

Project Summary, Milestones, Payment Schedule and Quarterly Update Reports

Report Date (Q4)

Project Summary

Project Title:	Multi-year compositional, isotopic and microbial investigation of methane migration issues to develop “best-practices” for industry
Lead Investigator:	Scott Mundle, University of Windsor
AUPRF Managed Funds Award Amount:	\$100,000
PTAC Technical Champion:	
GL #:	20-WARI-03
Other Funding Amounts and Sources:	\$
Start Date:	Jan 2021
Completion Date:	Dec 2024

Provide a brief description of the challenges this project aims to address and how industry and others will benefit including what the anticipated impact is. (i.e., cost reductions, improved environmental performance, impact on regulation, enhanced access to resources). (Maximum 150 words or less)

1. Original documentation of scope and key questions
 - Gas migration measurement approaches and technological advancements in soil gas flux measurements were combined to develop a risk matrix and regulatory threshold for soil gas migration investigations
 - A quantitative measurement for soil gas flux to establish a regulatory threshold for serious GM development advanced
 - New field measurement technology for soil gas flux with an accessible price point for routine site assessments
2. Reference to knowledge gap analysis
 - New understanding of in-soil gas fingerprint metrics with surface flux measurements associated with GM issues and risk thresholds
 - New understanding of secondary variables that impact GM gas fingerprints (migration fractionation and

microbial degradation) and confuse identification of, and source characterization for well integrity issues

- Framework will provide a more comprehensive regulatory framework to evaluate methane emissions from soil gases
- Evaluation of legacy/current soil gas detection methodologies for recommendation of industry best-practices

List key milestones with invoicing schedule.

Milestone	Expenditures¹	Fiscal Quarter²
1 PhD thesis completed and defended for PTAC HQP, microbial dynamics related to GM		
2 Draft of research paper for microbial community impacts from GM gases completed and being submitted for stakeholder NDA release		
3 Draft of research paper for microbial community impacts from GM gases completed and being submitted for stakeholder NDA release		
4 Draft of research paper for legacy/current GM measurement techniques completed and being submitted for stakeholder NDA release		
5 Soil gas flux post-processing data analysis completed for 2021-2022 field analysis and manuscript under development for evaluation of volumetric regulatory threshold for classification of GM issues		
Total		

Quarterly Update

Exception Highlight for the Quarter:

(any exceptions to the original project scope, timelines, payment schedule OR early significant findings)
 – this can be left blank if no changes are needed, and do not include exceptions already reported

1.

¹ All expenditures in Canadian dollars and must excludes GST and other applicable taxes

² Quarters are based on fiscal calendar e.g., Q3 2021/22 is Oct-Dec 2021

2.
3.

Update on scope, key questions, gap analysis and work performed this quarter (include any requests for assistance to PTAC or the committees)

- draft of publication of best practices in gas migration testing (soil gas measurements). -Publication on geochemical oxidation identifiers in progress. -PhD thesis completed, detailing microbial and geochemical indicators for gas migration along with two draft manuscripts (in process of requesting NDA release for publication submission). -Collaborative publication with Dave Risk of St.Fx on the characterization of soil gas methane emissions integrating flux measurements with geochemical indicator intensity for GM best practices and proposed regulatory volumetric threshold evaluation in progress (estimated completed fall 2024).

Budget Summary Update

Revenues and Expenditures	Total Budget	Budget to date	Project charges this quarter	Project charges to date	Variance of budget to actuals to date	Forecasted Total Project (no. of quarters of actual plus	Variance of total budget to forecast
Funds received And from whom							
Expenses							

Variance analysis (includes changes to invoicing schedule)

- 1.
 - 2.
- Etc....

TOTAL PROJECT VALUE \$100,000
(Value equals the total funds committed to date for all years)

1st Year Funding \$

Confirmed Funders:					
NRCan	\$	AEP	\$	CanERIC	\$
NSERC	\$	ADOE	\$	ERA	\$
TIER	\$	CRIN	\$	AUPRF	\$
MITAC	\$	AMEP	\$	Other	\$

2nd Year Funding \$

Confirmed Funders:					
NRCan	\$	AEP	\$	CanERIC	\$
NSERC	\$	ADOE	\$	ERA	\$
TIER	\$	CRIN	\$	AUPRF	\$
MITAC	\$	AMEP	\$	Other	\$

3rd Year Funding \$

Confirmed Funders:					
NRCan	\$	AEP	\$	CanERIC	\$
NSERC	\$	ADOE	\$	ERA	\$
TIER	\$	CRIN	\$	AUPRF	\$
MITAC	\$	AMEP	\$	Other	\$

4th Year Funding \$

Confirmed Funders:					
NRCan	\$	AEP	\$	CanERIC	\$
NSERC	\$	ADOE	\$	ERA	\$
TIER	\$	CRIN	\$	AUPRF	\$
MITAC	\$	AMEP	\$	Other	\$

5th Year Funding \$

Confirmed Funders:					
NRCan	\$	AEP	\$	CanERIC	\$
NSERC	\$	ADOE	\$	ERA	\$
TIER	\$	CRIN	\$	AUPRF	\$
MITAC	\$	AMEP	\$	Other	\$