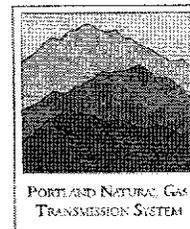


PNGTS Operating Co., LLC

18 Commons Avenue
Windham ME 04062
207-892-0781
207-892-4786 (fax)

OCT 4 2007



September 28, 2007

Mr. Byron Coy
Director, Eastern Region
US DOT/Pipeline Hazardous Materials Safety Administration
409 3rd Street SW, Suite 300
Washington, DC 20024

Re: Notice of Amendment
CPF 1-2007-1007M

Dear Mr. Coy:

Portland Natural Gas Transmission System (PNGTS), operated by TransCanada Services, USA, received a Notice of Amendment (**CPF 1-2007-1007M**) dated August 1, 2007, pertaining to a standard Operations and Maintenance audit completed the week of April 23, 2007. PHMSA identified apparent inadequacies in the PNGTS corrosion procedures. PNGTS has revised the appropriate procedures and includes the following revisions for review and approval by PHMSA.

NOA Item 1 – 192.463 External Corrosion Control: Cathodic Protection – PNGTS's procedure 453 (EDMS #004258833) do not state explicitly that the measures pipe to soil voltage measurements must be a negative voltage of at least 0.85 volts to indicate an adequate level of cathodic protection. The procedures do not state that the voltage measurement must consider the effect of voltage (IR) drops in the voltage measurement.

Resolution - Amended Cathodic protection Survey Inspection Procedure (EDMS #004258833) Section 4.0 Procedure - Bullet 4, Page 2 of 4 to include evaluation criteria. Added: "The acceptable level of cathodic protection is defined as having a minimum negative voltage of 0.850 volts when the protective current is applied OR a polarized potential of 0.100 volts more negative than the depolarized (static) potential of the pipe. All measurements are to be taken with respect to a saturated copper – copper sulphate electrode in contact with the electrolyte. Voltage (IR) drop measurements other than those across the structure – electrolyte boundary must be considered when interpreting collected data. Note: Use of alternate criteria shall only be applied once an engineering assessment has been completed by Asset Reliability."



NOA Item 2 – 192.465 External Corrosion Control: Monitoring - PNGTS's procedure 453 (EDMS #004258833) do not specify a time frame for correcting any deficiencies indicated by external corrosion monitoring.

Resolution - Amended Cathodic protection Survey Inspection Procedure (EDMS #004258833) Section 4.0 Procedure - Bullet 5, Page 2 of 4 to include requirements for correcting deficiencies in a prompt manner by adding the following: "Any potential measurements that do not meet the criteria outlined in Point 4 shall require corrective action to be taken before the next inspection period to initiate the process necessary to correct the deficient condition. A diagnostic test shall determine what corrective actions are necessary to remediate a sub-criterion potential. Asset Reliability shall be contacted to assist in determining the diagnostic test requirements."

NOA Item 3 – 192.473 External Corrosion Control: Interference Currents – Apparently, there is no PNGTS written plan or procedure that addresses this code requirement.

Resolution - Amended Cathodic protection Survey Inspection Procedure (EDMS #004258833) Section 4.0 Procedure - Bullet 4, Page 2 of 4 to include obtaining readings at foreign facilities by adding the following statement: "Obtain readings ... and foreign facilities where there may be a potential for stray current interference effects as a result of operation of impressed current cathodic protection systems."

Amended Cathodic protection Survey Inspection Procedure (EDMS #004258833) Section 4.0 Procedure - Bullet 5, Page 2 of 4 to ensure identification of influence of foreign facilities and stray currents by adding the following: "Where necessary, the diagnostic test shall be conducted to minimize stray current effects of new TCPL groundbeds on other foreign structures as well as address any stray current effects from foreign facilities on TCPL facilities."

NOA Item 4 – 192.481 Atmospheric Corrosion Control: Monitoring – PNGTS's (procedure) EDMS #004266539 does not specify a time frame for evaluating data and determining a course of remedial action to correct deficiencies indicated by atmospheric corrosion control monitoring.

Resolution - Amended Atmospheric Corrosion Inspection Procedure (EDMS #004266539) Section 4.2 Insulated Piping and Vessels - Bullet 4 Inspect for Corrosion sub-clause 2, Page 4 of 5 to specify a time frame in which to begin corrective action on identified deficiencies by adding the following: "If any of these conditions are discovered, contact the Corrosion Engineer, Asset Reliability Group (Calgary) for further evaluation requirements and/or interim remedial action (i.e. to prevent further damage or hazards). A course of remedial action shall be developed by the Corrosion Engineer within 3 months. If none of the above conditions are discovered on the pipe, the report must still be completed and noted as such."



Attached are copies of the revised documents with the revisions highlighted. The documents were sent in draft form to meet the submission deadline. The documents are currently in the approval process and will be finalized by December 1, 2007. Please let me know if you require approved, finalized documents. Also attached is a CD containing electronic copies of submitted documents.

Sincerely,

A handwritten signature in cursive script that reads 'Wayne Oosterman'.

Wayne Oosterman
PNGTS Area Manager
207-892-0781 ext. 232

Enclosure(s):

1. TransCanada Operating Procedure (TOP) Cathodic Protection Survey Inspection (Draft)
EDMS #004258833
2. TransCanada Operating Procedure (TOP) Atmospheric Corrosion Inspection (Draft)
EDMS #004266539
3. Compact Disc – containing electronic copy of submission in .PDF format

TOP Contact: Chad Khattar

Business(es): Pipe Facility Type(s): Pipe Driver(s): Regulatory PM Details: Time Directed

1.0 PURPOSE

The purpose of this TOP is to describe the M12 cathodic protection survey inspection in order to monitor CP levels on all pipeline segments.

2.0 SCOPE

This TOP applies to all TransCanada U.S. pipeline segments.

3.0 REGULATORY REQUIREMENTS

This task is a regulatory requirement and must be completed once each calendar year with intervals not exceeding 15 months.

To promote the safe operation of pipelines, the protection of the environment, property, employee and the public, companies are mandated to comply with all applicable Federal and State Acts, Regulations, Codes and Standards. The requirements of this TOP ensure compliance to the following legislation:

- DOT CFR 49 Part 192 Subpart I- Requirements for Corrosion Control §192.463 (August 1970) & 192.465 (September 2003).

Note – TransCanada is required to have a Qualifications program under Department of Transportation (DOT) transportation of gas regulation 49 CFR 192.805, March 2005. Inspection of Cathodic Protection equipment is a covered task under Operator Qualification (OQ) and must be done by individuals qualified under the OQ Program.

Failure to comply may result in serious injury or fatalities, imposed operating restrictions, fines, prosecution and/or penalties for officers, directors, owners and lessees. TransCanada policies and procedures are designed to ensure the Company continues to operate in a safe and efficient manner.

4.0 PROCEDURE

Notes: (1) **Outage Requirements:** No outages are required. (2) **Resource Requirements:** (i) data logger; (ii) multimeter; (iii) standard hand tools; (iv) DC amp clamp; (v) reference cell; (vi) GPS interrupters; (vii) wire reel; (viii) GPS unit; (ix) test lead list; (x) relevant maps & drawings. (3) **References:** (i) Related CS&E TOPs (Pre-Job Procedure, Work Authorization/Job Safety Analysis Procedure, Isolation Procedure, Lockout and Tag out Procedures, Job Execution Checklist, Personal Protective Equipment TPP, Product & Chemical Approval Handling Procedure); (ii) TransCanada GTN and NBP Systems Operator Qualification Program (4) **Related Tasks:** (i) Cathodic Protection Rectifier Inspection (EDMS No. 004258831); (ii) Cathodic Protection Rectifier Reading Inspection (EDMS No. 004258832); (iii) Thermo-electric Generator (TEG) Inspection Program (EDMS No. 003861273). (5) **Resource Qualifications:** Personnel performing this work must have adequate training in the maintenance and servicing of the equipment. It is understood that TransCanada personnel performing system maintenance comply with all those policies and procedures intended to ensure that the employees' health and safety and the integrity of the environment are not compromised.

1. Data collection equipment will be specified by TransCanada Asset Reliability prior to the commencement of any annual survey work.

Note: Prior to use, please validate paper copies against the official version (Doc ID 004258833) in EDMS (General Library).

2. Verify all influencing current sources are operational prior to performing the survey. Check ground-bed for bad cable connections, high resistance, or low output. Check existing bonds and any pipeline crossings installed within the last year.
3. Perform a calibration check of each data logger or meter and each reference cell to be used.
4. Obtain readings at all test leads, interference test leads, isolation points, bonds, casings, pipe to soil meters, rectifiers, thermo-electric generators (TEGs), test points within compressor stations, meter stations, mainline valve sites, and pressure relief stations, and foreign facilities where there may be a potential for stray current interference effects as a result of operation of impressed current cathodic protection systems. The acceptable level of cathodic protection is defined as having a minimum negative voltage of 0.850 volts when the protective current is applied OR a polarized potential of 0.100 volts more negative than the depolarized (static) potential of the pipe. All measurements are to be taken with respect to a saturated copper - copper sulphate electrode in contact with the electrolyte. Voltage (IR) drop measurements other than those across the structure - electrolyte boundary must be considered when interpreting collected data. Note: Use of alternate criteria shall only be applied once an engineering assessment has been completed by Asset Reliability.
5. Any potential measurements that do not meet the criteria outlined in Point 4 shall require corrective action to be taken before the next inspection period to initiate the process necessary to correct the deficient condition. A diagnostic test shall determine what corrective actions are necessary to remediate a sub-criterion potential. Asset Reliability shall be contacted to assist in determining the diagnostic test requirements. Where necessary, the diagnostic test shall be conducted to minimize stray current effects of new TCPL groundbeds on other foreign structures as well as address any stray current effects from foreign facilities on TCPL facilities. Note: It may be more practical for some diagnostic tests, troubleshooting, rectifier adjustments, or repairs to be completed in conjunction with the survey inspection.
6. Document any general maintenance repairs required, identify any deficiencies that require future action, and identify any critical bonds within the Avantis work order.
7. Upload rectifier data into the Cathodic Protection Reading (CPR) database.
8. Send all survey data into the Data Management group for processing.

Comment [wo1]: NOA Item 4
192.473

Comment [wo2]: NOA Item 1
192.463

Comment [wo3]: NOA Item 2
192.465

Comment [wo4]: NOA Item 3
192.473

5.0 EQUIPMENT DATA / SITE LOCATION

This TOP is to be applied at all U.S. gas transmission facilities.

6.0 REVISION HISTORY

Rev. No.	Description	Date (yyyy/mm/dd)	TOP Contact
00	New document. This TOP was developed using the following source TransCanada documents: (i) (Cdn.) Cathodic Protection M12 Survey Inspection (EDMS No. 003671416). Changes to the TOP included the following: (i) Added references to appropriate engineering specifications (s.4.0); (ii) Inserted U.S. Regulatory Requirements (s.3.0); (iii) Made minor revisions to procedures (s.4.0); (iv) Reformatted document to current standards; (v) Removed references to TCPL engineering specifications.	2007/02/11	C. Khattar
01	This TOP was reviewed to now reflect the addition of Northern Border Pipeline with respect to the geographic areas of operation as well with feedback from Dan Cerkoney and Virgil Pfennig. Minor edit cleanup changes were also made to document	2007/08/13	C. Khattar
02	This TOP was reviewed to now reflect the comments from PHMSA with respect to CP criteria and corrective action instruction.	2007/09/21	C. Khattar

Note: Prior to use, please validate paper copies against the official version (Doc ID 004258833) in EDMS (General Library).

7.0 REVIEW AND APPROVAL

	Name (Print)	Signature	Date (yyyy/mm/dd)
<i>TOP Contact</i>	Chad Khattar Engineer, Pipeline Integrity Asset Reliability		
<i>Reviewer (Peer)</i>	Brad Watson Sr. Technologist, Asset Reliability TS&TM		
<i>Reviewer (Field Ops)</i>	Dan Cerkoney Corrosion Specialist Northern Border Region		
<i>Reviewer (Field Ops)</i>	Kurt Smith Compliance Specialist Gas Transmission NW Region		
<i>Reviewer (Field Ops)</i>	Wayne Oosterman Operations Manager PNGTS		
<i>Reviewer (Regulatory)</i>	Roel Lancée Senior Regulatory Compliance Specialist Field Ops – Compliance & Governance		
<i>Approver (Field Ops)</i>	Jeff Gravelle Compliance Manager, Gas Transmission NW Region		
<i>Reviewer (CSE)</i>	Rod Egert Sr. Community, Health & Safety Advisor Community, Safety, and Environment		
<i>Approver (Field Ops)</i>	Dave Kozy Manager Field Ops – Maintenance Program Planning		
<i>Approver (Engineering)</i>	Curtis Parker Manager, Technical Support & Technology Asset Reliability		

Note: Prior to use, please validate paper copies against the official version (Doc ID 004258833) in EDMS (General Library).

(U.S.) TRANSCANADA OPERATING PROCEDURE (TOP)			 <small>In business to deliver</small>
Atmospheric Corrosion Inspection			
Revision: 02	Effective Date: 2007/08/29	Status: Issued	Page 1 of 5

TOP Contact: Chad Khattar

Business(es): Pipe Facility Type(s): Pipe Driver(s): Regulatory PM Details: Time Directed

1.0 PURPOSE

The purpose of this TOP is to describe the M36 procedures for inspecting above ground gas piping for atmospheric corrosion.

2.0 SCOPE

This TOP applies to all TransCanada U.S. above ground gas piping. This includes, as a minimum, all mainline piping, piping at compressor stations, meter sets, and Main Line Valves

3.0 REGULATORY REQUIREMENTS

This task is a regulatory requirement and must be completed within the year issued and not to exceed 39 months duration between inspections.

To promote the safe operation of pipelines, the protection of the environment, property, employee and the public, companies are mandated to comply with all applicable Federal and State Acts, Regulations, Codes and Standards. The requirements of this TOP ensure compliance to the following legislation:

- Department of Transportation Code of Federal Regulation 49 CFR Part 192, Subpart I – Requirements for Corrosion Control, § 192.481 and .479 Atmospheric corrosion control: Monitoring, September 2003

Note – TransCanada is required to have a Qualifications program under Department of Transportation (DOT) transportation of gas regulation 49 CFR 192.805, March 2005. Corrosion Monitoring is a covered task under Operator Qualification (OQ) and must be done by individuals qualified under the OQ Program.

Failure to comply may result in serious injury or fatalities, imposed operating restrictions, fines, prosecution and/or penalties for officers, directors, owners and lessees. TransCanada policies and procedures are designed to ensure the Company continues to operate in a safe and efficient manner.

4.0 PROCEDURE

Notes: (1) **Outage Requirements:** No outages are required. (2) **References:** (i) Related CS&E TOPs (Pre-Job Procedure, Work Authorization/Job Safety Analysis Procedure, Isolation Procedure, Lockout and Tag out Procedures, Job Execution Checklist, Personal Protective Equipment TPP, Product & Chemical Approval Handling Procedure); (ii) TransCanada GTN and NBP Systems Operator Qualification Program; (iii) Atmospheric Corrosion Inspection Form (EDMS No. 004266540). (4) **Related Tasks:** None (5) **Resource Qualifications:** TransCanada is required to have a Qualifications program under Department of Transportation (DOT) transportation of gas regulation 49 CFR 192.805 (March 2005). Corrosion Monitoring is a covered task under Operator Qualification (OQ) and must be done by individuals qualified under the OQ Program.

Note: Prior to use, please validate paper copies against the official version (Doc ID 004266539) in EDMS (General Library).

(U.S.) TRANSCANADA OPERATING PROCEDURE (TOP)			 <i>In business to deliver</i>
Atmospheric Corrosion Inspection			
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4.1 Painted or Coated Piping

1. Visually inspect all painted or coated gas piping outside of, within buildings, or within shelters for indications of corrosion, byproducts of corrosion such as rust colored stains, pitting, fretting or failed coating.
2. Document the result on Atmospheric Corrosion Inspection Form (EDMS No. 004266540). - Part A (Inspection of Painted Aboveground Gas Piping for Atmospheric Corrosion).

Particular attention is to be given to the following areas where:

1. Piping enters or exits the ground;
2. Piping enters a building or shelter;
3. Hangers contact the pipe;
4. Supports contact the pipe; and
5. Expansion slides contact the pipe;
6. Spans over water;
7. Under disbonded coatings.

When inspecting these areas, get as close as practicable to inspect all the exposed edges. Look for signs of corrosion such as rust colors stains around the pipe or flakes of coating.

Look for places where atmospheric humidity could condense on the pipe surface, due to high humidity, reduced ventilation, and/or a colder than atmosphere pipe surface.

Inspect the transition zone of pipe entering the ground to confirm it is properly coated so that penetration of moisture between the pipe and coating is prevented. Whenever a condition is observed where moisture may be retained between the coating and pipe, remove the coating, inspect the pipe, evaluate severity of corrosion if present, take remedial actions if necessary.

3. Document any corrective actions taken on the Atmospheric Corrosion Inspection Form (EDMS No. 004266540) - Part A (Inspection of Painted Aboveground Gas Piping for Atmospheric Corrosion). If no corrosion is found, document on Part A by checking "no". Forward a copy of the completed form to the Regional Compliance Specialist and Corrosion Engineer, Asset Reliability Group (Calgary).

4.2 Insulated Piping and Vessels

Because of the difficulty of removing and re-installing insulation (e.g. acoustic or thermal), only selected areas of piping will be inspected. The intention of this procedure is to inspect the insulation and select and inspect various locations of pipe and vessels with insulation. These inspections will be used to represent the condition of aboveground piping with respect to atmospheric corrosion.

Sections of pipe will be selected for inspection as follows:

1. The insulation is damaged (100% inspection); Note: for thermal insulation, surface temperature may indicate the presence of water since thermal insulation often degrades when wet.

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 (U.S.) TRANSCANADA OPERATING PROCEDURE (TOP)			 as business to deliver
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2. The geometry of the installation could encourage the collection of moisture and corrosion. This includes, for example, scrubber vessels where changes in diameter can lead to a greater risk of leaks and the accumulation of moisture in low spots. **Note:** Inspection ports should be installed where insulation has been removed in order to facilitate future inspections.

The minimum number of inspections requiring removal of insulation will be: four (4) each in the GTN North and South Areas, two (2) in North Baja, (2) in Tuscarora and two (2) in PNGTS.

NBPL one third of existing inspection ports and removable jackets shall be inspected each year.

Utilize the steps below and Atmospheric Corrosion Inspection Form (EDMS No. 004266540) - Part B (Inspection of Aboveground Acoustical Insulated Gas Piping for Atmospheric Corrosion) to identify and document the sections selected and inspected, selected but not inspected, and to document the results of all inspections.

1. Identify damaged insulation. Visually inspect all insulated pipe and note any areas where the insulation jacketing or jacketing seams have or may have failed, or has otherwise been damaged, or indications of potential corrosion (rust stains, etc.). Note these damaged areas on Atmospheric Corrosion Inspection Form (EDMS No. 004266540) - Part B.
2. Identify probable areas. Review prior inspections and consider locations where corrosion was found or where it was not found.

Look outside of and within buildings or shelters for areas where moisture could collect such as, but not limited to,

1. pipe supports;
2. pipe depressions;
3. pipe slides;
4. areas with open insulation seams such as blankets;
5. areas where insulation systems begin or end;
6. areas where condensation can occur such as cold surfaces which are not sealed from the atmosphere;
7. building penetrations.

3. Select identified areas to be inspected.
 1. Select for damaged insulation areas. All damaged insulation areas are to be inspected and repaired,
 2. Select the most probable areas for corrosion necessary to meet the minimum number of inspections for the Area. Note – If the number of damaged sections of insulation exceeds the minimum inspection requirement, then no further inspection is required.
4. Inspect for Corrosion:
 1. Remove the insulation from the locations identified previously, taking care not to disturb the pipe coating system below the insulation. As a minimum one foot of insulation from the entire

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circumference will be removed. More insulation should be removed if needed to ensure a thorough inspection.

2. Note the presence of any accumulated moisture, degradation of the pipe coating system such as bubbling, cracking, discoloration, breakdown, or indications of corrosion or pitting paying close attention to the lower surfaces of the inspection area. If any of these conditions are discovered, contact the Corrosion Engineer, Asset Reliability Group (Calgary) for further evaluation requirements and/or interim remedial action (i.e. to prevent further damage or hazards). A course of remedial action shall be developed by the Corrosion Engineer within 3 months. If none of the above conditions are discovered on the pipe, the report must still be completed and noted as such.
3. Complete Atmospheric Corrosion Inspection Form (EDMS No. 004266540) - Part B identifying all locations identified and not inspected, identified and inspected, the inspection results, and any remedial actions taken. Forward the completed form to the Regional Compliance Specialist and a copy to the Corrosion Engineer, Asset Reliability Group (Calgary).
4. After removing the insulation and inspecting the pipe, further insulation removal may be required. If after removing the insulation any indication of further corrosion is found, such as the presence of moisture, staining due to moisture or the by-products of corrosion, then additional insulation must be removed and additional pipe inspected. If you have any questions on conducting additional inspections you should contact the Corrosion Engineer, Asset Reliability Group (Calgary) before reinstalling the acoustical insulation.
5. If necessary, reinstall or have the insulation reinstalled. Ensure that the reinstalled insulation is weather tight. Any new insulation material or insulating system used must be reviewed and approved by the Corrosion Engineer, Asset Reliability Group (Calgary) prior to installation.

Comment [w01]: NOA Item 4
192,481

4.3 Records and documentation

1. As identified above, all original completed reports must be sent to the Regional Compliance Specialist, and a copy must be sent to the Corrosion Engineer, Asset Reliability Group (Calgary). A copy may be kept in the district location.
2. A copy of the completed form should be attached to the Avantis work order prior to closing it.

5.0 REVISION HISTORY

Rev. No.	Description	Date (yyyy/mm/dd)	TOP Contact
00	New document. This TOP was developed using the following source TransCanada documents: (i) OMI CC-31 – Inspection of Aboveground Gas Piping for Atmospheric Corrosion.	2007/02/11	C. Khattar
01	This TOP was reviewed to now reflect the addition of Northern Border Pipeline with respect to the geographic areas of operation as well with feedback from Dan Cerkoncy and Virgil Pfennig. Minor edit cleanup changes were also made to document	2007/08/13	C. Khattar
02	Incorporated PHMSA comments regarding time frames for evaluating data and determining a course of remedial action.	2007/08/29	C. Khattar

Note: Prior to use, please validate paper copies against the official version (Doc ID 004266539) in EDMS (General Library).

6.0 REVIEW AND APPROVAL

	Name (Print)	Signature	Date (yyyy/mm/dd)
<i>TOP Contact</i>	Chad Khattar Engineer Asset Reliability TS& TM		Accepted in first quarter of 2007 using Share Point site.
<i>Reviewer (Peer)</i>	Brad Watson Sr. Technologist, Asset Reliability TS&TM		Accepted in first quarter of 2007 using Share Point site.
<i>Reviewer (Field Ops)</i>	Dan Cerkoney Corrosion Specialist Northern Border Region		2007/08/13
<i>Reviewer (Field Ops)</i>	Kurt Smith Compliance Specialist Gas Transmission NW Region		Accepted in first quarter of 2007 using Share Point site.
<i>Reviewer (Field Ops)</i>	Wayne Oosterman Operations Manager PNGTS		Accepted in first quarter of 2007 using Share Point site.
<i>Reviewer (Regulatory)</i>	Roel Lancée Senior Regulatory Compliance Specialist Field Ops – Compliance & Governance		Accepted in first quarter of 2007 using Share Point site.
<i>Reviewer (CSE)</i>	Rod Egert Sr. Community, Health & Safety Advisor Community, Safety, and Environment		Accepted in first quarter of 2007 using Share Point site.
<i>Approver (Field Ops)</i>	Jeff Gravelle Compliance Manager Gas Transmission NW Region		Approved in first quarter of 2007 using Share Point site.
<i>Approver (FOSP)</i>	Dave Kozy Manager Field Ops – Maintenance Program Planning		Approved in first quarter of 2007 using Share Point site.
<i>Approver (Engineering)</i>	Curtis Parker Manager, Technical Support & Technology Asset Reliability		Approved in first quarter of 2007 using Share Point site.

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