BREAKOUT TANK INSPECTION FORM

A completed **Standard Inspection Report** is to be submitted to the Director within 60 days from completion of the inspection. A **Post Inspection Memorandum (PIM)** is to be completed and submitted to the Director within 30 days from the completion of the inspection, or series of inspections, and is to be filed as part of the **Standard Inspection Report.**

Inspection Report	**Post Inspection Memorandum**	
Inspector/Submit Date: 9/12/2011 / Kuang Chu	**Inspector/Submit Date:**	9/12/2011 / Kuang Chu
	Peer Review/Date:	
	Director Approval/Date:	

POST INSPECTION MEMORANDUM (PIM)

Name of Operator:	Kinder Morgan Canada, Inc.	**OPID #:**	19585
Name of Unit(s):	Trans Mountain Pipeline (Puget Sound) LLC	**Unit #(s):**	285
Records Location:	Laurel Station	**Activity #**	
Unit Type & Commodity:	Hazardous liquid pipeline for crude oil transportation		
Inspection Type:	Standard	**Inspection Date(s):**	8/22 – 26/2011
PHMSA Representative(s):	Kuang Chu/UTC	**AFO Days:**	5

Summary:

The breakout tank inspection was part of the standard inspection of the pipeline system. As part of the expansion at the Laurel Station, tanks T-170 and T-180 were refurbished in 2008 to bring them into compliance with API 653 requirements. Tank T-130 at the Ferndale Station was built in 2008 for surge relief. Tank T-7 inside the Shell Refinery in Anacortes was inspected by a certified API 653 Inspector in 2010 for in-service external inspection. All 4 tanks were inspected during the field inspection.

Findings:

All 4 tanks appear to be in good working condition. The transfer of operation from Shell to Kinder Morgan for tank T-7 is almost complete. This tank was refurbished in 2008.

Company System Maps (copies for Region Files):	
Validate SMART Data (components, miles, etc): ☐	**Acquisition(s), Sale or New Construction**(submit SMART update): ☐
Validate Additional Requirements Resulting From Waiver(s) or Special Permit(s):	

BREAKOUT TANK INSPECTION FORM

Name of Operator:	Kinder Morgan Canada, Inc.		
OP ID No. [1]	19585	**Unit ID No.** [1]	285
HQ Address:		**System/Unit Name & Address:** [1]	
Suite 2700, Stock Exchange Building 300 5th Ave. SW Calgary, Alberta T2P5J2 Canada		Trans Mountain Pipeline (Puget Sound) LLC Laurel Station 1009 East Smith Road Bellingham, WA 98226	
Co. Official:	Hugh Harden, VP Operations & Engineering & EHS	**Activity Record ID #:**	
Phone No.:	(403) 514-6400/(800) 535-7219	**Phone No.:**	(360) 398-1541
Fax No.:	(403) 514-6441	**Fax No.:**	(360) 398-7432
Emergency Phone No.:	(888) 876-6711	**Emergency Phone No.:**	(888) 876-6711

Persons Interviewed	Title	Phone No.
Patrick Davis	Supervisor, Corporation	(360) 398-1541
Adam Lind	Operations Engineer/Technical Services	(403) 514-6429

PHMSA Representative(s) [1]	Kuang Chu/UTC	**Inspection Date(s)** [1]	8/22 – 26/2011
Company System Maps (Copies for Region Files):			

Comments:
The breakout tanks were generally in good working condition. The transfer of tank operation from Shell to Kinder Morgan was near complete. Once the transfer is complete, the H and HH levels for tank T-7 will be communicated to the operator's control room in Calgary, Canada (currently the communication is with the Shell Refinery's control room). The dis-bonded coating at the soil/air interface for the 12" surge relief line will be repaired. A cathodic protection system to protect the tank bottom plate from soil side corrosion will also be installed.

For hazardous liquid operators, the attached evaluation form should be supplemented with PHMSA Form 3 and 49 CFR 195 during PHMSA inspections.

[1] Information not required if included on page 1.

BREAKOUT TANK INSPECTION FORM

		Design and New Construction of Aboveground Breakout Tanks	S	U	N/A	N/C
.132	(a)	Each aboveground breakout tank must be designed and constructed to withstand the internal pressure produced by the hazardous liquid to be stored therein and any anticipated external loads. ***(Notes: This requirement will be included in the operator's O&M manual.)***		x		
	(b)	After Oct. 2, 2000 compliance with paragraph (a) above requires:				
		(1) Shop-fabricated, vertical, cylindrical, closed top, welded steel tanks with nominal capacities of 90 to 750 barrels and with internal vapor space pressures that are approximately atmospheric must be designed and constructed in accordance with **API Specification 12F, (11th edition, November 1, 1994, reaffirmed 2000, errata February 2007).** ***(Notes: The operator does not build tanks to API 12F.)***			x	
		(2) Welded, low-pressure (i.e., internal vapor space pressure not greater than 15 psig) carbon steel tanks that have wall shapes that can be generated by a single vertical axis of revolution must be designed and constructed in accordance with **API Standard 620, (11th edition, February 2008, addendum 1 March 2009).** ***(Notes: The operator does not build tanks to API 620.)***			x	
		(3) Vertical, cylindrical, welded steel tanks with internal pressures at the tank top approximating atmospheric pressures (i.e., internal vapor space pressures not greater than 2.5 psig, or not greater than the pressure developed by the weight of the tank roof) must be designed and constructed in accordance with **API Standard 650, (11th edition, June 2007, addendum 1, November 2008).**	x			
		(4) High pressure steel tanks (i.e., internal gas or vapor space pressures greater than 15 psig) with a nominal capacity of 2000 gallons or more of LPG must be designed and constructed in accordance with **API Standard 2510, (8th edition, 2001).** ***(Notes: The operator does not build tanks to API 2510.)***			x	

Comments:

		Tank Repairs, Alterations, and Reconstruction Procedures	S	U	N/A	N/C
.205	(a)	Aboveground breakout tanks repaired, altered, or reconstructed and returned to service must be capable of withstanding the internal pressure produced by the hazardous liquid to be stored therein and any anticipated external loads. *The repair/alteration history includes all data accumulated on a tank from the time of its construction with regard to repairs, alterations, replacements, and service changes (recorded with service conditions such as stored product temperature and pressure). These records should include the results of any experiences with coatings and linings.*	x			
	(b)	After Oct. 2, 2000 compliance with paragraph (a) above requires:				
		(1) Tanks designed for approximately atmospheric pressure, constructed of carbon and low alloy steel, welded or riveted, and non-refrigerated built to **API Standard 650,** or its predecessor **Standard 12C**, must be repaired, altered, or reconstructed according to **API Standard 653, (3rd edition, December 2001, addendum 1 (September 2003), addendum 2 (November 2005), addendum 3 (February 2008), and errata (April 2008)).**	x			
		(2) Tanks built to **API Specification 12F,** or **API Standard 620**, the repair, alteration, and reconstruction must be in accordance with the design, welding, examination, and material requirements of those respective standards. ***(Notes: The operator does not build tanks to API 12F & 620.)*** Tanks built to API 620 may be modified by the design, welding examination and testing provisions of API 653 in proper conformance with the stresses, joint efficiencies, material and other provisions in API standard 620.			x	
		(3) For high pressure tanks built to **API Standards 2510**, repaired, altered, or reconstructed will be in accordance with **API 510, (9th edition, June 2006).** ***(Notes: The operator does not build tanks to API 2510.)***			x	

BREAKOUT TANK INSPECTION FORM

Comments:

		Impoundment, Protection Against Entry, Relief, and Venting Procedures	S	U	N/A	N/C
.264	(a)	A means must be provided for containing hazardous liquids in the event of spillage or failure of an aboveground breakout tank. Containment and impoundment are effective means of controlling environmental releases and fires.	x			
	(b)	(1) For tanks built to **API Specification 12F, API Standard 620**, and others (such as **API Standard 650** or its predecessor Standard **12C**), the installation of impoundment must be in accordance with the following sections of **NFPA 30, *Flammable and Combustible Liquids Code*, (2008 edition, approved August 15, 2007):**				
		(i) Impoundment around a breakout tank must be installed in accordance with Section 3.2.3.2; and	x			
		(ii) Impoundment by drainage to a remote impounding area must be installed in accordance with Section 4.3.2.3.1. ***(Notes: The operator does not use remote impoundment.)***			x	
		(2) For tanks built to **API Standard 2510**, the installation of impoundment must be in accordance with Section 5 or 11 of **API Standard 2510, (8th edition, 2001).** ***(Notes: The operator does not build tanks to API 2510.)***			x	
	(c)	Aboveground breakout tank areas must be adequately protected against unauthorized entry.	x			
	(d)	Normal/emergency relief venting must be provided for each atmospheric pressure breakout tank. Each low-pressure and high-pressure breakout tank must have pressure/vacuum-relieving devices.	x			
	(e)	For normal/emergency relief venting and pressure/vacuum-relieving devices installed on aboveground breakout tanks after October 2, 2000, compliance with paragraph (d) of this section requires the following for the tanks specified:				
		(1) Normal and emergency relief venting installed on atmospheric pressure tanks built to **API Specification 12F**, ***Specification for Shop Welded Tanks for Storage of Production Liquids,*** must be in accordance with Section 4, and Appendices B and C, of **API Specification 12F, (applicable edition IBR at time of installation).** ***(Notes: The operator does not have API 12F tanks.)***			x	
		(2) Normal/emergency relief venting installed on atmospheric pressure tanks (such as those **built to API Standard 650** or its predecessor **Standard 12C**) must be in accordance with **API Standard 2000, *Venting Atmospheric and Low-Pressure Storage Tanks Non-refrigerated and Refrigerated*, (applicable edition IBR at time of installation).**	x			
		(3) Pressure-relieving and emergency vacuum-relieving devices installed on low pressure tanks built to **API Standard 620** ***(Design, Construction, Large, Welded, Low-Pressure Storage Tanks)*** must be in accordance with **Section 9 of API Standard 620** and its references to normal and emergency venting requirements in **API Standard 2000, (applicable editions IBR at time of installation).** ***(Notes: The operator does not have API 620 tanks.)***			x	
		(4) Pressure and vacuum-relieving devices installed on high pressure tanks built to **API Standard 2510, *Design and Construction of LPG Installations*,** must be in accordance with Sections 7 or 11 of **API Standard 2510, (applicable edition IBR at time of installation).** ***(Notes: The operator does not have API 2510 tanks.)***			x	

Comments:

		Pressure Test Procedures/Pressure Testing Aboveground Breakout Tanks	S	U	N/A	N/C
.307	(a)	Aboveground breakout tanks built to **API Specification 12F** and first placed in service after October 2, 2000, pneumatic testing must be in accordance with section 5.3 of **API Specification 12F (applicable edition IBR at time of testing).** ***(Notes: The operator does not have API 12F tanks.)***			x	

BREAKOUT TANK INSPECTION FORM

Pressure Test Procedures/Pressure Testing Aboveground Breakout Tanks			S	U	N/A	N/C
	(b)	Aboveground breakout tanks built to **API Standard 620** and first placed in service after October 2, 2000, hydrostatic and pneumatic testing must be in accordance with section 7.18 of **API Standard 620 (applicable edition IBR at time of testing).** ***(Notes: The operator does not have API 620 tanks.)***			x	
	(c)	Aboveground breakout tanks built to **API Standard 650** and first placed in service after October 2, 2000, hydrostatic and pneumatic testing must be in accordance with section **5.3.5 of API Standard 650 (applicable edition IBR at time of testing).**	x			
	(d)	Aboveground atmospheric pressure breakout tanks constructed of carbon and low alloy steel, welded or riveted, and non-refrigerated and tanks built to **API Standard 650** or its predecessor **Standard 12C** that are returned to service after October 2, 2000, the necessity for the hydrostatic testing of repair, alteration, and reconstruction is covered in section **12.3** of **API Standard 653, (applicable editions IBR at time of testing).**	x			
	(e)	Aboveground breakout tanks **built to API Standard 2510** and first placed in service after October 2, 2000, pressure testing must be in accordance with **ASME Boiler and Pressure Vessel Code, Section VIII, Div.1 or 2, (applicable edition IBR at time of testing).** ***(Notes: The operator does not have API 2510 tanks.)***			x	
.310	(a)	A record must be made of each pressure test required by this subpart, and the record of the latest test must be retained as long as the facility tested is in use.	x			
	(b)	The record required by paragraph (a) of this section must include: (1) The pressure recording charts; (2) Test instrument calibration data; (3) The name of the operator, the name of the person responsible for making the test, and the name of the test company used, if any; (4) The date and time of the test; (5) The minimum test pressure; (6) The test medium; (7) A description of the facility tested and the test apparatus; (8) An explanation of any pressure discontinuities, including test failures, that appear on the pressure recording charts; (9) Where elevation differences in the section under test exceed 100 feet (30 meters), a profile of the pipeline that shows the elevation and test sites over the entire length of the test section; and (10) Temperature of the test medium or pipe during the test period.	x			

Comments:

BREAKOUT TANK PROCEDURES			S	U	N/A	N/C
.402(c)(3)	.404(a)	Operator shall maintain current maps and records of its pipeline systems that include at least the following information; (1) Location and identification of (i) breakout tanks.	x			
	.405(a)	Provide protection against ignitions arising out of static electricity, lightning, and stray currents IAW **API Recommended Practice 2003, *Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents*, (7th edition, January 2008).**	x			
	.405(b)	Review, consider, and incorporate into operator's procedure manual, the potentially hazardous conditions, safety practices and procedures associated with access/egress onto floating roofs IAW **API 2026, *Safe Access/Egress Involving Floating Roofs of Storage Tanks In Petroleum Service,* (2nd edition, April 1998, reaffirmed June 2006).**	x			
	.422	Repairs shall be made in a safe manner and made so as to prevent damage to persons or property.	x			
	.428(a)	Inspect and test each overfill protection system, pressure limiting device, relief valve, pressure regulator, or other pressure control equipment (annually/NTE 15 mo), except as provided in paragraph (b) of this section.	x			
	.428(b)	In the case of or relief valves on pressure breakout tanks containing **HVLs**, operator shall test each valve at intervals not exceeding 5 years. ***(Notes: The operator does not have breakout tanks containing HVLs.)***			x	

BREAKOUT TANK INSPECTION FORM

		BREAKOUT TANK PROCEDURES	S	U	N/A	N/C
	.428(c)	Aboveground breakout tanks • constructed or significantly altered according to section 5.1.2 of **API Standard 2510** after October 2, 2000, must have an overfill protection system according to **5.1.2 of API Standard 2510, (8th edition, 2001).** • **if (600 gallons or more)** constructed or significantly altered after October 2, 2000, must have overfill protection according to **API Recommended Practice 2350, *Overfill Protection for Storage Tanks in a Petroleum Facility,* (3rd edition, January 2005).**	x			
	.430	Each operator shall maintain adequate firefighting equipment at each breakout tank area. The equipment must be– (a) In proper operating condition at all times; (b) Plainly marked so that its identity as firefighting equipment is clear; and (c) Located so that it is easily accessible during a fire.	x			
	.432(b)	Each operator shall inspect the physical integrity of in-service atmospheric and low-pressure steel aboveground breakout tanks according to **API Standard 653, (3rd edition December 2001, includes addendum 1 (September 2003), addendum 2 (November 2005), addendum 3 (February 2008), and errata (April 2008).** However, if structural conditions prevent access to the tank bottom, the bottom integrity may be assessed according to a plan included in the operations and maintenance manual under **§195.402(c)(3)**.	x			
		-Owner/operator visual, external condition inspection interval not to exceed **one month** (more frequent inspections may be needed based on conditions at particular sites)	x			
		-External inspection, visual, by an Authorized Inspector at least every **five years** or at the quarter corrosion rate life of the shell, whichever is less. -External ultrasonic thickness measurement of the shell based on the corrosion rate. If the corrosion rate is not known, the maximum interval shall be **five years**.	x			
		Are corrosion rate-based internal inspection intervals established in accordance with API 653, and in no case exceed **20 years**? (Unless Risk-Based Inspection alternative is applied).	x			
		If tank bottom upper or lower side corrosion rate is unknown, the Out of Service inspection interval shall not exceed **10 years**.	x			
	.432(c)	Each operator shall inspect the physical integrity of in-service steel aboveground breakout tanks built to **API Standard 2510** according to **section 6 of API 510.** ***(Notes: The operator does not have API 2510 tanks.)***			x	
	.432(d)	The intervals of inspection specified by documents referenced in paragraphs (b) and (c) of this section begin on **May 3, 1999**, or on the operator's last recorded date of the inspection, whichever is earlier.	x			
	.434	Maintain signs visible to the public around each breakout tank area. Each sign must contain the name of the operator and a telephone number (including area code) where the operator can be reached at all times. ***(Notes: This requirement is not included in operator's O&M manual.)***		x		
	.436	Operator shall provide protection for each breakout tank area and other exposed facility (such as scraper traps) from vandalism and unauthorized entry.	x			
	.438	Operator shall prohibit smoking and open flames in each breakout tank area where there is a possibility of the leakage of a flammable hazardous liquid or of the presence of flammable vapors.	x			

Comments:

		Corrosion Control Procedures	S	U	N/A	N/C
.402(c)(3)	.563(d)	Breakout tank areas, bare pipelines, and buried pumping station piping must have cathodic protection in places where previous editions of this part required cathodic protection as a result of electrical inspections.	x			
	.565	**Breakout Tank CP installation** After 10/02/2000, required cathodic protection systems to protect above ground breakout tanks over 500 bbl capacity, shall be installed in accordance with **API RP 651, (3rd edition, January 2007).**	x			

BREAKOUT TANK INSPECTION FORM

		Corrosion Control Procedures	S	U	N/A	N/C
	.571	**Cathodic Protection (CP) Acceptance Criteria** CP levels must comply with **NACE Standard RP0169-96** (paragraphs 6.2 and 6.3), **(reaffirmed March 15, 2007).**	x			
	.573(d)	**Breakout Tank CP inspections** Cathodic protection systems used to protect breakout tanks must be inspected in accordance with **API 651, (3rd edition, January 2007).**	x			
	11.3.2	**Cathodic Protection Surveys** – Annual CP surveys are required. Surveys may include one or more of the following:				
		1. Structure to soil potential.	x			
		2. Anode current.	x			
		3. Native structure to soil potentials	x			
		4. Structure-to-structure potential	x			
		5. Piping-to-tank isolation if protected separately. ***(Notes: There is no isolation.)***			x	
		6. Structure-to-soil potential on adjacent structures. ***(Notes: There are no adjacent structures.)***			x	
		7. Continuity of structures if protected as a single structure.	x			
		8. Rectifier DC volts, DC amps, efficiency, and tap settings.	x			
		Rectifier Inspections:				
		- Every 2 months. – (Inspections should include a check for electrical shorts, ground connections, meter accuracy, and circuit resistance).	x			
	11.3.3.4	**Tank Bottoms** – Tank bottom should be examined for evidence of corrosion whenever access to the bottom is possible. (During repairs, modifications, during API653 inspections) Examinations may be done by coupon cutouts or nondestructive methods.	x			
	.577(a)	**Interference Currents** For breakout tanks exposed to stray currents, is there a program to minimize the detrimental effects? ***(Notes: There are no stray currents.)***			x	
	.579(d)	**Breakout tank – internal corrosion mitigation** After October 2, 2000, tank bottom linings installed in tanks built to **API 12F, API 620, API 650, or its predecessor 12C** must be installed in accordance with **API RP 652 (3rd edition, October 2005).**	x			
	.581(c)	**Atmospheric Corrosion Protection** Except for soil-to-air interfaces, atmospheric corrosion protection is not required where it is demonstrated by test, investigation, or similar environmental experience; that corrosion will – (1) Only be a light surface oxide; or (2) Not affect the safe operation of the pipeline before the next scheduled inspection. ***(Notes: All the exposed pipe is painted for atmospheric corrosion protection.)***			x	
	.583(a)	**Atmospheric Corrosion Monitoring** Inspect each pipeline that is exposed to the atmosphere for evidence of atmospheric corrosion at least once every 3 calendar years, but with intervals not exceeding 39 months.	x			
	.583(c)	If you find atmospheric corrosion during an inspection, you must provide protection against the corrosion as required by §195.581.	x			

Comments:

BREAKOUT TANK INSPECTION FORM

	FIELD REVIEW	S	U	N/A	N/C
.258(a)	Is each valve installed in a location that is accessible to authorized employees and protected from damage or tampering?	x			
.260(b)	A valve must be installed on each line entering or leaving a breakout storage tank area in a manner that permits isolation of the tank area from other facilities.	x			
.264	Impoundment areas adequate, dikes not eroded, and dike drains operational.	x			
.428	Pressure Limiting Devices, relief valve, pressure regulator, overfill protection systems.	x			
.430	Each operator shall maintain adequate firefighting equipment at each breakout tank area that is: • In proper operating condition, • Plainly marked, and • Located to be readily accessible	x			
.434	Signs visible to the public around each breakout tank area that contains the name of the operator and a telephone number (including area code) where the operator can be reached at all times.	x			
.436	Protection for each breakout tank area from vandalism and unauthorized entry.	x			
.438	Prohibition of smoking and open flames in breakout tank areas	x			
.565	Cathodic Protection System Facilities	x			
.581	Atmospheric Corrosion (piping, tanks, soil/air interfaces, splash zones) ***(Notes: The 16" relief line to tank T-7 inside Shell Refinery appeared to have disbanded coating and atmospheric corrosion at the soil/air interface.)***		x		
.501-.509	**Operator Qualification** - Use PHMSA Form 15 Operator Qualification Field Inspection Protocol				

BREAKOUT TANK INSPECTION FORM

	RECORDS REVIEW	S	U	N/A	N/C
.132	Design and Construction of aboveground breakout tanks	x			
.205	Tank alteration and reconstruction records. For tanks repaired after 10/2/2000, records reflecting compliance with the referenced API standards. ***(Notes: There were no alteration or reconstruction during this inspection period.)***			x	
.264	Impoundment determination records. For tanks constructed after 10/2/2000, records reflecting compliance with the referenced API/NFPA standards.	x			
.264(d)	Record of calculations for normal/relief vents and pressure/vacuum vents.	x			
.310	Hydrostatic/pneumatic testing records for above ground breakout tanks for tanks first placed in service after 10/2/2000.	x			
.404	Maps and records of location and identification of breakout tanks	x			
.405(a)	API RP 2003 (if not followed by operator, must have a documented basis)	x			
.405(b)	Review applicable hazards in API RP 2026 for inclusion in the procedure manual	x			
.428	Testing of overpressure safety devices and overfill protection systems	x			
.432	Inspection of in-service breakout tanks (in accordance with applicable API Standard)				
	Monthly inspection reports	x			
	Annual inspection report(s) (not required if operator has implemented API 653 inspection program, but may be required by operator's O&M procedures).	x			
	In-service inspection report(s), including next inspection interval calculation	x			
	Out-of-service inspection report(s), including next inspection interval calculation ***(Notes: There were no out-of-service inspections conducted during this inspection period.)***			x	
	Follow-up actions from inspection findings (repairs, fill level height adjustments, other recommendations from inspection report).	x			
.573	External corrosion control monitoring records in accordance with API RP 651	x			
	Rectifiers (6 times per calendar year, not to exceed 2 ½ month intervals)	x			
	Electrical isolation and or bonds	x			
	Structure to Soil potentials, annual surveys	x			
.579	Tank bottom linings in accordance with API RP 652, if installed after October 2, 2000	x			
.581	Atmospheric corrosion monitoring (every 3 years not to exceed 39 months)	x			
.589	Current records or maps of cathodic protection and monitoring facilities, including galvanic anodes, installed after January 29, 2002, and neighboring structures bonded to CP systems.	x			

Comments:

BREAKOUT TANK INSPECTION FORM

Breakout Tank Field Review (Complete one page for each tank or tank impound area inspected)						
.432	**Tank Number(s)** T-170 at Laurel Station		**S**	**U**	**N/A**	**N/C**
	General Site Conditions	a. Runoff rainwater from the shell drains away from tank, and site drainage away from tank.	x			
		b. No vegetation against tanks, no flammable materials, trash.	x			
		c. No voids under tank/tank foundations, or settlement around perimeter of tank.	x			
	Tank Foundation, Bottom Shell	a. Concrete (no broken concrete, spalling, or cracks).	x			
		b. Plate and weld in bottom angle area (No thinning or corrosion).	x			
		c. Integrity of the bottom-to-foundation seal, if present.	x			
		d. No signs of bottom leakage.	x			
	External Shell	a. Exterior coating (No paint failure, pitting, or corrosion).	x			
		b. Rivet or seam leakage.	x			
		c. No cracks or signs of leakage on weld joints at nozzles, manways, and reinforcing plates.	x			
		d. No shell deformation.	x			
		e. No shell plate dimpling around nozzles, caused by excessive pipe deflection.	x			
	Tank Piping and Manifolds	a. No manifold piping, flange, or valve leakage.	x			
		b. Anchored piping (check that it would not cause tank shell bottom connection damage during earth movement).	x			
		c. Adequate thermal pressure relief of piping to the tank.	x			
		d. Temperature indicators are accurate and undamaged.	x			
	Shell-Mounted Sample Station	a. Sample line and return-to-tank line valves, seals, and drains function properly. ***(Notes: There are no shell-mounted sample station.)***			x	
		b. Circulation pump has no signs of leaks or operating problems. ***(Notes: There are no shell-mounted sample station.)***			x	
	Mixer	a. Mounting flange is properly supported. ***(Notes: There are no mixers.)***			x	
		b. No signs of leaks or operating problems. ***(Notes: There are no mixers.)***			x	
	Gauging System(s)	a. Verify proper operating condition	x			
		b. Evidence of operating problems	x			
	Inspection Recommendation(s) Follow-up	a. Have recommended actions from inspection reports been taken?	x			
		b. Have repairs identified by required inspections been made?	x			

Comments:

BREAKOUT TANK INSPECTION FORM

Breakout Tank Field Review (Complete one page for each tank or tank impound area inspected)

.432	Tank Number(s) T-180 at Laurel Station		S	U	N/A	N/C
	General Site Conditions	a. Runoff rainwater from the shell drains away from tank, and site drainage away from tank.	x			
		b. No vegetation against tanks, no flammable materials, trash.	x			
		c. No voids under tank/tank foundations, or settlement around perimeter of tank.	x			
	Tank Foundation, Bottom Shell	a. Concrete (no broken concrete, spalling, or cracks).	x			
		b. Plate and weld in bottom angle area (No thinning or corrosion).	x			
		c. Integrity of the bottom-to-foundation seal, if present.	x			
		d. No signs of bottom leakage.	x			
	External Shell	a. Exterior coating (No paint failure, pitting, or corrosion).	x			
		b. Rivet or seam leakage.	x			
		c. No cracks or signs of leakage on weld joints at nozzles, manways, and reinforcing plates.	x			
		d. No shell deformation.	x			
		e. No shell plate dimpling around nozzles, caused by excessive pipe deflection.	x			
	Tank Piping and Manifolds	a. No manifold piping, flange, or valve leakage.	x			
		b. Anchored piping (check that it would not cause tank shell bottom connection damage during earth movement).	x			
		c. Adequate thermal pressure relief of piping to the tank.	x			
		d. Temperature indicators are accurate and undamaged.	x			
	Shell-Mounted Sample Station	a. Sample line and return-to-tank line valves, seals, and drains function properly. (Notes: There are no shell-mounted sample station.)			x	
		c. Circulation pump has no signs of leaks or operating problems. ***(Notes: There are no shell-mounted sample station.)***			x	
	Mixer	a. Mounting flange is properly supported. ***(Notes: There are no mixers.)***			x	
		b. No signs of leaks or operating problems. ***(Notes: There are no mixers.)***			x	
	Gauging System(s)	a. Verify proper operating condition	x			
		b. Evidence of operating problems	x			
	Inspection Recommendation(s) Follow-up	a. Have recommended actions from inspection reports been taken?	x			
		b. Have repairs identified by required inspections been made?	x			

Comments:

BREAKOUT TANK INSPECTION FORM

Comments:

Breakout Tank Field Review (Complete one page for each tank or tank impound area inspected)

.432	Tank Number(s) T-130 at Ferndale Station		S	U	N/A	N/C
	General Site Conditions	a. Runoff rainwater from the shell drains away from tank, and site drainage away from tank.	x			
		b. No vegetation against tanks, no flammable materials, trash.	x			
		c. No voids under tank/tank foundations, or settlement around perimeter of tank.	x			
	Tank Foundation, Bottom Shell	a. Concrete (no broken concrete, spalling, or cracks).	x			
		b. Plate and weld in bottom angle area (No thinning or corrosion).	x			
		c. Integrity of the bottom-to-foundation seal, if present.	x			
		d. No signs of bottom leakage.	x			
	External Shell	a. Exterior coating (No paint failure, pitting, or corrosion).	x			
		b. Rivet or seam leakage.	x			
		c. No cracks or signs of leakage on weld joints at nozzles, manways, and reinforcing plates.	x			
		d. No shell deformation.	x			
		e. No shell plate dimpling around nozzles, caused by excessive pipe deflection.	x			
	Tank Piping and Manifolds	a. No manifold piping, flange, or valve leakage.	x			
		b. Anchored piping (check that it would not cause tank shell bottom connection damage during earth movement).	x			
		c. Adequate thermal pressure relief of piping to the tank.	x			
		d. Temperature indicators are accurate and undamaged.	x			
	Shell-Mounted Sample Station	a. Sample line and return-to-tank line valves, seals, and drains function properly. ***(Notes: There are no shell-mounted sample station.)***			x	
		b. Circulation pump has no signs of leaks or operating problems. ***(Notes: There are no shell-mounted sample station.)***			x	
	Mixer	a. Mounting flange is properly supported. ***(Notes: There are no mixers.)***			x	
		b. No signs of leaks or operating problems. ***(Notes: There are no mixers.)***			x	
	Gauging System(s)	a. Verify proper operating condition	x			
		b. Evidence of operating problems	x			
	Inspection Recommendation(s) Follow-up	a. Have recommended actions from inspection reports been taken?	x			
		b. Have repairs identified by required inspections been made?	x			

Comments:

BREAKOUT TANK INSPECTION FORM

Comments:

Breakout Tank Field Review (Complete one page for each tank or tank impound area inspected)

.432	Tank Number(s) T-7 at Shell Refinery in Anacortes		S	U	N/A	N/C
	General Site Conditions	a. Runoff rainwater from the shell drains away from tank, and site drainage away from tank.	x			
		b. No vegetation against tanks, no flammable materials, trash.	x			
		c. No voids under tank/tank foundations, or settlement around perimeter of tank.	x			
	Tank Foundation, Bottom Shell	a. Concrete (no broken concrete, spalling, or cracks).	x			
		b. Plate and weld in bottom angle area (No thinning or corrosion).	x			
		c. Integrity of the bottom-to-foundation seal, if present.	x			
		d. No signs of bottom leakage.	x			
	External Shell	a. Exterior coating (No paint failure, pitting, or corrosion).	x			
		b. Rivet or seam leakage.	x			
		c. No cracks or signs of leakage on weld joints at nozzles, manways, and reinforcing plates.	x			
		d. No shell deformation.	x			
		e. No shell plate dimpling around nozzles, caused by excessive pipe deflection.	x			
	Tank Piping and Manifolds	a. No manifold piping, flange, or valve leakage.	x			
		b. Anchored piping (check that it would not cause tank shell bottom connection damage during earth movement).	x			
		c. Adequate thermal pressure relief of piping to the tank.	x			
		d. Temperature indicators are accurate and undamaged.	x			
	Shell-Mounted Sample Station	a. Sample line and return-to-tank line valves, seals, and drains function properly. ***(Notes: There are no shell-mounted sample station.)***			x	
		b. Circulation pump has no signs of leaks or operating problems. ***(Notes: There are no shell-mounted sample station.)***			x	
	Mixer	a. Mounting flange is properly supported. ***(Notes: There are no mixers.)***			x	
		b. No signs of leaks or operating problems. ***(Notes: There are no mixers.)***			x	
	Gauging System(s)	a. Verify proper operating condition	x			
		b. Evidence of operating problems	x			
	Inspection Recommendation(s) Follow-up	a. Have recommended actions from inspection reports been taken? ***(Notes: The soil/air interface of the 16" surge relief line showed signs of coating disbondment. The operator indicated that this item would be addressed after the operation of the tank is transferred from Shell to Kinder Morgan in the near future.)***		x		
		b. Have repairs identified by required inspections been made?	x			

BREAKOUT TANK INSPECTION FORM

Comments:

BREAKOUT TANK INSPECTION FORM
TANK DATA

(See Note Below for * Items)		1	2	3	4	5	6
	FACILITY NAME(S):	Laurel	Laurel	Anacortes	Ferndale		
*(A)	PRODUCT	Crude	Crude	Crude	Crude		
(B)	TANK #	170	180	7	130		
(C)	CONSTRUCTION YEAR and API STANDARD	1972/API 650	1972/API 650	1958/API 12C	2008/API 650		
*(D)	CONSTRUCTION TYPE	W	W	W	W		
(E)	CAPACITY (BBL)	100,000	100,000	3,000	3,000		
(F)	LINING? (Y/N)	Y	Y	N	Y		
(G)	LINING TYPE?	epoxy	epoxy	N/A	epoxy		
(H)	TANK HT.(FT)	48	48	24	24		
(I)	MAX. FILL HT. (FT)	42	42	Normally empty	Normally empty		
(J)	DIA (FT)	120	120	30	30		
*(K)	ROOF TYPE	Dome with internal floater	Dome with internal floater	Fixed cone	Fixed cone		
*(L)	VOLUMETRIC ALARM(S)	H, HH	H, HH	H, HH	H, HH		
(M)	DIKE VOLUME (BBL)	126,733	110,433	Greater than 3,300	3,400		
*(N)	DATE LAST INTERNAL INSPECTION	2008	2008	2005	Constructed in 2008		
*(O)	OUT OF SERVICE REPAIR OR OTHER MAJOR REPAIR	2008	2008	2005/2008 per API 653 inspection report	N/A		
(P)	DATE API 653 APPLIED	2008	2008	2005	2008		
*(Q)	CP TYPE & ANODE TYPE	R, cast iron anodes	R, cast iron anodes	N	R, ribbon anodes		
*(R)	C P MONITORING	S	S	None	F		
(S)	DUE DATE FOR NEXT INTERNAL INSPECTION?	2028	2028	2018	2020		
(T)	INTERNAL INSPECTION INTERVAL? (YEARS)	20 years	20 years	13 years	12 years		
*(U)	INTERNAL INSPECTION INTERVAL BASIS?	Max allowed using corrosion rate calculation from most recent API 653 internal inspection	Max allowed using corrosion rate calculation from most recent API 653 internal inspection	Based on corrosion rate for uncoated bottom	Per API 653 initial internal inspection interval for tank with soil-side CP		
(V)	DUE DATE FOR NEXT EXTERNAL INSPECTION?	2013	2013	2015	2013		
*(W)	EXTERNAL INSPECTION INTERVAL BASIS?	Max API allowed	Max API allowed	Max API allowed	Max API allowed		
(X)	DUE DATE FOR NEXT U. T. INSPECTION?	2013	2013	2015	2013		
(Y)	SHELL U.T. INSPECTION INTERVAL	5 years	5 years	5 years	5 years		
*(Z)	SHELL U.T. INSPECTION INTERVAL BASIS?	With next API 653 in-service inspection	With next API 653 in-service inspection	With next API 653 in-service inspection	With next API 653 in-service inspection		

NOTE: Enter the applicable codes below in the table above:

(A): (R) Refined; (C) Crude; (HVL) Highly Volatile Liquid; (O) Other
(D): (W) Welded; (R) Riveted; (B) Bolted; Note if Tank is Insulated
(K): (EF) External Floater; (IF) Internal Floater; (F) Fixed
(L): (H) High; (HH) High-High; (OF) Overfill; (O) Other
(N): Most Recent Date
(O): Most Recent Date
(Q): (A) Anodic; (R) Rectified (N) None - Document why not needed.
(R): (F) Fixed Reference Cells Under Floor; (S) CP Monitored at Edge of Shell
(U): (C) Calculation (based upon known corrosion rate); (M) API Maximum Allowed Interval; (O) Other; (SS) Similar Service

BREAKOUT TANK INSPECTION FORM

(W): (C) Calculation (based upon known corrosion rate); (M) API Maximum Allowed Interval; (O) Other; (SS) Similar Service
(Z): (C) Calculation (based upon known corrosion rate); (M) API Maximum Allowed Interval; (O) Other; (SS) Similar Service

Comments: