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: Kelso-Beaver Pipeline Company
Op ID: 31522

Perform Activity *(denoted by mark)*	Activity Number	Activity Description
	1A	In-Line Inspection
	1B	Hydrostatic Pressure Testing
	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
X	4B	Field Inspection for Verification of Anomaly Digs
X	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: **Kelso-Beaver Pipeline Company**

Headquarters Address:	**Portland General Electric** **121 SW Salmon Street** **Portland, Oregon 97204**
Company Official:	**Robert Cosentino, Principal Consultant**
Phone Number:	**(360) 200-4959**
Fax Number:	**(530) 527-7176**
Operator ID:	**31522**

Persons Interviewed	Title	Phone No.	E-Mail
Robert Cosentino	**Principal Consultant, Primary Contact**	**(360) 200-4959**	bob@cosentinoconsulting.com

OPS/State Representative(s): Al Jones/UTC **Date(s) of Inspection:** August 16, 2011

Inspector Signature: *Al Jones* Date: **August 18, 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.)]*

The pipeline is a 20-inch diameter, API 5L grade X52 material, with a nominal wall thickness of 0.281, 0.344, and 0.375-inches, no HCA's, MAOP of 809 psig.

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.]*

The Kelso-Beaver (KB) Pipeline is located in Cowlitz County, Washington. KB Pipeline takes delivery of natural gas from the Williams Northwest Pipeline meter station located east of Kelso, Washington and extends west approximately 18 miles to Columbia County, Oregon. The pipeline crosses under the Columbia River north of the City of Longview, Washington.

Summary:

Field evaluations were completed on August 16, 2011 for anomalies at S8 and S9 discovered during the MFL (Enduro) inline inspection (ILI) tool data of October 5, 2010. The pipeline was constructed in 1992 with API 5L-X52, 20-inch diameter, wall thickness of 0.281-inch, and coated with fiber bonded epoxy.

Finding(s):

Two anomalies were evaluated including:

- Anomaly S8 is located at engineering station 526+46 near the longitudinal seam at the 1:00 clock position. The ILI data identified the anomaly as a partial through-wall hole of 28% wall loss, but no sign of metal loss was visible. The location of the anomaly was confirmed with data from the tool's GPS, proximity to adjacent downstream girth weld, and above ground marker. NDE identified the anomaly as a "suck back" effect at the toe of the long seam weld. The anomaly passed the mill's UT and hydro test per applicable API code.

- Anomaly S9 is located downstream about 300 feet from S8 and near the longitudinal seam at the 9:30 clock position. NDE identified surface crack using a long shear wave unit. The cracks were less than $10/1{,}000^{th}$ of an inch in depth and were removed by sanding the pipe surface. Corrosion was eliminated because the FBE coating was in good condition. See photo A and B contained in PIM.

Key Documents Reviewed:

Document Title	Document No.	Rev. No	Date

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.				
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.				
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.				*[Note: Add location specific information, as appropriate.]*
Other:				

1B. Hydrostatic Pressure Testing	Satisfactory	Unsatisfactory	N/C	Notes:
Verify that hydrostatic pressure tests complied with Part 192 Subpart J requirements.				
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:				

1C. Direct Assessment Technologies	Satisfactory	Unsatisfactory	N/C	Notes:
Verify that application of "Direct Assessment Technology" complied with Part 192.923				
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.				
Verify that appropriate tests and/or inspections are being performed and appropriate data is being collected, as appropriate.				
Other.				

1D. Other Assessment Technologies	Satisfactory	Unsatisfactory	N/C	Notes:
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.				
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

2A. Remedial Actions – Process	Satisfactory	Unsatisfactory	N/C	Notes:
Verify that remedial actions complied with the Operator's procedural requirements.	X			An ILI high resolution MFL tool was completed on October 5, 2010 by Enduro. Based on the ILI data, Cosentino Consulting prepared recommendations for Portland General Electric to consider.
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.				
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).				
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.				
Verify that Operator's personnel have access to and knowledge of applicable procedures.				Cathodic Protection readings of pipe to soil at dig site (if available): On Potential: _____ mV Off Potential: _____ mV
Other:				*[Note: Add location specific information and note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]*

2B. Remediation - Implementation	Satisfactory	Unsatisfactory	N/C	Notes:
Verify that the operator has adequately implemented its remediation process and procedures to effectively remediate conditions identified through integrity assessments or information analysis.				
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).				
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.				
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&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.				Cathodic Protection readings of pipe to soil at dig site (if available): On Potential: _____ mV Off Potential: _____ mV
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.				*[Note: Add location specific information and note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]*
Other:				

Part 3 - Preventive and Mitigative Actions

3A. P&M Measures for Third Party Damage	Satisfactory	Unsatisfactory	N/C	Notes:
Identify additional measures evaluated for the HCA section of the pipeline and facilities.				
Verify that P & M measures regarding threats due to third party damage are being implemented: [§192.915(c), §192.935(b)(1)(iv)]:				
Confirm the use of qualified personnel for marking, locating, and direct supervision of known excavation work, as appropriate.				
Confirm the use of qualified personnel for monitoring of excavations conducted on covered pipeline segments by pipeline personnel, as appropriate.				
Other:				*[Note: Add location specific information, as appropriate.]*

3B. Installed Automatic Shut-off Valves (Protocol H.07)	Satisfactory	Unsatisfactory	N/C	Notes:
Verify additional preventive and mitigative actions implemented by Operator.				
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				
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)]				
Verify operation of installed remote control valve by reviewing operator inspection/remote control records for partially opening and closing the valve, as appropriate.				
Other:				*[Note: Add location specific information, as appropriate.]*

Part 4 - Field Investigations (Additional Activities as appropriate)

4A. Field Inspection for Verification of HCA Locations	Satisfactory	Unsatisfactory	N/C	Notes:
Review HCAs locations as identified by the Operator. Utilize NPMS and Operator maps, as appropriate.				
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)]				
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)]				
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.				*[Note: Add location specific information, as appropriate.]*

4B. Field Inspection for Verification of Anomaly Digs	Satisfactory	Unsatisfactory	N/C	Notes:
Verify repair areas, ILI verification sites, etc.	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.]*

4C. Field Inspection to Verify adequacy of the Cathodic Protection System	Satisfactory	Unsatisfactory	N/C	Notes:
In case of hydrostatic pressure testing, Cathodic Protection (CP) systems must be evaluated for general adequacy.	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?				
Review records of CP readings from CIS and/or annual survey to ensure minimum code requirements are being met, if available.				Cathodic Protection readings of pipe to soil at dig site (if available): On Potential: ___-1.850 V Off Potential: _____mV
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.				*[Note: Add location specific information and note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]*

4D. Field inspection for general system characteristics	Satisfactory	Unsatisfactory	N/C	Notes:
Through field inspection determine overall condition of pipeline and associated facilities for a general estimation of the effectiveness of the operator's IMP implementation.				
Evaluate condition of the ROW of inspection site to ensure minimum code requirements are being met, as appropriate.				
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)*

Pipeline System and Line Pipe Information	
Operator (OpID and System Name): Kelso-Beaver Pipline Company OPID:31522	
Unit ID (Pipeline Name)	
Pipe Manufacturer and Year: 1992	Seam Type and Orientation:
Pipe Nominal OD (inch): 20	Depth of Cover: 36"
Pipe Nominal Wall thickness (inch): 0.281	Coating Type and Condition: FBE
Grade of Pipe: X-52	MAOP:
ILI Reported Information	
ILI Technology (e.g., Vendor, Tools): Enduro, MFL	
Anomaly Type (e.g., Mechanical, Metal Loss): Metal Loss	
Is anomaly in a segment that can affect an HCA? (Yes / No) No	
Date of Tool Run (MM/DD/YY): October 5, 2010	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): Ext	Orientation (O'clock position): 9:30 & 12:50
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):	
Anomaly Dig Site Information Summary	
Date of Anomaly Dig (MM/DD/YY): 8/16/2011	
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):	
For Mechanical Damage Anomaly	
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):	
For Corrosion Metal Loss Anomaly	
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)*

Repair Information
Was a repair of the anomaly made? (Yes / No): Yes Was Operating Pressure Reduced per 192.933(a) requirements? Yes
Was defect ground out to eliminate need for repair? (Yes / No): Yes
If grinding used, complete the following for affected area: The anomaly area was sanded Length (in): Width (in): Depth (in): 0.0010"
If NO repair of an anomaly for which RSTRENG/B31.G is applicable, were the Operator's RSTRENG/B31.G calculations reviewed? (Yes / No): No
If Repair made, complete the following:
Repair Type (e.g., Type B-sleeve, composite wrap) N/A
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):
General Observations and Comments
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): Yes
If CP readings taken, Record: On Potential: ___-1.850 V; Off Potential: _____mV *[Note: Note whether CP readings were from the surface or from the pipe following exposure, as appropriate.]*
Describe method used by Operator to locate anomaly (as appropriate):
ILI's GPS, distance from AGM, and distance from girth weld
Comments regarding procedures followed during excavation, repair of anomaly, and backfill (as appropriate):
See photo "A" and "B" contained in PIM
General Observations and Comments *(Note: attach photographs, sketches, etc., as appropriate)*:
See photo "A" and "B" contained in PIM