

**The Louisiana Department of Environmental Quality's
Draft Decision Document
For the
Final Remedy
Of
Bayou Trepagnier
Upper Reach (Operable Unit 1)
Agency Interest #44765**

Section 1. Introduction

In spring 2000, the Secretary of the Louisiana Department of Environmental Quality (LDEQ) initiated the Bayou Trepagnier Work Group (Work Group). The Work Group included representatives of federal agencies (National Oceanic and Atmospheric Administration (NOAA), U. S. Fish & Wildlife Service (USFWS), and U. S. Army Corps of Engineers (USACE)), other state agencies (Louisiana Department of Wildlife and Fisheries (LDWF) and Louisiana Department of Natural Resources (LDNR), local interested Non Governmental Organizations (Coalition to Restore Coastal Louisiana; and Lake Pontchartrain Basin Foundation), and the responsible party for the site, Motiva Enterprises, LLC (Motiva). In addition, several professional consultants were employed by Motiva to assist the Work Group in its tasks. Two tasks were asked of the Work Group: 1) To evaluate alternatives for remediation of the site and to recommend a Remediation Alternative that would enable potential risks to be reduced, and 2) To assess natural resource damages in Bayou Trepagnier and the surrounding area through the Natural Resource Damage Assessment (NRDA) process and to evaluate alternatives for a Restoration/Compensation Plan. The Work Group has evaluated the alternative remedies and the alternative Remediation and Restoration/Compensation Plans to determine the consistency of the alternatives and any additional benefits from the selection by the decision makers of coordinated alternatives. In accordance with LAC 33: VI.511, this Draft Decision Document (DDD) announces the Department of Environmental Quality's proposed decision concerning the Final Remedy of Bayou Trepagnier Upper Reach (Operable Unit 1 [OU1]). It will also briefly describe the site; outline the investigations that have been conducted, discuss the remedy selection process, describe the proposed remedy, and discuss how this remediation of the Bayou relates to natural resource damage assessment, mitigation, and restoration processes.

This Draft Decision Document addresses Operable Unit 1 (OU1), the upper reach of Bayou Trepagnier, identified as the portion of the bayou beginning at the Hurricane Protection Levee (HPL) and proceeding north to the narrow "Cut" that connects Bayou Trepagnier to Engineer's Canal at Station 60 (or approximately 6,000 feet from the head of the bayou). The Upper Reach was dredged to create a canal which was used as a discharge point for the refinery and the remainder of the bayou was channelized from Station 0 to some distance north of Station 60.

The middle and lower (northern) reaches from the "Cut" to the confluence of Bayou Trepagnier with Bayou LaBranch will be addressed in an additional Draft Decision Document to be presented later, which will be identified as Middle and Lower Reach (Operable Unit 2). Operable Unit 2 will be addressed in the same process as for Operable Unit 1, including a Feasibility Study to determine a proposed Final Remedy and a Draft Decision Document to present the Final Remedy to the public.

Section 2. Background

Bayou Trepagnier is located to the east of the Bonnet Carré lower guide levee, north of Airline Highway (U.S. 61) near Norco, approximately 10 miles west of New Orleans. The New Orleans Refining Company (NORCO) facility initiated refining operations in 1920. The town that surrounded the facility adopted the facility acronym as its name. From 1920 to 1929 wastewater

and storm water from NORCO and other industries around the facility, as well as from the town, were discharged to the Bayou.

Shell Petroleum Corporation (Shell) purchased and began operating the refinery in 1929. In 1930 the USACE constructed a spillway at Bonnet Carré, just upstream from Norco. The spillway's lower guide levee extends from the river to Lake Pontchartrain, eliminating the upper portion of the Bayou. The NORCO facility historically discharged to the man-made canal leading to Bayou Trepagnier beginning in the mid-1930s. The Louisiana Department of Public Works dredged the canal and Bayou Trepagnier in 1951. Dredged sediments were placed in spoils banks, primarily along the west side of the Bayou. The refinery ceased discharge into the Bayou in 1995. Motiva Enterprises, LLC (Motiva) has owned and operated the facility since 1998.

Bayou Trepagnier extends approximately 15,500 feet northward from the Hurricane Protection Levee (HPL) to its confluence with Bayou LaBranche. The width of the Bayou varies from approximately 25 to 60 feet, being generally narrower in its upper reach and wider in portions of the lower reach. Bayou LaBranche flows northwesterly for about one mile from its junction with Bayou Trepagnier before emptying into Lake Pontchartrain. A man-made canal connects Engineer's Canal to Bayou LaBranche, entering Bayou LaBranche south of the Interstate 10/Bayou LaBranche cross-over.

The Bayou is hydrologically connected to the adjacent wetland. Flow in the Bayou is dominated by tidal and wind-driven water level fluctuations in Lake Pontchartrain. Water in the Bayou is fresh to mildly brackish. The Bayou is divided into three reaches:

- The Upper Reach—extends approximately 5,500 feet from the HPL northward to a narrow “Cut” which connects the Bayou to Engineer's Canal; this reach is a man-made canal;
- The Middle Reach—extends approximately 5,500 feet from the Cut northward; and
- The Lower Reach—extends about 4,500 feet from the north end of the Middle Reach to Bayou LaBranche.

For ease of reference, the Bayou is divided in Stations representing approximate 100 foot segments along the centerline of the Bayou beginning with the HPL and running northward to the Bayou LaBranche confluence.

The Bayou banks are covered with typical second-growth wetland forest. Cypress-Tupelo swamp, marsh, and open water areas exist between Bayou Trepagnier and Bayou LaBranche. Articles appear occasionally in the popular press on recreational use of the Bayou by canoe or small boat for birding, wildlife observation, and photography. Public access to Bayou Trepagnier is restricted to small boat transport. Small motorized jon boats can be launched at Engineer's Canal near the man-made canal connecting to Bayou LaBranche. Canoes can be launched at many points along Engineer's Canal, including across from the Cut. The only land access to Bayou Trepagnier is via the HPL, from which the public is excluded.

The Bayou is part of the LaBranche wetlands, and is designated a Louisiana Natural and Scenic Stream, and is within the coastal zone delineation and therefore regulated under Louisiana State and Local Coastal Resources Management Act of 1978. Proposed construction activities and land-use changes must be approved by the Louisiana Department of Natural Resources – Coastal Management Division (LDNR-CMD).

Section 3. Feasibility Study Supplement

Previous investigations and risk assessments characterized constituents of concern (COCs) and risks associated with current human and ecological exposure scenarios. These studies found concentrations of several COCs above typical background concentrations (e.g., lead, chromium, zinc, and individual polycyclic aromatic hydrocarbons [PAHs]) in Bayou Trepagnier sediments and surrounding soils. Since January 2000, a cooperative Work Group consisting of Motiva and various federal and state agencies, together with local non-governmental organizations has

worked to address the risk levels in the context of special regional restoration needs, and to develop a comprehensive approach to remediation, natural resource damage assessment (NRDA)-driven restoration, and long - term regional wetland restoration efforts.

Motiva prepared a Feasibility Study (FS) with subsequent supplements to describe criteria and requirements for selecting alternative remedies, evaluating supplemental remedial alternatives, and recommending remedial action. The October 2006 FS Supplement II Upper Reach (Operable Unit 1) addresses the requirement for a Corrective Action Study (CAS) Report under the LDEQ's Inactive and Abandoned Sites (IAS) Regulations, Louisiana Administrative Code (LAC) 33:VI.509.C.6.

Section 4. Risk Evaluation

In April 1999, the LDEQ directed Motiva to re-evaluate the human health portion of the risk assessment for the Bayou in accordance with Risk Evaluation/Corrective Action Program (RECAP) Regulations (LAC 33:I, Chapter 13). In response to the LDEQ's request, a revised Risk Assessment prepared by Groundwater Services, Inc. was submitted in December 1999. The site-specific Risk Assessment included:

- review and validation of the 1992 RI and 1996 FS field investigation data;
- revision of the list of COCs and development of representative concentrations for each environmental medium per RECAP standards;
- recalculation of human health risks based on three exposure scenarios:
 1. person hunting nutria,
 2. person fishing, and
 3. person crabbing

Adult, child, and fetal exposures were considered for each scenario.

- Evaluation of these scenarios incorporated eight exposure pathways:
 1. soil ingestion,
 2. dermal contact with sediments,
 3. incidental ingestion of sediments,
 4. incidental contact with surface water,
 5. incidental surface water ingestion,
 6. fish tissue consumption,
 7. nutria tissue consumption, and
 8. crab tissue consumption.
- Use of standard (conservative) values for exposure scenario parameters in combination with professional judgment values for exposure frequency.

No unacceptable human health non-cancer or cancer risks were identified above suggested guidelines for site constituents other than lead. Acceptable target risk levels were defined in RECAP as within the range of 10^{-4} to 10^{-6} for carcinogenic constituents; with a hazard index of less than or equal to 1 for non-carcinogenic constituents; or with a 95th percentile blood lead level of less than or equal to 10 ug/dL.

Blood lead level risks for adults and children were assessed separately using the Adult Lead model and the Integrated Exposure Uptake Biokinetic (IEUBK) model for child lead exposure. The results of these assessments showed slightly elevated predicted lead concentrations in blood (greater than 10 ug/dL) for an adult person crabbing and eating his catch. A higher modeled blood lead level was found for a child crabbing, fishing and eating the catch. These lead risks characterizations were qualified on the basis of very conservative (high) crab consumption factors and the limited number of crab and fish lead tissue data.

An updated Human Health and Ecological Risk Assessment in accordance with RECAP will be completed for Operable Unit 2 to address sediments, dredge spoils and adjacent soils not included in the proposed remedy for the Upper Reach, and COCs associated with the Middle and Lower Reach. These revised risk assessments will include further evaluation of the COCs in all of Operable Unit 2 and will include a revised risk site conceptual model. A comprehensive sampling plan to further assess the existing conditions at all middle and lower portions of Bayou Trepagnier including adjacent spoil areas will be conducted. This sampling plan will include sediments, exposed spoil bank mounds and appropriate ecological receptors. Based on this data, a revised ecological risk assessment (ERA) will be developed to reflect current LDEQ and USEPA methodologies, updated ecological toxicity reference values, a wider variety of trophic guilds (receptor types/groups), and recently developed methods for estimating exposures.

Section 5. Evaluation and Selection of Remedial Alternatives

The Work Group has established the following remedial objectives:

- Reduce current risks to acceptable levels,
- Minimize adverse impacts to the local ecosystem,
- Provide for a Clean Zone that could facilitate the construction of a potentially large scale diversion of Mississippi River water for the purposes of coastal restoration,

Previous studies have identified incremental risks to human and ecological health associated with current exposure scenarios and concentrations of contamination above background and ecological benchmarks. Natural processes of degradation, dispersion, attenuation, subsidence, and burial are slowly mitigating these risks. However, given the potential need for near-term and long-term restoration efforts within the Bayou Trepagnier/Bayou LaBranche watershed, consideration is being given to alternative remedial measures, which will accelerate these restoration efforts.

The following remedial alternatives for reducing the ecological and human health risks were evaluated:

**COMPARISON OF REMEDIAL ALTERNATIVES
OPERABLE UNIT 1 (OU1)
BAYOU TREPAGNIER FEASIBILITY STUDY**

Criteria	Alternative No. 1 No Action	Alternative No. 2 Ecosystem Monitoring	Alternative No. 3 Institutional Controls	Alternative No. 4 Capping/ Containment	Alternative No. 5 Excavation with Onsite Chemical Treatment and Offsite Disposal
Remedy Description	No direct remedial construction action would be taken.	Major components include periodic visual inspection of the Bayou and sampling and analysis of receptors of concern (ROCs).	Signs would be placed at the entrances to the Bayou and along the spoil banks which indicate that humans should avoid dermal contact and incidental ingestion of sediment and spoil bank soil. An ecosystem monitoring and reporting program would be established.	Involves placing a geotextile barrier on top of the identified constituent of concern (COC)-containing sediment and adjacent spoil banks, followed by establishment of a vegetative cover to protect and hold the barrier in place. Bayou sediment would be capped with a 6-inch layer of silty sand. The spoil bank would be capped with a 6-inch layer of topsoil.	Excavation of COC-containing soil and sediment, onsite chemical treatment of the soil/sediment by chemical fixation, loading of treated material onto trucks, and transportation to an approved disposal facility.
Overall Protection of Human Health and the Environment	Provides no additional short- or long-term protection of human health and the environment. No risk-of-remedy is associated with implementation of this action.	Reductions only through natural dispersion, deposition, attenuation. Does not address long-term restoration efforts. No risk-of-remedy associated with implementation of this action.	Reductions only through natural dispersion, deposition, attenuation. Does not address long-term restoration efforts. No risk-of-remedy associated with implementation of this action. Additional protection to human health would be provided by aforementioned signs.	The source area would not be disturbed. The cap would provide a barrier between the source area and the surface, reducing exposure potential. The system would require long-term monitoring. Requires construction of an access road the length of the bank on each side of the Bayou. Risk-of-remedy includes resuspension of COC-containing sediment and destruction of vegetation and removal of trees on the spoil bank.	Permanent solution to remediation of the source area. Requires construction of an access road the length of the bank on each side of the Bayou to haul excavated materials. Risks-of-remedy include resuspension and transport of COC-containing sediment as well as destruction of vegetation and removal of trees on the spoil bank. Short-term public health and worker safety risks associated with incidental ingestion and dermal contact during the handling and loading of the COC-containing material.
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	Compliant with location-specific ARARs for wetlands and rare, threatened, or endangered species. No action- or chemical-specific ARARs are associated with implementation.	Alternative development pre-dates several regulatory changes (e.g., RECAP). Alternative would comply with location-specific ARARs for wetlands and rare, threatened, or endangered species. There are no action- or chemical-specific ARARs associated with implementation of this alternative.	Alternative would comply with location-specific ARARs for wetlands and rare, threatened, or endangered species. There are no action- or chemical-specific ARARs associated with implementation of this alternative.	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and Natural Resource Damage Assessment [NRDA] Restoration Plan).	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and NRDA Restoration Plan).

Decision Document for Bayou Trepagnier

Criteria	Alternative No. 1 No Action	Alternative No. 2 Ecosystem Monitoring	Alternative No. 3 Institutional Controls	Alternative No. 4 Capping/ Containment	Alternative No. 5 Excavation with Onsite Chemical Treatment and Offsite Disposal
Long-Term Effectiveness and Permanence	Since ecosystem monitoring is not included, evaluation of long-term effectiveness is not possible.	Does not significantly reduce current risks and does not address future risks. Long-term effectiveness would be verified by an ecosystem monitoring program.	Does not significantly reduce current risks and does not address future risks. Long-term effectiveness would be verified by an ecosystem monitoring program. Additional protection of human health would be provided by posting signs which warn humans to avoid contact with the Bayou sediments and spoil bank soils.	The silty sand and topsoil/geotextile cap would be an effective practice for long-term containment of COC-containing Bayou sediment and spoil bank soil. Post-remediation monitoring would be conducted.	Provides long-term effectiveness by eliminating the source of COCs. Post-remediation monitoring would be conducted.
Reduction of Contamination Toxicity, Mobility, or Volume	Does not provide for reduction of contamination toxicity, mobility, or volume. COC-containing Bayou sediment and spoil bank soil would not be treated, removed, immobilized, or reduced.	Does not provide for reduction of contamination toxicity, mobility, or volume. COC-containing Bayou sediment and spoil bank soil would not be treated, removed, immobilized, or reduced.	Does not provide for reduction of contamination toxicity, mobility, or volume. COC-containing bayou sediment and spoil bank soil would not be treated, removed, immobilized, or reduced.	Although capping would reduce the mobility of COCs, it does not reduce the volume or toxicity of the source area.	Removes source material from the site, eliminating the supply of contaminants to the biota and reducing the toxicity and mobility of the COC through chemical fixation.
Short-Term Effectiveness	Has minimal short-term impacts since no direct remedial construction actions would be taken, and thereby no risk would accrue to workers, the community, and the environment.	Has minimal short-term impacts since no direct remedial construction actions would be taken, and thereby no risk would accrue to workers, the community, and the environment.	Has minimal short-term impacts since no direct remedial construction actions would be taken, and thereby no risk would accrue to workers, the community, and the environment.	Provides immediate effectiveness in protection of ecological and human health by eliminating the COC exposure pathway. Resuspension of COC-containing sediment in the Bayou may increase COC levels in the Bayou for the short term.	Provides immediate effectiveness in protection of ecological and human health by eliminating the COC exposure pathway. Resuspension of COC-containing sediment in the Bayou may increase COC levels in the Bayou for the short term.
Implement ability	Easily implemented as it involves no direct remedial construction.	Easily implemented as it involves no direct remedial construction.	Easily implemented as it involves no direct remedial construction.	The construction would require standard and established construction techniques and equipment.	Excavation, treatment, and landfill disposal are frequently applied disposal practices for source area remediation.
Capital Cost	No capital costs associated with this alternative.	\$25,000	\$25,000	\$10 million	\$30 million
O&M Cost (present worth)	No O&M costs associated with this alternative.	\$200,000	\$200,000	\$200,000	\$65,000
Comments					

All cost estimates are conceptual level estimates, and are generated for alternative comparison only.

Source: Motiva Feasibility Study Supplement II Upper Reach (Operable Unit 1), October 2006

Decision Document for Bayou Trepagnier
COMPARISON OF REMEDIAL ALTERNATIVES
OPERABLE UNIT 1 (OU1)
BAYOU TREPAGNIER FEASIBILITY STUDY (CONTINUED)

Criteria	Alternative No. 6 Excavation with Onsite Treatment and Onsite Disposal	Alternative No. 7 <i>In Situ</i> Chemical Treatment	Alternative No. 8 <i>In Situ</i> Phytoextraction	Alternative No. 9 Restoration Compatible Sediment Cap	Alternative No. 10 Restoration Compatible Sediment Cap (OU1)
Remedy Description	Excavation of COC-containing soil and sediment, onsite chemical treatment of the soil/sediment by chemical fixation, and onsite disposal of the treated materials.	"In-place" chemical treatment/fixation (e.g., MAECTITE® process) of Bayou sediment and spoil bank soil.	Uses plants to eliminate the bioavailability of COCs in spoil bank soil. Selected plants with root biomass capable of extracting metals from the top 6 inches of the COC-containing soil. Plants would be harvested, possibly treated, and disposed. Phytoextraction would not be used to remediate the Bayou sediment as the selected plants are not capable of underwater growth.	Stabilize, consolidate, and cap sediments, eliminating the existing channel. Construct a clean zone eastward across the Bayou (600 ft.). Stabilize and cap sediments in the Cut connecting Bayou Trepagnier to Engineer's Canal, and monitor effects from hydrological impacts. Restore or mitigate any remedial construction impacts.	Stabilize, consolidate, and cap sediments, eliminating the existing channel from Stations 13 to 60.5. Construct a clean zone eastward across the Bayou from Stations 5-13 (800 ft.). Sediments and spoil banks from this zone will be stabilized and placed into the Bayou channel between Stations 13 and 60.5 prior to capping. Allow for sediment disposal for sediments potentially dredged from OU2 as a design element. Stabilize and cap sediments in the Cut connecting Bayou Trepagnier to Engineer's Canal, and monitor effects from hydrological impacts by hydrologic or other necessary studies as determined in future data collection. Restore or mitigate any remedial construction impacts.
Overall Protection of Human Health and the Environment	Permanent solution to remediation of the source area. Requires construction of an access road the length of the bank on each side of the Bayou to haul excavated materials. Risks-of-remedy include resuspension and transport of COC-containing sediment as well as destruction of vegetation and removal of trees on the spoil bank. Short-term public health and worker safety risks associated with incidental ingestion and dermal contact during the handling and loading of the COC-containing material.	Would bind metals through the addition of stabilizing agents to decrease the biochemical availability of COCs. Would require construction of an access road on both sides of the Bayou, the length of the bank. Injection and mixing of the Bayou sediment represents a greater risk-of-remedy associated with resuspension and transport of COC-containing sediment and its subsequent increased bioavailability and transport potential.	Phytoextraction of the spoil bank soil would require construction of an access road on both sides of the Bayou, the length of the bank. Risks-of-remedy would be associated with erosion and transport of COC-containing soil from stormwater runoff during tilling of the spoil banks and the duration prior to stabilization of the soil particles by the root biomass. Introduction of non-native vegetation into the Bayou also poses significant risks via disruption of the natural ecosystem.	Additional risk reduction through sediment removal, stabilization, and capping, as well as aesthetic enhancements to the Bayou. Facilitates long-term wetlands restoration efforts.	Additional risk reduction through sediment removal, stabilization, and capping, as well as aesthetic enhancements to the Bayou. Facilitates long-term wetlands restoration efforts.

Decision Document for Bayou Trepagnier

Criteria	Alternative No. 6 Excavation with Onsite Treatment and Onsite Disposal	Alternative No. 7 <i>In Situ</i> Chemical Treatment	Alternative No. 8 <i>In Situ</i> Phytoextraction	Alternative No. 9 Restoration Compatible Sediment Cap	Alternative No. 10 Restoration Compatible Sediment Cap (OU1)
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and NRDA Restoration Plan).	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and NRDA Restoration Plan).	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and NRDA Restoration Plan).	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and NRDA Restoration Plan).	Complies with requirements (alternative includes Remedial Action Work Plan, Cap Monitoring Plan, and NRDA Restoration Plan).
Long-Term Effectiveness and Permanence	Provides long-term effectiveness by eliminating the source of COC. Post-remediation monitoring would be conducted.	Erosion damage would require repair.	Maintenance and inspection of the phytostabilized soil would be necessary. Erosion damage would require repair. The time required for phytoextraction to attain the remedial objective would be established through bench-scale treatability testing.	Provides effective reduction of current risks and prevention of future risks.	Provides effective reduction of current risks and prevention of future risks.
Reduction of Contamination Toxicity, Mobility, or Volume	Eliminates supply of contaminants to the biota and reducing the toxicity and mobility of the COC through chemical fixation.	Reduces the toxicity and mobility of COC by stabilization in place.	This alternative would minimize exposure of receptors to site-related contamination, thus effectively reducing the toxicity and mobility. COCs would be bioaccumulated in plants that would be harvested for disposal.	Sediment removal and stabilization provides for reduction of contamination volume.	Sediment removal and stabilization provides for reduction of contamination volume.
Short-Term Effectiveness	Provides immediate effectiveness in protection of ecological and human health by eliminating the COC exposure pathway. Resuspension of COC-containing sediment in the Bayou may increase COC levels in the Bayou for the short term.	Provides immediate effectiveness in protection of ecological and human health by eliminating the COC exposure pathway. Resuspension of COC-containing sediment in the Bayou may increase COC levels in the Bayou for the short term.	It is not clear how effective this process is in the short term. Bench-scale treatability testing required.	Provides immediate effectiveness in protection of ecological and human health by eliminating the COC exposure pathway.	Provides immediate effectiveness in protection of ecological and human health by eliminating the COC exposure pathway.
Implement ability	Excavation, treatment, and landfill disposal are frequently applied disposal practices for site remediation.	The construction would require standard and established construction techniques and equipment.	Implementation of the phytoextraction treatment process would be over many growing seasons. Placement of plants would require standard and established agricultural techniques and equipment.	Engineering/construction schedule of up to 2 years, with significant weather and seasonal issues.; construction will have logistical challenges.	Engineering/construction schedule of up to 2 years, with significant weather and seasonal issues.; construction will have logistical challenges.
Capital Cost	\$15 million	\$10 million	\$3 million	\$8 million	\$8 million
O&M Cost (present worth)	\$65,000	\$200,000	\$200,000	\$100,000	\$100,000

Decision Document for Bayou Trepagnier

Criteria	Alternative No. 6 Excavation with Onsite Treatment and Onsite Disposal	Alternative No. 7 <i>In Situ</i> Chemical Treatment	Alternative No. 8 <i>In Situ</i> Phytoextraction	Alternative No. 9 Restoration Compatible Sediment Cap	Alternative No. 10 Restoration Compatible Sediment Cap (OU1)
Comments				Originally developed for OU1 (restoration compatible sediment cap) and OU2 (sub aqueous cap). For OU1, identical to Alternative No. 10 except for narrower clean zone (600 ft vs. 800 ft).	For OU1, identical to Alternative No. 9 except for wider clean zone (800 ft vs. 600 ft).

All cost estimates are conceptual level estimates, and are generated for alternative comparison only.
 Source: Motiva Feasibility Study Supplement II Upper Reach (Operable Unit 1), October 2006

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Section 6. Identification and Selection of the Preferred Alternative

Based on a comparison of alternatives previously identified in the 2003 Supplemental FS and the newly identified alternative in the October 2006 FS Supplement II Upper Reach (Operable Unit 1), the selected alternative is **Number 10: Restoration Compatible Sediment Cap (Operable Unit 1)**. The advantages that this alternative offers are:

1. Overall protectiveness of human health;
2. Compliance with regulatory requirements in construction and implementation, providing enhancements for the restoration of the wetlands system;
3. Long-term effectiveness in further reducing residual risks;
4. Reduction of the toxicity, mobility, and/or volume of COCs present in the bayou sediments by sediment removal, capping, and treatment.

The Restoration Compatible Sediment Cap (OU1) alternative provides additional risk reduction and aids in long-term wetland restoration efforts. Phase I of the preferred alternative will comprise construction of a clean zone for any potential conveyance of Mississippi River water into the LaBranche Wetlands. This zone will be from Stations 5-13 (800 ft.) in the upper portion of Bayou Trepagnier. Sediments and spoil banks in this area having COC concentrations above Risk Evaluation/Corrective Action Program (RECAP) non-industrial soil screening levels for organics and soil background levels for metals will be removed. COC-specific action levels will be provided in the Remedial Action Work Plan. Sediments and spoil banks from this zone will be stabilized and placed into the Bayou channel between Stations 13 and 60.5 prior to capping. Final location and design requirements will be identified in the Remedial Action Work Plan.

Phase II of the OU1 remediation will involve sediment stabilization and capping from Station 13 to 60.5. The Bayou channel in the upper reach will be filled in with suitable material. This will result in a no minimum draft condition. Softer upper sediments will be stabilized and/or removed to enable a protective cap to be placed in the former channel. The cap material will consist of either Bonnet Carré spillway earthen material or Mississippi River sand. The purpose of this cap is to provide improved long-term reduction of current/future risks to biota as well as create a base for establishment of additional floral and faunal habitat. Design requirements for the cap will be identified in the Remedial Action Work Plan.

Included in the design for Operable Unit 1, a sediment disposal area will be designated between Station 13 and 60.5 to allow for the potential disposal of COCs-containing sediments from Operable Unit 2.

Data collected from the Hurricane Protection Levee (HPL) borings and bench scale sediment settling tests demonstrate that water released from sediment consolidation is unlikely to cross contaminate the overlying cap material. The final cap design and thickness will be primarily controlled by erosion, differential settlement, and constructability criteria and will be established in the Remedial Action Work Plan. The Bayou will be cleared and snagged in the project area to allow for sediment removal, capping, and associated activities. Bank clearing will be limited to Support Areas, Clean Zone, and other downstream areas needed to support the remedial and restoration activities. Consolidation of sediments will be achieved to the maximum extent practicable in the upper reach of the bayou from Station 13 to 60.5. In the event that consolidation proves unachievable, the sediment will be transported off-site to an approved disposal facility.

Containment will be established around work areas and sediment/waste processing areas to forestall the release of suspended sediments, oil sheens, and contaminated water. Containment features may include: temporary dams across portions of the Bayou; small berms around bank process areas to direct run-off; turbidity curtains, baffle curtains, booms, and other materials placed adjacent to work areas, and downstream of the project in Bayou Trepagnier and Engineer's Canal. If any off-site disposal should be required, treatment of any sediment removed from the Bayou will involve de-watering and/or solidification prior to shipment offsite for disposal. Temporary operations would be set up in the support area to dewater and/or solidify sediments prior to any offsite shipping and disposition. Transportation and disposition of

removed sediments and other project materials and wastes will be conducted in accordance with LDEQ and other applicable requirements. The sediments do not contain any listed or characteristic hazardous waste. Water associated with sediment removal operations will be treated prior to discharge. Discharge information, including treatment process, outfall locations, and monitoring requirements for discharges and ambient water quality will be provided in the Remedial Action Work Plan.

Closure of the small “cut” between Bayou Trepagnier and Engineer’s Canal will be included in the OU1 remedial action as a means of reducing cross flow of brackish water from Engineer’s Canal to the Bayou and potential migration of COCs between the two channels. Hydrologic studies, and other necessary studies as determined during data collection prior to the Operable Unit 2 remedy selection, will be completed to assess any impacts to the system and will be figured into any design or decision requirements for the Middle and Lower Reach (Operable Unit 2). If these studies show negative impacts to the overall hydrologic system, removal of the closure would be considered.

After completion of the remedial action, long-term monitoring of the cap will be conducted. A Cap Monitoring Plan will be included as part of the Remedial Action Work Plan and will address monitoring objectives, relationship to risk control, rationale for the monitoring components, and approaches, triggers, location, frequency, and parameters for monitoring.

Section 7. Path Forward from this Point

The issuance of this “Draft” Decision Document (DDD) begins a forty-five (45) day comment period that commences on the day of publishing a public notice of the public comment period in the newspaper of general circulation in St. Charles Parish. Comments should be addressed to:

Keith L. Casanova, Administrator
Remediation Services Division
P.O. Box 4314
Baton Rouge, LA 70821-4314

The letter should contain the site name, **Bayou Trepagnier** and the **Agency Interest Number (AI) 44765**. LDEQ will respond to comments within 30 days of the end of the comment period. The responses will include an amended Decision Document if necessary. LDEQ will enter into a Cooperative Agreement for the design, implementation, and monitoring of the remedial action.

Implementation of the recommended alternative, Restoration Compatible Sediment Cap (Operable Unit 1), will proceed after completion of the public comment and response process.

Signed this _____ day of _____ 2007

By:

Wilbert F. Jordan, Jr.
Assistant Secretary
Office of Environmental Assessment