

Notice of Proposed New Directive: ***Directive PNG026: Gas Migration and Surface Casing Vent Flow***

Background

The Ministry of Energy and Resources (ER) is seeking feedback on proposed new *Directive PNG026: Gas Migration and Surface Casing Vent Flow* (Directive PNG026). The directive provides a comprehensive framework for the management of gas migration (GM) and surface casing vent flow (SCVF) in relation to oil and gas wells, including requirements for reporting, testing, measurement, documentation, and data submission.

ER previously consulted on Directive PNG026 in 2022 and conducted additional stakeholder engagement in 2023. While feedback received through those processes informed revisions to the draft, the directive was not advanced for approval at that time. ER is now preparing to move forward with implementation of the directive.

As several years have passed since the original consultation, ER is re-engaging stakeholders prior to final approval of Directive PNG026. This engagement will refresh awareness of the proposed requirements and provide an opportunity for additional feedback before the directive is finalized.

The Process

ER is holding industry consultations on Directive PNG026 from September 21 to October 16, 2026. Once this consultation period has concluded, ER will review consultation feedback in preparation of a final draft of the directive, which is expected to come into effect in Fall 2026.

Summary of Proposed Changes

Originally, ER consulted on Directive PNG026 along with a companion guideline. The directive was intended to formalize and clarify requirements for GM/SCVF reporting, testing, measurement and data submission, while the companion guideline outlined minimum testing procedures, equipment requirements and testing locations. For more information on this consultation initiative, please visit [this link](#).

Based on stakeholder feedback, ER has incorporated the companion guideline into Directive PNG026 as appendices, creating a single source document containing both regulatory requirements and technical standards for GM/SCVF testing and measurement. ER has also refined the directive to improve clarity and to support implementation. Key changes and outcomes include:

- Clarification of definitions, testing requirements, and reporting expectations.
- Retention of the requirement for qualified professionals to be authorized to practice in Saskatchewan, consistent with other ER directives.
- Additional direction on qualified professional certification requirements, including when

certification is required for GM/SCVF testing.

- Refinements to testing methodologies and procedures based on stakeholder input while maintaining testing integrity.
- No adoption of a risk-based approach to GM testing for well abandonment activities, as ER has determined there is currently insufficient data to support such an approach.

Review of Draft Directive

ER is seeking written comments on Directive PNG026 and accompanying GM/SCVF Form, which are attached to this notice as Schedules "A" and "B", respectively. Please direct any comments or questions about the proposed amendments to:

ER Service Desk at er.servicedesk@gov.sk.ca

Attn: Ryan Moore

Energy Regulation Division

The deadline for submitting written comments is **October 16, 2026**

Schedule A

Gas Migration and Surface Casing Vent Flow

Directive PNG026

September 2026

Governing Legislation:

Act: *The Oil and Gas Conservation Act*

Regulation: *The Oil and Gas Conservation Regulations, 2012*

Order: *##/##*

Record of Change

Revision	Date	Description
0.0		Initial draft
1.0	September 2026	Based on Guideline PNG026 (November 2015) which is being incorporated into and reissued as a directive. The document has been expanded to include surface casing vent flow testing and measurement processes and updated to clarify existing gas migration testing and measurement processes.

DRAFT

Contents

1. Introduction	5
2. Governing Legislation.....	5
3. Definitions	5
4. Gas Migration.....	6
4.1 Wells to be Abandoned.....	6
4.2 Dry Hole Abandonments.....	6
4.3 Previously Abandoned Wells	7
5. Surface Casing Vent Flow	7
5.1 New Drilled Wells.....	7
5.2 Wells to be Abandoned.....	8
6. Use of a Qualified Professional	8
7. Testing Methods	9
8. Documentation and Submission.....	9
Appendix 1: Gas Migration Testing.....	10
1. Gas Migration Testing Conditions.....	10
2. Testing Grid Expansion and Contaminated Soil Remediation	10
3. Ground Penetration Test Method	10
3.1 Ground Penetration Equipment	10
3.2 Ground Penetration Gas Migration Procedure.....	10
3.3 Test Point Locations	11
4. Soil Surface Gas Detection Method	11
4.1 Soil Surface Gas Detection Equipment	11
4.2 Soil Surface Gas Detection Procedure	12
4.3 Test Point Locations	12
Appendix 2: Surface Casing Vent Flow Testing	13
1. Bubble Test Method	13
1.1 Bubble Test Equipment.....	13
1.2 Bubble Test Procedure.....	14
2. Flow Rate Determination for Gas Flows	14
3. Maximum Shut-In Casing Pressure (Pressure Build-Up).....	14

3.1	Maximum Shut-In Casing Pressure (Pressure Build-Up) Equipment	14
3.2	Maximum Shut-In Casing Pressure (Pressure Build-Up) Procedure	14

DRAFT

1. Introduction

This Directive establishes the requirements for:

- reporting gas migration (GM) and surface casing vent flow (SCVF);
- test procedures, requisite test equipment and test locations for measuring GM/SCVF; and
- documenting and submitting GM/SCVF measurements to the Ministry of Energy and Resources (ER).

This Directive supports regulatory requirements administered by ER for GM/SCVF to be addressed in the context of well completion, production, abandonment, and post-abandonment situations.

Questions on this Directive can be directed to the ER Service Desk at 1-855-219-9373 or ER.servicedesk@gov.sk.ca.

2. Governing Legislation

The requirements in this Directive are authorized under and supplemented by:

- *The Oil and Gas Conservation Act* (OGCA)
- *The Oil and Gas Conservation Regulations, 2012* (OGCR)
- Associated Directives and Guidelines:
 - *Directive PNG005: Casing and Cementing Requirements* (Directive PNG005)
 - *Directive PNG013: Well Data Submission Requirements* (Directive PNG013)
 - *Directive PNG015: Well Abandonment Requirements* (Directive PNG015)

3. Definitions

AOR: Means the acknowledgment of reclamation issued by the minister pursuant to *The Financial Security and Site Closure Regulations* (FSSCR).

Gas Migration (GM): Is when gas from stratigraphic units contacted within the well is present at surface in soils around the outermost string of well casing.

IRIS: Means the Integrated Resource Information System.

Minister: Means the elected representative responsible for ER.

Fresh water: As defined in the OGCR

Qualified professional: Means a person who holds a recognized degree or certificate and has professional standing with the appropriate body to practice in Saskatchewan. A qualified person will have the necessary training, expertise, and technical knowledge of the subject matter to ensure licensee adherence to the requirements of this Directive. The qualified person must be a licensed and/or certified member in good standing with one of the following:

- The Association of Professional Engineers and Geoscientists of Saskatchewan;
- The Saskatchewan Institute of Agrologists;

- Licensed to practice as a biologist or chemist by professions legislation of a Canadian province or territory;
- Technology Professionals of Saskatchewan; or
- If otherwise approved.

Reportable liquid: Means a liquid flow containing hydrogen sulphide, hydrocarbon liquid, drilling mud, saline water or fresh water (excluding condensation from thermal wells or as otherwise directed by the appropriate Field Office).

Surface Casing Vent Flow (SCVF): Means the movement of liquids and/or gas in any combination or volume between the production casing and the surface casing.

4. Gas Migration

The occurrence of GM is possible at any point in the life of a well, including after abandonment. Any time GM is found, or monitored GM condition changes, it must be immediately reported to the appropriate Field Office for review. ER will then require the licensee to either repair the well immediately or monitor for any changes to the condition of the GM until the issue can be addressed at the time of abandonment.

As stated in Directive PNG005, wellbore and casing integrity must be suitable for the purpose that the well is being used. GM may indicate an integrity issue and the minister may require that GM be addressed. GM remediation cannot proceed without an approval issued by the ministry.

All GM testing referenced in this Directive must be conducted in accordance with Appendix 1. Refer to section 8 for information on submission of these test results to ER via IRIS.

4.1 Wells to be Abandoned

As required by Directive PNG015, all wells must be tested for GM prior to cut and cap operations. This test must be conducted no more than one year prior to the date of cut and cap and licensees must submit a copy of the test results to ER via IRIS.

Where a GM test indicates the presence of gas migration, cut-and-cap operations shall not be conducted until gas migration has been mitigated to the ER's satisfaction. If remediation has been conducted a final test confirming that no GM is present shall be conducted no more than one year prior to the date of cut and cap.

4.2 Dry Hole Abandonments

If gas is found inside and/or outside the surface casing after the abandonment plugs are run, the licensee must immediately notify the appropriate Field Office to determine the process to re-enter the well and re-abandon.

A final test confirming that no GM is present must be conducted no more than one year prior to the date of cut and cap. The licensee must submit a copy of the test results to ER via IRIS.

4.3 Previously Abandoned Wells

The licensee must immediately notify the appropriate Field Office if GM is identified at a previously abandoned well. After notifying the appropriate Field Office the licensee must:

- obtain a licence to re-enter the well,
- receive a repair authorization from ER prior to conducting any work,
- remediate the well and site to ER's satisfaction, and
- Apply to abandon the re-entered well.

Pursuant to the FSSCR, the issuance of an AOR does not relieve an operator of their environmental liability associated with the well site.

5. Surface Casing Vent Flow

The occurrence of a SCVF is possible at any point in the life of a well, including after downhole abandonment. It is the licensee's responsibility to immediately report any SCVF to the appropriate Field Office when discovered. The licensee must then conduct a SCVF test in accordance with Appendix 2 and report the results of these tests to IRIS within 30 days. Minimum testing parameters must include a bubble test, fluid, methane and H₂S detection. If the results of one or more of the parameters indicate SCVF is present, then additional testing may be required. Additional tests may include but are not limited to findings from any gas isotope analysis, fluid analysis, H₂S concentration readings, flowrate or shut-in surface casing pressure results. The Field Office will review the SCVF test results and determine the appropriate action. Subsequent SCVF tests may be required for monitoring and assessment purposes.

As stated in Directive PNG005, wellbore and casing integrity must be suitable for the purpose that the well is being used. SCVF may indicate an integrity issue and the minister may required that SCVF be addressed. SCVF repair cannot proceed without an approval issued by the ministry.

Refer to section 8 below for information on submission of these test results to ER via IRIS.

5.1 New Drilled Wells

A SCVF test is required to be conducted on every well within 90 days of the Drilling Activity End Date or before the start of production or injection operations whichever occurs first. The information collected from this test will help to identify any well integrity issues after drilling has been concluded.

5.2 Wells to be Abandoned

Prior to abandonment and pursuant to Directive PNG015, the licensee must conduct a SCVF test. This test shall be conducted no more than one year prior to the date of cut and cap.

Where a SCVF test indicates the presence of surface casing vent flow, cut-and-cap operations shall not be conducted until surface casing vent flow has been mitigated to ER's satisfaction. If remediation has been conducted, a final test confirming that no SCVF is present shall be conducted no more than one year prior to the date of cut and cap.

If a well is to be abandoned and it does not have a surface casing vent, contact the appropriate Field Office to determine testing requirements.

6. Use of a Qualified Professional

A qualified professional is required in specific situations to certify that GM and SCVF testing has been properly conducted and that results are reliable.

When a Qualified Professional Is Required:

Gas Migration (GM):

- A final GM test confirming that no gas migration is present before cut-and-cap abandonment;
- For dry-hole abandonments, the final GM test confirming no GM is present; and
- Any GM test that ER requires be conducted by a professional.

Surface Casing Vent Flow (SCVF):

- The SCVF test conducted prior to abandonment,
- If repairs are performed to remediate SCVF, the confirmatory SCVF test after repair,.
- Any SCVF test that ER requires be conducted by a professional.

When a Qualified Professional Is Not Required:

- Initial SCVF testing conducted after drilling and before well production or injection does not require a qualified professional, provided the testing follows the Directive's procedures.
- Routine SCVF tests performed after discovery of vent flow generally do not require a qualified professional unless specifically requested by ER.

Where certification is required, proof of the professional's qualifications and certification must be made available upon the request from ER. If the licensee does not have a qualified professional on staff, a third-party qualified professional may perform or certify the testing.

7. Testing Methods

For the purposes of this Directive, all GM and SCVF tests shall be conducted in accordance with the applicable testing methods discussed in Appendix 1 and 2.

The test procedures outlined in the appendices are the standards accepted by ER, any deviations from these must be reviewed and approved by the appropriate Field Office prior to conducting the test. Contact the appropriate Field Office for more guidance on testing methodologies and procedures if necessary.

8. Documentation and Submission

The results from GM tests must be recorded on the most current version of the *Gas Migration and Surface Casing Vent Flow* form and must be submitted to ER within 30 days of being completed. In the case of cut and cap abandonment this form must be used to fulfill part of the abandonment reporting requirement.

The results from SCVF tests must be reported to ER as an SCVF Test on the well within 30 days of the test being completed unless otherwise approved. In the case of a cut and cap abandonment, this test data must be used to fulfill part of the abandonment reporting requirement.

The current version of this form is available on the Publications Center Saskatchewan website at: <https://publications.saskatchewan.ca/api/v1/products/76015/formats/85084/download>.

Appendix 1: Gas Migration Testing

1. Gas Migration Testing Conditions

GM testing must be conducted when environmental conditions will provide a relevant and reliable reading. Regardless of the sampling method, the soil must be in a frost-free and unsaturated condition at the time of sampling unless otherwise approved by ER. Saturated soil, such as immediately following rainfall or other conditions that may suppress GM must be avoided.

2. Testing Grid Expansion and Contaminated Soil Remediation

GM is present when the measured methane level is above the normal background level. If GM is detected, expanding the test grid will ensure that the entire GM-affected area is determined.

If contaminated soils are suspected to be causing elevated gas migration readings, retesting is required after contaminated soils have been remediated. The entire grid must be retested after remediation.

Other methane sources such as biogenic methane and petroleum hydrocarbon-based soil contamination should be considered because they may affect test results.

3. Ground Penetration Test Method

This type of GM testing requires that holes are created in the soil to measure methane concentrations.

3.1 Ground Penetration Equipment

To perform ground penetration GM tests, a hole must be dug to a minimum depth of 50 centimetres (cm) below ground surface to a maximum of 64 millimetres (mm) in diameter. Equipment or material to seal the hole at surface must be utilized to ensure that soil gases do not escape when testing.

In addition, a properly calibrated instrument capable of measuring combustible gases and vapours (including methane) in the air in concentrations of at least 5 parts per million (ppm) must be used. A personal monitoring device is not an acceptable instrument for the purposes of this section.

Calibrate equipment according to the manufacturer's standard operating procedures to ensure that a proper sample is obtained. Special consideration may be needed to ensure that the equipment is calibrated to methane and that the equipment is set to read methane.

3.2 Ground Penetration Gas Migration Procedure

The ground penetration test method must be conducted in accordance with the following procedure:

1. Determine if the location meets proper soil conditions as stated in section 1 of this appendix.
2. Perform instrument check.
3. Prepare a test hole of a **minimum of 50 cm** below ground surface and a maximum of 64 mm in diameter.
4. Isolate the hole from atmospheric contaminants.
5. Insert the measuring equipment probe a minimum of 30 cm into hole, maintaining a seal at surface to prevent atmospheric gas and soil gas from mixing.
6. Withdraw the sample.
7. The volume and rate of the sample will depend upon the instrumentation being used. Ensure that a sufficient sample is taken to purge lines and instrumentation for an accurate reading.
8. Take the reading according to manufacturer's standard operating procedure.
9. Record observations on the *Gas Migration and Surface Casing Vent Flow* form.
10. Readings of zero must be recorded as "0" on the form.
11. Purge instrument and lines to ensure no cross-contamination before proceeding to next sample location.
12. Expanding the test grid will help define the affected area if methane levels exceed background levels.
13. All test grid locations must be completed for all GM tests.

3.3 Test Point Locations

A minimum of three representative control samples to determine background ppm readings must be taken. These background samples should be taken at the lease edge or just beyond unless otherwise approved by the appropriate Field Office. More background samples may be needed based on the test results.

After background or control samples have been taken, test point locations should be as follows:

- two test points within 30 cm of the wellbore on opposite sides;
- at 2 metre (m) intervals outward from the wellbore every 90° (across with the wellbore at center) to a distance of 6 m; and
- at any points within 75 m of wellbore where there is apparent vegetation stress.

4. Soil Surface Gas Detection Method

This type of GM testing involves measuring methane concentrations at the air-soil interface normally using infrared technology. Other technology giving equal or better results may be used upon approval by the appropriate Field Office.

4.1 Soil Surface Gas Detection Equipment

To measure potential GM at the air-soil interface, an instrument capable of measuring the concentration of combustible gases and vapours (including methane) in the air at 5 ppm must be used.

Calibrate equipment according to the manufacturer's standard operating procedures to ensure that a proper sample is obtained. Special consideration may be needed to ensure that the equipment is calibrated to methane and that the equipment is set to read methane.

4.2 Soil Surface Gas Detection Procedure

The soil surface gas detection test method must be conducted in accordance with the following procedure:

1. Determine if the location meets proper soil conditions as stated in section 1 of this appendix.
2. Perform instrument check.
3. Take the reading according to manufacturer's standard operating procedure.
4. Record observations on the *Gas Migration and Surface Casing Vent Flow* form.
5. Observed zero readings shall be recorded as "0" to demonstrate the reading was taken.
6. Follow the manufacturer's standard operating procedure before proceeding to next sample location.
7. If methane levels exceed background, expanding the test grid will help define the affected area.
8. All test grid locations must be completed for all GM tests.

4.3 Test Point Locations

A minimum of three representative control samples to determine background ppm readings must be taken. These background samples should be taken at the lease edge or just beyond unless otherwise approved by the appropriate Field Office. More background samples may be needed based on the test results.

After background or control samples have been taken, test point locations should be as follows:

- within 30 cm of the wellbore, two test points on opposite sides;
 - at 2 metre (m) intervals outward from the wellbore every 90° (across with the wellbore at center) to a distance of 6 m; and
- at any points within 75 m of wellbore where there is apparent vegetation stress.

Appendix 2: Surface Casing Vent Flow Testing

The SCVF testing and measurement methods described in this appendix may be completed at any time when a SCVF is suspected.

Any test that indicates the presence of SCVF will be reviewed by the appropriate field office a test may be deemed serious when it:

- a) Has a stabilized shut-in pressure exceeding 11 kPa/m multiplied by the surface casing setting depth in metres;
- b) Has a flow containing hydrogen sulphide, hydrocarbon liquid, drilling mud, water, or other contaminants;
- c) Finds a SCVF which constitutes a fire, public safety, or environmental hazard; or
- d) As determined by the field office.

Note: references to infrastructure that is “above-ground” in sections 1.2, 2 and 3.2 means it is not required to expose welds or joints that are currently buried to perform the test. The intent is to ensure that leaks on above-ground infrastructure do not negatively affect the test.

1. Bubble Test Method

Bubble tests may be used to determine if a SCVF is present (gas). One end of a hose test apparatus is submerged in water while the other end is connected to the surface casing vent. Bubbles indicate the flow of gas from the vent.

Visual observation is sufficient to confirm the presence of a liquid SCVF. The liquid must be sampled and quantified if directed by the Field Office.

If the liquid flow supports a volume large enough to be collected a sample should be sent to a qualified lab for verification of Total Dissolved Solids.

Upon direction of the Field Office, the operator may be required to add a non-corrosive surface receptacle containment system that is properly plumbed-in using a 2" connection and hose ensuring that the vent flow is actively managed. Every operator shall maintain complete and accurate records of the quantities of the liquid product produced through the vent and have these volumes available to ER upon request.

1.1 Bubble Test Equipment

The bubble test requires:

- a container filled with approximately 500 milliliters to 1 litre of water;
- small hose fittings to connect to surface casing vent;
- a small hose (minimum 6 mm, maximum 12 mm inside diameter); and
- any other equipment required to direct gas flow from the vent downward into the water container.

1.2 Bubble Test Procedure

The bubble test method must be conducted in accordance with the following procedure:

1. Ensure that there are no leaks at above-ground fittings or welded connections.
2. Verify before starting the test that all valves in the vent line are open.
3. Connect the test fittings to the vent so that gas flow is directed into the container of water.
4. Immerse the hose a maximum of 2.5 cm (1 inch) below the water surface.
5. Observe for 10 minutes. Note any gas flow (i.e. bubbles) indicating a positive vent flow.
6. Record observations on the *Gas Migration and Surface Casing Vent Flow* form.
7. If there is a positive vent flow, determine the SCVF flow rate and a stabilized shut-in surface casing pressure in accordance with sections 2 and 3, respectively.

If any bubbles are present during the 10-minute SCVF test the well has SCVF and the licensee must immediately notify the appropriate Field Office.

2. Flow Rate Determination for Gas Flows

Equipment selection should be appropriate for the SCVF flow rate and expected pressure range. Appropriate equipment may include but is not limited to a positive displacement meter (lower volumes) or mass flow meter or an orifice well tester (higher volumes).

The licensee must install and use the equipment according to the manufacturer's instructions. In addition:

- the pressure/volume range of the equipment must not be exceeded;
- the above-ground fittings, wellhead, etc. must not be leaking;
- casing vents must be left open when equipment is removed unless specifically directed by ER to close them; and
- the test must be a minimum 24 hours.

3. Maximum Shut-In Casing Pressure (Pressure Build-Up)

3.1 Maximum Shut-In Casing Pressure (Pressure Build-Up) Equipment

- Pressure gauge with pressure chart recorder or digital data logger; and
- Pressure-relief valve, which must have a set pressure no higher than 11 kPa/m of surface casing depth.

3.2 Maximum Shut-In Casing Pressure (Pressure Build-Up) Procedure

1. Install a pressure gauge as well as a pressure relief valve on the vent. ER may request a pressure chart recorder or digital data logger for verification.
2. Ensure that there are no gas leaks at above-ground fittings and welds.
3. Document results and notify the appropriate Field Office as per the requirements of this Directive.
4. Remove equipment and leave surface casing vent open.

The build-up pressure should be continued until a stabilized pressure is obtained. The pressure is considered stabilized if the change in pressure:

- is less than 2 kPa/hour over a six-hour period; or
- can be reasonably estimated to not exceed the pressure limits for the pressure-relief valve, which must be set no higher than 11 kPa/m of surface casing depth.

DRAFT

Schedule B



GAS MIGRATION AND SURFACE CASING VENT FLOW

PART I - GENERAL INFORMATION (to be completed in full)

Licensee: _____

Contact Name: _____ Phone #: _____

Contact Email: _____

UWI:
(of boss wellbore)

LX	LSD	SEC	TWP	RGE		M
					W	

Well Surface Location:

LSD	SEC	TWP	RGE		M
				W	

Licence #: _____ Abandonment Date:
(if applicable)

Month	Day	Year

Comments

PART II - SURFACE CASING VENT (SCV)

Please report SCVF test data in IRIS.

Report SCVF data within Well Details > Test tab > Surface Casing Vent Flow Test

Name of company who conducted SCVF test: _____

Name of person who conducted the SCVF test: _____

Phone #: _____ Date sample obtained:

Month	Day	Year

PART III - GAS MIGRATION (GM)

Indicate the current condition of the site, based on the visual assessment:

- ☐ stressed vegetation ☐ soil discoloration ☐ wet soil ☐ dry soil
☐ frozen soil ☐ non-frozen soil ☐ other, details provided in the comments above

Type of gas migration detection equipment used: _____

Name of company who conducted GM test: _____

Name of person who conducted the GM test: _____

Phone #: _____ Date sample obtained:

Month	Day	Year

Complete the Gas Migration Test Data on the diagram in Part III and Declaration in Part IV on the next sheet.

PART III - GAS MIGRATION TEST DATA continued

Well center GPS Coordinates (NAD 83): _____

Background Representative Contol Samples:

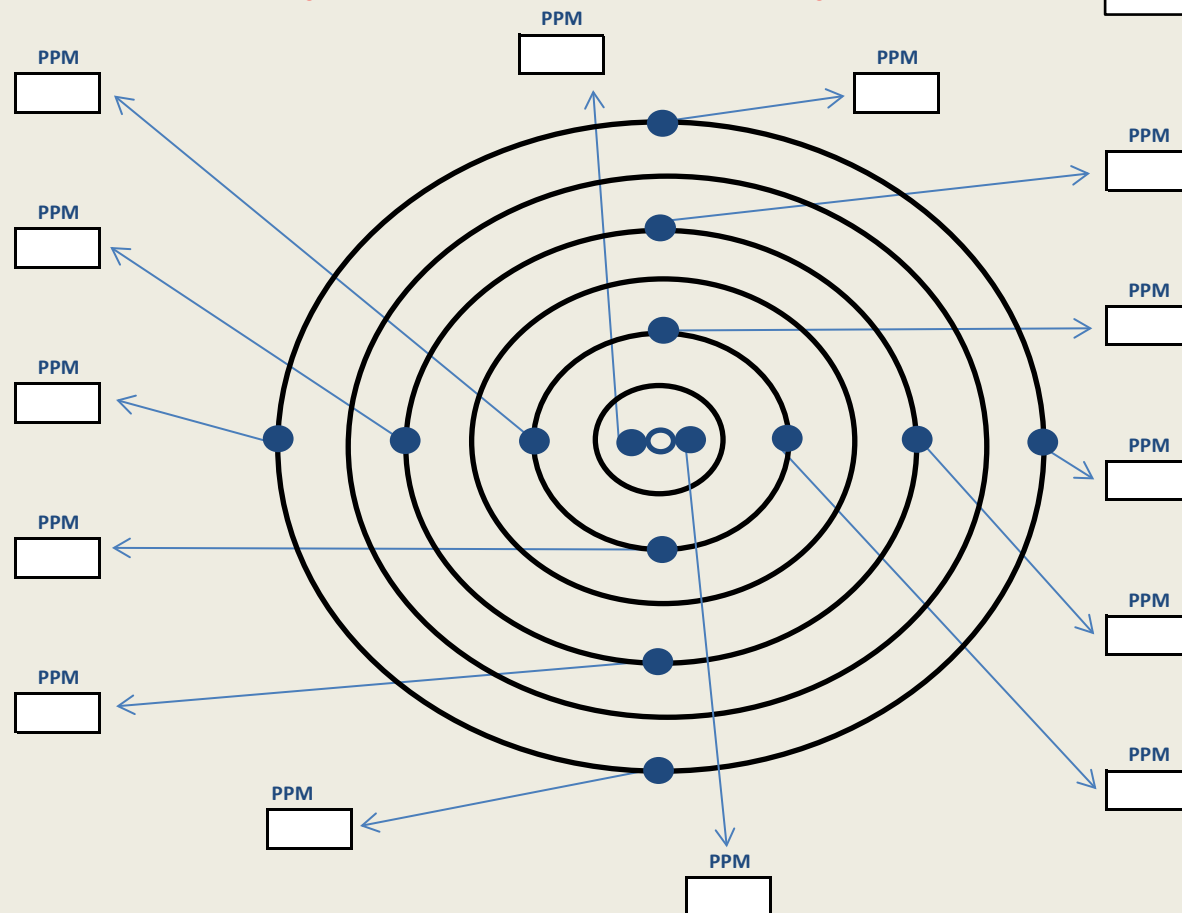
Sample 1:
Sample 2:
Sample 3:

GPS Coordinates (NAD 83): _____

GPS Coordinates (NAD 83): _____

GPS Coordinates (NAD 83): _____

- NOTE: 1) Gas migration samples are typically obtained from a depth of approximately 50 cm and 2 m apart, and two samples within 30 cm of the wellbore on opposite sides.**
2) Gas migration values must be provided in ppm
3) Observed zero readings must be recorded as '0' to demonstrate the reading was taken.



Indicate any other test point within 75 m of wellbore where vegetation loss is apparent; include GPS coordinates

Part IV - DECLARATION

I _____ of _____
certify that all applicable sections within this Gas Migration and Surface Casing Vent Flow form have been completed and, to the best of my knowledge, all of the aforementioned information is accurate and has been provided. I understand that all applicable sections within this form are mandatory, and an incomplete submission will result in the form being rejected.

Qualified Professional Licence Type:

Signature

Date

If applicable, the above signature must meet the qualified professional credentials provided in Directive PNG026.