors
OQ	Operator Qualifications
OS	Operations Specialist
OSHA	Occupational Safety and Health Administration
PAR	Preventive Action Request
PC	Personal Computer
PCAD	PragmaCAD
PCI	Pilchuck Contractors, Inc.
PI	Public Improvement
PLM	Pipeline Marker
PPE	Personal Protection Equipment
PSE	Puget Sound Energy
PVC	Polyvinyl Chloride
QA	Quality Assurance
QA&I	Quality Assurance & Inspection
QC	Quality Control
RCW	Revised Code of Washington
SAP	Systems Applications Products
SES	Service Entry Sheets
SME	Subject Matter Experts
SMP	System Maintenance Planning
SP	Service Providers
SPC	Safety Performance Committee
SVP	Senior Vice President
TICR	Total Incident Case Rate
UA	United Association of Plumbers and Pipefitters - Local 32
US PHMSA	United States (Department of Transportation) - Pipeline and Hazardous Materials Safety Administration
USDOT	United States Department of Transportation
UTC	(Washington) Utilities and Transportation Commission
UULC	Utilities Underground Location Center
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
WSSAP	Wrapped Steel Service Assessment Program
XEM	(Reporting Software Compatible with SAP)
XL	Microsoft Excel Spreadsheet

3.2 Common Industry Terms

AGA DART Incidence Rate	The rate is based on the number of incident cases for every 100 fulltime workers per annual hours worked per year.
AGA OSHA Incidence Rate	Based on the number of OSHA recordable cases for every 100 fulltime workers per annual hours worked per year.
AGA Severity Rate	The rate based on the number of lost work days for every 100 fulltime workers per annual hours worked per year.
Atmospheric Corrosion Inspection	Paper-driven process with compliance dates monitored through the Business Warehouse and Gas Operations Compliance Database.
Band-Aid Management	The practice or style that focuses on small individual parts of processes and not on the whole concept.
Benchmarking	The process of comparing the cost, cycle time, productivity, or quality of a specific process or method to another that is widely considered to be an industry standard or best practice.
Bridge and Slide Patrols	This program addresses maintenance needs identified through ongoing patrols of pipeline facilities on bridges or near slide areas.
Compliance programs	Work budgeted and planned for by System Maintenance Planning (SMP) typically in the form of formal compliance programs and commitments to the UTC.
Continuous Surveillance	Ongoing process performed during the course of construction, operations and maintenance activities, and the Blue Card form is used to report abnormal or unusual operating conditions on gas facilities.
D-4 Card	A gas service order that shows the service size, location, date of installation, etc.
Damage Prevention	Damage prevention is the prompt and accurate location of PSE's facilities in response to "one-call" notices; the "buck stops here" activity relating to third-party damages.
De-regulation	The removal or simplification of government rules and regulations that constrain the operation of market forces. Deregulation does not mean elimination of laws against fraud, but eliminating or reducing government control of how business is done, thereby moving toward a more free market.
Facility Locating	The act of marking out underground utility facilities. The location of specific utilities can be initiated by referral to a map and using detection instruments to pinpoint the location. The utility location is then marked above ground with paint.

First Response duties	Duties one is required to have should an accident occur. These duties are a list of things to do for those assigned to this position in response to any emergency within the company.
Hard to Reach Locations	Another name for the inside meter survey is the Hard to Reach Location (H2RL) survey, which includes a leakage survey, atmospheric corrosion inspection, service valve inspection and pipeline maker patrol (services).
Isolated Facilities	The isolated facilities program is part of a 2004 agreement with the UTC to identify all electrically isolated steel facilities that require cathodic protection to prevent them from corroding.
Lost Work Day Cases Rate	The number of lost workday cases for every 100 fulltime workers per total year worked.
Mobile Home Park Patrol program	Based on a PSE standard to look for encroachment in mobile home parks.
Motor Vehicle Incident	Deaths/injuries related to motor vehicles.
Near-Miss Rate	A report listing out any unplanned events that did not result in injury, illness, or damage - but had the potential to do so.
Outsourcing	A complete business process, or processes, where some degree of management control and risk is shared with the service provider. Service providers performed activities that are traditionally completed by the utility.
Pressure Regulator and Device Inspection and Testing	Examination and inspection of various regulator station components including valves, regulators, instrumentation, relief valves, piping, etc.
Quality Assurance	A review process independent of the work that evaluates the effectiveness of the quality control process.
Severity Rate	The number of severity cases for every 100 fulltime workers per total year worked.
System Maintenance Planning	Responsible for reviewing completed work orders (including leak repairs, maintenance, and other work), patrol records, leakage survey records, leakage history, and inspection records for abnormal or unusual operating and maintenance conditions on unprotected steel and polyethylene pipelines.
Total Incident Case Rate	The rate of incident cases for every 100 fulltime workers per total year worked.