Name of Operator:	Ferndale Pipeline System	Insp. 6220						
OPID No. 570		Unit ID No.						
HQ Address:		System/Unit Name & Address:						
BP Pipelines (North Ame	rica) Inc.	Ferndale Pipeline System						
150 W. Warrenville Road	l	14789 Ovenell Road,						
Naperville, IL 60563		Mount Vernon, WA 98273						
0 000 1	D. IID.		450 W (W)					
- I	Donald Porter	Address:	150 West Warrenville Road					
	VP, US Pipelines and Logistics	City:	Naperville					
Phone: Emergency Phone/Cell:	(832) 664-3072	State: Zip Code:	Illinois 60563					
Persons Interview	wed	Title	Phone No.					
John Newhou	se DOT Con	mpliance Advisor	630-536-2549					
Jim Bruen	DOT Team	Leader - Programs	630-536-2535					
Joe Fraley	North Are	a Core Team Lead	360-428-4214					
Ross Degerste	dt Cor	rosion Lead	425-981-2532					
Troy Dellinge	er Corro	sion Specialist	425-981-2573					
Brian Stone	Corros	ion Team Lead	563-556-1538					
Kevin Washing	ton	EMI						
Ŭ .		OMO						
State Representative(s): A Dorrough/Dennis Ritter	Anthony Inspecti	on Date(s) 07/20/2015 thr	ru 07/23/2015					
Records Location:								

Unit Description:

The pipeline starts at Sumas Station on the US/Canadian Border. Sumas station is approximately 17,250 feet West of the intersection of State Route 9 (in Sumas) and the Canadian Border. This station is tucked between gate stations for Cascade Natural Gas and Puget Sound Energy and is approximately 500 ft. from Williams's gas compressor station. From Sumas Station the pipeline zigzags in a generally SW direction until 13,250 ft. South of the Border. From that point the pipeline proceeds straight West paralleling the Cascade Pipeline. The line turns SW with the Cascade Pipeline to the meter station on the East side of the BP Cherry Point Refinery. After the meter station at the Refinery the pipeline downsizes to an 8-inch and continues South Southwest to Alcoa's Intalco aluminum smelter where it ends.

The Pipeline was designed and constructed to qualify for operation within a Class 4 location. The Pipeline was constructed of 16", 0.250"WT ERW, API-5L X-65 steel line pipe and 8", 0.250"WT ERW, API 5L X42. At the time of construction, the Pipeline was hydrostatically tested to 1,828 psig for eight hours. At the time of construction the Pipeline route traversed predominately through farmed and wooded land. An updated class location study was completed in 2009. According to 49 CFR Part 192 criteria, the pipeline route remains overwhelmingly rural.

The line pipe was mill coated with extruded polyethylene (EP) with shrink sleeves applied over field girth welds. Gas metering equipment consists of Siemens SITRANS FUG 1010 clamp-on non-intrusive ultrasonic flow meters at Sumas and Daniel ANSI gas turbine meters at Cherry Point. OMNI 6000 Flow computers assist in monitoring the balance of the system. The operators on the five (5) 16-inch mainline block valve installations are Shafer 9x12 gas-over-hydraulic rotary vane operators. These operators will automatically activate valve closure on detection of a sustained pressure drop or low pressure. All valves can be operated remotely and can be manually activated on site.

Portion of Unit Inspected:

The inspection started at the Sumas gate station (MP 0) and terminated at the Alcoa Intalco aluminum smelter in Ferndale (MP 36.2, the end of the pipeline). All block valve locations were inspected and CP readings taken. Rectifier #200 was inspected and CP readings taken. All terminus points were inspected—Cherry Point refinery and Intalco aluminum smelter. There are five HCA areas along the 36.2 mile length of the pipeline which were also inspected. One is the contractor parking and trailer area at the BP refinery; the second and third is strip commercial area in Ferndale near the crossing with I-5; the fourth is a large greenhouse complex within 100 yards of the pipeline near Lynden

and the fifth is a section at Rock and Coachman near Sumas.

All block valves except Block Valve 2 and an 8-inch valve at Cherry Point Meter Station feeding the Intalco line were remotely operated by the Control Center and local automatically operated by field personnel to the closed position. The valves shut properly. All CP reads were OK per the criteria--greater (negative) than -850mV and all reads at rectifiers were acceptable. Records also indicated no issues. Two of the HCAs identified by the operator were visited during this inspection. All are properly classified as HCAs.

Sat+ - Exceeds requirements/exemplary performance

Sat – Meets requirements

Con – "Concern" meets requirements, but is an area of recommendation and/or area that if not addressed may lead to non-compliance

Unsat – Does not meet requirements

N/A – Not Applicable

N/C - Not Checked

Assessment and Repair - External Corrosion Direct Assessment (ECDA)

12. ECDA Post-Assessment (detail) From the review of the results of selected integrity assessments, were requirements met for post assessment? (AR.EC.ECDAPOSTASSESS.R) (detail)

192.925(b)(4) (NACE SP-0502-2002 Section 6.2)

Sat + Sat Concern Unsat X

NC

Notes

In-line inspection only

Assessment and Repair - Internal Corrosion Direct Assessment

10. Post-Assessment Evaluation and Monitoring (detail) From the review of the results of selected integrity assessments, did the operator assess the effectiveness of the ICDA process? (AR.IC.ICDAPOSTASSESS.R) (detail)

192.927(c)(4)(i) (192.927(c)(4)(ii))

Sat + Sat Concern Unsat X NC

Notes

In-line inspection only

Assessment and Repair - In-Line Inspection (Smart Pigs)

8. Validation of ILI Results (detail) From a review of field staff, do the employees and vendors validate ILI assessment results per their procedures? (AR.IL.ILIVALIDATE.O) (detail)

192.921(a)(1) (B31.8S Section 6.2.6)

Sat+	Sat	Concern	Unsat	NA	NC
	I X				

Notes

The Ferndale Gas System had one 18-month condition identified and repaired. The 18-month condition was located on the 8-inch Cherry Point Meter Station to Intalco line segment. The repaired location was not in a HCA. The acceptance criterion is noted in the Repairs, Replacements and Relocations Procedure P-192.711 and BPPL-STP 32-210 - Specification for In-Line Inspection (ILI) Data Evaluation and Resulting Repair Program Procedures for ILI Repair Projects (Gas).

12. ILI Acceptance Criteria (detail) Do records indicate adequate implementation of the process for ILI survey acceptance? (AR.IL.ILIACCEPCRITERIA.R) (detail)

192.921(a) (B31.8S Section 6.2.5)

Sat + Sat X Concern Unsat NA NC

Notes
BPPL-STP 32-210 - Specification for In-Line Inspection (ILI) Data Evaluation and Resulting Repair Program Procedures for ILI Repair Projects (Gas).

15. Compliance with ILI Procedures (detail) Are O&M and IMP procedural requirements for the performance of ILI followed? (AR.IL.ILIIMPLEMENT.O) (detail)

192.620(d) Sat + Sat X Concern Unsat NA NC

Notes

BPPL-STP 32-210 - Specification for In-Line Inspection (ILI) Data Evaluation and Resulting Repair Program Procedures for ILI Repair Projects (Gas).

Assessment and Repair - Other Technology

4. Other Technology (detail) From the review of the results of selected integrity assessments, was the assessment performed in accordance with the process and vendor recommendations? (AR.OT.OTPLAN.R) (detail)

192.921(a)(4)	Sat+	Sat X	Concern	Unsat	N A	N C
Notes						

Assessment and Repair - Integrity Assessment Via Pressure Test

2. Pressure Test Results (detail) From the review of the results of pressure tests, do the test records validate the pressure test? (AR.PTI.PRESSTESTRESULT.R) (detail)

192.517(a) (192.505(a); 192.505(b); 192.505(c); 192.505(d); 192.505(e); 192.507(a); 192.507(b); 192.507(c); 192.617; 192.919(e); 192.921(a)(2); B31.8S Section 6.3.4)

Notes

Sat
X

Concern
Unsat
NA
NC

Assessment and Repair - Repair Criteria

9. Field Inspection - Remedial Actions (IM) (detail) *Is anomaly remediation and documentation of remediation adequate for all covered segments?* (AR.RC.REMEDIATION.O) (detail)

192.933(c) (192.933(a); 192.933(d))	Sat+	Sat X	Concern	Unsat	N A	NC
Notes						

Assessment and Repair - Repair Methods and Practices

2. Safety While Making Repair (detail) Are repairs made in a safe manner and to prevent damage to persons and property? (AR.RMP.SAFETY.O) (detail)

192.605(b)(9) (192.713(b))

Sat+

Sat

Concern Unsat

NΑ

NC

Notes

Observed minor repair to an indicator at Block Valve #1 that was observed to be broken during the inspection.

5. Prevention of Accidental Ignition (detail) Perform observations of selected locations to verify that adequate steps have been taken by the operator to minimize the potential for accidental ignition. (AR.RMP.IGNITION.O) (detail)

192.751(a) (192.751(b); 192.751(c))

Sat+

Sat

Concern Unsat

NΑ

N C

Notes

17. Inspection of Welds (detail) Were welds inspected and examined in accordance with §192.241 and §192.243? (AR.RMP.WELDINSPECT.O) (detail)

192.241(a) (192.241(b); 192.241(c); 192.243(a); 192.243(b); 192.243(c); 192.243(d); 192.243(e); 192.243(f))

Sat+

Sat

Concern Unsat

N A X NC

Notes

No welding on this system since the last inspection

25. Transmission Lines Testing of Repairs (detail) Does the operator properly test replacement pipe and repairs made by welding on transmission lines? (AR.RMP.WELDTEST.O) (detail)

192.719(a) (192.719(b))

Sat+

Sat

Concern Unsat

N A X

NC

Notes

No welding on this system since the last inspection

Assessment and Repair - Stress Corrosion Cracking

4. Assessment Method (High pH SCC) (detail) From the review of the results of selected integrity assessments, did the operator perform an assessment using one of the methods specified in B31.8S Appendix A3? (AR.SCC.SCCDAMETHOD.R) (detail)

192.929(b)(2) (B31.8S Appendix A3)

Sat+

Sat

Concern Unsat

N A X

NC

Notes

There have been no SCC findings or failures associated with this pipeline system. The pipeline system has been assigned their lowest SCC risk categorization.

Design and Construction - Construction Welding Procedures

3. Welding Procedures (detail) Are weld procedures being qualified in accordance with §192.225? (DC.WELDPROCEDURE.WELD.O) (detail)

192.225(a) (192.225(b))

Sat+

Sat Concern Unsat

NΑ X

NC

No welding on this system since the last inspection

6. Welding Weather (detail) Are welding operations are protected from certain weather conditions? (DC.WELDPROCEDURE.WELDWEATHER.O) (detail)

192.231

Sat+

Sat

Concern Unsat NΑ X

NΑ

X

NC

Notes

No welding on this system since the last inspection

11. Preparation for Welding (detail) Are welding preparations made in accordance with §192.235? (DC.WELDPROCEDURE.WELDPREP.O) (detail)

192.235

Sat+

Sat

Concern

Unsat

NC

Notes

No welding on this system since the last inspection

Design and Construction - Construction Weld Inspection

3. Inspection and Test of Welds (detail) Are individuals who perform visual inspection of welding qualified? (DC.WELDINSP.WELDVISUALQUAL.O) (detail)

192.241(a) (192.241(b); 192.241(c); 192.807(b))

Sat+

Sat

Concern

Unsat

N A

X

NC

Notes

No welding on this system since the last inspection

6. Nondestructive Test and Interpretation Procedures (detail) Are NDT procedures adequate? (DC.WELDINSP.WELDNDT.O) (detail)

192.243(a) (192.243(b)(1); 192.243(b)(2); 192.243(c); 192.243(a))

Sat+

Sat Concern Unsat

NΑ X

NΑ

X

NC

Notes

No welding on this system since the last inspection

9. Repair or Removal of Weld Defects (detail) Are unacceptable welds removed and/or repaired? (DC.WELDINSP.WELDREPAIR.O) (detail)

192.245(a) (192.245(b); 192.245(c))

Sat+

Through Amdt. 192-116

Sat

Concern

Unsat

NC

Notes

No welding on this system since the last inspection

Design and Construction - Construction

18. Inspection of Materials (detail) Are pipe lengths and other pipeline components visually inspected to ensure they are not damaged? (DC.CO.INSPECTVISUAL.O) (detail)

192.307

Sat+

Sat

Concern Unsat

N A X NC

Notes

No new construction on this pipeline system since the last inspection

21. Repair of Steel Pipe (detail) Are repairs to steel pipe made in accordance with §192.309? (DC.CO.REPAIR.O) (detail)

192.309(a) (192.309(b); 192.309(c); 192.309(d); 192.309(e))

Sat+

Sat

Concern Unsat

N A X

NC

Notes

No new construction on this pipeline system since the last inspection

34. Installation of Pipe in a Ditch (detail) When pipe is placed in the ditch, is it installed so as to fit the ditch, minimize stresses, and protect the pipe coating from damage? (DC.CO.INSTALL.O) (detail)

192.319(a) (192.319(b))

Sat+

Sat

Concern

Unsat

N A X

NC

Notes

No new construction on this pipeline system since the last inspection

Design and Construction - Pressure Testing

3. General - Testing Requirements (detail) *Is pressure testing conducted in accordance with §192.503?* (DC.PT.PRESSTEST.O) (detail)

192.503(a) (192.503(b); 192.503(c); 192.503(d))

Sat+

Sat

Concern Unsat

Concern

N A X

N C

Notes

No Pressure Test on this pipeline system since the last inspection

6. Strength Test Requirements for SMYS > 30%. (detail) *Is pressure testing conducted in accordance with* §192.505? (DC.PT.PRESSTESTHIGHSTRESS.O) (detail)

Through Amdt. 192-116

192.505(a) (192.505(b); 192.505(c); 192.505(d); 192.505(e))

Sat+

Sat

Unsat

N A X NC

Notes

No Pressure Test on this pipeline system since the last inspection

Design and Construction - Training and Qualification

4. Skills and Knowledge of Personnel Performing Covered Tasks - Contractor employees

(detail) Do selected contractor individuals performing covered tasks demonstrate adequate skills and knowledge? (DC.TQ.OQCONTRACTOR.O) (detail)

(DC.TQ.OQCONTRACTOR.O) (detail)

192.805(b) (Operators OQ program manual)

Sat + Sat Concern Unsat NA

Sat+ Concern Unsat NA NC

Notes

6. Skills and Knowledge of Personnel Performing Covered Tasks - Operator Employee (detail)

Do selected operator individuals performing covered tasks demonstrate adequate skills and knowledge? (DC.TQ.OQPLANEMPLOYEE.O) (detail)

192.805(b) (Operators OQ program manual)

Sat+	Sat X	Concern	Unsat	N A	NC
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Notes

8. Qualification of Personnel who Oversee and Perform Excavations and Backfilling Operations

(detail) Do selected individuals who oversee marking, trenching and backfilling operations demonstrate adequate skills and knowledge? (DC.TQ.EXCAVATE.O) (detail)

192.805(b) (ADB-06-01)

	Sat+	Sat	Concern	Unsat	N A X	N C
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Notes

No Trenching or Backfilling operations since last inspection

10. Qualification of Personnel Performing Hot Taps (detail) Do personnel performing hot taps demonstrate

adequate skills and knowledge? (DC.TQ.HOTTAP.O) (detail)

192.805(b) (192.627)	Sat+	Sat	Concern	Unsat	N A X	NC
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Notes

No Hot Taps since last inspection

Integrity Management - High Consequence Areas

8. IM High Consequence Areas - Identification Method 1 (Class Locations) (detail) Do records indicate adequate application of the §192.903 High Consequence Area definition (1) for the identification of HCAs? (IM.HC.HCAMETHOD1.R) (detail)

Notes

Identification Method 2 is used exclusively

10. IM High Consequence Areas - Identification Method 2 (Potential Impact Radius) (detail) Do records indicate adequate application of §192.903 High Consequence Area definition (2) for identification of HCAs? (IM.HC.HCAMETHOD2.R) (detail)

192.903(2)(i) (192.903(2)(ii))

Sat+ Sat Concern Unsat NA NC

Notes

The identification method is defined in procedure P-192.901(a)

13. IM High Consequence Areas (detail) Are HCAs correctly identified per up-to-date information? (IM.HC.HCADATA.O) (detail) Sat 192.905(c) Sat+ Concern Unsat NΑ N C X **Notes Integrity Management - Preventive and Mitigative Measures** 3. P&M Measures - Third Party Damage (detail) Does the preventive and mitigative process include requirements that threats due to third party damage be addressed? (Note: A subset of these enhancements are required for pipelines operating below 30% SMYS - See IM.PM.PMMTPDSMYS.P) (IM.PM.PMMTPD.P) (detail) Sat Unsat NΑ NC 192.917(e)(1) (192.935(b)(1); 192.935(e)) Sat+ Concern X **Notes** No third party damage to pipeline (ever). Five HCAs on entire pipeline. They run ILI pigs every 7 years. Seven anomalies (1) dig site were identified on the 8-inch Cherry Point Meter Station to Intalco tool run completed in 2013. Per procedure, pipeline personnel must be onsite if any third party digs within 25 feet of pipeline. Joe Fraley participates with the Whatcom Unified Emergency Planning Committee and attends all meetings (quarterly). He or Jim Fraley routinely give presentations on damage prevention at these meetings. 12. P&M Measures - Automatic Shut-Off Valves or Remote Control Valves (detail) Has an adequate determination been made to determine if automatic shut-off valves or remote control valves represent an efficient means of adding protection to potentially affected high consequence areas? (IM.PM.PMMASORCV.R) (detail) Sat Sat+ Concern Unsat NΑ N C 192.935(c) Notes The operator installed automatic valves on every block valve along the pipeline. The valves are located every 5 miles along the pipeline and automatically shut when the system senses a 50psi pressure differential across the valve or the pressure drops to less than 300 psi. The operator demonstrated all Block valves except valve No. 2 (randomly selected in 2012) that they operate automatically. Tulsa control center confirmed and also remotely operated valve. The operator also has a CPM leak detection system on this pipeline. The system uses the pressure, temperature and flow from the flow meters located at the gate station, and the terminal station meters to determine if system has integrity. The system is designed to detect a leak at 3% accuracy (or less). A report is generated every day and is monitored by Tulsa Control Room. 13. P&M Measures - Implementation (detail) Have identified P&MMs to prevent a pipeline failure and to mitigate the consequences of a pipeline failure in an HCA been implemented? (IM.PM.PMMIMPLEMENT.O) (detail) Sat 192.935(a) Unsat NΑ NC Sat+ Concern X Not Public Awareness and Damage Prevention - ROW Markers, Patrols, **Leakage Survey and Monitoring** 4. Placement of ROW Markers (detail) Are line markers placed and maintained as required? (PD.RW.ROWMARKER.O) (detail) 192.707(a) (CGA Best Practices, v4.0, Practice 2-5; CGA Best Sat Sat+ Concern Unsat NΑ NC Practices, v4.0, Practice 4-20) X

Through Amdt. 192-116

Notes

5. Placement of ROW Markers (detail) Are line markers placed and maintained as required for above ground pipelines? (PD.RW.ROWMARKERABOVE.O) (detail) 192.707(c) (CGA Best Practices, v4.0, Practice 2-5; CGA Best Sat Sat+ Concern Unsat NΑ NC Practices, v4.0, Practice 4-20) X **Notes 6. ROW Conditions (detail)** Are the ROW conditions acceptable for the type of patrolling used? (PD.RW.ROWCONDITION.O) (detail) Sat 192.705(a) (192.705(c)) Sat+ Unsat NΑ NC Concern X **Notes Time-Dependent Threats - External Corrosion - Coatings 12. Exposed Pipe Coating (detail)** Is exposed buried pipe coating inspected to determine if it is deteriorating? (TD.COAT.EXPOSEINSPECT.O) (detail) Sat+ Sat 192.459 Concern Unsat NΑ NC Notes Exceptional, could find no corrosion and very little rust Training and Qualification - Qualification of Personnel - Specific Requirements (O and M Construction) **6. Qualification of Welders (detail)** Do welders demonstrate adequate skills and knowledge? (TQ.QUOMCONST.WELDER.O) (detail) 192.227(a) (192.227(b); 192.229(a); 192.229(b); 192.229(c); NΑ Sat+ Sat Concern Unsat NC 192.229(d); 192.805(h); 192.807(a); 192.328(a); 192.328(b)) X No welding since last inspection 9. Qualification of Nondestructive Testing Personnel (detail) Do nondestructive testing personnel demonstrate adequate skills and knowledge? (TQ.QUOMCONST.NDT.O) (detail) NA NC 192.243(b)(2) (192.807(a); 192.328(a); 192.328(b)) Sat+ Sat Concern Unsat X Notes No welding since last inspection

Training and Qualification - Qualification of Personnel - Specific Requirements

5. Qualification of Personnel Tapping Pipelines under Pressure (detail) Do personnel performing hot taps demonstrate adequate skills and knowledge? (TQ.QU.HOTTAPQUAL.O) (detail) NA 192.627 (192.805(h)) Sat Concern Unsat N C X Notes No Hot Tapping since last inspection 8. Qualification of Personnel who Oversee and Perform Excavations and Backfilling Operations (detail) Do individuals who oversee marking, trenching, and backfilling operations demonstrate adequate skills and knowledge? (TQ.QU.EXCAVATE.O) (detail) 192.805(b) (192.805(h); ADB-06-01; 192.801(a); 192.328(a); NΑ Sat+ Sat Concern Unsat NC 192.328(c)) X Notes No Excavations or Backfilling operations since last inspection **Training and Qualification - Training of Personnel** 3. Emergency Response Training (detail) Do emergency response personnel demonstrate adequate skills and knowledge? (TQ.TR.TRAINING.O) (detail) Sat Unsat 192.615(b)(2) (192.805(b)) Sat+ Concern NΑ NC Notes Training and Qualification - OQ Protocol 9 1. Covered Task Performance (detail) Verify the qualified individuals performed the observed covered tasks in accordance with the operator's procedures or operator approved contractor procedures. (TQ.PROT9.TASKPERFORMANCE.O) (detail) Sat 192.801(a) (192.809(a)) Sat+ Concern Unsat N A NC X **Notes** 2. Qualification Status (detail) Verify the individuals performing the observed covered tasks are currently qualified to perform the covered tasks. (TQ.PROT9.QUALIFICATIONSTATUS.O) (detail) Sat 192.801(a) (192.809(a)) Sat+ Concern Unsat NΑ NC X Note 3. Abnormal Operating Condition Recognition and Reaction (detail) Verify the individuals performing covered tasks are cognizant of the AOCs that are applicable to the tasks observed. (TQ.PROT9.AOCRECOG.O) (detail) Sat 192.801(a) (192.809(a)) NΑ N C Sat+ Concern Unsat X Notes

PHMSA Form 16 Question Set (IA Equivalent) GAS TRANSMISSION INTEGRITY MANAGEMENT IMPLEMENTATION INSPECTION

4. Verification of Qualification (detail) Verify the qualification records are current, and ensure the personal identification of all individuals performing covered tasks are checked, prior to task performance. (TQ.PROT9.VERIFYQUAL.O) (detail)

192.801(a) (192.809(a))	Sat+	Sat X	Concern	Unsat	NA	N C	
Notes							

5. Program Inspection Deficiencies (detail) Have potential issues identified by the headquarters inspection process been corrected at the operational level? (TQ.PROT9.CORRECTION.O) (detail)

192.801(a) (192.809(a))	Sat+	Sat X	Concern	Unsat	N A	N C
Notes						

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