

**ATTACHMENT B**  
**Scope of Services**

**“Leaking Underground Storage Tank (LUST) Post-Hurricane Corrective Action at Bayou Convenience Store”**  
**Louisiana Department of Environmental Quality**

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**1. Scope of Services**

The Louisiana Department of Environmental Quality (the Department) has determined that remedial action in response to a petroleum release from a regulated underground storage tank site is required. The Department is seeking the services of a contractor to perform the corrective action in accordance with defined remediation goals. The objective is to reduce the concentrations of petroleum contamination in the groundwater at or below defined site-specific remediation standards established in accordance with the Department’s Risk Evaluation/Corrective Action Program (RECAP). All corrective action must be performed under the direction of a Department listed Response Action Contractor (RAC).

The scope of work proposed in this Contract consists of the activities described below:

- a) The Contractor shall complete and submit a *Corrective Action Plan* (CAP) in triplicate detailing the corrective action method(s) or technology(ies) proposed in the *Corrective Action Solicitation Response* for the release at Bayou Convenience Store, Agency Interest (AI) No. 79630 in Cameron Parish, within forty-five (45) days after the signing of this contract. **[Notes: Costs should not be included in the CAP. The cost to prepare the CAP is included in the total cost of the PFP Contract.]** The CAP should define all active (in-situ chemical oxidation, chemical injection, oxygen-enhancing compound sock or equivalent, sparge, bioremediation, etc.) and/or passive (intrinsic remediation, monitoring, etc.) corrective action method(s) proposed to reduce contaminant levels to the site-specific limiting RECAP standards. **[Note: Soil excavation will not be accepted as a corrective action method or technology on the *Corrective Action Solicitation Response* for this project.]** A remediation timetable including plugging and abandonment of wells and removal of the equipment should be included in the CAP. Remediation as defined in the CAP will begin upon initiation of any active or passive corrective action method(s). Implementation of the CAP shall begin within sixty (60) days of Department approval of the CAP. Also within sixty (60) days of Department approval of the CAP, the Contractor shall submit the *Corrective Action Implementation Form* as provided by the Department.
  - i. If the Contractor selects an in-situ chemical oxidation (ISCO) technology, the following specific field parameters shall be analyzed to determine the effectiveness of the process:
    - Oxygen-reducing potential (ORP);
    - Dissolved oxygen (DO);

- Specific conductivity;
- pH; and
- Temperature

ii. At the direction of the Department's Project Manager or Team Leader, the Contractor shall plug and abandon one (1) two-inch monitoring well (MW-1) in accordance with the LDEQ/LDOTD Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook. This document can be accessed through LDEQ's website using the following link:

<http://www.deq.louisiana.gov/portal/LinkClick.aspx?fileticket=3RAV9RFeJdc%3d&tabid=2676>

- b) Response to public and Department comments, both written and verbal (this could include attending public meetings on the CAP) and, if requested by the Department, amending the final CAP to take into account substantive comments. Additionally, the Contractor must notify site owner(s) of the proposed corrective action and the dates of implementation.
- c) Installation of all components of the remediation system as described in the approved CAP. Installation as defined in this section means: all subsurface and surface components of the treatment system(s) have been completely installed as proposed; all down hole equipment, fittings, etc., are installed; all trenching is complete; piping trenches properly backfilled and resurfaced; proper disposal of contaminated soil generated during the installation; installation of piping manifold, pumps, blowers and all other parts of the remedial system; hook-ups to utilities, treatment and discharge lines, etc. Modification to the approved remedial system may be made in the field as site conditions warrant, provided prior notification to the Department is made and approval granted. Additionally, all necessary permits required for operation must be in place before the system is turned on. The Contractor will be responsible for preparation of *CAP Construction and Operation Report* including as-built drawings if a remediation system is installed, and submission of same to the Department within sixty (60) days after completion of CAP implementation. Remedial system start-up and/or corrective action shall occur within 120 days of Department approval of the CAP (see Attachment B, "8." Milestone #1).
- d) Sampling of Key and Perimeter Monitoring Wells: Key Monitoring Wells will be sampled on a quarterly basis unless otherwise specified by the Department (see Attachment B, "2." for identification of Key Monitoring Wells). Groundwater samples shall be collected from the Key Monitoring Wells during the two (2) week period prior to the implementation of any active and/or passive corrective action. These data shall be called "Baseline Concentrations" and used as the benchmark to calculate the performance (i.e. milestone) payments for Constituent(s) of Concern (COC) concentration reductions in groundwater. **The "Baseline Concentrations" sampling events shall be verified by the**

**Department with split sampling of groundwater.** The baseline concentration for a Key Monitoring Well with measurable free product (thickness > 0.01 ft.) shall be determined at the time of the first groundwater sampling event, subsequent to the removal of the free product to less than 0.01 foot.

Perimeter Monitoring Wells will be sampled on a quarterly basis until such time as the COC concentration in the well remains at or below the limiting RECAP standard specified in the attached Table 2, "Limiting RECAP Standards", for four (4) consecutive quarterly monitoring events (see Attachment B, "3." for identification of Perimeter Monitoring Wells). Once these criteria have been achieved, the sampling frequency may be reduced to once per year.

**During the four (4) consecutive quarters of the post remediation monitoring period, only the Key Monitoring Wells shall be sampled on a quarterly basis. However, all Key and Perimeter Monitoring Wells shall be sampled during the last quarter of the post remediation monitoring period.**

- e) Monitoring/O&M Reporting: Monitoring/O&M Reports shall be submitted at least semiannually during the duration of this Contract. The reports are due by January 15<sup>th</sup> and July 15<sup>th</sup>. At a minimum the reports must include:
- A narrative that documents current site conditions, verification of system operation or CAP implementation, and effectiveness in achieving the remediation goals. A discussion of any down time and associated reasons shall be included within the report.
  - Laboratory analytical and gauging data for all monitoring wells, presented in tabular format for the past eight (8) quarters.
  - Potentiometric surface maps based on the most recent gauging data for the reporting period, including an arrow(s) depicting the groundwater flow direction.
  - Tabulate and graphically present in isopleth format, the total COC concentrations above site-specific RECAP standards from each monitoring well sampled (this information is obtained from the Groundwater COC Concentration Reduction spreadsheet).
  - Analytical data, laboratory quality assurance/quality control (QA/QC) and chain-of-custody forms for the reporting period.
  - Conclusions and recommendations based on the reported data.
- f) All necessary permits must be in place prior to initiation of corrective action. Corrective action shall occur within 120 days of Department approval of the CAP (see Scope of Services #8, Milestone #1).

## 2. Key Monitoring Wells

Key Monitoring Wells are defined as wells containing contaminant concentrations exceeding the limiting RECAP groundwater standards. If groundwater monitoring wells are not currently installed at the site, then wells shall be installed at all boring locations where contaminant concentrations have been determined to exceed the limiting RECAP groundwater standards. Key Monitoring Wells utilized to assess the progress of reduction of the contaminant concentrations will consist at a minimum of MW-1, or replacement well(s). If a Key Monitoring Well is used as a remediation well, then use of this well for remediation must be discontinued for at least 48 hours prior to sampling the well. All samples will be analyzed for the COC identified in the attached Table 2, "Limiting RECAP Standards", using a Department accredited laboratory. **Any well installed subsequent to the initiation of corrective action and exhibiting contaminant concentrations exceeding the limiting RECAP groundwater standards shall be declared a Key Monitoring Well. The designation of Key Monitoring Wells and associated sampling may be subject to change by mutual written agreement between the Contractor and the Department. At no time shall a Key Monitoring Well be plugged and abandoned without mutual written Agreement between the Contractor and the Department.**

## 3. Perimeter Monitoring Wells

Perimeter Monitoring Wells are defined as wells containing contaminant concentrations less than or equal to the limiting RECAP groundwater standards. Any well installed that contains constituent concentrations less than or equal to the limiting RECAP groundwater standard shall be referred to as a "Perimeter Monitoring Well." All samples will be analyzed for the COC identified in the attached Table 2, "Limiting RECAP Standards", using a Department accredited laboratory. **The designation of Perimeter Monitoring Wells and associated sampling may be subject to change by mutual written agreement between the Contractor and the Department. At no time shall a Perimeter Monitoring Well be plugged and abandoned without mutual written Agreement between the Contractor and the Department.**

## 4. Initial Baseline Monitoring Report

*An Initial Baseline Monitoring Report* documenting "Baseline Concentrations" (see Attachment B, "1.d.") and potentiometric conditions prior to initiation of any active and/or passive corrective action should be submitted to the Department within forty-five (45) days after corrective action implementation.

## 5. Sampling Procedure and Verification

**The Department shall be given at least two (2) weeks notice prior to any sampling event that will be used for baseline concentrations or performance (i.e. milestone) payment verification to allow the Department or its subcontractor the opportunity to collect split or duplicate samples. All sampling events that will be used for baseline concentrations or performance (i.e. milestone) payment verification shall be verified by the Department with split sampling of groundwater.** If notification is not provided, the Department may not accept the sampling results. In the event the results of the split or duplicate samples taken by the

Department differ by 20% for groundwater from the results of the samples taken by the contractor and/or one set of sample results fail to achieve the performance milestone level, then re-sampling shall occur prior to any further consideration of milestone attainment. If the differences persist, the use of alternative labs or third party sampling may be required. The following chart provides clarification to the decision making process for performance (i.e. milestone) payment verification.

Scenario	Duplicate or split samples differ by 20% for groundwater	One or more set of sample results fail to achieve the performance milestone level	Additional sampling required for consideration of milestone attainment
1	No	No	No
2	Yes	No	No
3	No	Yes	Yes
4	Yes	Yes	Yes

### 6. Milestone Measurement

Specific criteria for meeting a given milestone are listed below. Milestone calculation shall be based on the reduction in COC concentrations in each Key Monitoring Well. Milestone reports will include tables and graphs showing the COC concentrations in Key Monitoring Wells, the total percent of COC reduction from baseline concentrations for all Key Monitoring Wells, the laboratory data sheets, and the methods of data calculation. **Any of the Monitoring/O&M Reports can also serve as a milestone report if clearly identified as such.**

### 7. Terms

The Contractor agrees to perform the corrective action as set out in this Contract for the total amount of \$\_\_\_\_\_. **It is agreed that this will be the full and exclusive compensation paid to the Contractor for the performance of the corrective action work plan.**

### 8. Payments

Payments shall only be made for achieving the performance criteria as specified in this Contract. Payment to the Contractor shall be made when the Department verifies and agrees the performance criteria have been achieved and will be paid according to the following:

Milestone #1 40% (\$\_\_\_\_\_) of the total contract amount will be payable after the Department has verified the remedial system has been installed and daily operation has been implemented. If the remedial technology includes a single event (e.g. chemical injection), then 20% of the total contract amount not to exceed 40%, will be payable upon completion of the event and verification that the remediation standards have been achieved. **This performance criterion shall be completed within 120 days of Department approval of the CAP. The milestone shall be verified by the Department with Field Interview Form**

- Milestone #2 10% (\$\_\_\_\_\_) of the total contract amount will be payable based on the removal of all measurable free product (< 0.01 ft.) and a 25 percent reduction in COC baseline concentrations from Key Monitoring Wells as compared to the total site-specific RECAP standards (see **Table 1, “Example of Groundwater COC Concentration Reduction Calculation”**). **The milestone shall be verified by the Department with split sampling of groundwater.**
- Milestone #3 10% (\$\_\_\_\_\_) of the total contract amount will be payable based on a 50 percent reduction in COC baseline concentrations from Key Monitoring Wells as compared to the total site-specific RECAP standards (see **Table 1, “Example of Groundwater COC Concentration Reduction Calculation”**). **The milestone shall be verified by the Department with split sampling of groundwater.**
- Milestone #4 10% (\$\_\_\_\_\_) of the total contract amount will be payable based on a 75 percent reduction in COC baseline concentrations from Key Monitoring Wells as compared to the total site-specific RECAP standards (see **Table 1, “Example of Groundwater COC Concentration Reduction Calculation”**). **The milestone shall be verified by the Department with split sampling of groundwater.**
- Milestone #5 10% (\$\_\_\_\_\_) of the total contract amount will be payable based on a 100 percent reduction (i.e. the limiting RECAP standards have been met) in COC baseline concentrations from Key Monitoring Wells as compared to the total site-specific RECAP standards (see **Table 1, “Example of Groundwater COC Concentration Reduction Calculation”**). **The milestone shall be verified by the Department with split sampling of groundwater.**
- Milestone #6 20% (\$\_\_\_\_\_) of the total contract amount will be payable upon verification that the following has been achieved:
- The limiting RECAP standards as specified in **Table 2, “Limiting RECAP Standards”**, have been met for each COC in groundwater samples from all Key Monitoring Wells and those standards have been maintained for a period of at least four (4) consecutive quarterly sampling events after remediation has been completed. However, all Key and Perimeter Monitoring Wells shall be sampled during the last quarter of the post remediation monitoring period. **The milestone shall be verified by the Department with split sampling of groundwater during the last quarter of the post remediation monitoring period.**
  - Completion of site restoration including the removal or proper abandonment of all remedial and assessment items installed by all contractors that have performed work at the site. This shall include proper plugging and abandonment of one remaining monitoring well, MW-1. The site shall be restored to its pre-assessment condition as nearly as practicable and the restoration work shall be performed in accordance with State regulations, guidance documents and generally accepted industry practices. **The Department shall conduct an on-site verification inspection with Field Interview Form documentation prior to final payment.**

- If required, a conveyance notification in a format provided by the Department shall be filed in the parish conveyance records for the subject property. A scaled site plan showing the affected soil and/or groundwater zones and a table listing the remaining contaminant concentrations must be attached to the conveyance notice.

A conveyance notification shall be required under the following site conditions:

- (1) A conveyance notification shall be placed on all properties having residual constituent concentrations in soil that are greater than the acceptable exposure concentration defined for non-industrial (residential) land use [i.e., constituent concentrations greater than the  $Soil_{ni}$  (or  $Soil_{esni}$  if applicable)]. Note: If land use at the AOI is industrial and the limiting RECAP Standard applied at the AOI is a non-risk-based RECAP Standard ( $Soil_{GW}$ ,  $Soil_{sat}$ , quantitation limit, or background level) that is lower than the  $Soil_{ni}$  (or  $Soil_{esni}$ ) (if applicable), then a conveyance notification shall not be filed.
- (2) A Groundwater 2 Zone (GW2) shall be required to have a conveyance notification on that portion of the plume within property boundaries that contains a residual constituent concentration that exceeds the GW2 RECAP Standard (without the application of a dilution and attenuation factor).

## 9. Product Performance and Warranty

Performance based corrective action includes but may not be limited to submitting all reports required by regulation, all reports necessary to obtain payment, all remediation system operating, repair, and replacement costs, disposal of all wastes generated during the remediation activities and a warranty of meeting the limiting RECAP standards within **the estimated timeframe** of initiation of any active and/or passive corrective action method(s). **If the limiting RECAP standards are not achieved within the estimated timeframe the Contractor will continue performance based corrective action at their sole cost for an additional twelve (12) month warranty period or until the limiting RECAP standards are reached, whichever comes first.**

**If the limiting RECAP standards are not achieved within the estimated timeframe, but the original technology is anticipated to be able to achieve the limiting RECAP standards within the twelve (12) month warranty period, the Contractor shall, at a minimum, continue the original technology on a full-time basis during the twelve (12) month warranty period.**

**If the original technology is not projected to achieve the limiting RECAP standards by the end of the twelve (12) month warranty period, the contractor shall implement an additional active corrective action technology that has been approved by the Department.**

Monitored natural attenuation alone is not considered to be an active methodology and will not be accepted during the warranty period if it is the only remediation method utilized.

If the limiting RECAP standards have not been met at the end of the twelve (12) month warranty period, the Contractor may be released from any further obligation under this Contract, but the payment for any unachieved milestones shall not be due the Contractor. Termination of this Contract pursuant to this paragraph will not constitute “site abandonment” under Attachment D, Additional Terms and Conditions “17”. **However, failure to achieve the remediation goals by the end of the warranty period will result in the Contractor being ineligible to bid or received any contracts on this site for continued efforts to reach corrective action.**

### 10. Milestone Summary Tables

The following tables summarizing the milestones for this Contract are provided for convenience only. The text of this Contract shall take precedence in any discrepancy between the text and this table.

Milestone Summary Table

Milestone Number	Criteria	Payment Percent	Payment Amount	Performance Period	Dated Achieved
1	Single Event System operational	20% 20%	\$ \$	120 days after CAP Approval	
2	25% Reduction	10 %	\$	not specified	
3	50% Reduction	10 %	\$	not specified	
4	75% Reduction	10 %	\$	not specified	
5	100% Reduction	10 %	\$	Specify total remediation period	
6	Groundwater (for 12 consecutive months) and Soil RECAP standards, site restoration	20 %	\$		
Total		100 %	\$		

The following formula shall be used to calculate the percent reduction in groundwater COC concentration:

*Total baseline COC concentrations above site-specific limiting RECAP standards minus total COC concentrations from subsequent sampling above the site-specific limiting RECAP standards divided by the total baseline COC concentrations above the site-specific limiting RECAP standards.*

**TABLE 1**  
**Example of Groundwater COC Concentration Reduction Calculation**

Well		Benzene	Toluene	Ethylbenzene	Xylenes	TPH-G	Total conc. > RS
<b>MW- 1</b>	Baseline concentration	1,800	160	420	1,400	18,000	
	RECAP Standard (RS)	5	1,000	700	10,000	150	
	Baseline > RS	1,795	0	0	0	17,850	19,645
	Subsequent conc.	500	9	170	320	4,100	4,445
	RS	5	1,000	700	10,000	150	
	Subsequent > RS	495	0	0	0	3,950	
<b>MW- 3</b>	Baseline	6,500	9,700	2,600	11,000	110,000	
	RS	5	1,000	700	10,000	150	
	Baseline > RS	6,495	8,700	1,900	1,000	109,850	127,945
	Subsequent conc.	150	31	9	80	1,800	1,795
	RS	5	1,000	700	10,000	150	
	Subsequent > RS	145	0	0	0	1,650	
<b>MW- 4</b>	Baseline	2,000	12,000	2,000	14,000	80,000	
	RS	5	1,000	700	10,000	150	
	Baseline > RS	1,995	11,000	1,300	4,000	79,850	98,145
	Subsequent conc.	110	680	110	2,600	14,000	13,955
	RS	5	1,000	700	10,000	150	
	Subsequent > RS	105	0	0	0	13,850	
<b>Totals</b>	Baseline conc. > RS	(sum of the baseline concentrations > the RS for all wells)					245,735 <sup>A</sup>
	Subsequent conc. > RS	(sum of the subsequent concentrations > the RS for all wells)					20,195 <sup>B</sup>

Notes:

If subsequent sampling indicates a COC concentrations at or below the site-specific RECAP Standard (RS) or the COC concentration is reported as BDL and the detection level is at or below the RS, then the value entered for the contaminant reduction calculation shall be 0.

If subsequent sampling reports a COC concentration as BDL, but, the reporting limit is above the RS, then the value entered for contaminant reduction calculations shall be the analytical reporting limit.

All concentrations should be reported in parts per billion (ppb).

**Concentration Reduction Calculation:**

$$\text{COC Conc. Reduction} = \frac{(A - B)}{(A)} = \frac{(245,735 - 20,195)}{(245,735)} = 0.9178 \times 100 = 91.8 \% \text{ COC Reduction}$$

**TABLE 2  
LIMITING RECAP STANDARDS**

**AI 79630 – Bayou Convenience Store**

Constituents of Concern (COC)	Soil (mg/kg)	Groundwater (mg/L)
Benzene*	N/A	0.118
Xylenes	110	N/A
MTBE	N/A	1430
Aliphatics C <sub>8</sub> -C <sub>10</sub>	1,200	205.4
Aromatics C <sub>8</sub> -C <sub>10</sub>	333.3	80.6
Aliphatics C <sub>10</sub> -C <sub>12</sub>	5980	205.4
Aromatics C <sub>10</sub> -C <sub>12</sub>	1,150	80.6
Aromatics C <sub>12</sub> -C <sub>16</sub>	N/A	80.6
Fluorene	0.18	0.18
2-Methylnaphthalene*	N/A	0.2457
Naphthalene	36.67	2

**Notes:**

**N/A: Not Applicable**

**\*Benzene and 2-Methylnaphthalene in groundwater are the only COCs that require evaluation unless otherwise directed by the Department.**

**Any deviation from the Limiting RECAP Standards must be by mutual written agreement between the Contractor and the Department in the form of an approved amendment.**