

LATA-KEMRON REMEDIATION, LLC

Emergency and Rapid Response Services

USEPA Region 5

Final Site Report

White Lake Tannery Bay

Task Order Number # 60

Whitehall, MI

Contract No. EP-S5-08-04

Prepared for:



U.S. Environmental Protection Agency

Region V

77 W. Jackson Blvd.

Chicago, IL 60604

Prepared by:

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December 27, 2013

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Task Order Number # 60
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LATA-KEMRON Remediation, LLC (LKR) is issued task orders under Emergency and Rapid Response Services (ERRS) Contract No. EP-S5-08-04. One of the requirements is to conduct closeout of the individual task orders. This Final Site Report was prepared to satisfy the requirements listed in Section H.6 of the referenced contract. This report includes:

- A summary of the work conducted
- A financial summary including:
 - Labor categories, total hours for each category, and total amount claimed;
 - Equipment categories, total daily usage for each equipment item, and total amount claimed;
 - List of other direct costs incurred and total cost claimed;
 - List of subcontractors and dollar value and total cost for all subcontracts; and
 - Any suspended costs or other issues unresolved.
- Attachments
 - A-Transportation and Disposal spreadsheet – Trailer trains
 - B-Transportation and Disposal spreadsheet – Roll Off Containers
 - C-Summary of analytical samples and testing results
 - D-Table listing all obtained permits

**Summary of Work Performed
White Lake Tannery Bay
Task Order Number # 60
Whitehall, MI**

OSC:	Heather Williams	Site Status:	Complete
Obligated:	\$3,560,799.00	RM:	Ron Voorheis
Award Date:	August 9, 2013	Actual:	\$2,551,145.00
Period of		Percent	Budget 68%
Performance:	August 19, 2013 – December 27, 2013	Complete:	Project 100%

Site Background

The White Lake Site is located in the White Lake Area of Concern (AOC). White Lake is approximately 4.3 miles long from north to south and empties into Lake Michigan through a channel at the south end of the lake. The site where the remedial action is to occur is located within a bay (Tannery Bay) on the eastern shore of White Lake adjacent to the former Whitehall Leather Company. The Site address is 850 and 900 S. Lake St., Whitehall, MI. The work at the White Lake Site will occur within Tannery Bay, as well as a small area designated as the southern shoreline area.

The former Whitehall Leather Company operated a tannery from the late 1800s until the mid-1970s. Chromic sulfate was used as a tanning agent after the mid-1940s. Arsenic and mercury were added to the process as biocides. Wastewater had reportedly been discharged into the lake prior to 1940. After 1940, wastewater was discharged into six lagoons onsite. Periodically, sludge was dredged from the lagoons and disposed of on the southern portion of the property. Bails of tanned leather straps were placed into Tannery Bay for fill to control erosion.

In 2002 and 2003, approximately 91,000 cubic yards of sediment were removed from Tannery Bay and disposed of off-site at Ottawa County Farms Landfill in Coopersville, Michigan. Sediment removed was visually impacted with tannery waste containing hide, hair, and a purple Discoloration. These sediments were contaminated with chromium, arsenic, and mercury. Some near-shore areas of Tannery Bay were not dredged during the 2002/2003 remedial action. Remediation of the former Whitehall Leather Company property was completed in 2011.

More recently, sediment containing a purple discoloration along with hair and hide remnants was noted in near shore areas within Tannery Bay. U.S. EPA Great Lakes National Program Office (GLNPO) conducted sediment and near shore soil sampling investigation the week of June 24, 2013. A technical memorandum, Summary of Visual Sediment Characterization, presenting the visual observations of that sampling was developed. Michigan Department of Environmental Quality (MDEQ) also investigated a small near shore area for purple discoloration. Removal of sediment within Tannery Bay with purple discoloration or other indications of tannery waste will be performed to address the Degradation of Aesthetics Beneficial Use Impairment at the White Lake AOC.

Summary of Work Performed

LATA Kemron Remediation Services LLC (LKR) began preparing work plans to perform sediment removal in the Tannery Bay site on White Lake in Whitehall Michigan in early August of 2013. When plans were close to approval LKR mobilized crews to the site to set up support facilities and begin the remedial effort. Part of the process was to assist the USEPA in obtaining dredging permits from both the USACE and MDEQ to perform the work and an Erosion and Soil Control permit from Muskegon County Department of Public Works.

The original work plans for the White Lake Tannery Bay sediment Removal Project included the following work tasks;

- Assist USEPA and MDEQ in obtaining required dredging permits
- Obtain Soil And Erosion Control Permit
- Obtain Muskegon County Wastewater Management System Discharge Permit
- Mobilization of crews and equipment
- Set up site support area and build haul roads
- Design, constructed and operate dewatering Pad
- Install and operate Air and Water Quality Monitoring
- Install and operate a temporary water treatment system
- Install discharge line to an approved discharge point
- Excavate the Southern Shoreline area
- Mobilize dredging subcontractor
- Build barge off load area
- Install siltation curtain in Tannery bay
- Dredging the tannery bay area
- Placement of sand backfill in Tannery Bay
- Maintain site access roads and dust suppression
- Load, Transport and Dispose of sediment materials
- ~~Site restoration and demobilization~~

Mobilization of field crews began on August 19, 2013 and LKR began preparations for setting up office and storage facilities. Work began on the installation of the dewatering pad which was designed to accommodate approximately 500 cubic yards of removed sediment per day. The design included grading an area along the shoreline (approximately 50 foot wide by 350 foot long) and place 40 mil HDPE liner on the pad bottom and bermed sides of the pad. The pad design called for a minimum slope to the South of 2% to allow the Southern 1/3 of the pad to accumulate water drained from barges and runoff from the offloaded sediment. The site was graded to a four percent slope because the original grade would easily accommodate the slope. Berms were made on the western side of the pad using an existing berm while the eastern side and north end was made with jersey barriers. A drainage layer consisting of Geo-Net and a sand layer one foot thick was constructed On top of the liner to allow water to drain from the

sediment. Construction of the dewatering pad including the wastewater treatment system took thirteen work days to complete. The pad was then separated into three sections by adding rock check dams. The lowest section was for collection of run-off water for treatment. The center section was for offloading barges when trucks were not available or the sediment was not suitable for disposal and corrected by mixing additives to the sediment. The third, highest, section was used to stage materials mixed and ready for loading on transportation vehicles.

The original work plan documents called for the addition of polymer to the sediments as they were loaded into a barge and for the treated sediment to be direct loaded into transportation vehicles and transported directly to the landfill. LKR's subcontractor for transportation and disposal, Quality Environmental, provided the landfill requirements which were different from the requirements from our Division Street Outfall project in Muskegon Lake two years earlier. This change in the work plan required LKR to procure an additive to add and mix with the sediment to allow the materials disposed to be considered "stackable" to meet the landfill requirements. LKR performed bench scale tests on three separate products to determine the amount of additive that would be required. The first product tested was Calciment and the test proved that the product was not effective within hours of being added to the sediment. The second test was performed using processed corn cob and this product was effective immediately after mixing. The third test was performed using type I cement. The cement was only effective after at least twelve hours of set time. Using a 5% to 8% by volume of product added to each cubic yard of sediment using a 1.35 weight conversion factor we determined that we would need approximately 2,138,400 pounds (at 8%) of corn cob to perform the work and meet the landfill requirements within the scheduled days. This product would replace the six semi loads of polymer estimated to be needed to make the dredge materials pass a paint filter test prior to shipment.

The landfill's requirement to make the sediment stackable would require that LKR use the middle section of the dewatering pad as a mixing area to add the corncob to the entire amount of sediment dredged during the project.

During early weekly progress meeting conference calls, Heather Hopkins with the MDEQ raised concerns about how we would protect the liner while mixing additives into the sediment. The best solution that the group came up with was to add steel street plates over the sand covering the liner and mix and load on top of the steel plates. The cost was deemed effective and the steel plates were incorporated into the pad design. The addition of the steel plates added three days to the construction schedule.

Site access roads were built to allow trailer trains to circle to the load out area and then proceed off site over a tire cleaning pad. The roads were built from limestone road base and a material called foundry stone that was a two inch nominal sized clean limestone. The foundry stone was used to build the tire cleaning pad in the road just prior to the trucks leaving the site. Other areas where there was soft sand foundry stone was added prior to the placement of the road base for added stability. When the roads were complete a gravel base was added between the roads and the pad to allow for the heavy machinery to operate on a stable base.

Within two days of the completion of the dewatering pad LKR's dredging subcontractor White Lake Dock and Dredge Inc. (WLDDI) mobilized equipment and began installing sheeting at the

barge offload area. After the sheeting was installed a combination of sand, foundry stone and road base limestone was used to build the pad where the excavator would set to offload barges. The area was sloped to cause any water or sediment spilled to run into the dewatering pad and then it was covered with liner material to prevent any migration of water into the soil beneath the pad.

After construction of the offloading pad and prior to dredging, WLDDI installed two sections of silt curtain. The first and short section was installed around an area south of the bay called the southern shoreline area. The second and largest section was installed in the bay to prevent migration of turbid water out of the dredge area. LKR installed three buoys with telemetering equipment that transmitted, via radio, real time water quality/turbidity data to a computer in the office trailer.

While WLDDI installed the siltation curtain in the bay, LKR used land based equipment to excavate an area along the southern shoreline. This area was originally estimated to contain approximately 40 cubic yards of discolored sediment. The excavation was completed in two days with the sediment being loaded directly into an articulated dump truck and placed directly into the dewatering pad's center section. The amount of sediment removed was estimated as one hundred and twenty cubic yards. The southern shoreline area was immediately regraded and seeded with MDOT highway mix.

WLDDI performed an in house pre dredge bottom survey to compare to the survey data and quantities provided by USEPA's subcontractor CH2MHill. The estimate from WLDDI showed that the bottom was an average of seven tenths higher than the data provided by CH2MHill. The on-site representative for EPA, John Pelke offered to do hand soundings with Mike Russel for an additional comparison. The team was in agreement and over a weekend John, Mike and Ron did the soundings with a plate and chain from WLDDI's boat.

After hand soundings were completed and the difference in volumes was recalculated, it was decided to finish the project using the hand sounding method by WLDDI, LKR and John Pelke.

With all permits in place and support facilities constructed and ready to operate, dredging of Tannery Bay started on September 19, 2013. The first dredging was done with the long reach excavator using a conventional ditch bucket along the shoreline where rock and rubble had been placed as erosion protection. Once the rubble had been removed, the machine with the clamshell bucket was placed on the barge and dredging commenced using the computer system and the environmental bucket. While dredging along the southern end of the shoreline, additional excavation was recommended by John Pelke and approved by Heather Williams. WLDDI removed discolored sediment from the land side of the designed removal area. As the dredging continued, site representative John Pelke (USACE) spent considerable hours on the dredge observing the quality of the material being removed to insure that the project goals of removing all discolored materials down to the clean sand were achieved.

As the dredging proceeded west into the lake and where the cuts were thinner, the material brought to the dewatering pad contained less muddy sand and a higher quantity of fine sediment and water. Water from the barges was pumped into the dewatering pad through filter bags (144 cf. each) and allowed to drain to the sump prior to offloading the barge into the mixing area.

Efforts to decant the barges were fought with constant blanking off of the filter bags with animal hair preventing the bags from passing water. As a result the crews were forced to mix material with a higher water content in order to maintain progress and allow room in the center section of the pad to offload barges.

Operation of the dewatering pad consisted of one long reach excavator and one conventional excavator both equipped with smooth edge ditch buckets to mix the drying agent into the sediment. The long reach worked from outside the pad along the east side while the shorter reach excavator worked from a check dam that separated the mix area from the load out area. Material was staged in the north section after it was to a stackable consistency where it was loaded onto transportation dump trailers using a material handler equipped with a clamshell bucket. The mixing and loading machines were supported by a long reach forklift, a rubber tired loader and a skid steer loader and a water truck. These machines were used to off load delivery trucks, feed drying agent supersacks to the excavators and maintain the site roads and support area.

Water Quality buoys were installed in three locations outside and adjacent to within approximately 50 ft of the siltation curtain. The buoys were equipped with sensors to monitor water turbidity and radio the results to a computer in the main office trailer. The site chemist monitored the data on a daily basis and during the project was able to report no increase in water turbidity during the dredging process. During the course of the project the buoys were checked for any fouling by weeds, moss or muscles to maintain operability and reliability.

Air quality was monitored using a real time particulate monitor placed downwind of the area where trucks were operating on site. Because the roads were maintained with a water truck the project was completed with no concerns of fugitive dust.

When dredging was nearing completion, in order to maintain the schedule, a stacking conveyor was mobilized that could convey sand directly into the barges for placement into the dredge area in the bay.

After completion of the dredging, sand placement and de-construction of the dewatering pad were performed simultaneously. The steel plates were removed, washed and staged for loading while the liner material was removed in sections from north to south until the last of the sediment and water was mixed and loaded for disposal. The water treatment system was washed down just prior to the sump area of the dewatering pad being removed. After the dewatering pad was completely removed the water treatment system was demobilized.

As each section of the liner was removed the underlying sand/clay was inspected and LKR can report with one hundred percent confidence that the integrity of the liner was maintained and that there were no breaches in the containment system.

During discussions with the EPA and the property owner the subject of the shoreline erosion was a concern. It was decided that the property owner would supply rip rap stockpiled on the property and LKR would place it along the three hundred feet provided for in the MDEQ dredging permit. LKR mobilized separate equipment to handle the large rock and placed the stone on liner material at the direction of John Pelke (USACE) the site representative.

Demobilization of the equipment was completed around November 8, 2013 nine days passed the originally scheduled demobilization date.

The project removed a total of 8,629 cubic yards of sediment, disposed of 12,668.9 tons of amended materials, treated and discharged more than 126,000 gallons of water and placed 7,863 cubic yards of sand backfill.

Cost Summary

Task Order Ceiling		\$ 3,560,799.00
Cumulative Costs		
	Personnel	\$ 0.00
	Equipment	\$ 0.00
	Other Direct Costs	\$ 0.00
	Pending	\$ 0.00
Project to date Total		\$ 0.00
Unused Task Order Dollars		\$ 0.00
Percentage of Task Order Dollars Incurred		0.00 %

ATTACHMENT A

Transportation and Disposal Summary – Trailer Trains

ATTACHMENT B

Transportation and Disposal Summary – Roll Off Containers

ATTACHMENT C

Summary of Analytical Samples and Results for White Lake

ATTACHMENT D

List of required permits for White Lake Project