

**PER- AND POLY-FLUOROALKYL SUBSTANCES
GRANT PROPOSAL
October 2024 (revised February 2025)**

Project Name: Spencer J. Hardy Livingston County Airport
Project Location (County): Livingston
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PROJECT DESCRIPTION

In January 2017, a Cessna Citation jet plane over-ran the runway and crashed into a field owned by the Spencer J. Hardy Livingston County Airport (Airport). The pilot was rescued and the City of Howell Fire Department used AFFF firefighting foam containing per and polyfluoroalkyl substances (PFAS) to suppress the jet fuel fire. Afterwards, a total of 540 tons of jet fuel and PFAS impacted soil was excavated and cleanup confirmation samplings were collected indicating contaminated soils remained. In March 2017, 5,600 gallons of shallow contaminated groundwater was removed by a vac truck and properly disposed. From April to August 2018, eighteen (18) shallow monitoring wells were installed to evaluate PFAS concentrations and evaluate groundwater flow direction. Based on the data, EGLE closed out the incident for the jet fuel impact, but not for the remaining PFAS contamination. Maximum concentrations of regulated PFAS include 59 ng/l (ppt – parts per trillion) perfluorooctanoic acid (PFOA), concentrations of combined PFAS were up to 24, 905 ppt. In the 2021 sampling event, PFOA was at 40 ppt. PFOA has been estimated to migrate over 100 feet in three years. Two years have lapsed since the PFAS in groundwater was last tested and the PFAS plume has not been determined to be stable or declining.

The goal of this additional work is to complete evaluation of the PFAS in groundwater released during the application of AFFF foam from the Cessna Jet crash in 2017.

PROJECT OBJECTIVES

- Complete a Phase I Environmental Site Assessment, with focus on historical/current uses of per and polyfluoroalkyl substances (PFAS) on the property and in the surrounding area
- Collect Samples from at least 10 existing monitoring wells
- Re-survey existing monitoring wells to confirm groundwater flow direction
- Complete delineation of PFAS in the groundwater at the crash site by vertical aquifer sampling (VAS)
- Install new monitoring wells based on VAS sample results
- Sample and survey new monitoring wells after installation
- Determine if additional investigation is necessary to delineate PFAS groundwater impacts
- Prepare and Complete a Report of Findings

WORK PLAN

Task 1: Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) will be completed on the Livingston County Airport property, including a specific focus on the potential historical/current uses of per and polyfluoroalkyl substances (PFAS) on the property and in the surrounding areas.

Estimated Cost:

Professional Services	\$ 3,000.00
Task 1 Estimated Cost.....	\$ 3,000.00

Task 2: Groundwater Sampling & Aquifer Testing

Initially, a site reconnaissance will be conducted effort to locate each of the previously installed monitoring wells (up to 18). Once located, each well will be inspected and a depth to water measurement will be obtained using an electronic water level indicator. All measurements will be referenced to the top of well casing. Subsequently, each well will be purged and sampled utilizing low-flow sampling techniques. The following field parameters will be monitored using field meters and recorded on field log forms during sampling activities: pH, specific conductance, temperature, turbidity, dissolved oxygen, and oxidation-reduction potential. If the well does not purge dry using the low-flow technique, groundwater parameters will be continuously recorded, and sampling will be conducted once three consecutive readings are within the following limits:

- pH ± 0.2 standard units
- Specific conductance $\pm 10\%$
- Temperature $\pm 10\%$
- Turbidity less than 10 NTUs
- Dissolved Oxygen $\pm 10\%$

All purge water generated during sampling activities will be collected and managed as investigation derived waste (IDW).

Groundwater samples will be collected in pre-cleaned, appropriately labeled, laboratory provided containers, and then packed in a cooler with ice to maintain a temperature of approximately 4° C. The sealed cooler will then be transported, under chain-of-custody, to Merit Laboratories, Inc. (Merit) for analysis. All samples including the necessary QA/QC samples will be analyzed PFAS.

A vertical elevational survey will be completed for all site monitoring wells. The monitoring well survey will be tied to a relative on-site control point with an arbitrary, assigned elevation or another selected elevation datum. The monitoring well survey results will be utilized to determine a relative elevation of the groundwater at each well location and these results will allow for the creation of groundwater contours/groundwater flow direction diagrams.

For cost estimation purposes, we have assumed that up to 15 groundwater samples will be collected from existing monitoring wells plus the necessary QA/QC samples.

Task 4: Installation and Sampling of Monitoring Wells

Based on the results from Tasks 1 & 2 above, additional monitoring wells will be installed to complete the delineation of PFAS impact. For costing purposes, it has been estimated that up to 6 additional monitoring wells will be installed. In addition, based on the actual depth of water encountered from Task 1 above, Triterra will utilize the most cost-effective method for installation of monitoring wells (i.e Geoprobe or Drill Rig). Generally, Geoprobe methods are effective to depths of 20-25 feet below ground level depending on soil conditions and Drill Rig methods are necessary for depths exceeding 25 feet. For costing purposes, it has been estimated that monitoring wells would be installed to a maximum depth of 20 feet below ground level.

Monitoring well borings will be drilled using hollow-stem augers (4.25-inch I.D.). All site monitoring wells will be constructed of 2-inch diameter PVC risers and slotted (.010-inch slots) screens. Each well screen will be five feet in length and will be vertically positioned to intersect the depth of the water table. Well screens will be sand packed and the annular space surrounding the well risers will be grouted with a mixture of cement and bentonite. Risers will be secured at the ground surface with a steel protective casing.

Each well will be developed to remove any residual drilling fluids and fines from the screen and sand pack. All drilling and development fluids and cuttings will be contained on-site in labeled, secured, steel drums pending final disposition.

Groundwater samples from monitoring wells will be collected after the water level in each well has stabilized. Approximately one week following installation and development, the monitoring wells will be sample following the procedures outlined in Task 1 above. Prior to sampling, a measurement of the depth to the static water level will be obtained using an electronic water level indicator at each well location. All measurements will be referenced to the top of well casing. Static water level measurements will be obtained from all permanent monitoring wells during two separate events.

A vertical elevational survey will be completed for newly installed monitoring wells. The monitoring well survey will be tied to a relative on-site control point with an arbitrary, assigned elevation or another selected elevation datum. The monitoring well survey results will be utilized to determine a relative elevation of the groundwater at each well location and these results will allow for the creation of groundwater contours/groundwater flow direction diagrams.

Estimated Cost:

Professional Services	\$ 5,240.00
Drilling Services	6,325.00
Analytical Testing.....	3,100.00
Waste Disposal	1,100.00
Field Equipment, Supplies, etc.	1,435.00
Task 4 Estimated Cost.....	\$ 17,200.00

Task 5: Quarterly Status Reports

Quarterly Status reports will be prepared and submitted within 30 days following the end of each quarter for the duration of the project, up to 12 months after the start of the grant (4 quarterly reports). All

quarterly reports will be prepared in accordance with EGLE guidance and will be completed on the following schedule:

- January to March - report due in April
- April to June - report due in July
- July to September - report due in Early October (due to fiscal year end)
- October to December - report due in January

Estimated Cost:

Professional Services	\$ 3,000.00
Task 5 Estimated Cost.....	\$ 3,000.00

Task 6: Final Summary Report

Upon completion of the scope of work described above, a final summary report for all work completed as part of this grant. The final summary report will include project background, a conceptual site model (CSM), a narrative summary of the work completed, including previous sampling conducted, site maps, and a tabular summary of the analytical results.

Estimated Cost:

Professional Services	\$ 4,500.00
Task 6 Estimated Cost.....	\$ 4,500.00

ESTIMATED COST FOR PFAS GRANT

The tasks described above will be invoiced on a time and materials basis. The following costs are estimated to complete the scope of work described above:

Task 1: Phase I Environmental Site Assessment.....	\$ 3,000.00
Task 1: Groundwater Sampling & Aquifer Testing	\$ 15,700.00
Task 2: Groundwater Delineation (Vertical Aquifer Sampling)	15,350.00
Task 3: Installation & Sampling of Monitoring Wells	17,200.00
Task 5: Quarterly Status Reports.....	3,000.00
Task 6: Summary Report.....	4,500.00
Estimated Total Cost.....	\$ 58,750.00