

**US Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
Office of Pipeline Safety**

**Gas IMP Field Verification Inspection  
49 CFR Subparts 192.911, 192.921, 192.933, & 192.935**

**General Notes:**

1. This Field Verification Inspection is performed on field activities being performed by an Operator in support of their Integrity Management Program (IMP).
2. This is a two part inspection form:
  - i. A review of applicable Operations and Maintenance (O&M) and IMP processes and procedures applicable to the field activity being inspected to ensure the operator is implementing their O&M and IMP Manuals in a consistent manner.
  - ii. A Field Verification Inspection to determine that activities on the pipeline and facilities are being performed in accordance with written procedures or guidance.
3. Not all parts of this form may be applicable to a specific Field Verification Inspection, and only those applicable portions of this form need to be completed. The applicable portions are identified in the Table below by a check mark. Only those sections of the form marked immediately below need to be documented as either “Satisfactory”; “Unsatisfactory”; or Not Checked (“N/C”). Those sections not marked below may be left blank.

Operator Inspected: **Puget Sound Energy**

Op ID: **22189**

Perform Activity (denoted by mark)	Activity Number	Activity Description
	1A	In-Line Inspection
	1B	Hydrostatic Pressure Testing
x	1C	Direct Assessment Technologies
	1D	Other Assessment Technologies
x	2A	Remedial Actions
	2B	Remediation – Implementation
	3A	Preventive & Mitigative – additional measures evaluated for HCAs
	3B	Preventive & Mitigative – automatic shut-off valves
	4A	Field Inspection for Verification of HCA Locations
	4B	Field Inspection for Verification of Anomaly Digs
	4C	Field Inspection to Verify adequacy of the Cathodic Protection System
	4D	Field inspection for general system characteristics
	attachment	Anomaly Evaluation Report
	attachment	Anomaly Repair Report

## Gas IMP Field Verification Inspection Form

Name of Operator: Puget Sound Energy

<b>Headquarters Address:</b> PO Box 90868 MS: EST-07W, Bellevue, WA, 98009-0868 <b>Company Official:</b> Sue McLain Senior Vice President, Delivery Operations <b>Phone Number:</b> <b>Fax Number:</b> <b>Operator ID:</b> 22189
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Persons Interviewed	Title	Phone No.	E-Mail
Darryl Hong	<b>Primary Contact</b>		Darryl.Hong@pse.com
Cheryl McGrath	Manager Gas Compliance	425-462-3207	Cheryl.mcgrath@pse.com
Scott Sammons	Damage Prevention Coordinator	425-457-5816	Scott.sammons@pse.com
Steve Schueneman	Consulting Engineer Gas System Engr	425-462-3971	Steven.schueneman@pse.com
Stephanie Silva	Consulting Engineer Gas for Standards		Stephanie.silva@pse.com

**OPS/State Representative(s):** Patti Johnson, Lex Vinsel, Dave Cullom

**Date(s) of Inspection:** 7/27/2011

**Inspector Signature:** Patti Johnson

**Date:** 7/27/2011

**Pipeline Segment Descriptions:** *[note: Description of the Pipeline Segment Inspected as part of this field verification. (If information is available, include the pipe size, wall thickness, grade, seam type, coating type, length, normal operating pressure, MAOP, %SMYS, HCA locations, class locations, and Pipeline Segment boundaries.)]*

**Site Location of field activities:** *[note: Describe the portion of the pipeline segment reviewed during the field verification, i.e. milepost/stations/valves/pipe-to-soil readings/river crossings/etc. In addition, a brief description and case number of the follow up items in any PHMSA compliance action or consent agreement that required field verification. Note: Complete pages 8 & 9 as appropriate.]*

**Summary:**

PSE Mini IMP was conducted as headquarters inspection. Lex Vinsel (Sumas co gen inspection), Dave Cullom (Thurston/Lewis inspection) and P Johnson (W King and Pierce inspection) participated. Lex Vinsel to write report. No violations were found.

**Findings:**

None

**Key Documents Reviewed:**

Document Title	Document No.	Rev. No	Date

**PSE Overview by Stephanie Silva. 1<sup>st</sup> year done 2003/2004 worked with consultant. PSE identified all high consequence areas, all transmission line, 50% target done by 2007, 2<sup>nd</sup> half done by 2012. Currently they are on schedule. O& M Section 7500.1000 about program, Companywide 27 miles of transmission, 8 miles in dist system, 15 miles at Jackson Prairie and 4 miles at Sumas. PSE use 20% SYMS for transmission definition.**

**Following is list of counties with transmission lines (excluding Jackson Prairie)**

**W king : 2 transmission**

**Pierce: 0**

**Thurston/Lewis: 1 transmission**

**Chehalis is: 0**

**Sumas: 1 transmission**

**E King: 1 transmission**

**Snohomish: 1 transmission**

**PSE designs to class 4. Does not do class location studies. Should use .4 rerating factor.**

**2010 newest version of IMP manual. UTC has hard copy not disc.**

**4.7 miles of transmission in HCAs. Break down is IMP 7500.1000 pg 12 of 14**

**W King**

- N Midway Supply
- S Seattle Supply

**Pierce**

- 0 transmission

**Thurston/Lewis**

- Olympia

**Chehalis**

- Jackson Prairie

**Sumas**

7500.100 is overview of system

Use approved method 2.

Survey transmission annually to look at new HCA.

For cedar hills PSE purchased that system complete. Were questions about having information with other transmission information

PSE uses method 2.

7500.3500 baseline assessment schedule.

7500.4100 is dig table 13-3 - table tells how many and where

See risk model- is risk algorithm 7500.3100. Consultant made risk model. Public and inspectors would not be able to understand algorithm per PSE. Requirement 900.

During inspection we noticed that there was a mapping problem. This could have been due to not accurately printing the IMP layers. As a result, Dave C looking into in all mapping in the Thurston/Lewis inspection

Part 1 - Performance of Integrity Assessments

1A. In-Line Inspection	Satisfactory	Unsatisfactory	N/C	Notes:
Verify that Operator's O&M and IMP procedural requirements (e.g. launching/receiving tools) for performance of ILI were followed.	x			<p>Do not use ILI. PSE uses ECDA. It is in 7500.4100</p>      <p>PSE uses 4 steps in ECDA are 1. Pre assessment 2. indirect assessment 2.Direct assessment 4 Post Assessment</p> <p><i>[Note: Add location specific information, as appropriate.]</i></p>
Verify Operator's ILI procedural requirements were followed (e.g. operation of trap for launching and receiving of pig, operational control of flow), as appropriate. NA				
Verify ILI tool systems and calibration checks before run were performed to ensure tool was operating correctly prior to assessment being performed, as appropriate.				
Verify ILI complied with Operator's procedural requirements for performance of a successful assessment (e.g. speed of travel within limits, adequate transducer coverage), as appropriate.				
Document ILI Tool Vendor and Tool type (e.g. MFL, Deformation). Document other pertinent information about Vendor and Tool, as appropriate				
Verify that Operator's personnel have access to applicable procedures for preparing, running and monitoring the pipeline for ILI tools include performance requirements (e.g.: tool speeds, pipe cleanliness, operation of tool sensors, and ILI field calibration requirements), as appropriate.				
Other:				
1B. Hydrostatic Pressure Testing	Satisfactory	Unsatisfactory	N/C	Notes:
Verify that hydrostatic pressure tests complied with Part 192 Subpart J requirements.	x			<p>They have not conducted any hydrostatic pressure tests</p>  <p>The operator does not use this as a method. They have identified that this pipeline has external corrosion as its primary risk so they use DCVG and CIS to look for anomalies.</p>
Review documentation of Hydrostatic Pressure Test parameters and results. Verify test was performed without leakage and in compliance with Part 192 Subpart J requirements.				
Review test procedures and records and verify test acceptability and validity.				
Review determination of the cause of hydrostatic test failures, as appropriate.				
Document Hydrostatic Pressure Test Vendor and equipment used, as appropriate.				

Verify that the baseline assessment is conducted in a manner that minimizes environmental and safety risks (reference §192.919(e) and ADB-04-01)				
Other:				
<b>1C. Direct Assessment Technologies</b>	Satisfactory	Unsatisfactory	N/C	Notes:
<b>Verify that application of “Direct Assessment Technology” complied with Part 192.923</b>	x			<b>This is the plan PSE uses. Has been using since 2006.</b>
Review documentation of Operator’s application of “Direct Assessment Technology”, if available. Verify compliance with Part 192.923 and Operator’s procedural requirements, as applicable.				<b>PSE does not use class locations they design to class 4, design criteria will be reviewed in Pierce inspection for all transmission lines.</b>
Verify that appropriate tests and/or inspections are being performed and appropriate data is being collected, as appropriate.				
Other.				
<b>1D. Other Assessment Technologies</b>	Satisfactory	Unsatisfactory	N/C	Notes:
<b>Verify that application of “Other Assessment Technology” complied with Operator’s requirements, that appropriate notifications had been submitted to PHMSA, and that appropriate data was collected.</b>	x			<b>PSE does not use other technologies.</b>
Review documentation of notification to PHMSA of Operator’s application of “Other Assessment Technology”, if available. Verify compliance with Operator’s procedural requirements. If documentation of notification to PHMSA of Operator’s application of “Other Assessment Technology” is available, verify performance of assessment within parameters originally submitted to PHMSA.				
Verify that appropriate tests are being performed and appropriate data is being collected, as appropriate.				
Other.				

**Part 2 - Remediation of Anomalies**

<b>2A. Remedial Actions – Process</b>	Satisfactory	Unsatisfactory	N/C	Notes:
<b>Verify that remedial actions complied with the Operator’s procedural requirements.</b>	x			<b>Assessments Tools PSE uses PHMSA 18 point guided wave procedure</b>
Witness anomaly remediation and verify documentation of remediation (e.g. Exposed Pipe Reports, Maintenance Report, any Data Acquisition Forms). Verify compliance with Operator’s O&M Manual and Part 192 requirements.				<b>definition of PIR is in O&amp;M 7500.2000 3,3.4</b>
Verify that Operator’s procedures were followed in locating and exposing the anomaly (e.g. any required pressure reductions, line location, identifying approximate location of anomaly for excavation, excavation, coating removal).				<b>Determine anomaly by doing DCVG tells about coating,</b>
Verify that procedures were followed in measuring the anomaly, determining the severity of the anomaly, and determining remaining strength of the pipe. Review the class location factor and failure pressure ratio used by Operator in determining repair of anomaly.				<b>CIS is pipe to soil reads</b>
Verify that Operator’s personnel have access to and knowledge of applicable procedures.				<b>Integrity management Program Overview 7500.1000.</b>

<p>Other:</p>	<p>Cathodic Protection readings of pipe to soil at dig site (if available):  On Potential: ___ - <b>1.945</b> mV  Off Potential: _____ mV</p> <p><i>[Note: Add location specific information and note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]</i></p>
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2B. Remediation - Implementation	Satisfactory	Unsatisfactory	N/C	Notes:
<p><b>Verify that the operator has adequately implemented its remediation process and procedures to effectively remediate conditions identified through integrity assessments or information analysis.</b></p>	x			<p>Cathodic Protection readings of pipe to soil at dig site (if available):  On Potential: _____ mV  Off Potential: _____ mV</p> <p><i>[Note: Add location specific information and note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]</i></p>
<p>If documentation is available, verify that repairs were completed in accordance with the operator's prioritized schedule and within the time frames allowed in §192.933(d).  <b>Schedule is by Dynamic Risk, and spits out risk, PSE does work, feed information back into algorithm and that determines the next prioritized schedule. In Manual 7500.3400 called Baseline Assessment Results</b></p>				
<p>Review any documentation for this inspection site for an immediate repair condition (§192.933(d)(1)) where operating pressure was reduced or the pipeline was shutdown. Verify for an immediate repair condition that temporary operating pressure was determined in accordance with the requirements in §192.933(a) or, if not applicable, the operator should provide an engineering basis justifying the amount of pressure reduction.  <b>No pipeline pressure reductions or shutdowns, after engr analysis</b></p>				
<p>Verify that repairs were performed in accordance with §192.103, §192.111, §192.713, §192.717, §192.719, §192.933 and the Operator's O&amp;M Manual, as appropriate. If welding is performed, verify a qualified welding procedure and qualified welders are used to perform repairs. If composite repair methods are used, verify that a method approved by the Operator is used, procedures are followed, and qualified personnel perform the repair.  <b>Yes welding done, in W King on a casing, one of N Midway casings on Military RD. Welding procedures in O&amp;M 2525.2700 And in Gas Field procedures 4900.1200. PSE has removed casing in W King</b></p>				
<p>Review CP readings at anomaly dig site, if possible. (See Part 4 of this form – "Field Inspection to Verify adequacy of the Cathodic Protection System" , as appropriate.  <b>All cp reads on second page of Excavation Site Description Report. One of these reports is filled out for every a dig</b></p>				
<p>Other:</p>				

**Part 3 - Preventive and Mitigative Actions**

3A. P&M Measures for Third Party Damage	Satisfactory	Unsatisfactory	N/C	Notes:
<p><b>Identify additional measures evaluated for the HCA section of the pipeline and facilities.</b></p> <p>Verify that the operator's identification of identified sites includes the sources listed in §192.905(b) for those buildings or outside areas meeting the criteria specified by §192.903, and that the source of information selected is documented. [§192.903 Identified Sites, §192.905(b) and §192 Appendix E, I(c)]</p>	x			
<p>Verify that P &amp; M measures regarding threats due to third party damage are being implemented: [§192.915(c), §192.935(b)(1)(iv)]:</p>				
<p><b>Part of Damage Prevention Review</b></p>				
<p>Confirm the use of qualified personnel for marking, locating, and direct supervision of known excavation work, as appropriate.</p>				
<p><b>Part of Damage Prevention Review</b></p>				
<p>Confirm the use of qualified personnel for monitoring of excavations conducted on covered pipeline segments by pipeline personnel, as appropriate.</p>				<p><i>[Note: Add location specific information, as appropriate.]</i></p>
<p><b>Part of Damage Prevention Review</b></p>				
<p>Other:</p>				
<hr/>				
3B. Installed Automatic Shut-off Valves (Protocol H.07)		Unsatisfactory	N/C	Notes:
<p><b>PSE has RTU controlled from control room. Have annual meeting and look at what else they can do</b></p>				
<p><b>Verify additional preventive and mitigative actions implemented by Operator.</b></p>				
<p>Document that additional measures evaluated by the operator cover alternatives such as, installing Automatic Shut-off Valves or Remote Control Valves, installing computerized monitoring and leak detection systems, replacing pipe segments with pipe of heavier wall thickness, providing additional training to personnel on response procedures, conducting drills with local emergency responders and implementing additional inspection and maintenance programs, as appropriate</p>				
<p>Verify that the operator has a process to decide if automatic shut-off valves or remote control valves represent an efficient means of adding protection to potentially affected high consequence areas. [§192.935(c)]</p>				
<p>Verify operation of installed remote control valve by reviewing operator inspection/remote control records for partially opening and closing the valve, as appropriate.</p>				
<p>Other:</p>				<p><i>[Note: Add location specific information, as appropriate.]</i></p>

**Part 4 - Field Investigations (Additional Activities as appropriate)**

<b>4A. Field Inspection for Verification of HCA Locations</b>				Satisfactory	Unsatisfactory	N/C	Notes:
<b>Review HCAs locations as identified by the Operator. Utilize NPMS and Operator maps, as appropriate.</b>				x			
Verify that the operator's integrity management program includes accurate and updated system maps or other suitably detailed means documenting the pipeline segment locations that are located in high consequence areas, as appropriate. [§192.905(a)] <b>PSE maps appeared to have mapping errors and maps may not have been updated in 6 months. This could have been printing problem. Dave C looking into this in Thurston inspection</b>							
Review the operator's applicable procedures and forms used to document new information from one-calls, surveys, aerial & ground patrols are being completed by field personnel to communicate new developments that may impact high consequence areas or that may create new high consequence areas to IM personnel, as appropriate. [§192.905(c)] <b>Dave C reviewed patrol information, Also PSE reviews leak surveys, continuing surveillance</b>							
Review the operator's applicable procedures and forms to confirm that new HCAs and class location changes are being identified through it's continuing surveillance program as required by §192.613 and §192.905. <b>Information collected in regard to new HCA is 7500.3000, 7500.3200</b>							[Note: Add location specific information, as appropriate.]
<b>4B. Field Inspection for Verification of Anomaly Digs</b>				Satisfactory	Unsatisfactory	N/C	Notes:
<b>Verify repair areas, ILI verification sites, etc.</b>				x			
Document the anomaly dig sites observed and reviewed as part of this field activity and the actions taken by the operator.							[Note: Add location specific information, as appropriate.]
<b>4C. Field Inspection to Verify adequacy of the Cathodic Protection System</b>				Satisfactory	Unsatisfactory	N/C	Notes:
<b>In case of hydrostatic pressure testing, Cathodic Protection (CP) systems must be evaluated for general adequacy.</b>				x			
The operator should review the CP system performance in conjunction with a hydrostatic pressure test to ensure the integrity assessment addressed applicable threats to the integrity of the pipeline. Has the operator reviewed the CP system performance in conjunction with the hydrostatic pressure test?  <b>PSE does not use hydrostatic pressure testing.</b>							
Review records of CP readings from CIS and/or annual survey to ensure minimum code requirements are being met, if available.							
Review results of random field CP readings performed during this activity to ensure minimum code requirements are being met, if possible. Perform random rectifier checks during this activity and ensure rectifiers are operating correctly, if possible.							Cathodic Protection readings of pipe to soil at dig site (if available): On Potential: _____ mV Off Potential: _____ mV  [Note: Add location specific information and note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]
<b>4D. Field inspection for general system characteristics</b>				Satisfactory	Unsatisfactory	N/C	Notes:
<b>Through field inspection determine overall condition of pipeline and associated facilities for a general estimation of the effectiveness of the operator's IMP implementation.</b>				x			



Evaluate condition of the ROW of inspection site to ensure minimum code requirements are being met, as appropriate.	
<b>No field inspections during inspection because no IMP work in progress</b>	
Comment on Operator's apparent commitment to the integrity and safe operation of their system, as appropriate.	
Check ROW for pipeline markers in line-of-sight and Emergency call-in number on marker posts.	
Other:	

**Anomaly Evaluation Report (to be completed as appropriate)**

<b>Pipeline System and Line Pipe Information</b>	
Operator (OpID and System Name):	
Unit ID (Pipeline Name)	
Pipe Manufacturer and Year:	Seam Type and Orientation:
Pipe Nominal OD (inch):	Depth of Cover:
Pipe Nominal Wall thickness (inch):	Coating Type and Condition:
Grade of Pipe:	MAOP:
<b>ILI Reported Information</b>	
ILI Technology (e.g., Vendor, Tools):	
Anomaly Type (e.g., Mechanical, Metal Loss):	
Is anomaly in a segment that can affect an HCA? (Yes / No)	
Date of Tool Run (MM/DD/YY):	Date of Inspection Report (MM/DD/YY):
Date of "Discovery of Anomaly" (MM/DD/YY):	
Type of "Condition" (e.g.; Immediate; 60-day; 180-day):	
Anomaly Feature (Int/Ext):	Orientation (O'clock position):
Anomaly Details: Length (in):	Width (in):                      Depth (in):
Anomaly Log Distance (ft):	Distance from Upstream weld (ft):
Length of joint(s) of pipe in which anomaly is identified (ft):	
<b>Anomaly Dig Site Information Summary</b>	
Date of Anomaly Dig (MM/DD/YY):	
Location Information (describe or attach map):	
Mile Post Number:	Distance from A/G Reference (ft):
Distance from Upstream weld (ft):	
GPS Readings (if available) Longitude:	Latitude:
Anomaly Feature (Int/Ext):	Orientation:
Length of joint of pipe in which anomaly is found (ft):	
<b>For Mechanical Damage Anomaly</b>	
Damage Type (e.g., original construction, plain dent, gouge):	
Length (in):	Width (in):                      Depth (in):
Near a weld? (Yes / No):	
Gouge or metal loss associated with dent? (Yes / No):	Are multiple dents present? (Yes / No):
Did operator perform additional NDE to evaluate presence of cracks in dent? (Yes / No):	
Cracks associated with dent? (Yes / No):	
<b>For Corrosion Metal Loss Anomaly</b>	
Anomaly Type (e.g., pitting, general):	
Length (in):	Width (in):                      Max. Depth (in):
Remaining minimum wall thickness (in):	Maximum % Wall Loss measurement(%):
Safe pressure calculation (psi), as appropriate:	

**For “Other Types” of Anomalies**

Describe anomaly (e.g., dent with metal loss, crack, seam defect, SCC):

Length (in):

Width (in):

Max. Depth (in):

Other Information, as appropriate:

Did operator perform additional NDE to evaluate presence of cracks? (Yes / No):

Cracks present? (Yes / No):

**Anomaly Repair Report (to be completed as appropriate)**

<b>Repair Information</b>		
Was a repair of the anomaly made? (Yes / No):		
Was Operating Pressure Reduced per 192.933(a) requirements?		
Was defect ground out to eliminate need for repair? (Yes / No):		
If grinding used, complete the following for affected area:		
Length (in):	Width (in):	Depth (in):
If NO repair of an anomaly for which RSTRENG/B31.G is applicable, were the Operator's RSTRENG/B31.G calculations reviewed? (Yes / No):		
<b>If Repair made, complete the following:</b>		
Repair Type (e.g., Type B-sleeve, composite wrap)		
Was defect ground out prior to making repair? (Yes / No):		
Operating Pressure at the time of repair:		
Length of Repair:	Pipe re-coating material used:	
Comments on Repair material, as appropriate (e.g., grade of steel, wall thickness):		
Comments on Repair procedure, as appropriate (e.g., welded sleeve, composite wrap):		
<b>General Observations and Comments</b>		
Was a diagram (e.g., corrosion map) of the anomaly made? (Yes / No):		(Include in report if available)
Were pipe-to-soil cathodic protection readings taken? (Yes / No):		
If CP readings taken, Record: On Potential: _____ mV; Off Potential: _____ mV		
<i>[Note: Note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]</i>		
Describe method used by Operator to locate anomaly (as appropriate):		
Comments regarding procedures followed during excavation, repair of anomaly, and backfill (as appropriate):		
General Observations and Comments <i>(Note: attach photographs, sketches, etc., as appropriate):</i>		
<b>In W King 4 casings have been removed as a result of IMP program.</b>		