October 28, 2011

Ms. Michelle Kaysen
U.S. Environmental Protection Agency
Region V
77 W Jackson Blvd
Mail Code: LU-9J
Chicago, Illinois 60604

RE: Floor Block Area Investigation & Corrective Measures Alternatives Analysis
Dort Highway Land, Grand Blanc, Michigan

FILE: 15388 /47852/Reports

Dear Ms. Kaysen:

On behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, O'Brien & Gere is pleased to present this letter report to summarize the additional investigation activities at the Dort Highway Land site (#12960) to better define the horizontal and vertical extent of wood floor blocks at the site, and to better characterize the soils within the floor block area. The floor block area is an approximately 2 acre area of the Dort Highway Land site. In addition, this report contains a corrective measures alternative evaluation/analysis for the site based on the historic and recent (August 2011 and September 2011) sampling. The work was conducted in accordance with our September 9, 2011 letter Work Plan, and was completed before receipt of your September 28, 2011 letter concerning your comments on the Quality Control Document (QCD), which guided our sampling activities. However, none of your comments or our responses adversely affect the data collected in September.

SCOPE OF WORK

The floor block investigation occurred on September 14, 2011, which consisted of a series of shallow test pits to delineate the horizontal and vertical extent of the floor blocks at the Dort Highway Land site. Twenty-eight test pits were dug approximately 2 feet below grade (fbg) to 5 fbg using a Komatsu PC200 excavator. The location of the interior test pits were selected by locating a deposit of floor blocks at the ground surface. The location of the perimeter test pits were selected based on locating the edge of the presumed floor block area where floor blocks were not observed on the ground surface.

Soil samples were collected from the ten interior test pits and were analyzed for polynuclear aromatic hydrocarbon (PAH) analysis by Method 8270C to further characterize the soils in the floor block area. The soil samples (FBS-06 through FBS-15) were collected from the spoils from the shallow test pits and represent the concentration of PAHs in the soil surrounding the floor block, but not in direct contact with the floor block. Two additional soil samples (SS-21 and SS-22) were collected at a depth of approximately 4 fbg from two test pits where a slight odor and darker colored soils, which is likely a buried topsoil layer, were observed below the floor block.

The soil samples were placed directly into clean, pre-labeled, sample jars for analysis. Samples were placed in a cooler with ice after collection and hand delivered to Merit Laboratories, Inc. via the laboratory's courier service. The soil samples were collected in accordance with the sampling and analysis plan (SAP, O'Brien & Gere, 2011) recently provided to the U.S. Environmental Protection Agency (USEPA), and included the appropriate quality control/quality assurance samples and documentation

presented in the August 2011 SAP. An analytical summary report (Appendix A) and a full data package with supportive raw data were prepared by the laboratory for the analyzed soil samples. The full data packages for the August 2011 and September 2011 sampling event will be provided to the USEPA along with the data validation report for each sampling event in electronic (PDF) format (due to the volume of paper) following the completion of data validation, which should be completed in the next week or so and will be submitted under separate cover.

The site activities were conducted in accordance with the site Health and Safety Plan (HASP, O'Brien & Gere, 2011), recently provided by the USEPA.

FINDINGS

Area, Density and Potential Volumes of Floor Block and Soils

Ten test pits were dug within the interior of floor block area where floor blocks were observed at the ground surface (Figure 1). The floor blocks appeared to be spread throughout the area at densities varying from a few blocks (<1 percent) to 80 percent of the total volume of material encountered in the test pit. There were three areas where a higher density of floor blocks were observed (*i.e.*, Subareas 1 through 3), with the remainder of the floor block area conservatively estimated to consist of about 1 to 5 percent floor blocks within the soils to a depth of between 0.5 fbg and 1.5 fbg, averaging approximately a foot thick.

The first subarea (Subarea 1) with a higher density of floor blocks was located along the northern edge of the floor block area (Figure 1, subareas are outlined by red dashed lines) and ran east to west covering an area of approximately 340 ft long by up to 90 ft wide with an approximate area of 20,500 square feet (sq. ft) (Table 1). Test pits within Subarea 1 include TP-11, TP-13, TP-22, TP-25, TP-26, TP-27 and TP-28, with other test pits along the edge of the area. Within Subarea 1 there were intermittent narrow pockets (approximately 20 ft to 30 ft wide by up to 75 ft long) of a higher density of floor blocks that ranged in density from approximately 30 percent of the total volume of material to 80 percent of the total volume of material within the test pits, with the floor blocks averaging approximately 35 percent of the total volume of material within Subarea 1. The depth of the floor blocks observed within Subarea 1 was approximately 2 fbg. The total volume of soil and floor blocks within Subarea 1 is approximately 1,520 cubic yards (yards^3); however, the volume of floor blocks within Subarea 1 has been estimated to be approximately 530 yards^3 (Table 1).

The second subarea (Subarea 2) with a higher density of floor blocks was located in the middle of the floor block area and ran east to west covering an area of approximately 140 ft by 50 ft with an approximate area of 6,250 sq. ft (Table 1). Test pits within Subarea 2 include TP-10 and TP-16. Within Subarea 2 there were two smaller areas of approximately 50 ft by 25 ft and 30 ft by 30 ft where the density of the floor blocks was approximately 60 percent to 70 percent of the total volume of material within the test pits, with the floor blocks averaging approximately 60 percent of the total volume of material within Subarea 2. The depth of the floor blocks observed within Subarea 2 was approximately 1.5 fbg. The total volume of soil and floor blocks within Subarea 2 is approximately 350 yards^3; however, the volume of floor blocks within Subarea 2 has been estimated to be approximately 210 yards^3 (Table 1).

The third subarea (Subarea 3) with a higher density of floor blocks was located at the southwest corner of the floor block area covering an area of approximately 110 ft by 100 ft with an approximate area of 10,000 sq. ft (Table 1). Test pits within Subarea 3 include TP-07, TP-08 and TP-09. Within Subarea 3 there were two smaller areas of approximately 20 ft by 20 ft where the density of the floor blocks was approximately 50 percent to 70 percent of the total volume of material within the test pits; however, the floor blocks averaged approximately 30 percent of the total volume of material within Subarea 3 as a whole. The depth of the floor block observed within Subarea 3 was approximately 1.5 fbg. The total

volume of soil and floor blocks within Subarea 3 is approximately 560 yards^3; however, the volume of floor blocks within Subarea 3 has been estimated to be approximately 170 yards^3 (Table 1).

The depth of the floor blocks observed within the remainder of the floor block area (excluding the three subareas) ranged from approximately 0.5 fbg to 1.5 fbg with an assumed average depth of approximately 1 fbg. The total volume of soil and floor blocks within the remainder of the floor block area is approximately 1,980 yards^3; however, the volume of floor blocks within this area has been estimated to be approximately 100 yards^3 due to the low percentage (5 percent or less) of floor blocks within this area. Therefore a total of approximately 4,400 yards^3 of soil and floor block exist within the entire floor block area and approximately 1,000 yards^3 of floor block are estimated within the floor block area (Table 1). However, some of the approximately 3,400 yards^3 of soils within the floor block area may not need removal and disposal based on exposure pathway analysis (see subsequent discussion).

Analytical Results

The analytical results for detected analytes in the soil samples collected in August 2011 and during the September 2011 additional floor block area investigation are presented in Table 2. The soil samples collected from the spoils of the ten shallow test pit locations were analyzed for PAHs and compared to the Michigan Department of Environmental Quality (MDEQ) nonresidential cleanup criteria. Five of the samples collected at four locations (FBS-09, FBS-10, FBS-13, FBS-14, and DUP-01/FBS-14) were above the nonresidential direct contact criterion for benzo(a)pyrene of 8,000 µg/kg, and ranged in concentration from 10,000 µg/kg at FBS-10, FBS-13 and DUP-01/FBS-14 to 39,200 µg/kg at FBS-14.

Nine of the ten sample locations (the only exception was at FBS-06) had detections above the MDEQ groundwater surface water interface (GSI) protection criterion for phenanthrene of 2,100 µg/kg. Eight of the ten locations (the only exceptions were at FBS-06 and FBS-07) were above the GSI criterion for fluoranthene of 5,500 µg/kg. Three of the ten locations (FBS-09, FBS-10 and FBS-14) were above the GSI criterion for naphthalene of 730 µg/kg and two locations (FBS-09 and FBS-14) were above the GSI criterion for fluorene of 5,300 µg/kg.

The two additional samples (SS-21 and SS-22) collected within what appears to be a buried topsoil layer beneath the floor blocks at 4 fbg at two of the test pits were non-detect for PAHs with the exception of one detection at SS-22 of fluoranthene (400 µg/kg), which is below the MDEQ criteria.

RELEVANT PATHWAY ANALYSIS

RACER Trust will prepare and file a restrictive covenant (*i.e.*, deed restriction) for the entire Dort Highway Land property with Genesee County, Michigan to restrict access and the future use of the site to industrial and/or commercial use, and prohibit the utilization of groundwater at the site. In addition, RACER Trust will stabilize the entire site to address soil erosion and sedimentation issues associated with the site. The implementation of these measures will eliminate the GSI pathway associated with sediment run-off and the drinking water pathway associated with drinking groundwater at the site; therefore, these pathways are not further discussed in this section.

The August 2011 and September 2011 additional floor block area investigation analytical results presented in Table 2 indicate that PAH constituents in soils and/or wood floor blocks above the nonresidential drinking water protection and nonresidential direct contact criteria exist at the site, and especially within an approximate 2 acre area called the floor block area (Figure 1).

The floor blocks represent a dermal exposure risk because they exist at and just below the ground surface and exceed the direct contact criteria, and also have the potential to leach PAH constituents to surrounding soils (as evident by the analytical results for soils in contact with floor block samples, FBS-01 through FBS-05).

Likewise, three of the soil samples in contact with floor blocks (FBS-01, FBS-02 and FBS-04) and soil samples from four of the test pits (FSB-09, FBS-10, FBS-13 and FBS-14, and its duplicate sample, DUP-01/FBS-14) represent a dermal exposure risk because they exist at and just below the ground surface. However, the test pit soil samples (FBS-12 and FBS-07) collected adjacent to the soil samples in contact with floor blocks (FBS-02 and FBS-04, respectively) indicated that the bulk soils within the test pits in these areas did not represent a dermal contact exposure risk, and indicate that although the soils in (immediate) contact with floor blocks could represent a risk for dermal contact, the overall soils in these areas do not pose a dermal exposure risk. Therefore, only the subareas around the four test pits with bulk soil samples above the direct contact criteria appear to represent a dermal contact exposure risk.

The three subareas (*i.e.*, Subareas A through C) with bulk soil impacts above the direct contact criteria are outlined in a fine blue line on Figure 1. The northwestern subarea (Subarea A) that is oriented east to west includes the subarea represented by test pit soil samples FBS-09 and FBS-10 associated with test pits TP-11 and TP-13, respectively. Table 1 provides volume calculations for Subareas A through C, and Table 3 identifies the impacted areas at the site (Tables 1 and 3). The TP-11 and TP-13 subarea is Subarea A. The east-central subarea (Subarea B) that is oriented north to south includes the subarea represented by test pit soil samples FBS-13 and FBS-14 associated with TP-19 and TP-22, respectively (Tables 1 and 3).

The last subarea (Subarea C) is represented by the former B-3 area (Tables 1 and 3) investigated during the 2005 Phase II Environmental Site Assessment (ESA) and 2007 Delineation Investigation as discussed in the Site History and Current Conditions Report (O'Brien & Gere, 2011). B-3 or Subarea C was located centered on sample location SS2-24. This location was delineated for PAHs. The deep sample collected at 5 ft was above MDEQ nonresidential direct contact criteria for benzo(a)pyrene at a level of 20,400 µg/kg. The sample collected at 6 ft was non-detect completing the vertical delineation for Subarea C. The samples collected an additional 20 ft from this location were under the MDEQ nonresidential direct contact criteria and completed the delineation of PAHs in Subarea C. Subarea C is approximately 1,444 ft^2 in area with impacts above MDEQ nonresidential direct contact criteria to a depth of approximately 6 fbg at the time of the Phase II ESA and Delineation Investigation. However, it is assumed that only about 2.5 ft on average was removed from this subarea during the soil removal activities because of the presence of the historical buried water test trough for the tanks formerly produced at the plant near this subarea. Therefore, up to about 3.5 ft of additional soil removal may be required in Subarea C.

In conclusion, corrective measures are necessary for the floor blocks in the floor block area and the soils in Subareas A through C.

CORRECTIVE MEASURES ALTERNATIVES

The following provides O'Brien & Gere's evaluation of readily implementable corrective measure alternatives for the floor block area and B-3. Furthermore, it is understood that all alternatives include the stabilization of the soil at the site where soils exceed GSI criteria and the placement of a restrictive covenant on the entire site. The following follows the RCRA corrective measures report guidance for identification, screening, and development of corrective measure alternatives and the evaluation of corrective measure alternatives (OSWER, EC-G-2002-100, May 1994). Table 4 provides a listing of the site documents that form the basis for the site information and evaluation of corrective measures for the site, in addition to the information contained in this report.

An overview of the corrective measures alternatives for the impacted areas of the site are provided in Table 5, which provides a summary of the potential exposure pathways, the constituents considered for corrective measures, the potential corrective measures (or remedial options – with alternative number) and the proposed corrective measure for each impacted area.

Five corrective measures (or remedial) alternatives were identified and evaluated for the floor block area and B-3 area. Several additional technologies were eliminated from further evaluation based on a preliminary evaluation of potential corrective measures for the floor block area and B-3 area due to the time necessary to implement the technology (*i.e.*, short-term effectiveness), the implementability of the technology, and/or the costs potentially associated with the technology. Technologies such as bioremediation, thermal treatment (several technologies), and in-situ and ex-situ chemical oxidation were eliminated during the preliminary evaluation. A summary of the corrective measures alternatives evaluated include:

- **Alternative 1 – No Further Action:** As the title implies, no further corrective measures would be conducted under this alternative. However, the title also implies that actions have already been conducted at the site, which included the removal of an average of approximately 4 ft of soils from the site area during the soil stripping activities conducted by the former GM Corporation, which largely removed the impacts delineated during the Phase II ESA and Delineation Investigation
- **Alternative 2 – Cap Floor Block Area and B-3 Area:** Cap the entire 2 acre floor block area and the B-3 area (Figure 1) with six inches of soil. Soils may be provided by RACER Trust from a clean burrow location or by the contractor from a certified clean location, seed and mulch for dermal (direct contact) protection and surface water runoff protection, and to reduce the potential to leach to groundwater
- **Alternative 3 – Remove Soils and Floor Blocks in the Floor Block Area and B-3 Area:** Excavate, remove and dispose of soils and floor block from entire floor block area and B-3 area. The total volume of soils and floor blocks within the entire floor block area and B-3 area is estimated at about 4,600 yards^3 (Table 1)
- **Alternative 4 – Remove Floor Blocks in the Floor Block Area and Cap Impacted Soils:** Dig through soils and remove and dispose of only the floor block from the entire floor block area, and cap the areas with direct contact criteria exceedances. The volume of floor blocks is estimated at approximately 1,000 yards^3 (Table 1), and the area to be capped would include approximately a half acre
- **Alternative 5 – Remove Impacted Soils and Floor Blocks in the Floor Block Area and B-3 Area:** Dig through soils and remove and dispose of floor block from the entire floor block area, and soils from areas with bulk soils greater than the direct contact criteria (areas outlined in a fine blue line on Figure 1). The total volume of soils and floor blocks removed under Alternative 5 is estimated at approximately 2,000 yards^3 (Table 1)

CORRECTIVE MEASURES ALTERNATIVES ANALYSIS

Table 6 provides a summary of the evaluation of corrective measures alternatives for floor blocks and select soils in the floor block area and soils in the B-3 area. Each alternative is evaluated against the nine criteria specified in the RCRA guidance, and also against the additional criterion of the sustainability of the alternative (*i.e.*, green remediation). The evaluation criteria included:

- Protect Human Health and the Environment
- Attain Media Cleanup Standards Set by the Implementing Agency
- Control the Sources of Releases
- Comply with Any Applicable Standards for Management of Waste
- Long-Term Reliability and Effectiveness
- Reduction in the Toxicity, Mobility and Volume of Wastes

- Short-Term Effectiveness
- Implementability
- Cost
- Sustainability

RACER Trust and O'Brien & Gere recommend the implementation of Alternative 5 – Remove Impacted Soils and Floor Blocks in the Floor Block Area and B-3 Area, as the corrective measure for the floor block area and Subareas A through C based on the evaluation conducted and summarized in Table 6. The evaluation indicates that Alternative 5 is cost-effective and protective. This corrective measure alternative has been selected because it removes the source materials (*i.e.*, floor blocks) and impacted soils at the site, thereby eliminating direct contact exposure and the potential for leaching to groundwater and does not require long term maintenance of a cap over the area. We request your concurrence to implement this alternative.

In addition, the entire site will be stabilized from a sedimentation stand point, which will be implemented as soon as possible in conjunction with the implementation of corrective measure Alternative 5 to remediate (and close) the site. Furthermore, a land use (*i.e.*, deed) restriction (*i.e.*, institutional control measure) will be filed for the site with Genesee County to restrict the use of the site to industrial/commercial use and prohibit the use of groundwater at the site as an extra layer of protectiveness for the site.

Table 7 provides a summary of the proposed corrective measures for the site and the corrective measures endpoints for each proposed corrective measure for the site. Table 8 provides engineering cost estimates associated with the different corrective measure alternatives evaluated for the site. The costs associated with Alternative 5 fit within the Consent Decree and Settlement Agreement property-specific Minimum Settlement Funding for the site.

If you have any questions, please feel free to contact either David Favero with RACER Trust at (217) 741-6235 or me at (248) 477-5701 (ext. 16).

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Clifford Scott Yantz

Clifford S. Yantz
Technical Associate

Enclosures: Tables 1 through 8
Figure 1 – Test Pit Sampling Locations
Appendix A – Laboratory Analytical Summary Report

cc: Grant Trigger – RACER Trust
David Favero – RACER Trust
Kevin Schneider – O'Brien & Gere

Tables

Table 1
Volume and Area Calculations
Dort Highway Land
RACER Trust (Site # 1296)
Grand Blanc, Michigan

ENTIRE FLOOR BLOCK AREA

Area ID	Approximate Maximum Length (ft)	Approximate Maximum Width (ft)	Approximate Area from Figure 1 (sq. ft)	Approximate Area (acres)	Approximate Depth (ft)	Approximate Volume of Soil and Floor Block (ft^3)	Approximate Volume of Soil and Floor Block ($yards^3$)	Approximate Percentage of Floor Block Content	Approximate Volume of Only Floor Block ($yards^3$)
Subarea 1									
(TP-11, 13, 22, & 25 - 28)	340	90	20,500	0.47	2.0	41,000	1,519	35%	531
Subarea 2									
(TP-10 & 16)	140	50	6,250	0.14	1.5	9,375	347	60%	208
Subarea 3									
(TP-7, 8 & 9)	110	100	10,000	0.23	1.5	15,000	556	30%	167
Remainder of Area			53,250	1.22	1.0	53,250	1,972	5%	99
			Total:	**2.07**		**Total:**	**4,394**	**Total:**	**1,005**

POTENTIAL AREAS TO BE REMEDIATED FOR SOILS (plus removal of floor blocks)

Area ID	Approximate Maximum Length (ft)	Approximate Maximum Width (ft)	Approximate Area from Figure 1 (sq. ft)	Approximate Area (acres)	Approximate Depth (ft)	Approximate Volume of Soil and Floor Block (ft^3)	Approximate Volume of Soil and Floor Block ($yards^3$)	Approximate Percentage of Floor Block Content	Approximate Volume of Only Floor Block ($yards^3$)
Soil and Floor Block									
Subarea A									
(TP-11 and 13)	140	50	6,400	0.15	2.0	12,800	474	35%	166
Subarea B									
(TP-19 & 22)	160	60	9,500	0.22	1.75	16,625	616	25%	154
Subarea C									
(B-3)	40	40	1,440	0.03	3.5	5,040	187	NA	NA
			Total:	**0.40**		**Total:**	**1,276**	**Total:**	**320**
						Minus floor blocks already accounted for:	**320**		
						Total Volume of Soils to be Removed:	**957**		

Total Volume of Soils and Floor Blocks to be Removed: 1,962

Table 2
Summary of Soil and Floor Block Analytical Results
Dort Highway Land
Grand Blanc, Michigan

Parameter		MDEQ Criteria: Non-Residential Drinking Water Protection Criteria	MDEQ Criteria: Groundwater Surface Water Interface Protection Criteria	MDEQ Criteria: Non-Residential Direct Contact Criteria	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SS-07 CO-LOCATED	SS-08	SS-09	SS-10	SS-11	SS-12
Arsenic	mg/kg	4.6	4.6	37	--	--	2.07	2.56	--	--	2.5	2.19	3.64	2.19	1.76	2.87	1.41
Barium	mg/kg	1300	440 (G,X)	1.3E+05	--	--	41.5	55	--	--	37	30.2	42.9	54.4	36.4	42.1	57.8
Cadmium	mg/kg	6	3 (G,X)	2100	--	--	<0.20	<0.20	--	--	<0.20	0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Chromium	mg/kg	1.0E+6 (D)	1.0E+6 (G,X,D)	1.0E+6 (D)	--	--	3.82	2.96	--	--	7.45	3.27	6.85	3.31	3.5	2.51	3.57
Lead (Total)	mg/kg	700	2500 (G,X)	900 (DD)	--	--	9.79	6	--	--	35	12.6	5.19	6.81	6.48	5.36	4.82
Acenaphthene	µg/kg	8.8E+05	8700	1.3E+08	400	<300	--	--	<300	<300	<300	<300	<300	--	--	--	--
Acenaphthylene	µg/kg	17000	ID	5.2E+06	<300	<300	--	--	<300	<300	<300	<300	<300	--	--	--	--
Anthracene	µg/kg	41000	ID	7.3E+08	1,000	400	--	--	<300	<300	600	<300	<300	--	--	--	--
Benzo(a)anthracene	µg/kg	NLL	NLL	80000	3,100	1,500	--	--	<300	<300	2,000	1,000	<300	--	--	--	--
Benzo(a)pyrene	µg/kg	NLL	NLL	8000	3,800	1,800	--	--	<300	<300	3,200	1,400	<300	--	--	--	--
Benzo(b)fluoranthene	µg/kg	NLL	NLL	80000	6,900	3,300	--	--	300	400	5,100	2,300	<300	--	--	--	--
Benzo(k)fluoranthene	µg/kg	NLL	NLL	8.0E+05	7,100	3,200	--	--	<300	300	5,200	2,300	<300	--	--	--	--
Benzo(ghi)perylene	µg/kg	NLL	NLL	7.0E+06	1,700	1,000	--	--	<300	<300	1,600	900	<300	--	--	--	--
Chrysene	µg/kg	NLL	NLL	8.0E+06	3,500	1,700	--	--	<300	<300	2,500	1,300	<300	--	--	--	--
Dibenzo(ah)anthracene	µg/kg	NLL	NLL	8000	<300	<300	--	--	<300	<300	<300	<300	<300	--	--	--	--
Fluoranthene	µg/kg	7.30E+05	5500	1.3E+08	7,100	3,400	--	--	<300	<300	4,600	2,200	<300	--	--	--	--
Fluorene	µg/kg	8.9E+05	5300	8.7E+07	400	<300	--	--	<300	<300	300	<300	<300	--	--	--	--
Indeno(1,2,3-cd)pyrene	µg/kg	NLL	NLL	80000	1,700	1,000	--	--	<300	<300	1,600	900	<300	--	--	--	--
Naphthalene	µg/kg	1.00E+05	730	5.2E+07	<300	<300	--	--	<300	<300	<300	<300	<300	--	--	--	--
Phenanthrene	µg/kg	1.60E+05	2100	5.2E+06	4,200	1,800	--	--	<300	<300	2,600	1,100	<300	--	--	--	--
Pyrene	µg/kg	4.8E+05	ID	8.4E+07	6,000	2,800	--	--	<300	<300	3,800	1,700	<300	--	--	--	--
2-Methylnaphthalene	µg/kg	1.70E+05	4200	2.6E+07	<300	<300	--	--	<300	<300	<300	<300	<300	--	--	--	--
1-Methylnaphthalene	µg/kg	NC	NC	NC	<300	<300	--	--	<300	<300	<300	<300	<300	--	--	--	--

Exceeds GSI protection criteria only

Exceeds nonresidential drinking water protection criteria or both GSI and drinking water protection criteria

Exceeds nonresidential direct contact criteria

(D) Calculated criterion exceeds 100 percent

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source

(DD) Hazardous substances causes developmental effects

(NLL) Means hazardous substances is not likely to leach under most soil conditions

(ID) Means insufficient data to develop criterion

(NC) Means no criterion or value is available

-- Not analyzed

* Elevated reporting limit for PAHs due to high target concentration

Equipment blanks, field blanks, trip blank, methanol blank were non-detect; except field blank (FBK-01) which had a detection of 0.006 mg/L for barium

Table 2
Summary of Soil and Floor Block Analytical Results
Dort Highway Land
Grand Blanc, Michigan

Parameter		MDEQ Criteria: Non-Residential Drinking Water Protection Criteria	MDEQ Criteria: Groundwater Surface Water Interface Protection Criteria	MDEQ Criteria: Non-Residential Direct Contact Criteria	SS-13	SS-14	SS-14 CO-LOCATED	SS-15	SS-16	SS-16 DUP-01	SS-17	SS-18	SS-19	SS-20	SS-21	SS-22	SS-22 CO-LOCATED
Arsenic	mg/kg	4.6	4.6	37	1.78	0.65	0.74	1.35	1.8	1.92	--	--	--	--	--	--	--
Barium	mg/kg	1300	440 (G,X)	1.3E+05	44.1	93.5	66	63.6	53.2	44.4	--	--	--	--	--	--	--
Cadmium	mg/kg	6	3 (G,X)	2100	0.24	0.2	<0.20	<0.20	0.21	0.22	--	--	--	--	--	--	--
Chromium	mg/kg	1.0E+6 (D)	1.0E+6 (G,X,D)	1.0E+6 (D)	2.97	3.94	3.53	3.87	6.31	6.06	--	--	--	--	--	--	--
Lead (Total)	mg/kg	700	2500 (G,X)	900 (DD)	8.44	6.94	8.68	7.36	12.6	13	--	--	--	--	--	--	--
Acenaphthene	µg/kg	8.8E+05	8700	1.3E+08	<330	<330	<330	<330	<330	<330	400	<300	<300	<300	<300	<300	<300
Acenaphthylene	µg/kg	17000	ID	5.2E+06	<330	<330	<330	<330	<330	<330	<300	<300	<300	<300	<300	<300	<300
Anthracene	µg/kg	41000	ID	7.3E+08	<330	<330	<330	<330	<330	<330	2,400	<300	<300	<300	<300	<300	<300
Benzo(a)anthracene	µg/kg	NLL	NLL	80000	<330	<330	<330	<330	<330	<330	3,000	<300	<300	<300	<300	<300	<300
Benzo(a)pyrene	µg/kg	NLL	NLL	8000	<330	<330	<330	<330	<330	<330	2,700	<300	<300	<300	<300	<300	<300
Benzo(b)fluoranthene	µg/kg	NLL	NLL	80000	<330	<330	<330	<330	<330	<330	5,500	<300	<300	<300	<300	<300	<300
Benzo(k)fluoranthene	µg/kg	NLL	NLL	8.0E+05	<330	<330	<330	<330	<330	<330	5,500	<300	<300	<300	<300	<300	<300
Benzo(ghi)perylene	µg/kg	NLL	NLL	7.0E+06	<330	<330	<330	<330	<330	<330	900	<300	<300	<300	<300	<300	<300
Chrysene	µg/kg	NLL	NLL	8.0E+06	<330	<330	<330	<330	<330	<330	3,100	<300	<300	<300	<300	<300	<300
Dibenzo(ah)anthracene	µg/kg	NLL	NLL	8000	<330	<330	<330	<330	<330	<330	<300	<300	<300	<300	<300	<300	<300
Fluoranthene	µg/kg	7.30E+05	5500	1.3E+08	<330	<330	<330	<330	<330	<330	6,800	<300	<300	<300	<300	400	<300
Fluorene	µg/kg	8.9E+05	5300	8.7E+07	<330	<330	<330	<330	<330	<330	500	<300	<300	<300	<300	<300	<300
Indeno(1,2,3-cd)pyrene	µg/kg	NLL	NLL	80000	<330	<330	<330	<330	<330	<330	900	<300	<300	<300	<300	<300	<300
Naphthalene	µg/kg	1.00E+05	730	5.2E+07	<330	<330	<330	<330	<330	<330	<300	<300	<300	<300	<300	<300	<300
Phenanthrene	µg/kg	1.60E+05	2100	5.2E+06	<330	<330	<330	<330	<330	<330	5,700	<300	<300	<300	<300	<300	<300
Pyrene	µg/kg	4.8E+05	ID	8.4E+07	<330	<330	<330	<330	<330	<330	6,200	<300	<300	<300	<300	<300	<300
2-Methylnaphthalene	µg/kg	1.70E+05	4200	2.6E+07	<330	<330	<330	<330	<330	<330	<300	<300	<300	<300	<300	<300	<300
1-Methylnaphthalene	µg/kg	NC	NC	NC	<330	<330	<330	<330	<330	<330	<300	<300	<300	<300	<300	<300	<300

Exceeds GSI protection criteria only

Exceeds nonresidential drinking water protection criteria or both GSI and drinking water protection criteria

Exceeds nonresidential direct contact criteria

(D) Calculated criterion exceeds 100 percent

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source

(DD) Hazardous substances causes developmental effects

(NLL) Means hazardous substances is not likely to leach under most soil conditions

(ID) Means insufficient data to develop criterion

(NC) Means no criterion or value is available

-- Not analyzed

* Elevated reporting limit for PAHs due to high target concentration

Equipment blanks, field blanks, trip blank, methanol blank were non-detect; except field blank (FBK-01) which had a detection of 0.006 mg/L for barium

Table 2
Summary of Soil and Floor Block Analytical Results
Dort Highway Land
Grand Blanc, Michigan

Parameter		MDEQ Criteria: Non-Residential Drinking Water Protection Criteria	MDEQ Criteria: Groundwater Surface Water Interface Protection Criteria	MDEQ Criteria: Non-Residential Direct Contact Criteria	FB-01*	FBS-01*	FB-02*	FBS-02*	FB-03*	FB-03* CO-LOCATED	FBS-03	FB-04*	FB-04 DUP-02	FBS-04	FB-05*	FBS-05
Arsenic	mg/kg	4.6	4.6	37	2.43	1.94	1.54	1.29	1.91	2.12	2.55	1.14	1.21	2.51	1.38	2.44
Barium	mg/kg	1300	440 (G,X)	1.3E+05	6.91	69.6	10.1	30.6	23.1	75.5	58.8	8.56	9.82	62.6	22	54.9
Cadmium	mg/kg	6	3 (G,X)	2100	<0.20	<0.20	0.37	0.36	0.42	1	0.57	0.21	0.22	0.24	0.27	<0.20
Chromium	mg/kg	1.0E+6 (D)	1.0E+6 (G,X,D)	1.0E+6 (D)	1.12	4.45	2.49	5.56	7.23	27.5	11.2	1.57	2.33	5.68	3.63	5.53
Lead (Total)	mg/kg	700	2500 (G,X)	900 (DD)	4.77	8.5	10.7	20.4	27.4	69.8	36.7	10.1	10	12.4	22.5	11.5
Acenaphthene	µg/kg	8.8E+05	8700	1.3E+08	190,000	20,800	850,000	3,500	320,000	290,000	<300	850,000	390,000	1,600	540,000	500
Acenaphthylene	µg/kg	17000	ID	5.2E+06	27,000	<2,000	<80,000	<400	80,000	70,000	<300	400,000	110,000	<300	40,000	<300
Anthracene	µg/kg	41000	ID	7.3E+08	338,000	37,600	1,430,000	5,900	550,000	510,000	300	1,200,000	550,000	3,100	630,000	1,100
Benzo(a)anthracene	µg/kg	NLL	NLL	80000	405,000	88,200	2,150,000	16,500	910,000	840,000	2,000	1,850,000	800,000	9,700	890,000	3,800
Benzo(a)pyrene	µg/kg	NLL	NLL	8000	332,000	94,900	1,880,000	18,700	860,000	850,000	3,100	1,750,000	800,000	14,600	740,000	4,700
Benzo(b)fluoranthene	µg/kg	NLL	NLL	80000	680,000	175,800	3,530,000	33,400	1,580,000	1,540,000	6,200	2,890,000	1,390,000	24,400	1,450,000	7,800
Benzo(k)fluoranthene	µg/kg	NLL	NLL	8.0E+05	707,000	200,200	4,010,000	38,000	1,760,000	1,710,000	6,300	3,160,000	1,510,000	26,300	1,590,000	8,100
Benzo(ghi)perylene	µg/kg	NLL	NLL	7.0E+06	95,000	29,000	640,000	6,800	260,000	250,000	1,600	530,000	250,000	5,600	220,000	2,000
Chrysene	µg/kg	NLL	NLL	8.0E+06	474,000	88,200	2,450,000	18,600	1,000,000	930,000	3,200	1,800,000	820,000	10,900	990,000	4,200
Dibenzo(ah)anthracene	µg/kg	NLL	NLL	8000	<15,000	2,400	<80,000	400	30,000	20,000	<300	<80,000	<20,000	400	<40,000	<300
Fluoranthene	µg/kg	7.30E+05	5500	1.3E+08	1,233,000	272,200	6,770,000	44,700	2,640,000	2,530,000	4,400	5,390,000	2,530,000	24,700	2,880,000	8,700
Fluorene	µg/kg	8.9E+05	5300	8.7E+07	251,000	23,100	1,310,000	4,900	470,000	430,000	<300	1,090,000	460,000	1,900	820,000	800
Indeno(1,2,3-cd)pyrene	µg/kg	NLL	NLL	80000	99,000	31,400	700,000	7,500	290,000	280,000	1,700	580,000	280,000	6,100	240,000	2,100
Naphthalene	µg/kg	1.00E+05	730	5.2E+07	256,000	<2,000	<80,000	<400	220,000	140,000	<300	2,070,000	590,000	700	370,000	<300
Phenanthrene	µg/kg	1.60E+05	2100	5.2E+06	1,515,000	159,100	8,280,000	33,200	3,090,000	2,770,000	2,000	7,620,000	3,120,000	14,300	4,330,000	4,700
Pyrene	µg/kg	4.8E+05	ID	8.4E+07	970,000	214,300	4,630,000	33,500	2,000,000	1,930,000	3,600	4,320,000	1,920,000	19,600	1,930,000	6,200
2-Methylnaphthalene	µg/kg	1.70E+05	4200	2.6E+07	136,000	2,300	<80,000	500	170,000	110,000	<300	1,150,000	330,000	400	300,000	<300
1-Methylnaphthalene	µg/kg	NC	NC	NC	76,000	2,200	<80,000	400	120,000	90,000	<300	800,000	250,000	400	190,000	<300

Exceeds GSI protection criteria only
Exceeds nonresidential drinking water protection criteria or both GSI and drinking water protection criteria
Exceeds nonresidential direct contact criteria

(D) Calculated criterion exceeds 100 percent
(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water
(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source
(DD) Hazardous substances causes developmental effects
(NLL) Means hazardous substances is not likely to leach under most soil conditions
(ID) Means insufficient data to develop criterion
(NC) Means no criterion or value is available
-- Not analyzed
* Elevated reporting limit for PAHs due to high target concentration
Equipment blanks, field blanks, trip blank, methanol blank were non-detect; except field blank (FBK-01) which had a detection of 0.006 mg/L for barium

Table 2
Summary of Soil and Floor Block Analytical Results
Dort Highway Land
Grand Blanc, Michigan

Parameter		MDEQ Criteria: Non-Residential Drinking Water Protection Criteria	MDEQ Criteria: Groundwater Surface Water Interface Protection Criteria	MDEQ Criteria: Non-Residential Direct Contact Criteria	FBS-06	FBS-07	FBS-08	FBS-09	FBS-10	FBS-10 CO-LOCATED	FBS-11	FBS-12	FBS-13	FBS-14	FBS-14 (DUP-01)	FBS-15
Arsenic	mg/kg	4.6	4.6	37	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	1300	440 (G,X)	1.3E+05	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	6	3 (G,X)	2100	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	1.0E+6 (D)	1.0E+6 (G,X,D)	1.0E+6 (D)	--	--	--	--	--	--	--	--	--	--	--	--
Lead (Total)	mg/kg	700	2500 (G,X)	900 (DD)	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	µg/kg	8.8E+05	8700	1.3E+08	<300	300	500	4,400	2,300	300	600	2,100	1,900	8,300	1,700	700
Acenaphthylene	µg/kg	17000	ID	5.2E+06	<300	<300	<300	<600	<300	<300	<300	<300	<300	<300	<300	<300
Anthracene	µg/kg	41000	ID	7.3E+08	<300	500	900	6,100	3,500	500	900	2,400	3,600	17,500	3,200	1,100
Benzo(a)anthracene	µg/kg	NLL	NLL	80000	<300	1,200	2,100	18,500	8,900	1,400	2,100	5,100	8,400	38,400	8,700	2,600
Benzo(a)pyrene	µg/kg	NLL	NLL	8000	<300	1,400	2,300	22,500	10,000	1,600	2,400	5,700	10,000	39,200	10,000	3,200
Benzo(b)fluoranthene	µg/kg	NLL	NLL	80000	<300	2,300	3,700	37,600	17,200	2,700	4,000	9,400	15,700	66,200	16,800	5,200
Benzo(k)fluoranthene	µg/kg	NLL	NLL	8.0E+05	<300	2,300	3,700	41,000	18,500	2,600	4,000	9,900	16,800	72,300	18,100	5,200
Benzo(ghi)perylene	µg/kg	NLL	NLL	7.0E+06	<300	800	1,300	8,700	3,900	700	1,300	2,800	4,700	17,400	4,700	1,700
Chrysene	µg/kg	NLL	NLL	8.0E+06	<300	1,300	2,200	19,700	10,200	1,400	2,500	5,900	9,600	39,700	10,300	3,100
Dibenzo(ah)anthracene	µg/kg	NLL	NLL	8000	<300	<300	<300	800	<300	<300	<300	<300	400	1,400	<300	<300
Fluoranthene	µg/kg	7.30E+05	5500	1.3E+08	<300	3,300	5,900	47,300	25,100	3,300	6,000	14,700	21,100	116,300	23,800	6,800
Fluorene	µg/kg	8.9E+05	5300	8.7E+07	<300	400	700	5,700	2,400	400	700	2,100	2,200	8,000	1,600	1,000
Indeno(1,2,3-cd)pyrene	µg/kg	NLL	NLL	80000	<300	800	1,200	9,300	4,100	700	1,300	2,800	4,700	18,500	4,800	1,700
Naphthalene	µg/kg	1.00E+05	730	5.2E+07	<300	<300	<300	1,100	1,200	<300	<300	700	500	1,400	<300	400
Phenanthrene	µg/kg	1.60E+05	2100	5.2E+06	<300	2,500	4,400	31,300	18,000	2,100	4,500	12,800	14,800	83,000	16,000	4,600
Pyrene	µg/kg	4.8E+05	ID	8.4E+07	<300	2,400	4,200	32,700	18,000	2,400	4,200	10,500	15,800	81,100	16,800	5,000
2-Methylnaphthalene	µg/kg	1.70E+05	4200	2.6E+07	<300	<300	<300	<600	400	<300	<300	400	<300	1,400	<300	<300
1-Methylnaphthalene	µg/kg	NC	NC	NC	<300	<300	<300	900	400	<300	<300	<300	<300	1,100	<300	<300

Exceeds GSI protection criteria only

Exceeds nonresidential drinking water protection criteria or both GSI and drinking water protection criteria

Exceeds nonresidential direct contact criteria

(D) Calculated criterion exceeds 100 percent

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source

(DD) Hazardous substances causes developmental effects

(NLL) Means hazardous substances is not likely to leach under most soil conditions

(ID) Means insufficient data to develop criterion

(NC) Means no criterion or value is available

-- Not analyzed

* Elevated reporting limit for PAHs due to high target concentration

Equipment blanks, field blanks, trip blank, methanol blank were non-detect; except field blank (FBK-01) which had a detection of 0.006 mg/L for barium

Table 3. Impacted Areas, Corrective Measures Proposal, Dort Highway Land, Grand Blanc, Michigan

Name	Location	Description
Floor Block Area	Southern portion of Site	Approximate 2 acre area with shallow (< 2 ft) buried wood floor blocks that exhibit PAHs above MDEQ nonresidential drinking water protection and direct contact criteria
TP-11 and TP-13 Area (Subarea A)	Southern portion of Site	Approximate 0.15 acre area within the Floor Block Area with shallow (< 2 ft) soils that exhibit PAHs above MDEQ nonresidential direct contact criteria
TP-19 and TP-22 Area (Subarea B)	Southern portion of Site	Approximate 0.22 acre area within the Floor Block Area with shallow (< 2 ft) soils that exhibit PAHs above MDEQ nonresidential direct contact criteria
B-3 Area (Subarea C)	Southeastern corner of Site	Approximate 0.03 acre area where historical data indicated PAHs impacts in soils above the MDEQ nonresidential direct contact criteria to an estimated depth of 3.5 ft

O'BRIEN & GERE

Table 4. Summary of Documents Available for the Site, Dort Highway Land, Grand Blanc, Michigan

Date	Author	Report Title
10/1/2005	O'Brien & Gere	Phase I Environmental Site Assessment, MFD - Grand Blanc (Site #029)
5/1/2007	O'Brien & Gere	Phase II Environmental Site Assessment, MFD Area 2 - Grand Blanc (Site #029)
12/1/2007	O'Brien & Gere	Delineation Investigation, MFD Area 2 - Grand Blanc (Site #029)
4/1/2009	O'Brien & Gere	Additional Services - Area 2 Remediation MFD - Grand Blanc - Area 2
5/13/2010	O'Brien & Gere	Phase I Environmental Site Assessment, MLC Site #1296 - Dort Highway Land
8/29/2011	O'Brien & Gere	Site History and Current Conditions Report
8/29/2011	O'Brien & Gere	Health and Safety Plan
8/29/2011	O'Brien & Gere	Sampling and Analysis Plan
8/29/2011	O'Brien & Gere	Quality Control Document
9/28/2011	U.S. EPA	Letter: Dort Highway Facility, RACER Trust - Quality Control Document (QCD), August 2011
9/30/2011	RACER Trust	Letter: RACER Properties, LLC - Dort Highway Grand Blanc
10/28/2011	O'Brien & Gere	Letter: Responses to USEPA Comments on Quality Control Document (QCD), August 2011 - Dort Highway Grand Blanc, Michigan

Table 5. Overview of Corrective Measures Alternatives, Corrective Measures Proposal, Dort Highway Land, Grand Blanc, Michigan

Name & Description	Physical Location	Potentially Significant Exposures	Constituent(s) Considered for Corrective Measures	Description of Interim Measures	Potential Corrective Measures (Remedial Alternatives #)	Proposed Corrective Measure
Floor Block Area - Floor Blocks	Southern portion of Site	1. Direct Contact 2. Leaching to soil 3. Leaching to groundwater	Soil - PAHs Groundwater - PAHs	Not Applicable	1. No further action (Alternative 1) 2. Cap (Alternative 2) 3. Direct excavation and disposal (Alternatives 3, 4 & 5)	3. Direct excavation and disposal of floor blocks (Alternative 5)
Floor Block Area - Soils (Subareas A & B)	Southern portion of Site	1. Direct Contact	Soil - PAHs	Not Applicable	1. No further action (Alternative 1) 2. Cap (Alternative 2) 3. Direct excavation and disposal (Alternatives 3, 4 & 5)	3. Direct excavation and disposal of soils (Alternative 5)
B-3 Area - Soils (Subarea C)	Southeastern corner of Site	1. Direct Contact	Soil - PAHs	Not Applicable	1. No further action (Alternative 1) 2. Cap (Alternative 2) 3. Direct excavation and disposal (Alternatives 3, 4 & 5)	3. Direct excavation and disposal of soils (Alternative 5)

PAHs - Polynuclear Aromatic Hydrocarbons

Table 6. Evaluation of Corrective Measure Alternatives, Corrective Measures Proposal, Dort Highway Land, Grand Blanc, Michigan

	Corrective Measures Alternatives				
Evaluation Criteria	**Alternative 1 No Further Action**	**Alternative 2 Capping Floor Block Area and B-3 Area**	**Alternative 3 Remove Soils and Floor Blocks in the Floor Block Area and B-3 Area**	**Alternative 4 Remove Floor Blocks in the Floor Block Area and Cap Impacted Soils**	**Alternative 5 Remove Impacted Soils and Floor Blocks in the Floor Block Area and B-3 Area**
Protect Human Health and the Environment	Not effective in protecting human health and the environment unless soils already meet criteria, or pathway is not relevant due to site conditions.	Effective in protecting human health and the environment by providing barrier to exposure and limits leaching.	Effective in protecting human health and the environment by removing impacts.	Effective in protecting human health and the environment by providing barrier to exposure, limits leaching, and removal of floor block, which appears to be source of PAH impacts.	Effective in protecting human health and the environment by removing known impacts above direct contact criteria.
Attain Media Cleanup Standards (Corrective Measures End Points) Set by the Implementing Agency	Will not meet corrective measures end points unless soils already meet criteria, or pathway is not relevant due to site conditions.	Will not reduce PAH concentrations, but will attain corrective measures end points associated with limiting exposure and leaching.	Will reduce PAH concentrations, and will attain corrective measures end points.	Will reduce PAH concentrations, and will attain corrective measures end points associated with limiting exposure and leaching to groundwater.	Will reduce PAH concentrations, and will attain corrective measures end points.
Control the Sources of Releases	Does not control the sources of releases.	Controls the sources of releases via barrier and reducing leaching.	Controls the sources of releases via removal.	Controls the sources of releases via barrier, reducing leaching, and removal of source material.	Controls the sources of releases via removal.
Comply with Any Applicable Standards for Management of Waste	No waste would be generated from this corrective measure.	Does not produce waste requiring management in accordance with applicable standards.	Produces waste requiring appropriate management in accordance with applicable standards.	Produces waste requiring appropriate management in accordance with applicable standards.	Produces waste requiring appropriate management in accordance with applicable standards.
Long-Term Reliability and Effectiveness	Not reliable or effective in the long term unless soils already meet criteria, or pathway is not relevant due to site conditions..	Reliable and effective in the long term by limiting exposure and reducing leaching to groundwater.	Reliable and effective in the long term by eliminating exposure.	Reliable and effective in the long term by removing or limiting exposure and reducing leaching to groundwater.	Reliable and effective in the long term by eliminating exposure.
Reduction in the Toxicity, Mobility and Volume of Wastes	Does not reduce toxicity, mobility, or volume of PAHs.	Does not reduce toxicity or volume of PAHs, but may reduce the mobility of PAHs.	Reduce toxicity, mobility, and volume of PAHs.	Somewhat reduces toxicity and volume of PAHs, and may reduce the mobility of PAHs.	Reduce toxicity, mobility, and volume of PAHs.
Short-Term Effectiveness	Not effective in the short term unless soils already meet criteria, or pathway is not relevant due to site conditions..	Effectiveness achieved in a short-term time frame.	Effectiveness achieved in a short-term time frame.	Effectiveness achieved in a short-term time frame.	Effectiveness achieved in a short-term time frame.
Implementability	No action is easily implemented.	A cap is easily implemented in the short term.	Excavation is easily implemented in the short term.	Excavation and capping is easily implemented in the short term.	Excavation is easily implemented in the short term.
Cost	Low costs for implementation.	Moderately low costs for implementation.	High costs for implementation.	Moderate costs for implementation.	Moderate to moderately high costs for implementation.
Sustainability	No energy and water requirements, air emissions, additional impacts to land, material consumption and waste generation.	Limited energy requirements for capping activities. Limited water usage for equipment decontamination. Limited short term air emissions from heavy equipment usage and no additional impacts to land. Limited material consumption and waste generation.	Limited energy requirements for excavation activities. Limited water usage for equipment decontamination. Limited short term air emissions from heavy equipment usage and no additional impacts to land. Limited material consumption and waste generation.	Limited energy requirements for excavation activities. Limited water usage for equipment decontamination. Limited short term air emissions from heavy equipment usage and no additional impacts to land. Limited material consumption and waste generation.	Limited energy requirements for excavation activities. Limited water usage for equipment decontamination. Limited short term air emissions from heavy equipment usage and no additional impacts to land. Limited material consumption and waste generation.
Conclusion	**This technology was not included in the final corrective measures, except for remaining areas of the site, because more appropriate Alternatives are available.**	**Included in proposed final corrective measures.**	**Included in proposed final corrective measures.**	**Included in proposed final corrective measures.**	**Included in proposed final corrective measures.**

Table 7. Proposed Corrective Measures Endpoints Summary, Corrective Measures Proposal, Dort Highway Land, Grand Blanc, Michigan

Area	Media Requiring Corrective Measures	Proposed Corrective Measures	Corrective Measures End Point	Confirmation of Corrective Measures End Point
Floor Block Area & B-3 Area	Floor Block	Alternative 5 Remove Impacted Soils and Floor Blocks in the Floor Block Area and B-3 Area	Demonstrate through excavation, removal and visual verification that floor blocks have been removed.	Documentation of demonstration through excavation, removal and visual verification that floor blocks have been removed.
	Soil	Alternative 5 Remove Impacted Soils and Floor Blocks in the Floor Block Area and B-3 Area	Demonstrate that soil PAH concentrations are less than MDEQ nonresidential drinking water and direct contact criteria.	Documentation of Demonstration that soil PAH concentrations are less than MDEQ nonresidential drinking water and direct contact criteria via post-excavation confirmation sampling within Subareas A through C.

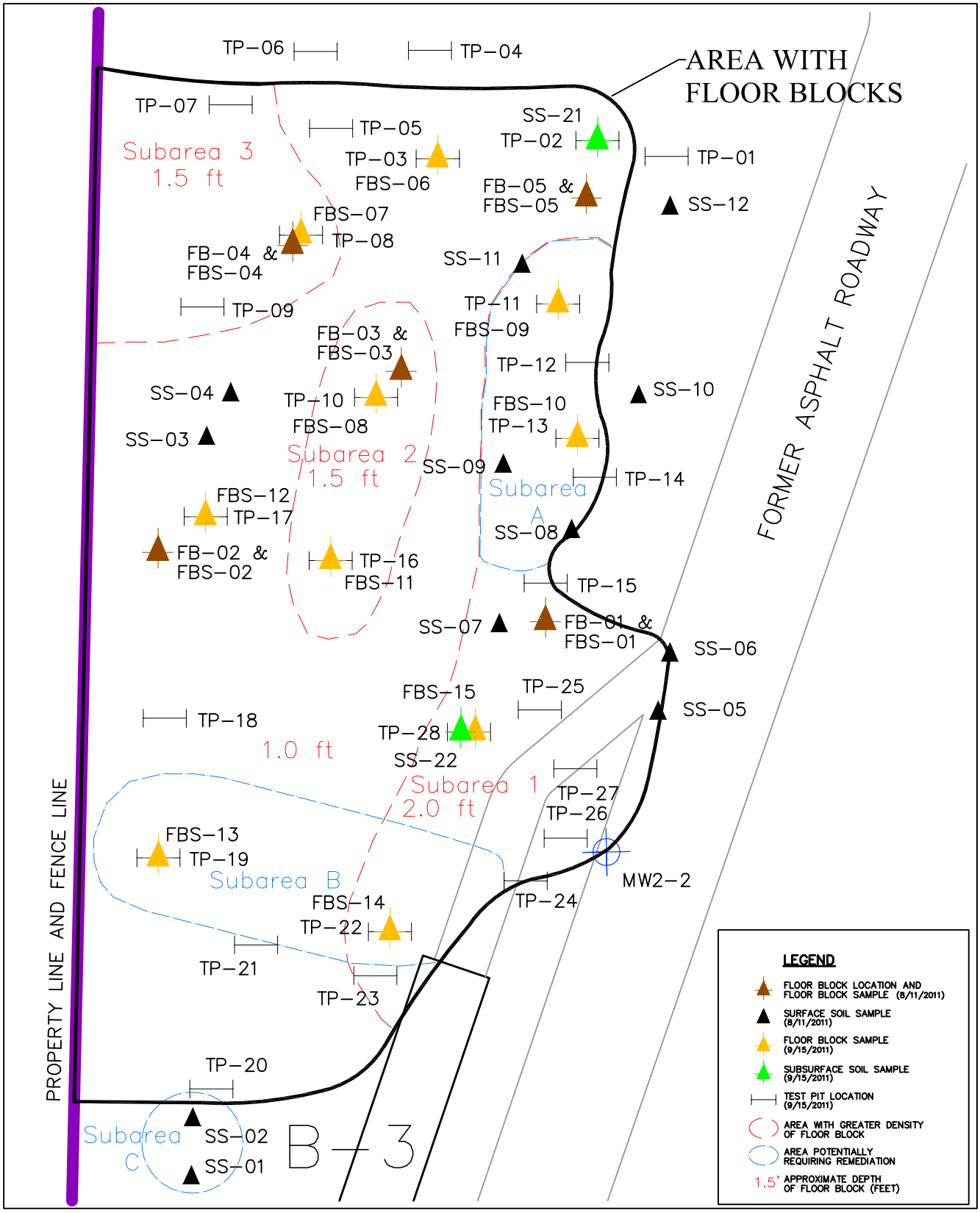
Table 8. Summary of Costs, Corrective Measure Alternatives, Corrective Measures Proposal, Dort Highway Land, Grand Blanc, Michigan

Remedial Alternative	Soil Excavation & Construction Management	Off-Site Disposal	Pre-and Post-Excavation Soil Sampling & Analysis	Operation and Maintenance - Annual	Duration of Operation and Maintenance (years)	Design and Construction (i.e., no O&M Cost)	Operation and Maintenance	Order of Magnitude Total Cost
Alternative 1 No Further Action	$0	$0	$0	$0	0	$0	$0	$0
Alternative 2 Capping Floor Block Area and B-3 Area	$11,700	$67,275	$0	$3,364	30	$78,975	$100,913	$179,888
Alternative 3 Remove Soils and Floor Blocks in the Floor Block Area and B-3 Area	$28,980	$333,270	$6,500	$0	0	$368,750	$0	$368,750
Alternative 4 Remove Floor Blocks in the Floor Block Area	$22,482	$172,362	$0	$1,044	30	$194,844	$31,320	$226,164
Alternative 5 Remove Impacted Soils and Floor Blocks in the Floor Block Area and B-3 Area	$24,960	$220,800	$6,500	$0	0	$252,260	$0	$252,260

Notes:
Duration of operation and maintenance period has been assumed for 30 years for estimating purposes.
A cost savings of about $6,000 could be achieved if capping soils are provided by RACER Trust for Alternative 2.
Operation and Maintenance - Annual costs are assumed to be five percent of the capping costs.

Figures

FIGURE 1



RACER TRUST
DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN

FLOOR BLOCK INVESTIGATION

15388.47852-001
OCTOBER 2011

60 0 60
1"=60'

O'BRIEN & GERE

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PLOT DATE: 8/27/2011 jmo

Appendix A

Analytical Laboratory Report

Report ID: S50083.01(01)
Generated on 09/23/2011

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
37000 Grand River Ave.
Suite 260
Farmington, MI 48335

Phone: 248-477-5701 FAX:
Email: YantzCS@obg.com/SecresME@obg.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S50083.01-S50083.18
Project: Dort Hwy Land
Collected Date: 09/15/2011
Submitted Date/Time: 09/16/2011 13:00
Sampled by: Kevin Schneider
P.O. #: MTL1296

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.

Laboratory Certifications:
Michigan DNRE (#9956), Ohio EPA (#CL0002), NELAC NY (#11814), NELAC FL (#E871045), WBENC (#2005110032)
Some analytes reported may not be certified. Full certification lists are available upon request.

Violetta F. Murshak
Laboratory Director

Sample Summary (18 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S50083.01	SS-21	Soil	09/15/2011 11:00
S50083.02	FBS-06	Soil	09/15/2011 11:15
S50083.03	FBS-07	Soil	09/15/2011 12:05
S50083.04	FBS-08	Soil	09/15/2011 12:30
S50083.05	FBS-09	Soil	09/15/2011 14:00
S50083.06	FBS-09 MS	Soil	09/15/2011 14:00
S50083.07	FBS-09 MSD	Soil	09/15/2011 14:00
S50083.08	FBS-10	Soil	09/15/2011 14:15
S50083.09	FBS-10 Co-Located	Soil	09/15/2011 14:15
S50083.10	FBS-11	Soil	09/15/2011 14:35
S50083.11	FBS-12	Soil	09/15/2011 15:00
S50083.12	FBS-13	Soil	09/15/2011 15:20
S50083.13	FBS-14	Soil	09/15/2011 15:40
S50083.14	Dup-01	Soil	09/15/2011 00:01
S50083.15	FBS-15	Soil	09/15/2011 16:25
S50083.16	SS-22	Soil	09/15/2011 16:35
S50083.17	SS-22 Co-Located	Soil	09/15/2011 16:35
S50083.18	FBK-01	Water	09/15/2011 16:45

Analytical Laboratory Report

Lab Sample ID: S50083.01
Sample Tag: SS-21
Collected Date/Time: 09/15/2011 11:00
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	84	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	53-70-3	
Fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 15:53	PL	90-12-0	

Analytical Laboratory Report

Lab Sample ID: S50083.02
Sample Tag: FBS-06
Collected Date/Time: 09/15/2011 11:15
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	87	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	53-70-3	
Fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 16:12	PL	90-12-0	

Analytical Laboratory Report

Lab Sample ID: S50083.03
Sample Tag: FBS-07
Collected Date/Time: 09/15/2011 12:05
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	90	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	300	ug/kg	300	8270C	09/21/11 17:09	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 17:09	PL	208-96-8	
Anthracene	500	ug/kg	300	8270C	09/21/11 17:09	PL	120-12-7	
Benzo(a)anthracene	1,200	ug/kg	300	8270C	09/21/11 17:09	PL	56-55-3	
Benzo(a)pyrene	1,400	ug/kg	300	8270C	09/21/11 17:09	PL	50-32-8	
Benzo(b)fluoranthene	2,300	ug/kg	300	8270C	09/21/11 17:09	PL	205-99-2	p
Benzo(k)fluoranthene	2,300	ug/kg	300	8270C	09/21/11 17:09	PL	207-08-9	p
Benzo(ghi)perylene	800	ug/kg	300	8270C	09/21/11 17:09	PL	191-24-2	
Chrysene	1,300	ug/kg	300	8270C	09/21/11 17:09	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 17:09	PL	53-70-3	
Fluoranthene	3,300	ug/kg	300	8270C	09/21/11 17:09	PL	206-44-0	
Fluorene	400	ug/kg	300	8270C	09/21/11 17:09	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	800	ug/kg	300	8270C	09/21/11 17:09	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:09	PL	91-20-3	
Phenanthrene	2,500	ug/kg	300	8270C	09/21/11 17:09	PL	85-01-8	
Pyrene	2,400	ug/kg	300	8270C	09/21/11 17:09	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:09	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:09	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.04
Sample Tag: FBS-08
Collected Date/Time: 09/15/2011 12:30
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	87	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	500	ug/kg	300	8270C	09/21/11 17:28	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 17:28	PL	208-96-8	
Anthracene	900	ug/kg	300	8270C	09/21/11 17:28	PL	120-12-7	
Benzo(a)anthracene	2,100	ug/kg	300	8270C	09/21/11 17:28	PL	56-55-3	
Benzo(a)pyrene	2,300	ug/kg	300	8270C	09/21/11 17:28	PL	50-32-8	
Benzo(b)fluoranthene	3,700	ug/kg	300	8270C	09/21/11 17:28	PL	205-99-2	p
Benzo(k)fluoranthene	3,700	ug/kg	300	8270C	09/21/11 17:28	PL	207-08-9	p
Benzo(ghi)perylene	1,300	ug/kg	300	8270C	09/21/11 17:28	PL	191-24-2	
Chrysene	2,200	ug/kg	300	8270C	09/21/11 17:28	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 17:28	PL	53-70-3	
Fluoranthene	5,900	ug/kg	300	8270C	09/21/11 17:28	PL	206-44-0	
Fluorene	700	ug/kg	300	8270C	09/21/11 17:28	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	1,200	ug/kg	300	8270C	09/21/11 17:28	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:28	PL	91-20-3	
Phenanthrene	4,400	ug/kg	300	8270C	09/21/11 17:28	PL	85-01-8	
Pyrene	4,200	ug/kg	300	8270C	09/21/11 17:28	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:28	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:28	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.05
Sample Tag: FBS-09
Collected Date/Time: 09/15/2011 14:00
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	88	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	4,400	ug/kg	600	8270C	09/21/11 20:00	PL	83-32-9	X
Acenaphthylene	Not detected	ug/kg	600	8270C	09/21/11 20:00	PL	208-96-8	X
Anthracene	6,100	ug/kg	600	8270C	09/21/11 20:00	PL	120-12-7	X
Benzo(a)anthracene	18,500	ug/kg	600	8270C	09/21/11 20:00	PL	56-55-3	X
Benzo(a)pyrene	22,500	ug/kg	600	8270C	09/21/11 20:00	PL	50-32-8	X
Benzo(b)fluoranthene	37,600	ug/kg	600	8270C	09/21/11 20:00	PL	205-99-2	pX
Benzo(k)fluoranthene	41,000	ug/kg	600	8270C	09/21/11 20:00	PL	207-08-9	pX
Benzo(ghi)perylene	8,700	ug/kg	600	8270C	09/21/11 20:00	PL	191-24-2	X
Chrysene	19,700	ug/kg	600	8270C	09/21/11 20:00	PL	218-01-9	X
Dibenzo(ah)anthracene	800	ug/kg	600	8270C	09/21/11 20:00	PL	53-70-3	X
Fluoranthene	47,300	ug/kg	600	8270C	09/21/11 20:00	PL	206-44-0	X
Fluorene	5,700	ug/kg	600	8270C	09/21/11 20:00	PL	86-73-7	X
Indeno(1,2,3-cd)pyrene	9,300	ug/kg	600	8270C	09/21/11 20:00	PL	193-39-5	X
Naphthalene	1,100	ug/kg	600	8270C	09/21/11 20:00	PL	91-20-3	X
Phenanthrene	31,300	ug/kg	600	8270C	09/21/11 20:00	PL	85-01-8	X
Pyrene	32,700	ug/kg	600	8270C	09/21/11 20:00	PL	129-00-0	X
2-Methylnaphthalene	Not detected	ug/kg	600	8270C	09/21/11 20:00	PL	91-57-6	X
1-Methylnaphthalene	900	ug/kg	600	8270C	09/21/11 20:00	PL	90-12-0	X

X-Elevated reporting limit due to matrix interference
p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.06
Sample Tag: FBS-09 MS
Collected Date/Time: 09/15/2011 14:00
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	88	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	14,400	ug/kg	600	8270C	09/21/11 20:19	PL	83-32-9	X1
Acenaphthylene	2,000	ug/kg	600	8270C	09/21/11 20:19	PL	208-96-8	X1
Anthracene	19,100	ug/kg	600	8270C	09/21/11 20:19	PL	120-12-7	X1
Benzo(a)anthracene	41,200	ug/kg	600	8270C	09/21/11 20:19	PL	56-55-3	X1
Benzo(a)pyrene	44,500	ug/kg	600	8270C	09/21/11 20:19	PL	50-32-8	X1
Benzo(b)fluoranthene	75,800	ug/kg	600	8270C	09/21/11 20:19	PL	205-99-2	pX1
Benzo(k)fluoranthene	97,300	ug/kg	600	8270C	09/21/11 20:19	PL	207-08-9	pX1
Benzo(ghi)perylene	15,400	ug/kg	600	8270C	09/21/11 20:19	PL	191-24-2	X1
Chrysene	45,800	ug/kg	600	8270C	09/21/11 20:19	PL	218-01-9	X1
Dibenzo(ah)anthracene	1,200	ug/kg	600	8270C	09/21/11 20:19	PL	53-70-3	X1
Fluoranthene	123,100	ug/kg	600	8270C	09/21/11 20:19	PL	206-44-0	X1
Fluorene	15,200	ug/kg	600	8270C	09/21/11 20:19	PL	86-73-7	X1
Indeno(1,2,3-cd)pyrene	17,000	ug/kg	600	8270C	09/21/11 20:19	PL	193-39-5	X1
Naphthalene	8,500	ug/kg	600	8270C	09/21/11 20:19	PL	91-20-3	X1
Phenanthrene	91,600	ug/kg	600	8270C	09/21/11 20:19	PL	85-01-8	X1
Pyrene	82,600	ug/kg	600	8270C	09/21/11 20:19	PL	129-00-0	X1
2-Methylnaphthalene	3,400	ug/kg	600	8270C	09/21/11 20:19	PL	91-57-6	X1
1-Methylnaphthalene	3,400	ug/kg	600	8270C	09/21/11 20:19	PL	90-12-0	X1

X-Elevated reporting limit due to matrix interference 1-Dry Weight Spike: 1.9 mg/kg
p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.07
Sample Tag: FBS-09 MSD
Collected Date/Time: 09/15/2011 14:00
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	88	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	6,100	ug/kg	600	8270C	09/21/11 20:38	PL	83-32-9	X1
Acenaphthylene	1,900	ug/kg	600	8270C	09/21/11 20:38	PL	208-96-8	X1
Anthracene	7,500	ug/kg	600	8270C	09/21/11 20:38	PL	120-12-7	X1
Benzo(a)anthracene	19,100	ug/kg	600	8270C	09/21/11 20:38	PL	56-55-3	X1
Benzo(a)pyrene	22,400	ug/kg	600	8270C	09/21/11 20:38	PL	50-32-8	X1
Benzo(b)fluoranthene	38,700	ug/kg	600	8270C	09/21/11 20:38	PL	205-99-2	pX1
Benzo(k)fluoranthene	42,100	ug/kg	600	8270C	09/21/11 20:38	PL	207-08-9	pX1
Benzo(ghi)perylene	8,500	ug/kg	600	8270C	09/21/11 20:38	PL	191-24-2	X1
Chrysene	19,600	ug/kg	600	8270C	09/21/11 20:38	PL	218-01-9	X1
Dibenzo(ah)anthracene	600	ug/kg	600	8270C	09/21/11 20:38	PL	53-70-3	X1
Fluoranthene	49,500	ug/kg	600	8270C	09/21/11 20:38	PL	206-44-0	X1
Fluorene	7,800	ug/kg	600	8270C	09/21/11 20:38	PL	86-73-7	X1
Indeno(1,2,3-cd)pyrene	9,300	ug/kg	600	8270C	09/21/11 20:38	PL	193-39-5	X1
Naphthalene	2,800	ug/kg	600	8270C	09/21/11 20:38	PL	91-20-3	X1
Phenanthrene	35,600	ug/kg	600	8270C	09/21/11 20:38	PL	85-01-8	X1
Pyrene	34,600	ug/kg	600	8270C	09/21/11 20:38	PL	129-00-0	X1
2-Methylnaphthalene	2,100	ug/kg	600	8270C	09/21/11 20:38	PL	91-57-6	X1
1-Methylnaphthalene	2,300	ug/kg	600	8270C	09/21/11 20:38	PL	90-12-0	X1

X-Elevated reporting limit due to matrix interference 1-Dry Weight Spike: 1.9 mg/kg
p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.08
Sample Tag: FBS-10
Collected Date/Time: 09/15/2011 14:15
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	2,300	ug/kg	300	8270C	09/21/11 19:41	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 19:41	PL	208-96-8	
Anthracene	3,500	ug/kg	300	8270C	09/21/11 19:41	PL	120-12-7	
Benzo(a)anthracene	8,900	ug/kg	300	8270C	09/21/11 19:41	PL	56-55-3	
Benzo(a)pyrene	10,000	ug/kg	300	8270C	09/21/11 19:41	PL	50-32-8	
Benzo(b)fluoranthene	17,200	ug/kg	300	8270C	09/21/11 19:41	PL	205-99-2	p
Benzo(k)fluoranthene	18,500	ug/kg	300	8270C	09/21/11 19:41	PL	207-08-9	p
Benzo(ghi)perylene	3,900	ug/kg	300	8270C	09/21/11 19:41	PL	191-24-2	
Chrysene	10,200	ug/kg	300	8270C	09/21/11 19:41	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 19:41	PL	53-70-3	
Fluoranthene	25,100	ug/kg	300	8270C	09/21/11 19:41	PL	206-44-0	
Fluorene	2,400	ug/kg	300	8270C	09/21/11 19:41	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	4,100	ug/kg	300	8270C	09/21/11 19:41	PL	193-39-5	
Naphthalene	1,200	ug/kg	300	8270C	09/21/11 19:41	PL	91-20-3	
Phenanthrene	18,000	ug/kg	300	8270C	09/21/11 19:41	PL	85-01-8	
Pyrene	18,000	ug/kg	300	8270C	09/21/11 19:41	PL	129-00-0	
2-Methylnaphthalene	400	ug/kg	300	8270C	09/21/11 19:41	PL	91-57-6	
1-Methylnaphthalene	400	ug/kg	300	8270C	09/21/11 19:41	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.09
Sample Tag: FBS-10 Co-Located
Collected Date/Time: 09/15/2011 14:15
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	300	ug/kg	300	8270C	09/21/11 19:22	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 19:22	PL	208-96-8	
Anthracene	500	ug/kg	300	8270C	09/21/11 19:22	PL	120-12-7	
Benzo(a)anthracene	1,400	ug/kg	300	8270C	09/21/11 19:22	PL	56-55-3	
Benzo(a)pyrene	1,600	ug/kg	300	8270C	09/21/11 19:22	PL	50-32-8	
Benzo(b)fluoranthene	2,700	ug/kg	300	8270C	09/21/11 19:22	PL	205-99-2	p
Benzo(k)fluoranthene	2,600	ug/kg	300	8270C	09/21/11 19:22	PL	207-08-9	p
Benzo(ghi)perylene	700	ug/kg	300	8270C	09/21/11 19:22	PL	191-24-2	
Chrysene	1,400	ug/kg	300	8270C	09/21/11 19:22	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 19:22	PL	53-70-3	
Fluoranthene	3,300	ug/kg	300	8270C	09/21/11 19:22	PL	206-44-0	
Fluorene	400	ug/kg	300	8270C	09/21/11 19:22	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	700	ug/kg	300	8270C	09/21/11 19:22	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 19:22	PL	91-20-3	
Phenanthrene	2,100	ug/kg	300	8270C	09/21/11 19:22	PL	85-01-8	
Pyrene	2,400	ug/kg	300	8270C	09/21/11 19:22	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 19:22	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 19:22	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.10
Sample Tag: FBS-11
Collected Date/Time: 09/15/2011 14:35
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	90	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	600	ug/kg	300	8270C	09/21/11 17:47	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 17:47	PL	208-96-8	
Anthracene	900	ug/kg	300	8270C	09/21/11 17:47	PL	120-12-7	
Benzo(a)anthracene	2,100	ug/kg	300	8270C	09/21/11 17:47	PL	56-55-3	
Benzo(a)pyrene	2,400	ug/kg	300	8270C	09/21/11 17:47	PL	50-32-8	
Benzo(b)fluoranthene	4,000	ug/kg	300	8270C	09/21/11 17:47	PL	205-99-2	p
Benzo(k)fluoranthene	4,000	ug/kg	300	8270C	09/21/11 17:47	PL	207-08-9	p
Benzo(ghi)perylene	1,300	ug/kg	300	8270C	09/21/11 17:47	PL	191-24-2	
Chrysene	2,500	ug/kg	300	8270C	09/21/11 17:47	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 17:47	PL	53-70-3	
Fluoranthene	6,000	ug/kg	300	8270C	09/21/11 17:47	PL	206-44-0	
Fluorene	700	ug/kg	300	8270C	09/21/11 17:47	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	1,300	ug/kg	300	8270C	09/21/11 17:47	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:47	PL	91-20-3	
Phenanthrene	4,500	ug/kg	300	8270C	09/21/11 17:47	PL	85-01-8	
Pyrene	4,200	ug/kg	300	8270C	09/21/11 17:47	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:47	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 17:47	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.11
Sample Tag: FBS-12
Collected Date/Time: 09/15/2011 15:00
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	90	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	2,100	ug/kg	300	8270C	09/21/11 18:25	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 18:25	PL	208-96-8	
Anthracene	2,400	ug/kg	300	8270C	09/21/11 18:25	PL	120-12-7	
Benzo(a)anthracene	5,100	ug/kg	300	8270C	09/21/11 18:25	PL	56-55-3	
Benzo(a)pyrene	5,700	ug/kg	300	8270C	09/21/11 18:25	PL	50-32-8	
Benzo(b)fluoranthene	9,400	ug/kg	300	8270C	09/21/11 18:25	PL	205-99-2	p
Benzo(k)fluoranthene	9,900	ug/kg	300	8270C	09/21/11 18:25	PL	207-08-9	p
Benzo(ghi)perylene	2,800	ug/kg	300	8270C	09/21/11 18:25	PL	191-24-2	
Chrysene	5,900	ug/kg	300	8270C	09/21/11 18:25	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 18:25	PL	53-70-3	
Fluoranthene	14,700	ug/kg	300	8270C	09/21/11 18:25	PL	206-44-0	
Fluorene	2,100	ug/kg	300	8270C	09/21/11 18:25	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	2,800	ug/kg	300	8270C	09/21/11 18:25	PL	193-39-5	
Naphthalene	700	ug/kg	300	8270C	09/21/11 18:25	PL	91-20-3	
Phenanthrene	12,800	ug/kg	300	8270C	09/21/11 18:25	PL	85-01-8	
Pyrene	10,500	ug/kg	300	8270C	09/21/11 18:25	PL	129-00-0	
2-Methylnaphthalene	400	ug/kg	300	8270C	09/21/11 18:25	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 18:25	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.12
Sample Tag: FBS-13
Collected Date/Time: 09/15/2011 15:20
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	90	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	1,900	ug/kg	300	8270C	09/21/11 18:44	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 18:44	PL	208-96-8	
Anthracene	3,600	ug/kg	300	8270C	09/21/11 18:44	PL	120-12-7	
Benzo(a)anthracene	8,400	ug/kg	300	8270C	09/21/11 18:44	PL	56-55-3	
Benzo(a)pyrene	10,000	ug/kg	300	8270C	09/21/11 18:44	PL	50-32-8	
Benzo(b)fluoranthene	15,700	ug/kg	300	8270C	09/21/11 18:44	PL	205-99-2	p
Benzo(k)fluoranthene	16,800	ug/kg	300	8270C	09/21/11 18:44	PL	207-08-9	p
Benzo(ghi)perylene	4,700	ug/kg	300	8270C	09/21/11 18:44	PL	191-24-2	
Chrysene	9,600	ug/kg	300	8270C	09/21/11 18:44	PL	218-01-9	
Dibenzo(ah)anthracene	400	ug/kg	300	8270C	09/21/11 18:44	PL	53-70-3	
Fluoranthene	21,100	ug/kg	300	8270C	09/21/11 18:44	PL	206-44-0	
Fluorene	2,200	ug/kg	300	8270C	09/21/11 18:44	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	4,700	ug/kg	300	8270C	09/21/11 18:44	PL	193-39-5	
Naphthalene	500	ug/kg	300	8270C	09/21/11 18:44	PL	91-20-3	
Phenanthrene	14,800	ug/kg	300	8270C	09/21/11 18:44	PL	85-01-8	
Pyrene	15,800	ug/kg	300	8270C	09/21/11 18:44	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 18:44	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 18:44	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.13
Sample Tag: FBS-14
Collected Date/Time: 09/15/2011 15:40
Matrix: Soil
COC Reference: 57845

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	89	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	8,300	ug/kg	900	8270C	09/22/11 23:11	PL	83-32-9	XY
Acenaphthylene	Not detected	ug/kg	900	8270C	09/22/11 23:11	PL	208-96-8	XY
Anthracene	17,500	ug/kg	900	8270C	09/22/11 23:11	PL	120-12-7	XY
Benzo(a)anthracene	38,400	ug/kg	900	8270C	09/22/11 23:11	PL	56-55-3	XY
Benzo(a)pyrene	39,200	ug/kg	900	8270C	09/22/11 23:11	PL	50-32-8	XY
Benzo(b)fluoranthene	66,200	ug/kg	900	8270C	09/22/11 23:11	PL	205-99-2	XYp
Benzo(k)fluoranthene	72,300	ug/kg	900	8270C	09/22/11 23:11	PL	207-08-9	XYp
Benzo(ghi)perylene	17,400	ug/kg	900	8270C	09/22/11 23:11	PL	191-24-2	XY
Chrysene	39,700	ug/kg	900	8270C	09/22/11 23:11	PL	218-01-9	XY
Dibenzo(ah)anthracene	1,400	ug/kg	900	8270C	09/22/11 23:11	PL	53-70-3	XY
Fluoranthene	116,300	ug/kg	900	8270C	09/22/11 23:11	PL	206-44-0	XY
Fluorene	8,000	ug/kg	900	8270C	09/22/11 23:11	PL	86-73-7	XY
Indeno(1,2,3-cd)pyrene	18,500	ug/kg	900	8270C	09/22/11 23:11	PL	193-39-5	XY
Naphthalene	1,400	ug/kg	900	8270C	09/22/11 23:11	PL	91-20-3	XY
Phenanthrene	83,000	ug/kg	900	8270C	09/22/11 23:11	PL	85-01-8	XY
Pyrene	81,100	ug/kg	900	8270C	09/22/11 23:11	PL	129-00-0	XY
2-Methylnaphthalene	1,400	ug/kg	900	8270C	09/22/11 23:11	PL	91-57-6	XY
1-Methylnaphthalene	1,100	ug/kg	900	8270C	09/22/11 23:11	PL	90-12-0	XY

X-Elevated reporting limit due to matrix interference Y-Elevated reporting limit due to high target concentration
p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.14
Sample Tag: Dup-01
Collected Date/Time: 09/15/2011 00:01
Matrix: Soil
COC Reference: 61411

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	91	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	1,700	ug/kg	300	8270C	09/21/11 19:03	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 19:03	PL	208-96-8	
Anthracene	3,200	ug/kg	300	8270C	09/21/11 19:03	PL	120-12-7	
Benzo(a)anthracene	8,700	ug/kg	300	8270C	09/21/11 19:03	PL	56-55-3	
Benzo(a)pyrene	10,000	ug/kg	300	8270C	09/21/11 19:03	PL	50-32-8	
Benzo(b)fluoranthene	16,800	ug/kg	300	8270C	09/21/11 19:03	PL	205-99-2	p
Benzo(k)fluoranthene	18,100	ug/kg	300	8270C	09/21/11 19:03	PL	207-08-9	p
Benzo(ghi)perylene	4,700	ug/kg	300	8270C	09/21/11 19:03	PL	191-24-2	
Chrysene	10,300	ug/kg	300	8270C	09/21/11 19:03	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 19:03	PL	53-70-3	
Fluoranthene	23,800	ug/kg	300	8270C	09/21/11 19:03	PL	206-44-0	
Fluorene	1,600	ug/kg	300	8270C	09/21/11 19:03	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	4,800	ug/kg	300	8270C	09/21/11 19:03	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 19:03	PL	91-20-3	
Phenanthrene	16,000	ug/kg	300	8270C	09/21/11 19:03	PL	85-01-8	
Pyrene	16,800	ug/kg	300	8270C	09/21/11 19:03	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 19:03	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 19:03	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.15
Sample Tag: FBS-15
Collected Date/Time: 09/15/2011 16:25
Matrix: Soil
COC Reference: 61411

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	87	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	700	ug/kg	300	8270C	09/21/11 18:06	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 18:06	PL	208-96-8	
Anthracene	1,100	ug/kg	300	8270C	09/21/11 18:06	PL	120-12-7	
Benzo(a)anthracene	2,600	ug/kg	300	8270C	09/21/11 18:06	PL	56-55-3	
Benzo(a)pyrene	3,200	ug/kg	300	8270C	09/21/11 18:06	PL	50-32-8	
Benzo(b)fluoranthene	5,200	ug/kg	300	8270C	09/21/11 18:06	PL	205-99-2	p
Benzo(k)fluoranthene	5,200	ug/kg	300	8270C	09/21/11 18:06	PL	207-08-9	p
Benzo(ghi)perylene	1,700	ug/kg	300	8270C	09/21/11 18:06	PL	191-24-2	
Chrysene	3,100	ug/kg	300	8270C	09/21/11 18:06	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 18:06	PL	53-70-3	
Fluoranthene	6,800	ug/kg	300	8270C	09/21/11 18:06	PL	206-44-0	
Fluorene	1,000	ug/kg	300	8270C	09/21/11 18:06	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	1,700	ug/kg	300	8270C	09/21/11 18:06	PL	193-39-5	
Naphthalene	400	ug/kg	300	8270C	09/21/11 18:06	PL	91-20-3	
Phenanthrene	4,600	ug/kg	300	8270C	09/21/11 18:06	PL	85-01-8	
Pyrene	5,000	ug/kg	300	8270C	09/21/11 18:06	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 18:06	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 18:06	PL	90-12-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Analytical Laboratory Report

Lab Sample ID: S50083.16
Sample Tag: SS-22
Collected Date/Time: 09/15/2011 16:35
Matrix: Soil
COC Reference: 61411

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/20/11 23:56	EMR		
Inorganics								
Total Solids	83	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	53-70-3	
Fluoranthene	400	ug/kg	300	8270C	09/21/11 16:31	PL	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/21/11 16:31	PL	90-12-0	

Analytical Laboratory Report

Lab Sample ID: S50083.17
Sample Tag: SS-22 Co-Located
Collected Date/Time: 09/15/2011 16:35
Matrix: Soil
COC Reference: 61411

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3550B	09/21/11 23:54	EMR		
Inorganics								
Total Solids	82	%	1	Std M 2540 B	09/20/11 11:30	DJS		
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	53-70-3	
Fluoranthene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/22/11 19:42	PL	90-12-0	

Analytical Laboratory Report

Lab Sample ID: S50083.18
Sample Tag: FBK-01
Collected Date/Time: 09/15/2011 16:45
Matrix: Water
COC Reference: 61411

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Amber	None	Yes	4.8	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
PNA Extraction	Completed			3510C	09/21/11 21:36	EMR		
Organics - Semi-Volatiles								
Polynuclear Aromatic Hydrocarbon								
Acenaphthene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	208-96-8	
Anthracene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	191-24-2	
Chrysene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	53-70-3	
Fluoranthene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	206-44-0	
Fluorene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	193-39-5	
Naphthalene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	91-20-3	
Phenanthrene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	85-01-8	
Pyrene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	129-00-0	
2-Methylnaphthalene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	91-57-6	
1-Methylnaphthalene	Not detected	ug/L	5	8270C	09/22/11 15:53	PL	90-12-0	

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 1 OF 2

57845

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere
ADDRESS: 37000 Grand River Ave Ste 260
CITY: Farmington Hills STATE: MI ZIP CODE: 48335
PHONE NO.: 248-477-5701 FAX NO.: 248-477-5962 P.O. NO.: MTL 1296
E-MAIL ADDRESS: clifford.yantz@OBG.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:

PROJECT NO./NAME: Dirt Hwy Land
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STANDARD ☐ LEVEL II ☒ LEVEL III ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE O=OIL A=AIR W=WASTE M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PAHs	SPECIAL INSTRUCTIONS/NOTES
50083.01	9/15/11	1100	SS-21	S	1	1							X	
.02		1115	FBS-06	S	1	1							X	
.03		1205	FBS-07	S	1	1							X	
.04		1230	FBS-08	S	1	1							X	
.05		1400	FBS-09	S	1	1							X	
.06/.07		1400	FBS-09 MS/MSD	S	2	2							X	
.08		1415	FBS-10	S	1	1							X	
.09		1415	FBS-10 CO-LOCATED	S	1	1							X	
.10		1435	FBS-11	S	1	1							X	
.11		1500	FBS-12	S	1	1							X	
.12		1520	FBS-13	S	1	1							X	
.13	↓	1540	FBS-14	S	1	1							X	

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	OBG	9/16/11	1047
RECEIVED BY: SIGNATURE/ORGANIZATION	MLS	9-16	1047
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		9-16-11	1300

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 4.5
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 2 OF 2

61411

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere
ADDRESS: 37000 Grand River Ave ste 260
CITY: Farmington Hills | STATE: MI | ZIP CODE: 48335
PHONE NO.: 248-477-5701 | FAX NO.: 248-477-5962 | P.O. NO.: MTL 1296
E-MAIL ADDRESS: Clifford.yantz@obg.com | QUOTE NO.:

INVOICE TO

CONTACT NAME | ☑ SAME
COMPANY
ADDRESS
CITY | STATE | ZIP CODE
PHONE NO. | FAX NO. | P.O. NO.

PROJECT NO./NAME: Dort Hwy Land
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Sinnecker

TURNAROUND TIME REQUIRED ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STANDARD ☐ LEVEL II ☒ LEVEL III ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE O=OIL A=AIR W=WASTE M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PAHs	SPECIAL INSTRUCTIONS/NOTES
50083.14	9/15/11	—	DUP-01	S	1	1							X	
.15		1625	FBS-15	S	1	1							X	
.16		1635	SS-22	S	1	1							X	
.17		1635	SS-22 CO-LOCATED	S	1	1							X	
.18	↓	1645	FBK-01	QC	1	1							X	Field Blank

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Kevin Sinnecker OBG	9/16/11	1647
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	9-16-11	1647
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 9/16/11	TIME 1700

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 4.8
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

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