ATTACHMENT A

1. Purpose and Scope of Work

The Louisiana Department of Environmental Quality (LDEQ) has determined that corrective action is required in response to a petroleum release from a regulated underground storage tank site. (*Specify owner name*), the owner/operator responsible for implementing the corrective action, 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 and/or soil 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 LDEQ listed Response Action Contractor approved for Motor Fuels Underground Storage Tank Trust Fund reimbursement.

The scope of work proposed in this Agreement 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 *Pay-For-Performance Corrective Action Solicitation Response*, No. 1, for the release at ***(specify facility name, AI# and location)*** within forty-five (45) days after the signing of the *Pay-For-Performance Agreement and General Terms*. **[Note: The cost to prepare the CAP is included in the total cost of this Agreement (see Attachment A, "7")]. The submittal of the CAP may be waived if a CAP has been previously reviewed by the LDEQ's Remediation Oversight Group (ROG).**

The CAP should define all active (pump and treat, vapor extraction, sparge, excavation of impacted soils, bioremediation, chemical injection, etc.) and/or passive (intrinsic remediation, monitoring, etc.) corrective action method(s) proposed to reduce contaminant levels to the site-specific limiting RECAP standards. A remediation timetable including plugging and abandonment of all monitoring/extraction/injection wells, removal of the equipment, and filing of the conveyance notification should be included in the CAP. Remediation as defined in the CAP will begin upon startup or initiation of any active and/or passive corrective action method(s). Implementation of the Corrective Action Plan shall begin within sixty (60) days of Department approval of the CAP.

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.

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 must be in place prior to the initiation of corrective action. The Contractor will be responsible for the preparation of a *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 all active and/or passive corrective action shall begin within 180 days of Department approval of the CAP (see Attachment A, "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 A, "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. The data from this sampling event of the Key Monitoring Wells shall be used to determine the "Baseline Concentrations" and used as the benchmark to calculate the performance (ie. milestone) payments for mass Constituent(s) of Concern (COC) concentration reductions in groundwater. **The "Baseline Concentrations" sampling event and subsequent sampling events of Key Monitoring Wells 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 when free product has been mitigated by corrective action to a measurement of less than 0.01 foot.

Groundwater samples shall also be collected from the Perimeter Monitoring Wells during the two (2) week period prior to the implementation of any active and/or passive corrective action. Subsequently, Perimeter Monitoring Wells shall 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 A, "3." for identification of Perimeter Monitoring Wells). Once these criteria have been achieved, the sampling frequency may be reduced to once per year (annual). **The "Baseline Concentrations" sampling event and subsequent sampling events of Perimeter Monitoring Wells shall be conducted by the Contractor but is not required to be verified by the Department with split sampling of groundwater.**

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.) Groundwater Monitoring Reporting: Groundwater Monitoring Reports shall be submitted at least semiannually during the duration of this Agreement. The reports are due by January 15th and July 15th. At a minimum the reports must include:

- A narrative that documents current site conditions, verification of system operation or CAP implementation, any operation and maintenance issues, 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.

2. Key Monitoring Wells

Key Monitoring Wells are defined as wells (e.g. monitoring, extraction, recovery, etc.) 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 groundwater contaminant concentrations have been determined to exceed the limiting RECAP groundwater standards. Delete this sentence if necessary: Key Monitoring Wells utilized to assess the progress of reduction of the contaminant concentrations will consist at a minimum of (*specify monitoring wells containing contaminant concentrations exceeding the limiting RECAP groundwater standards*) or replacement wells. 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 an LDEQ accredited laboratory. **Any well (e.g. monitoring, extraction, recovery, etc.) 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 (e.g. monitoring, extraction, recovery, etc.) containing contaminant concentrations less than or equal to the limiting RECAP groundwater standards. Perimeter Monitoring Wells will consist at a minimum of (*specify monitoring wells containing contaminant concentrations less than or equal to the limiting RECAP groundwater standards)*. All samples will be analyzed for the COC identified in the attached Table 2, "Limiting RECAP Standards", using an LDEQ 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 A, "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 (ie. milestone) payment verification to allow the Department or its subcontractor the opportunity to collect split or duplicate samples. If notification is not provided, the Department may not accept the sampling results. All sampling events that will be used for baseline concentrations or performance (ie. milestone) payment verification shall be verified by the Department with split sampling of groundwater.

In the event the results of the split or duplicate samples taken by the Department differ by 20% for groundwater or 30% for soil 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 may be required 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 (ie. milestone) payment verification.

Scenario	Duplicate or split samples differ by 20% for groundwater or 30% for soil	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 mass 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 mass COC reduction from baseline concentrations for all Key Monitoring Wells, the laboratory data sheets, and the methods of data calculation. **Any of the Groundwater Monitoring Reports can also serve as a milestone report if sample verification has been conducted by the Department or its subcontractor.**

7. Terms

The total cost in dollars to treat the area of concern such that the thickness of free product (if any) does not exceed 0.01 foot and the concentrations of the COC do not exceed the site-specific limiting RECAP standards defined in Table 2, "Limiting RECAP Standards"; prepare all plans, reports, correspondence, and submittals; complete all associated monitoring and post-remediation monitoring; complete all associated soil sampling and post-remediation soil sampling; obtain and meet all terms and conditions of all required permits and licenses; design, install, monitor, operate, maintain, and when completed, properly abandon or remove all assessment and remediation related items installed as part of corrective action; properly plug and abandon all monitoring/extraction/injection wells and soil borings; site restoration; conveyance notification filing; and any other items outlined in this Agreement is for the total amount of $_____. **The Contractor agrees that this will be the full and exclusive compensation paid for the performance of the CAP.**

8. Payments

Payments shall only be made for achieving the performance criteria (ie. milestone) as specified below. No costs will be increased or partial payments made once corrective action is initiated, except for the conditions specified in *Pay-For-Performance Agreement and General Terms*, "13". Payment to the Contractor shall be made when the Department verifies and agrees the performance criteria have been achieved and will be paid as follows:

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. excavation of impacted soils, 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 180 days of Department approval of the CAP. The milestone shall be verified by the Department with Field Interview Form documentation.**

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. Note: If present, all measurable free product (< 0.01 ft.) must be removed from all release detection devices although the site-specific groundwater standards, identified in the attached Table 2, "Limiting RECAP Standards", will not be required to be met at these locations.

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 (ie. 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 and the "No Further Action" letter has been signed by the Underground Storage Tanks and Remediation Division Administrator:

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, <u>all</u> 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.**

- The limiting RECAP standards (ie. 100% reduction) as specified in **Table 2, "Limiting RECAP Standards"**, have been met for each COC in soil from all former soil sample locations that were previously documented as having COC concentrations above the limiting RECAP standards <u>and/or</u> any other soil sample locations used for verification of soil remediation. A **minimum of (*Specify # and location*) soil borings** shall be made within the area of remediation to verify that the RECAP standards for soil in **Table 2, "Limiting**

RECAP Standards", have been reached. **The cost of this verification sampling is included in the total cost of this Agreement. The Department shall approve the locations and depths of sampling prior to the soil sampling event and may require additional soil borings if necessary. The Department will accept the contractor's soil sampling results without split sampling; however, the Department must be present to observe the contractor's soil sampling protocol.**

- 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. 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 the final milestone 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 Soilni (or Soilesni if applicable)]. Note: If land use at the AOI is industrial and the limiting soil RECAP Standard applied at the AOI is a non-risk-based RECAP Standard (SoilGW, Soilsat, quantitation limit, or background level) that is lower than the Soilni (or Soilesni) (if applicable), then a conveyance notification shall not be required.

  (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, maintenance, and replacement costs, disposal of all wastes generated during the remediation activities and a warranty of meeting the limiting RECAP standards within ***specify total remediation period*** of initiation of any active and/or passive corrective action

method(s). **If the limiting RECAP standards are not achieved within *specify total remediation period*, 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 *specify total remediation period*, 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, at a minimum, at least one of the following additional technologies:

(technology selected by Contractor)

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 Agreement, but the payment for any unachieved milestones or partial payment of a milestone shall not be due the Contractor. Termination of this Agreement pursuant to this paragraph will not constitute "failure to perform" under *Pay-For-Performance Agreement and General Terms*, "25". **However, failure to achieve the remediation goals by the end of the warranty period will result in the Contractor being ineligible for any subsequent Pay-For-Performance Agreements on the site for a period of one-year. The one-year suspension is effective from the end of the warranty period.**

10. Milestone Summary Table

The following table summarizing the milestones for this Agreement is provided for convenience only. The text of this Agreement 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 %	$ $	180 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 maintained, 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
	Baseline concentration	1,800	160	420	1,400	18,000	
MW- 1	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	
	RS	5	1,000	700	10,000	150	
	Subsequent > RS	495	0	0	0	3,950	4,445
	Baseline	6,500	9,700	2,600	11,000	110,000	
MW- 3	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	
	RS	5	1,000	700	10,000	150	
	Subsequent > RS	145	0	0	0	1,650	1,795
	Baseline	2,000	12,000	2,000	14,000	80,000	
MW- 4	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	
	RS	5	1,000	700	10,000	150	
	Subsequent > RS	105	0	0	0	13,850	13,955
Totals	Baseline conc. > RS	(sum of the baseline concentrations > the RS for all wells)					245,735 [A]
	Subsequent conc. > RS	(sum of the subsequent concentrations > the RS for all wells)					20,195 [B]

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, than 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

Constituents of Concern (COC)	Soil (mg/kg)			Groundwater (mg/L)
	AOI-1	AOI-2	AOI-4	AOI-3
Benzene				
Toluene				
Ethylbenzene				
Xylenes				
MTBE				
TPH – Gasoline				
Lead				

Notes:
AOI- Area of Investigation
AOI-1: Industrial Soil (<15 feet)
AOI-2: Soil >15 feet
AOI-3: Groundwater 3 Non-Drinking Water (GW3NDW)
AOI-4: Industrial soil beneath an enclosed structure
N/A: Not Applicable
Depth to groundwater is greater than 15 feet; therefore, GWes does not apply
RECAP input values: 30x30, foc=0.012, DF3=1902

Any deviation from the Limiting RECAP Standards must be by mutual written Agreement between the Contractor and the Department.