



PUGET  
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ENERGY

## 2002 NEW CUSTOMER CONSTRUCTION QUALITY ASSURANCE & INSPECTION REPORT

PSE's new gas infrastructure is constructed by two service providers; long term contractors Pilchuck Contractors, Inc., and Quanta Services, Inc. Assurance of quality in the construction process is managed through contract administration. These two contractors perform all of the new customer construction work for PSE. The Quality Assurance and Inspection ("QA & I") Department randomly selects a sample of construction work-in-progress for direct field inspection. In addition, The Contract Management Department performs a complete inspection of all job packets (records) required for payment for services. Therefore, the combination of a sample review of work together with a comprehensive records review prior to payment assures quality by using the contractor's natural incentive for payment with the disincentive (i.e. delayed payment or penalty) for poor performance.

The PSE QA&I Department has two gas inspection groups performing separate but related field audit activities. In 2002, both groups performed in excess of 2,600 site audits and special (major) project inspections.

The Site Audit Inspectors, a group of six individuals, are primarily focused on short duration jobs that tend to be small to medium in size and less complex. Site audits are random inspections performed on jobs selected throughout PSE's service territory from crew dispatch logs provided by service providers on a daily basis. Many of these jobs are available for inspection only during the period of time between exposure of pipe and the ensuing backfill operation. These audits are therefore a "snap shot" of work components performed rather than an inspection of the entire job.

The second group of auditors, Special Project Inspectors, is a group of six individuals focused on the larger more complex jobs that are also usually longer in duration. Special projects typically involve work on high-pressure facilities, six-inch diameter pipe installations, cast iron replacement projects, or main replacements exceeding 1,000 feet in length. Depending on the actual schedule of work at a given time, these projects will normally have an inspector assigned and present on the project site for the duration of the active project construction.

In 2002, QA&I gas site audits were performed at a total of 2,456 service provider sites, and 170 special project sites, for a total of 2,626 audits completed. Project records for the year indicate that service providers performed work at 23,711 gas project sites during the year, resulting in a QA&I "hit-rate" of 11% of gas jobs. Statistical analysis of collected data has concluded that this sample size meets or exceeds the optimal sample size required to estimate the mean satisfactory level at 99% confidence within +/-1%.

QA&I audit data from the special project sites indicate that a total of 162,828 feet of pipe was inspected. In addition, 2586 STW welds were visually inspected with 185 being rejected; 742 welds were x-ray inspected with 27 being rejected; 232 weld locations were magnetic particle inspected with 1 being rejected; 2373 field coating inspections were made with 54 corrections being identified; 3541 PE fusions were inspected with 9 being rejected; and 82 various other notable deficiencies were identified and corrected on larger projects completed during the year.

The gas QA&I inspection program effort is detailed in a Site Audit Inspection Manual for Natural Gas Facilities, which was updated on an interim basis in November to coincide with publication of the PSE 2002 Gas Field Procedures. The upcoming implementation of the 2003 Gas Operating Standards will result in a complete update to this inspection manual which serves as a guideline for both QA&I auditors and for service provider field and management personnel.

Finally, with respect to maintaining and enhancing the professional development of our QA&I personnel in 2002, all members received gas system training consisting of a Weld/Fusion Inspection Training Refresher and Operator Qualification Training. In addition, a Magnetic Particle NDT Level II training and certification course was completed by seven members of the group.

QA&I audit findings are compiled, on monthly basis in a report which is distributed to both PSE and service provider management. This ensures that results are available for analysis and to develop the necessary adjustments required to provide quality work performance results. The results of the audit program for 2002 have been compiled into a summary report, a copy of which is enclosed. It is important to note that since the current QA&I audit program was instituted in mid-1999, PSE has experienced continuous improvement in the level of observed quality of fieldwork. In 2000, our results indicated a 92% satisfactory rate, in 2001 the satisfactory rate increased to 95%, and in 2002 the satisfactory rate has improved to 97%.

PSE is committed to obtaining the highest level of quality for gas facility installations. This outcome is attained through the execution of a comprehensive quality assurance program. Our program not only monitors daily adherence to PSE standards and procedures, but also monitors the construction environment providing feedback to responsible PSE departments to enable continuous improvement in our program.

The PSE point of contact for additional information about the QA&I program is Douglas R. Lamothe, PE, Manager, Quality Assurance and Inspection. He can be contacted by telephone at 425.462.3974 or by e-mail at [douglas.lamothe@pse.com](mailto:douglas.lamothe@pse.com).

Enclosure: 2002 QA&I Annual Report



## 2002 QA&I ANNUAL REPORT

### SUMMARY OF SERVICE PROVIDER SITE AUDIT INSPECTIONS

	<u>Sites Inspected</u>	<u>Items Inspected</u>	<u>Satisfactory</u>	<u>Unsatisfactory</u>	<u>% Satisfactory</u>
<b>Pilchuck Gas</b>					
Dec-02	70	545	531	14	97%
Nov-02	113	917	869	48	95%
Oct-02	86	573	533	40	93%
Sep-02	63	718	696	23	97%
Aug-02	72	691	670	21	97%
Jul-02	95	853	813	40	95%
Jun-02	79	779	766	13	98%
May-02	126	1250	1233	17	98%
Apr-02	152	1473	1442	31	98%
Mar-02	126	1057	1027	30	97%
Feb-02	148	1117	1082	35	97%
Jan-02	130	1022	981	41	96%
Totals & Average	1277	10995	10642	353	97%

	<u>Sites Inspected</u>	<u>Items Inspected</u>	<u>Satisfactory</u>	<u>Unsatisfactory</u>	<u>% Satisfactory</u>
<b>Quanta Gas</b>					
Dec-02	67	562	537	25	96%
Nov-02	111	963	932	31	97%
Oct-02	88	796	771	25	97%
Sep-02	61	509	473	36	93%
Aug-02	87	852	815	37	96%
Jul-02	83	919	894	25	97%
Jun-02	64	573	565	8	99%
May-02	133	1184	1152	32	97%
Apr-02	130	1069	1025	44	96%
Mar-02	110	889	852	37	96%
Feb-02	120	882	861	21	98%
Jan-02	125	1034	1014	20	98%
Totals & Average	1179	10332	9991	341	97%

**Items Inspected Include:**

- Excavation and Backfill
- Pipe Installation/Welding/Tapping/Stopping/Fusion
- Material Handling/Storage
- Testing: Coatings/Paint/Cathodic Protection/Leak
- Standard and Code Compliance/Calibration Verification/Relief Vent Piping
- Valve Installation
- Records and Qualifications/Field Procedures/Operating Standards



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