

Attachment A

ITB #23-25 – Survey Procedures

WALKING GAS MAIN/SERVICE LINE SURVEY PROCEDURE

This procedure outlines the walking survey of all non-paved/ non traffic rights-of-way, meters, regulator stations, bridge waterway crossings and related gas equipment. The walking survey shall be conducted by walking along the route of the pipeline to be surveyed. The sampling of atmosphere shall be at ground level whenever possible, and at the most logical venting locations for gas leaking below ground. The technician shall document each main and each service surveyed, and the type of leak detected (if any, Grade 1, Grade 2, or Grade 3). Whenever a leakage indication is detected, bar holes shall be made with a plunger bar and tests performed with a combustible gas indicator to confirm, center and classify the leakage location area. Each location where combustible vapors are detected and centered shall be evaluated and classified as a Grade 1, Grade 2, or Grade 3 leak. The highest concentration of percent gas shall be marked on the ground or pavement surface. Corresponding notes shall be recorded on the leak survey case form.

- Use Flame Ionization (FI), Remote Methane Leak Detector, and Combustible Gas Indicator (CGI) on all above ground gas carrier piping and gas equipment. Use Flame Ionization or Remote Methane Leak Detector as much as possible and visual for the remainder.
- Document river/creek & waterway crossings.
- Document all atmospheric corrosion and any other abnormal operating conditions.
- Document survey route using logs and addresses of meter sites surveyed and or GPS tracking, daily with weekly summary.
- Document and grade leaks:
 - GPS bar-hole locations
 - Bar-hole all 4 directions until 0% gas found
 - Classify leaks per CGS- O&M manual per the FAC 25-12.
- Notify CGS Gas Dispatch immediately of all Grade 1 leaks by phone as they are found and stand-by until relieved by CGS responder. Consideration shall be given to life safety including establishing a hot zone and necessary evacuations.
- Notify CGS support staff of all Grade 2 & 3 leaks in a weekly summary report.
- Verify and provide documentation of all missing mains/service lines not plotted on leak survey map and then resurvey.
- Provide a bi-weekly report which includes the following:
 - GIS map of all mains & service lines surveyed
 - All leak reports with quality digital pictures
 - Atmospheric corrosion with quality digital pictures and any other abnormal operating conditions
 - Congregate buildings and areas surveyed
 - River/creek & waterway crossing surveys
 - List of any buildings that have inside meter set that could not be surveyed

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ATMOSPHERIC CORROSION SURVEY DETAILS AND PROCEDURE

1. The CGS natural gas distribution system includes all pipeline facilities used in the transportation of gas, including, but not limited to, metallic line pipe, valves and other appurtenances connected to line pipe, fabricated assemblies, and residential, commercial & metering stations.

2. Metallic gas pipeline distribution systems or portions thereof, are subject to atmospheric corrosion or moisture penetration and retention, shall be inspected to assure detection of corrosion before detrimental damage

Atmospheric Corrosion shall be classified using the following classifications:

- **Severe Atmospheric Corrosion (Class 1)** – A condition in which severe metal loss creates concern for the integrity of the pipe or structural component; requiring singular, multiple piping or component replacements, including connections to line pipe, fabricated assemblies or the entire commercial or residential meter installation requires rebuilding.
- **Slight Atmospheric Corrosion (Class 2)** – A condition in which pitting or scaling is beginning to take place on a singular, multiple piping or component replacements, including connections to line pipe, fabricated assemblies or the entire commercial or residential meter installation requires rebuilding. Scraping the pipe or components, washing and repainting would correct the surface corrosion issue.
- **Mild Atmospheric Corrosion (Class 3)** – Minimal or no corrosion where the service will be fine for an additional survey cycle of three (3) years.

3. The gas facilities' operating history, future anticipated operating conditions, evidence of possible corrosion found during routine observations, and actual inspection results shall be considered when establishing inspection frequencies in addition to the required established PHMSA and PSC timelines, frequency will increase in known corrosive environments.

4. Inspection for atmospheric corrosion shall include, but not be limited to, areas such as all above ground piping between pipe and pipe supports, gas risers and meter sets, piping at pipe penetrations of building walls, special attention shall be given to piping at ground level at the soil air interface and any thermally insulated meter piping. The CGS natural gas system includes all pipeline facilities used in the transportation of gas, including but not limited to metallic line pipe, and all residential and commercial metering stations.

5. At three (3) year intervals, check the condition of wear pads, supports or sleeves, and risers to confirm continued protection of the pipe, especially in areas conducive to corrosion. Such areas would typically be those where moisture including, and salt and reclaimed water spray is present on the pipe due to reasons other than normal precipitation; and at soil-to air interfaces. The results of inspections, geographic location, and pipe environment will be used to determine any additional appropriate continuing inspection level.

6. Corrosion, leaks, and defects may be safety related conditions. All Grade 1 leaks shall be reported immediately. Refer to the Reporting of Safety Related Conditions procedure. All areas surveyed will be submitted daily with a bi-weekly summary. All areas of active corrosion will be photographed with a digital camera producing high quality pictures.

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7. CGS has previously cleaned and coated each pipeline or portion of pipeline that is exposed to the atmosphere. However, operator does NOT have to clean and coat the pipeline if the operator can demonstrate by test, investigation, or experience appropriate to the environment that corrosion will:

- Only be a light surface oxide; OR
- Will not affect the safe operation of the pipeline before the next scheduled inspection.

SURVEY PROCEDURE

- Inspect all aboveground onshore piping every three (3) calendar years. During inspections, particular attention must be given to soil-to-air interfaces, under thermal insulation, under disbanded coatings, at pipe supports, in corrosive splash zones, at deck penetrations, at ground level and in spans over waterways.
- The primary method of inspection is visual. Further non-destructive testing (NDT) techniques (such as ultrasonic thickness measurements, pit depth gauge readings, radiography, etc.) may be implemented by CGS if visual evidence of corrosion damage or other conditions warrant (See Section h).
- CGS has instituted and maintains a continuing program of painting based upon results of the external inspection program.
- Inspect the transition zone (soil to air interface) of pipe entering the ground to confirm it is properly coated whereby 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, and evaluate severity of corrosion if present, classify and notify CGS on atmospheric corrosion survey report, and provide high quality digital pictures.
- For any thermally insulated systems, visual inspection of the external jacket to ensure its integrity against moisture intrusion under the jacket is usually sufficient; if the integrity of the external jacket has been breached and liquid water may be present against the carrier pipe surface, additional inspection techniques may be required to detect possible corrosion.
- Areas where liquid water may accumulate or be trapped against the outside of the pipeline may require special attention. Caulks, mastics or other sealants should be used to prevent water accumulation at these sites. Notify on atmospheric survey report, provide high quality digital pictures.
- Repairs and preventive maintenance actions necessitated by these inspections shall be completed prior to the next inspection.
- In cases where pipe wall loss exceeds 10% of the nominal new pipe wall thickness, the survey technician shall recommend prompt remedial action/or recommend pipeline repairs and provide high quality digital pictures with documentation of conditions found.

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- References for determining the remaining strength of a pipeline are:
 - 1) ASME/ANSI B31G (49CFR192 currently referenced edition), “Manual for Determining the Remaining Strength of Corroded Pipelines.”
 - 2) AGA Pipeline Research Committee, Project PR-3-805, “A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe”(49CFR192 currently referenced edition).
- If atmospheric corrosion is found during an inspection, the operator CGS must provide protection against the corrosion as required by 192.479 (cleaning and coating).

RECORDS

- Complete the CGS atmospheric survey form to document the location inspected and the extent of external corrosion on aboveground facilities and provide quality digital pictures.
- Complete the CGS Pipeline Maintenance and Surveillance Forms whenever external corrosion is identified and a repair or a preventive maintenance action, other than painting, is required. Provide quality digital pictures.
- CGS will maintain the above records for the life of the facility.
- All Gas Survey Technicians will be Operator Qualification certified per Code of Federal Regulations 49 CFR, Sections 192.479, 192.481, 192.485, 192.491, 192.605, 192.613 and 192.709. Proof of Training, experience and Operator Qualification will be provided to Clearwater Gas System