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Power Solutions

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MAY 31 2013

Mr. Ed Moore
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road
New Paltz, NY 12561

Dear Mr. Moore;

Subject: Former C&D Technologies Facility, Huguenot, New York Surface Soil Alternate Description

Attached is the Surface Soil Alternate Description and cost estimate for the proposed IRM surface soil remediation for your review and approval. Per our agreement, this will be an addendum to our current Feasibility Study for OU2 PRAP.

Please call me at 215-619-7886 should you have any questions or require any additional information.

Sincerely,

WE Kozlowski

Walter E. Kozlowski
Director – Environment, Health & Safety

Cc: Aria Klees, C&D Technologies, Inc.
Ed Fahrenkopf, Delaware Engineering P.C.

Former C&D Huguenot, NY Facility
Surface Soil Alternative Description

The surface soil remediation would consist of excavation of the impacted surface soils outside the sub-pavement soil remediation area, placement of these soils in the sub-pavement remediation area and then in-situ stabilization of the soils. The stabilized soils would be covered with an asphalt cap. Prior to placement of the impacted surface soils in the sub-pavement soil area, samples would be collected to determine the maximum depth of impacted soils within the sub-pavement soil remediation area.

Twelve inches of impacted on-site and off-site surface soils outside the pavement area would be excavated in the areas that exhibit lead concentrations above the Residential Soil Cleanup Objective (SCO) near/outside the facility property line and above the Commercial Use SCO within the property line. The impacted soils would be temporarily stockpiled on the pavement within the foot print of the impacted sub-pavement soil remediation area. The stockpiled soil would be covered to prevent off-site transport via wind.

Based on an assumed one foot layer of impacted soil, there is an estimated 321cubic yards of surface soil near/outside the property line with concentrations above the Residential Soil lead SCO and approximately 598 cubic yards of surface soil above the Commercial Use SCO within the property line outside the sub-pavement surface soil remediation area. Post excavation samples would be collected to confirm removal of soils with concentrations above the respective SCOs. At the completion of the excavation activities the excavated area in the soil area would be backfilled with one foot of clean fill and the area seeded and mulched. Trees would be planted in areas where tree removal was necessary to implement the excavation.

The pavement in the proposed sub-pavement surface soil remediation area would be stripped off the soil and any excess soil adhered to the pavement would be removed and placed back onto the exposed soils. Once the pavement was removed from all areas, except where the surface soils from the non-pavement areas were temporarily stored, the stockpiled surface soils would be evenly distributed across the exposed sub-pavement soils and the remaining pavement within the impacted foot print would be removed. The pavement would be stockpiled on site prior to shipment to an asphalt recycling facility for disposal or would be crushed and used as backfill in the lagoon.

The combined surface soil and sub-pavement soils would be stabilized in place to a depth equal to the maximum depth of impacted soils. Soils would be stabilized by spreading a stabilization agent over the soils and disking the agent into the soils to the necessary depth.

Tri-sodium phosphate (under the trade name Enviroblend, which also contains magnesium oxide) or portland cement would be used for treatment of the lead contaminated soil. Using tri-sodium phosphate as a stabilizing agent would immobilize the lead by creating insoluble lead phosphate compounds. Using Portland cement as the stabilizing agent would create insoluble lead hydroxide compound. The cost for Portland cement is initially less expensive than Enviroblend, however the required bulking rate is generally much higher.

Bench and field treatability studies will be conducted to determine the optimal dosing rate for both Portland cement and tri-sodium phosphate, the cost effectiveness of each compound and the effectiveness of each compound in reducing the leachability of lead in the soil. An average tri-sodium phosphate dosing rate of five percent has been assumed for calculating costs. Bench treatability tests would include testing of stabilized soil by both the USEPA TCLP (Method 1311) and the USEPA Synthetic Precipitation Leaching Procedure (SPLP Method 1312) leaching procedure. The TCLP method is the regulatory method for determining if a waste is a characteristic hazardous waste based on toxicity pursuant to 40 CFF 261.24. The SPLP was designed to predict the mobility of contaminants in soil based on leaching via precipitation.

Although the lead in the treated soil would be assumed insoluble and immobile, an asphalt cap would be installed over the stabilized soils to further minimize exposure. The cap would prevent infiltration of precipitation, prevent direct contact and prevent wind transport of the stabilized soil. The cap would require the installation of approximately 7,500 square yards of asphalt to completely cover the stabilized soils. The asphalt cap would consist of a 7.5-inch structural sub-base layer, a 3-inch binder course and a 1.5-inch asphalt-wearing surface. Orange construction fencing would be placed on top of the stabilized soils to provide a visual demarcation between the cap material and the stabilized soils.

Institutional controls would be implemented to address future exposure to lagoon soil. The institutional controls would consist of a deed restriction to limit the use of all property to commercial or industrial use. This restriction would be incorporated into the deed of the property owner. Institutional controls would also include a provision that the existing fence around the plant be maintained to restrict access to the site. A provision to restrict all activities that could impact the integrity of the geomembrane/asphalt cap would be included in the property deed. The final design document would contain the specifics of the institutional controls including a legal description of the property where the institutional controls will be implemented, the specific language of the deed restrictions and the process for enforcement of the institutional controls against future transferees and successors.

Former C&D Huguenot, New York Facility
In-Situ Estimated Surface Soil Remediation Cost

ITEM	QUANTITY	UNIT COST	UNIT	COST
Direct Capital Costs				
Mobilization & Demobilization	1	38,655	ls	$38,655
Excavation & handling of Pavement For Off-Site Disposal)	625	40	cy	$25,000
Excavation of Soil Area Soils For Stabilization and Placement/Grading in Pavement Area)	919	35	cy	$32,165
Enviroblend Material Cost (dosing rate @ 5% by weight) for in-place stabilization	240	700	tons	$168,000
In-Situ Stabilization (Tilling of Enviroblend Into Soil)	67,518	0.50	sf	$33,759
Backfill and compaction of excavated soil area	919	22	cy	$20,218
Re-Paving Pavement Excavation Area (7.5" sub-base, 3" binder coarse, 1.5" wearing coarse)*	7,502	36	sy	$270,072
Decontamination and health & safety facility	1	3,000	ls	$3,000
Fencing	1	35,000	ls	$35,000
Revegetation excavated soil area	1	9,900	ls	$9,900
Pavement Disposal	940	45	tons	$42,300
Total Direct Capital Costs:				**$678,069**
Direct Expenses				
Confirmatory sampling & Health & Safety Sampling	1	20,000	ls	$20,000
Field oversight	510	80	hrs	$40,800
Field oversight expenses	51	200	days	$10,200
Total Direct Expenses				**$71,000**
Indirect Capital Costs				
Engineering (10% of total direct capital costs)				$67,807
Contingency (15% total direct capital costs)				$101,710
Total Indirect Capital Costs:				**$169,517**
TOTAL DIRECT & INDIRECT CAPITAL COSTS:				**$918,586**
TOTAL ESTIMATED IRM COST				**$918,586**