



26-WDRC-RFP-03

SOURCE AND LEAK PATHWAY
IDENTIFICATION PROCESSES AND TOOLS

BUDGET: \$200,000

PUBLICATION DATE: MARCH 19, 2026

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

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1. Background & Rationale

The Well Decommissioning Research Committee (WDRC) of the Alberta Upstream Petroleum Research Fund (AUPRF) has identified a recurring and cross-cutting diagnostic gap affecting multiple priority topics: improving confidence in surface casing vent flow (SCVF) and gas migration (GM) source identification; distinguishing flow path/origin versus storage zones; and evaluating the applicability of logging tools for multi-annular vent flow problems. Recent discussions emphasize that diagnostics and source attribution are the central technical bottleneck in progressing remediation, verifying success, and enabling risk-based closure decisions—particularly in complex well configurations and multi-annular scenarios.

Multiple well decommissioning challenges share an overarching diagnostic theme: improving confidence in vent flow and GM source identification; distinguishing flow path/origin versus storage zones; and evaluating logging tool applicability for multi-annular vent flow issues. The combined problem is that current diagnostic processes/tools do not reliably produce actionable, confidence-rated pathway identification across complex well configurations, slowing progress on remediation and risk-based closure decisions.

Key diagnostic challenges that need to be addressed:

- Source ambiguity: similar surface observations may arise from different mechanisms (e.g., behind-casing channelling, casing/tubing leaks, wellhead seal leakage, shallow gas, or multi-annular communication).
- Multi-annular complexity: simultaneous or intermittent flow across multiple annuli can obscure the true origin and leak pathway, especially in legacy well configurations.
- Commingling and fingerprinting limits: gas composition and isotopic signatures can be informative but may be non-unique when multiple sources mix along the pathway.
- Low-rate / low-pressure flow: SCVF can be intermittent and difficult to quantify repeatably; measurement accuracy at low flows can be a limiting factor in diagnosis and verification.
- Tool limitations and uncertainty: many cased-hole logs and cement evaluation methods infer conditions indirectly and can be ambiguous; reliable interpretation often requires integrating multiple measurements and well history.
- Gas migration variability near surface: GM can be spatially and temporally variable in soil, influenced by near-surface conditions; methods must address false positives/negatives and define defensible detection boundaries.
- Data and access constraints: incomplete records, uncertain cement types, limited annulus access, or obstructions can constrain diagnostics; the workflow must explicitly manage data gaps.

The diagnostics suite must be designed to directly support surface casing vent flow (SCVF) and gas migration (GM) requirements, including testing, classification, reporting, repair/deferral decisions, and record retention expectations as set out in AER Directive 087 (Well Integrity Management) and the related well life-cycle requirements in AER Directive 020 (Well Abandonment).

The suite should remain usable across other Canadian jurisdictions where similar concepts apply. In particular, proponents should note overlaps with British Columbia and Saskatchewan, and identify which elements of the Alberta-focused workflow map cleanly to those jurisdictions and where material differences exist (e.g., thresholds, submission platforms, notification timing).

In addition to workflow standardization, WDRC seeks an assessment of existing diagnostic prototypes and commercial tools, and the definition of equipment requirements and validation methods needed to enable integrated surface and downhole diagnostics that are field-ready for Alberta conditions. Proponents must demonstrate how outputs support Alberta regulatory expectations (e.g., testing/classification/reporting/record retention) and reference where that mapping is addressed in their deliverables.

2. Benefits to Producers

Producers benefit when diagnostic efforts reliably translate into actionable, confidence-rated pathway identification because it reduces the cycle time and cost of repeated interventions and improves the defensibility of risk-based decisions. WDRC and AUPRF project reporting has highlighted that accurate leak path identification and proper placement are key to remediation success and that persistent gaps remain in reliable pathway identification, placement, and verification.

Expected producer benefits include:

- Fewer diagnostic/rework loops by standardizing a pathway identification process that produces usable outputs (not just raw data).
- Higher repair success probability through better linkage between diagnostic findings, pathway hypotheses, and treatment/access planning.
- Improved auditability and knowledge transfer, enabling better learning across projects and well types via structured evidence packs and documented rationale for confidence ratings.
- Better alignment with risk-based approaches by producing outputs that support defensible closure decisions and prioritization.

3. Research Objectives

Proponents must deliver an integrated “Diagnostics Suite” consisting of processes, evaluation methods, and tools (which may include software, templates, protocols, and/or field-ready workflows) that accomplish the following objectives:

- Standardize pathway identification workflows for SCVF/GM that are repeatable across common and complex well configurations (including multi-annular cases).
- Produce confidence-rated pathway hypotheses that distinguish (a) origin/source vs (b) storage zones and (c) flow paths—explicitly documenting uncertainty and evidence strength.
- Evaluate diagnostic tool applicability (including logging tool applicability for multi-annular vent flow) and define a decision logic for selecting tools based on well configuration, suspected mechanisms, and uncertainty.
- Define minimum evidence standards and QA/QC for diagnostics that support auditable decision-making and enable comparative learning across wells/projects.
- Enable verification planning by integrating post-treatment monitoring considerations where they support pathway confirmation and remediation validation.
- Extend the diagnostics suite to explicitly support development and field deployment of integrated surface and downhole diagnostic equipment (hardware + software) that improves leak pathway and source attribution.
- Assess existing prototype and commercial technologies (surface SCVF quantification, downhole leak-location tools, fibre-optic DAS/DTS, sampling systems) for current status, Alberta usability, and remaining gaps.
- Define engineering-grade functional and non-functional requirements (hazardous area suitability, calibration, environmental limits, data standards) to enable procurement and validation of new diagnostic equipment.

4. In Scope

This is a directed and tightly scoped RFP. The intent is to obtain implementable, producer-ready workflows and tools that reduce ambiguity in SCVF/GM pathway attribution and support defensible decision-making. Proposals that are primarily broad literature reviews or conceptual discussions—without producing practical workflows, decision logic, templates, confidence-rating methods, and worked examples suitable for direct producer use—may be deemed non-responsive. The proposal must address the following in-scope elements:

- Diagnostic process and workflow design

- A structured end-to-end diagnostic workflow from initial screening through hypothesis generation, targeted diagnostics, interpretation, and decision outputs.
- Explicit handling of uncertainty and confidence scoring/ratings for pathway identification, with rationale capture.
- Tool and method assessment (diagnostics suite content)
 - A comparative assessment of diagnostic tools/methods relevant to SCVF/GM, including guidance on logging tools for multi-annular vent flow issues.
 - A “diagnostics selector” (decision logic) that links problem type and uncertainty to recommended diagnostic options and expected evidentiary value.
 - Explicitly address when single tools are likely to be ambiguous and specify integrated diagnostic combinations (e.g., cement evaluation + noise/temperature + pressure/bleed-down diagnostics + gas sampling/fingerprinting) to raise confidence.
 - Include guidance for selecting and interpreting gas sampling (composition and isotopes) and explain limitations due to commingling and multi-source pathways.
 - Include guidance for low-rate vent measurement and repeatability controls (instrument suitability, stabilization time, and data logging).
- Evidence capture and data products
 - An “evidence pack” approach (templates and structure) for compiling well history, integrity indicators, SCVF/GM indicators, and explicit data gaps, to support reproducibility and auditability.
 - Include a data dictionary and minimum metadata requirements for all diagnostic inputs/outputs (well state, pressure/temperature conditions, tool settings, calibration/QA, timestamps).
 - Provide an evidence-strength rubric (e.g., direct vs inferred indicators) and requirements for documenting alternative hypotheses and why they were rejected.
- Equipment Development & Prototype Assessment. This RFP also invites proponents to include (as an optional but encouraged component) an equipment-oriented workstream that:
 - Assesses existing prototypes and commercial tools applicable to SCVF/GM source and pathway identification in Alberta, and
 - Defines actionable requirements and validation approaches for integrated surface and downhole diagnostic equipment. The equipment workstream is intended to complement—not replace—the workflow and evidence-pack

deliverables. Proponents may propose evaluation of existing devices, identify readiness gaps (e.g., hazardous-area certification, cold-weather operation, calibration/QA, data interoperability), and propose focused development or adaptation to address Alberta well configurations and regulatory needs.

- Prototype scan and status: identify existing prototypes/commercial tools relevant to SCVF/GM diagnostics (surface meters, remote shut-in/monitoring systems, downhole noise/temperature/ultrasonic tools, DFOS DAS/DTS) and summarize maturity, Alberta usability, and data defensibility.

5. Out of Scope

The following are out of scope unless explicitly proposed as a limited demonstration activity that directly supports the deliverables:

- Performing physical well repairs, abandonment operations, or construction work as a primary activity.
- Developing broad emissions programs unrelated to SCVF/GM pathway identification (e.g., generalized LDAR program design) beyond what is needed to avoid misattribution and support diagnostics.
- Producing a full jurisdiction-wide GHG inventory (except where narrowly required for diagnostic interpretation or decision logic inputs).
- Purely theoretical reviews without producing implementable workflows/tools and confidence-rated outputs usable by producers.
- Proposals heavy on general literature review without implementable workflow/tools will be considered non-responsive

6. Project Deliverables

Proposals must commit to producing the following deliverables (with clear versioning and producer-ready formats):

- Milestones, Schedule, and Outcome Tracking: Proponents must include a delivery schedule that provides time estimates, milestone dates, and completion dates for each required deliverable listed in this RFP.
- Diagnostics Suite Framework (core deliverable): A documented, step-by-step diagnostic workflow that results in confidence-rated pathway identification outputs and clearly separates source/origin vs storage vs flow path conclusions.
- Tool Applicability & Selection Guide: A comparative assessment and selection logic for diagnostic tools, including explicit guidance for multi-annular vent flow and logging tool applicability limitations and best-fit contexts.

- Evidence Pack Templates + Minimum Evidence Standards: Practical templates for evidence capture (well integrity indicators, SCVF/GM indicators, data gaps) and minimum QA/QC expectations for diagnostic data collection and interpretation.
- Case Study Package (demonstration of use): A set of worked examples (case studies) that show how the diagnostics suite produces confidence-rated pathway conclusions and how the conclusions inform decisions.
- Validation Plan and Acceptance Criteria: A validation/ground-truthing plan with measurable acceptance criteria, including QA/QC, documentation practices, and (if field work is proposed) how results will be assessed against independent indicators.
- Final Report + Producer-Facing Summary: A final technical report and a concise producer-facing guidance document summarizing recommended workflows, tool selection logic, and how to interpret confidence ratings.
- Prototype & Commercial Technology Landscape: A structured inventory and assessment of relevant surface and downhole diagnostic technologies (including any existing prototypes), documenting Alberta usability, maturity/TRL, deployment constraints, data quality/QA, and gaps relative to SCVF/GM pathway attribution needs.

7. Success Criteria

For clarity, success requires that the final suite be usable “as delivered” by producers (not requiring extensive additional development), and that it demonstrably reduces off-scope diagnostic iteration by producing confidence-rated, evidence-traceable pathway conclusions. A proposal will be considered successful if it demonstrates that the delivered diagnostics suite:

- Produces actionable outputs: Delivers pathway identification conclusions that are usable for next-step decisions (e.g., diagnostic follow-up selection, remediation planning, verification planning), not merely data collection.
- Improves confidence and transparency: Includes a documented confidence rating approach and shows traceability from evidence → interpretation → conclusion, including explicit treatment of uncertainty and data gaps.
- Addresses complex configurations: Explicitly covers multi-annular vent flow cases and provides defensible guidance on logging tool applicability (where tools are informative, ambiguous, or not recommended).
- It is reproducible and auditable: Provides evidence pack templates and QA/QC guidance sufficient for consistent application across teams and for learning across wells/projects.
- Demonstrates performance through examples/validation: Demonstrates the workflow on case studies and includes a validation plan with acceptance criteria appropriate to the proposed scope and data access.



AUPRF 2026 Request for Proposals

INSTRUCTIONS FOR PROPOSAL SUBMISSIONS

MARCH 2026

www.ptac.org
Suite 1550,
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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

<i>Criterion</i>	<i>Weight</i>
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 Timelines¹

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:

<i>Step</i>	<i>Date</i>
1. RFP Release - Well Decommissioning Research (WDRC) - 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 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 (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.