PTAC

Alberta Upstream Petroleum Research Fund

PTAC

# 26-WDRC-RFP-05

# THERMAL OPERATIONS GAS MEASUREMENT AND SOURCE ATTRIBUTION FOR SCVF/GM ($CH_4$/$H_2S$)

BUDGET: $125,000

PUBLICATION DATE: MARCH 19, 2026

**PROPOSAL SUBMISSION DEADLINE: MAY 8, 2026 BY 5:00 PM**

www.ptac.org
Suite 1550,
520 Fifth Avenue SW
Calgary, AB. T2P 3R7

## 1. Background & Rationale

Surface casing vent flow (SCVF) and gas migration (GM) remain persistent well integrity and decommissioning challenges. For thermal operations, PTAC/AUPRF committee work over multiple program cycles has repeatedly identified a distinct need to improve (i) best-practice monitoring strategy, (ii) alignment about when to test for SCVF and GM in thermal wells, (iii) accurate determination of flowrate, methane levels, and hydrogen sulphide levels, and (iv) defensible differentiation between shallow and production-zone emissions to support operational decisions and risk assessment.

This project focuses on thermal-specific measurement and attribution standardization, complementing PTAC/AUPRF efforts that have advanced (a) thermal source characterization research and (b) broader SCVF/GM measurement and decision-support approaches. Program work aims to distinguish among shallow $H_2S$ generation, casing failures, and production zonal isolation problems, and to provide scientifically defensible approaches to evaluate methane emissions and manage well integrity liabilities.

Thermal operations present additional confounders: injected steam and high temperatures can alter reservoir chemistry and may contribute to shallow pathways that can mimic deeper well integrity issues, while the appropriate response differs substantially depending on whether emissions are shallow/near-surface versus integrity-related at depth. In parallel, PTAC/AUPRF have already initiated thermal-related work explicitly targeting best practices for source-attributed methane and hydrogen sulphide presence in thermal operations, reinforcing that thermal $CH_4$/$H_2S$ measurement and attribution remains a priority theme.

In Alberta, Directive 087 (Well Integrity Management) establishes testing, reporting, classification, and record-retention expectations for surface casing vent flow (SCVF) and gas migration (GM), including requirements to obtain stabilized flow rate and stabilized shut-in pressure trending when vent flow is confirmed, and to retain records for the life of the well plus two years. Importantly for thermal operations, Directive 087 explicitly notes that steam and steam condensates (with no hydrocarbons or other fluids present) venting from the annulus of an operating thermal well do not in themselves indicate an SCVF.
This project will therefore require thermal-specific triggers and interpretation logic that distinguish operational steam/condensate effects from integrity-related SCVF/GM signals in a consistent, auditable way.

In parallel, Directive 020 (Well Abandonment) links abandonment planning and reporting to SCVF/GM closure status and includes testing and inspection requirements that interact with SCVF/GM determinations at end-of-life. The project outputs should be suitable for use in regulatory submissions and evidence packages supporting well integrity decisions and decommissioning planning.

Industry best practice for SCVF/GM source identification (e.g., DACC IRP 27) emphasizes use of all available information—including well history review, offset well review, collection and

analysis of vent flow data, carbon isotope data, and relevant logging data—when determining the likely source and remediation approach. The suite delivered under this RFP must operationalize these elements into a standardized minimum evidence set, data dictionary, and decision logic that are practical under thermal operating conditions.

Despite this progress, a persistent cross-cutting gap remains: thermal operations still lack sufficiently standardized, field-ready guidance that combines (a) aligned monitoring/testing triggers, (b) accurate and auditable measurement of flow rate, methane, and hydrogen sulphide under thermal operating conditions, and (c) source-attributed characterization that can distinguish shallow/near-surface emissions from production-zone integrity-related emissions in a consistent, reproducible way across operators.

This RFP is intended to deliver a Thermal SCVF/GM Measurement & Source Attribution Suite that operationalizes these needs into implementable workflows, minimum measurement/QA/QC specifications, evidence-pack templates, and decision logic suitable for producer adoption and regulatory defensibility. This thermal-operations RFP is being issued alongside companion SCVF/GM directed RFPs focused on (i) source/leak-pathway diagnostics workflows and tool selection and (ii) remediation success metrics and verification.

## 2. Benefits to Producers

This project is intended to deliver practical, defensible tools that thermal operators can use to:

- improve consistency and auditability of monitoring and testing decisions for thermal SCVF/GM, aligned with committee-identified needs for standardized triggers and best-practice monitoring;
- reduce misattribution risk by providing a structured approach to distinguishing shallow/near-surface emissions from integrity-related production-zone emissions, a recurring thermal knowledge-gap theme;
- support risk-based operational decisions where $CH_4$/$H_2S$ presence and source depth materially change safety/environmental implications;
- enable comparable, auditable data capture across operators to improve learning and future guidance in thermal operations contexts.

## 3. Research Objectives

Proponents must deliver an integrated “Thermal SCVF/GM Measurement & Source Attribution Suite” consisting of processes, evaluation methods, and tools (templates, protocols, SOPs, decision logic, and/or field-ready workflows) that accomplish the following:

- Thermal Testing Trigger Framework: Define best-practice monitoring and aligned triggers for when to test and re-test SCVF/GM in thermal operations, consistent with committee-identified needs for alignment on “when to test” and best-practice monitoring strategy.

- Accurate Quantification Under Thermal Conditions (Flow + $CH_4$ + $H_2S$): Define a thermal-ready approach to measuring: (a) flow rate, (b) methane levels, and (c) hydrogen sulphide levels, explicitly accounting for thermal/steam confounding noted in the program's thermal knowledge gaps.
- Source Attribution (Shallow vs Production-Zone): Deliver a defensible, evidence-based source attribution approach that can distinguish shallow/near-surface emissions from production-zone emissions in thermal contexts, consistent with program language emphasizing the need to distinguish shallow $H_2S$ generation, casing failures, and zonal isolation issues.
    - Evidence, Auditability, and Usable Outputs: Provide evidence-pack standards (templates + minimum metadata requirements) sufficient to support consistent application and auditable documentation, reflecting the program's emphasis on quantitative, data-logged measurement practices and clear documentation.

## 4. In Scope

Proposals must address the following in-scope elements:

A) Thermal Testing Trigger Framework (Required)

- A clear set of monitoring and testing triggers tailored to thermal operations for SCVF/GM, directly aligned with the stated knowledge gap calling for "alignment about when to test."
- Mapping of trigger outcomes to recommended actions (e.g., screen → quantify → attribute → escalate), including how thermal operating states affect triggering logic (e.g., conditions that may confound interpretation).

B) Minimum Measurement and QA/QC Specification (Required)
The suite must include a minimum measurement specification addressing:

- Measurement objectives by decision stage (screening vs confirmation vs quantification vs trend confirmation), including explicit "go/no-go" criteria for advancing to attribution and escalation steps.
- Thermal-condition performance requirements: define how measurement methods will operate under high humidity, condensate risk, and elevated temperatures typical of thermal well annulus gases, including required sample conditioning (e.g., moisture/condensate management), and demonstrate that the method maintains stable baselines and repeatable results under these conditions.
- Minimum instrument performance and documentation (range, resolution, response time, intrinsic safety where applicable, field suitability), including:

- digital time-stamped data logging for flow, pressure (where used), temperature, and gas concentrations;
- calibration and verification/bump-testing procedures and frequency, including pre/post checks and criteria for invalidating/repeating tests;
- required background correction approach where the measurement method depends on ambient dilution.
- Standardized test conditions suitable for thermal operations:
    - clear stabilization definitions for “stabilized average flow” and “stabilized shut-in pressure” (where applicable) and how these are evaluated from logged data;
    - repeatability and replicate requirements (minimum replicates, acceptance thresholds, and re-test rules);
    - required metadata about well state and operating conditions at time of test (thermal operating mode, pressures/temperatures, recent steaming history, vent configuration, and any temporary controls).
- Data capture requirements (raw time series; instrument configuration; calibration certificates; field notes; chain-of-custody and lab QA/QC when applicable) and a standardized uncertainty statement (what uncertainty components are included, and how uncertainty influences interpretation and decisions).

C) Source Attribution

- A decision logic (“selector”) linking thermal operating context + observed measurements to attribution hypotheses (shallow vs production-zone) and recommended follow-up steps to increase confidence.
- Guidance on interpreting $CH_4$/$H_2S$ results in the context of thermal conditions, consistent with program themes emphasizing shallow $H_2S$ vs casing failure vs zonal isolation distinctions.

D) Evidence Pack Templates + Data Dictionary

- Templates for field and interpretation documentation capturing well state, operating conditions, measurement setup, calibration, time series, deviations, and rationale for conclusions, aligned with the program’s emphasis on auditable, comparable decision outputs.

E) Case Study Package + Validation Plan

- Worked examples showing end-to-end application of trigger framework + measurement spec + source attribution logic, including explicit handling of uncertainty and decision outputs.

- A validation/ground-truthing plan with measurable acceptance criteria (lab, controlled testing, and/or field demonstrations as proposed) consistent with the program's intent to produce defensible guidance and testing methods for thermal contexts.

## 5. Out of Scope

- Performing physical well repairs, abandonment operations, or construction work as a primary activity (unless proposed as a limited demonstration strictly to support deliverables).
- Generic LDAR program design unrelated to thermal SCVF/GM measurement and attribution needs.
- Purely theoretical reviews that do not produce implementable workflows, templates, and auditable outputs suitable for adoption.

## 6. Specific Deliverables

The proposals must include a detailed work plan with specific deliverables and outcomes, with time estimates and a completion date. Proposals must commit to producing the following deliverables (producer-ready formats, clear versioning):

- Thermal SCVF/GM Measurement & Source Attribution Suite Framework
- Thermal Testing Trigger and Field Measurement Standard Operating Procedures
- Minimum Measurement & QA/QC Specification
- Source Attribution
- Evidence Pack Templates + Data Dictionary / Minimum Metadata
- Case Study Package
- Final Report + Producer-Facing Summary

## 7. Success Criteria

A proposal will be considered successful if the delivered suite:

- Produces actionable, field-usable outputs that standardize when to test and how to measure SCVF/GM in thermal operations, consistent with the long-standing knowledge gaps documented for thermal surface casing vents.
- Provides auditable measurement methods for flow + $CH_4$ + $H_2S$ that account for thermal/steam confounding and support consistent documentation and comparability across operators.

- Produces defensible source attribution (shallow vs production-zone) with explicit uncertainty handling and decision logic that reflects program objectives to distinguish shallow $H_2S$ generation vs casing failure vs zonal isolation issues.
- Demonstrates reproducibility and usability through case studies and a validation approach with measurable acceptance criteria.
- Ensures compatibility of templates, data dictionaries, and documentation outputs with the concurrently issued SCVF/GM diagnostics and remediation verification RFPs (RFP 26-WDRC-RFP-03 and RFP 26-WDRC-RFP-04).

PTAC

Alberta Upstream Petroleum
Research Fund

PTAC

# AUPRF 2026
# Request for Proposals

## INSTRUCTIONS FOR PROPOSAL SUBMISSIONS

MARCH 2026

www.ptac.org
Suite 1550,
520 Fifth Avenue SW
Calgary, AB. T2P 3R7

# Instructions for Proposal Submissions
AUPRF 2026 RFPs

## 1 Purpose & Scope

These instructions apply to all competitive solicitations funded by the Alberta Upstream Petroleum Research Fund (AUPRF) and administered by PTAC Petroleum Technology Alliance Canada. They define how Proponents must prepare and submit proposals, how proposals are evaluated, the timelines for decisions and notifications, and key commercial and legal terms applicable to AUPRF-funded projects.

## 2 Submission – Content Requirements

### 2.1 Proponent & Company Information

- Legal name and address
- Primary contact name, title, email, and phone
- Brief company overview and relevant services

### 2.2 Technical Proposal

- Understanding of the problem statement and scope
- Proposed methodology and approach
- Work plan, milestones, and schedule
- Team composition; max 2-page bios/CVs with roles and expertise

### 2.3 Financial Proposal

- Itemized cost breakdown (e.g., labour categories and rates, materials, travel, subcontractors)
- Proposed milestone-based payment schedule (payments tied to deliverables)
- Leveraged funding

### 2.4 Formatting and Page Limits

Unless otherwise specified in a particular RFP, no strict page limits apply; include the content necessary to enable a thorough assessment.

## 3 Submission — Method & Logistics

Submit by email to info@ptac.org with subject line: *AUPRF – RFP ID – Proponent Company Name*. **Proposals submitted by other means will not be accepted.**

- Deadline: Proposals must be received on or before the RFP deadline indicated in each RFP document; late submissions will not be considered.

- File format: A single combined PDF is preferred, plus any required spreadsheets or forms specified in the RFP.
- Validity: Proposals must remain irrevocable and open for acceptance for 90 days from the submission deadline.
- Questions & FAQs: Refer to the AUPRF call for proposals landing page and any RFP-specific instructions for updates and clarifications.

## 4 Eligibility, Legal & Commercial Terms

- PTAC reserves the right to accept or reject any Proposal, in whole or in part, and to cancel or amend an RFP without liability.
- Proponents are responsible for all costs associated with preparing and submitting their Proposals.
- Confidentiality applies to information provided by PTAC; Proponents may be required to sign a non-disclosure agreement. Proposals will be kept confidential and will be accessed only by evaluators.
- Intellectual property (IP) arising from AUPRF projects may be owned by AUPRF funders, or AUPRF funders receive a royalty-free operational use right. No other IP ownership or sharing options (if IP is being generated) are acceptable.
- Minimum insurance: Commercial General Liability (CGL) of $5,000,000 and Professional Liability of $2,000,000.
- Disclosure of intent to subcontract and any actual or potential conflicts of interest is required.
- Governing law: Province of Alberta, Canada.

## 5 Evaluation Criteria & Process

### 5.1 Scored Criteria and Weights

| *Criterion* | *Weight* |
|---|---|
| Technical Approach | 30% |
| Relevant Experience | 30% |
| Cost | 25% |
| Leveraged Funds from Other funders | 5% |
| Team Qualifications | 10% |

### 5.2 Screening & Completeness

Proposals are first screened for completeness and compliance (deadline, required sections, and required disclosures). Incomplete or non-compliant Proposals may be removed from further consideration at PTAC's discretion.

### 5.3 Committee Review, Scoring & Deliberation

The relevant AUPRF technical committee reviews Eligible Proposals. Committee members score Proposals using the standardized scoring sheet before a deliberation meeting, where compiled results are discussed, and recommendations are confirmed.

PTAC may request clarifications, additional information, or presentations from Proponents to support evaluation before final ranking.

## 6 AUPRF Review & Communication Timelines[1]

The following service levels apply to all **AUPRF RFPs for Well Decommissioning Research Projects (WDRC) and Water Innovation Planning Committee (WIPC)** unless a specific RFP states a different schedule:

| *Step* | *Date* |
|---|---|
| 1. **RFP Release**<br>- **Well Decommissioning Research (WDRC)**<br>- **Water Innovation Planning (WIPC)** | March 19, 2026 |
| 2. **Submission of Questions** | April 10, 2026 |
| 3. **Answers to Questions Posted** on PTAC Website | April 24, 2026 |
| 4. **Proposal submission deadline** | **May 8, 2026**<br>**5 pm Mountain Time** |
| 5. **Acknowledgement of receipt** | May 22, 2026 |
| 6. **Decision ratification** | June 19, 2026 or sooner |
| 7. **Award notifications** | June 26 – July 7, 2026 |
| 8. **Target project start** | Summer 2026<br>(unless otherwise specified) |

## 7 Communication

- All communications by the proponent to PTAC should be directed to **info@ptac.org** and AUPRF2026 RFPs should be included in the subject line.
- PTAC will notify the Proposal's primary contact by email of the outcome (award or non-award).
- Unsuccessful Proponents may request high-level feedback on strengths and areas for improvement.
- Public Communications: PTAC/AUPRF may publish award highlights after contract execution.

[1] AUPRF 2026 RFPs for Ecological Research Planning Committee (ERPC), Air Research Planning Committee (ARPC), and Reclamation Remediation Research Committee (RRRC) will follow a different timeline and deadline.

## 8 Contracting, Payments & Reporting

- A standard AUPRF Funding Agreement will be issued to successful Proponents for review and execution.
- Payments are quarterly milestone-based and tied to accepted deliverables, as specified in the Funding Agreement.
- Executed agreements are retained in the AUPRF contracts repository managed by PTAC.

## 9 Compliance & Reserved Rights

PTAC may amend or cancel an AUPRF RFP at any time; any changes will be communicated to all prospective Proponents. Proponents must comply with all instructions, including confidentiality, insurance, subcontracting disclosures, and conflict-of-interest requirements.

## 10 Proponent Checklist

- Company information (legal name, address, contacts, overview)
- Technical proposal (approach, work plan, schedule, team bios/CVs)
- Financials (itemized costs; milestone-based payment plan, leveraged funding)
- Disclosures (subcontracting intent; conflicts of interest)
- Insurance confirmation (CGL $5M; Professional Liability $2M)
- Submission format (single PDF + required forms); deadline; 90-day validity

## 11 Legal Conditions

### 11.1 Non-Binding Solicitation; No Obligation to Award

This Request for Proposals (RFP) is not an offer to contract. No contractual, quasi-contractual, fiduciary, or other legal obligations of any kind are created by this RFP or by any submission, communication, or conduct of PTAC unless and until a written Funding Agreement is executed by duly authorized representatives of PTAC and the successful Proponent. PTAC may cancel, amend, or suspend this RFP at any time without liability.

### 11.2 PTAC's Reserved Rights

Without limiting any other rights, PTAC may, in its sole discretion and without liability: (a) accept or reject any or all Proposals; (b) accept a Proposal in whole or in part; (c) waive non-material irregularities; (d) seek clarifications; (e) negotiate changes to scope, schedule, and pricing with one or more Proponents; and (f) cancel this RFP at any time. The lowest-priced Proposal will not necessarily be selected.

### 11.3 No Claim for Compensation; Bid Costs

Each Proponent is solely responsible for all costs associated with preparing and submitting its Proposal, as well as any related activities. PTAC shall not be liable for any such costs or damages, whether or not the Proponent is selected for award.

### 11.4 Limitation of Liability

To the maximum extent permitted by law, PTAC shall not be liable to any Proponent for indirect, incidental, consequential, special, punitive, or exemplary damages, loss of profit, loss of opportunity, or loss of reputation arising out of or related to this RFP, the evaluation process, or any decision to award or not award funding, even if advised of the possibility of such damages. Any direct liability of PTAC to a Proponent is strictly limited to the reasonable, proven out-of-pocket costs of preparing the Proposal, which the parties agree is disclaimed by Section 4.

### 11.5 Verification and Clarifications

PTAC may request clarifications, additional information, or presentations from any Proponent and may verify any information contained in a Proposal through interviews, reference checks, third-party sources, or site visits. Failure to respond promptly may result in disqualification.

### 11.6 Grounds for Disqualification

PTAC may, at any time, disqualify a Proposal or rescind a selection if: (a) the Proposal is late, incomplete, or non-compliant; (b) the Proponent fails to disclose or address an actual or potential conflict of interest; (c) the Proposal contains misrepresentations or misleading information; (d) the Proponent engages in collusion, unfair competition, improper influence, lobbying outside the authorized contact, or attempts to obtain confidential information not publicly available; or (e) adverse information materially affecting the Proponent's qualifications comes to PTAC's attention.

### 11.7 Proponent Representations & Warranties

By submitting a Proposal, the Proponent represents and warrants that: (a) the Proposal is accurate, complete, and not misleading; (b) all proposed work product will not infringe intellectual property or other rights of third parties; (c) the Proponent and proposed subcontractors are duly qualified and in good standing; and (d) it will maintain the insurance required by the RFP and Funding Agreement.

### 11.8 Confidentiality; Use and Disclosure

Information provided by PTAC in connection with this RFP is confidential and may be used solely for Proposal preparation and evaluation. Proponents must not disclose such information to any third party except their team members, advisors, or subcontractors who have a need to know and are bound by confidentiality obligations no less protective. PTAC may disclose Proposals to its funders, technical committees, advisors, and partners for evaluation and administration and may make disclosures as required by law or court/government order.

### 11.9 Intellectual Property & License to Use

Subject to the Funding Agreement, IP arising from the Project may be owned by AUPRF funders, or funders will receive a perpetual, royalty-free right to use the IP in their operations without additional compensation. Proponents must ensure they have all the rights necessary to grant such

ownership or licenses. If IP is generated by the proposal/project, no other IP ownership or sharing options are acceptable. If IP is not generated by this project, this provision is unnecessary.

### 11.10 Subcontracting

The Proponent must disclose its intent to subcontract any portion of the work. PTAC reserves the right to approve or reject proposed subcontractors. The Proponent remains fully responsible for all subcontracted work.

### 11.11 Proposal Validity

Proposals must remain irrevocable and open for acceptance for 90 days after the submission deadline.

### 11.12 Acceptance Not a Waiver

PTAC's acceptance of a Proposal, or its failure to identify deficiencies, does not waive any requirement of the RFP or Funding Agreement and does not relieve the Proponent from responsibility for compliance or performance.

### 11.13 Order of Precedence; Entire Agreement

In case of conflict, the following order of precedence applies: (1) the executed Funding Agreement (including schedules), (2) the specific RFP (including addenda), (3) these Proponent Instructions, and (4) the Proposal. The executed Funding Agreement constitutes the entire agreement for project performance.

### 11.14 Governing Law and Forum

This RFP and any related dispute are governed by the laws of the Province of Alberta and the federal laws of Canada applicable therein, without regard to conflict-of-laws rules. The parties attorn to the exclusive jurisdiction of the courts of Alberta, sitting in Calgary.

### 11.15 Insurance & Indemnities

At a minimum, the Proponent shall maintain CGL of $5,000,000 and Professional Liability of $2,000,000, as well as any other insurance required by the Funding Agreement. Proponents will indemnify and hold harmless PTAC, its officers, directors, employees, and agents from third-party claims arising out of the Proponent's acts or omissions in connection with the Proposal or the Project, subject to the Funding Agreement.

### 11.16 Addenda and Questions

Only written addenda issued by PTAC form part of the RFP. Proponents are responsible for monitoring the RFP communication channel (the PTAC website) and ensuring their Proposal reflects all addenda.