PCB
REMEDIAL ACTION WORKPLAN

VETERANS FIELD
1167 RIVER ROAD,
EDGEWATER NJ

February 6, 2014

Prepared For:

Borough of Edgewater -
Bergen County, New Jersey
55 River Road, Edgewater NJ 07020

Prepared By:

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Berkeley Heights, New Jersey 07922

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) relates to the proposed remediation of contaminated soils imported to Veterans Field - 1167 River Road, Edgewater, Bergen County, New Jersey.

The site was undergoing a soil remediation project designed to cover Polycyclic Aromatic Hydrocarbons (PAH) contaminated historic fill soils with a clean fill cap. During this process, Polychlorinated Biphenyl (PCB) contaminated soil/crushed concrete was imported to the site. This PCB impacted material was spread in multiple locations at the site.

Remedial investigation/characterization samples were collected and analyzed from this suspect material. The sample results revealed that this material contained PCB concentrations in excess of NJDEP and USEPA levels. The material has been classified as Bulk Remediation Waste per 40 CFR 761.61. The PCB concentration levels detected have specific investigation and remediation requirements which must be adhered to. In addition, Metals, PAH and Pesticides were also detected in excess of NJDEP limits.

TERMS Environmental Services Inc. (TERMS) has been retained by The Township of Edgewater, to oversee the soil remediation of PCB Remediation Waste for this specific AOC. Additional areas and contaminates will also be remediated to restore the park to pre-importation status.

The field investigation was conducted under the direct supervision of Mr. Ronald F. Dooney of TERMS (UST License No. 0010041 – Closure/Subsurface & LSRP Certified). The Report Certifications can be found as Attachment 1.

1.1 Background

The site is approximate 27.58 acres. The current use of the property is the remediation of a public park with fields, courts, playgrounds, picnic area and community center. A majority of the site surface is covered by lawn and soil with the remaining areas consisting of paved parking, walkways and courts. Review of historical maps indicates the site was once covered by the water of the Hudson River. Fill soils were utilized to developed the entire site to current grade. These fill soils were characterized as contaminated Historic Fill.

1.2 Historic Fill Remediation

The findings of the initial investigation activities at 1167 River Road, Edgewater, NJ., revealed contaminants associated with the historic fill in excess of NJDEP standards at numerous locations. These results indicate that historic fill was utilized across a majority of the site to raise the natural grade contains some of the typical PAH contaminants associated with this type of material. Several areas also noted to contain slightly elevated Metal, PCB and EPH levels. Polychlorinated Biphenyls (PCBs) were detected, in isolated areas, slightly in excess of residential direct contact soil remediation standards of 0.2 mg/kg. The highest concentration detected was 2.15 mg/kg.

The remediation of Metal, PCB and EPH impacted soil was accomplished using excavation, offsite disposal and verification post excavation sample results. This method is a permanent and effective method for removal of contaminated soil. The excavation of these areas would remove all of the known contamination with the exception of PAH contaminants. These areas were successfully remediated prior to beginning the importation of clean fill soils that were to be a part of the required "Cap".

The work plan designed to address the PAH soil contamination consisted of capping the historic fill soils with imported clean fill soil cap. An engineering control in the form of 2 foot of clean fill and a demarcation geotextile fabric was utilized across the entire site. An institutional control, in the form of a Deed Notice for the entire area, would be prepared and recorded.

During this capping process, untested soil/crushed concrete was imported and spread at the site. In order to determine the extent of potential contamination, several locations where recent construction activities took place were tested. The results of this investigation indicated that the imported material contained PCB. Severalof the samples also revealed Metals, PAH and Pesticides concentrations in excess of NJDEP limits.

In order to determine the extent of contamination, A Remedial Investigation was performed.

2.0 PHYSICAL SETTING

The site located at 1167 River Road, Edgewater, Bergen County, New Jersey, is also known as Block 30, Lot 1. The site is an approximate 27.58 acres. Review of historical maps indicates the site was once covered by water associated with the Hudson River. The site is located in a mixed residential and commercial area. A site location map, site plans and tax map are included in *Attachment 3*.

2.1 Land Use

The subject site located at developed with athletic fields, courts, community center and associated landscape improvements. Utility connections at the site include municipal water and sanitary sewer, gas and electric service.

2.2 Soils

According to the US Dept. of Agriculture, Bergen County Soil Conservation District, the soils in this region are classified as Urban Land. In general, soils on site were observed to be light brown silt and clay mixed with construction debris. Native river bed soils were comprised of light brown clay. Soils were field determined to be approximately 75% silt/clay.

2.3 Geology

Based on Soil Conservation Service STATSGO data the soil pattern in this landscape is described as Urban. The USGS classifies the geology as Stratified Sequence of the

Mesozoic era and Triassic system. Bedrock was not encountered during the investigation to a depth of 16 feet below ground surface (bgs).

2.4 Hydrology

The groundwater interval depth varied with the fill characteristics. In general groundwater was encountered at approximately 5 feet below grade.

2.5 Topography

According to the USGS Quadrangle, the site is approximately 5 feet above mean sea level. The slope adjacent of the subject site was observed to be sloping from northwest to south east, towards the Hudson River.

2.6 Surface Water Bodies

The nearest surface water body to the subject site is the Hudson River located immediately adjacent to the subject site.

3.0 REMEDIAL INVESTIGATION/ACTION WORKPLAN

3.1 PCB AOC- Remedial Selection/Remedial Objectives

The remedial investigation of imported contaminated soil was accomplished by delineating/classifying the impacted areas. The identified areas will be remediated using excavation, offsite disposal and verification post excavation sampling. This method is a permanent and effective method for removal of contaminated soil.

During this capping process, untested soil/crushed concrete was imported and spread at the site. In order to determine the extent of potential contamination, several locations where recent construction activities took place were tested. The results of this investigation indicated that the imported material contained PCB, Metals, PAH and Pesticides concentrations in excess of NJDEP limits.

In August-September 2103, it was reported that several loads of crushed concrete and soil were imported to the site prior to analysis and approval. As these activities were performed on unscheduled work days, the source of this material could not be confirmed and the amount imported or placement locations could not be verified.

Composite samples from two (2) piles of this suspect material, which were not spread, were collected and analyzed. Sample results revealed that PCB concentrations at the 100 mg/kg range. These piles were visually classified as crushed concrete

In order to determine the extent of contamination, several locations where recent construction activities took place were tested. The results of this initial investigation indicted three types of impacts.

1. Crushed concrete with high levels of 100-350 mg/kg used a base material for concrete sidewalks and cement pads. These levels and appearance were consistent with the tested piles and indicated that the concrete was the highest PCB level source.

2. A combined concrete, soil and other aggregate characterization. This material was utilized as lift material on the field and under paved areas. These impacts ranged from 10mg/kg-350 mg/kg with the average concentration being in the 35 mg/kg range. These concentrations indicate that the contaminated source material was blended with clean soils or additional imported soils that consisted of moderate contamination.

3. Surface impacts resulting from cross contamination from construction activities and/or being spread by dust or runoff. The multiple placement sites, several crushing and sifting operations combined with vehicle traffic and material movement increased the potential spread of contaminants.

In order to further investigate these findings, a Conceptual Site Model (CSM) was designed as the initial step in developing a sampling plan for characterization. This model identified all possible sources of PCBs, their release mechanisms, and classes of remediation waste potentially impacted. Sample location, sample depth, collection method, and sampling density were based on information provided by EPA established sampling procedures for site characterization.

Core samples were performed in accordance with 40 CFR 761.286. Soil borings were performed with a direct push truck mounted Geoprobe rig, using four (4) foot stainless steel macrocores. Stainless steel macrocores were field decontaminated after each use. A dedicated acetate liner was used in each macrocore and discarded after each use. The soil samples were collected using properly decontaminated and dedicated stainless steel trowels. Reporting units will be conducted by dry weight basis as micrograms of PCBs per gram of sample (ppm by weight).

1. Soil borings were advanced in previously identified contaminated lift areas in an effort to determine the horizontal limits.

2. Additional soil samples were collected adjacent to the known impacted lift areas in order to assist in vertical delineation.

3. Soils spread in additional areas as capping material, visually identified to contain potential suspect material, were also tested.

4. Soil samples were collected and analyzed for all imported stockpiled material.

5. Locations prior to importation/spreading were also tested to verify the contamination limits.

The initial Site Investigation samples revealed that existing soils did not contain PCB concentrations above 0.2 mg/kg. These soils were identified to contain only PAH contamination. Previously imported clean fill soils were tested and approved to cap the existing PAH impacted soils. The PCB investigation was performed to identify unapproved imported material and resulting impacts..

From September to November 2013, a total of approximately 150 soil samples were collected and analyzed to assist identifying the vertical and horizontal limits of the PCB contaminated areas. This investigation also revealed that additional contaminates including Metals, Pesticides and PAH compounds were detected. This investigation could not confirm the source of this material or the amount imported.

The PCB investigation sample results and visual characterization demonstrate that all suspect soils imported and placed, above previously approved soils, are potentially impacted. The random placement and blending of materials resulted in areas with varying concentration levels. The manner in which the material was processed and spread appears to have also cross-contaminated the surface of previously approved material, utilized as initial cap material or preexisting soils. Therefore the interval of interface with previously approved soils will also require remediation.

While the total volume of impacted areas have not been specifically delineated, the clean zones have been identified, Therefore the remedial limits have been set to the greatest vertical depth and furthest horizontal distance in each zone where acceptable PCB soil sample results concentrations below 0.2 mg/kg were achieved. Each zone has been squared off and the horizontal and vertical limits were utilized to calculate the volume of soil to be remediated.

Based on these findings, an estimated minimum volume of 25,000 cubic yards of soil contain elevated PCB levels.

The investigation results provide sufficient evidence to assume that all the material processed and spread, as a result of the unapproved importation are potentially impacted. In lieu of collecting and analyzing additional investigation samples in the impacted areas, this RAW will propose the approach of removing all the suspect material. In addition, the six inch interval of interface soils below the imported lift materials, will also be remediated.

Post excavation samples will be collected and analyzed to verify the success of the remediation.

The Investigation sample locations are shown in Figure 1, Attachment 1. The Sampling Summary & Results Tables are included in Attachment 2. Sample results / area depths are included in Attachment 2. Attachment 5 contains the New Jersey Reduced

Analytical Data Deliverables. The investigation laboratory data packages, from Alpha Analytical Labs have been validated by DDMS to confirm the laboratory result data.

3.2 PCB AOC - Remedial Action Selection/Remedial Objectives

The soils in the areas of concern that contain PCB contamination will remediated to below the current NJDEP's Impact to Groundwater Standard (IGWS) 0.2 mg/kg..

The required cleanup level will be performed utilizing the Self Implementing Option (40 CFR 761.61(a)): as a high occupancy area (HOA).

The remediation of PCB, Metal, Pesticide and PAH contaminated soil will be accomplished using excavation, offsite disposal and verification post excavation sample results. This method is a permanent and effective method for removal of contaminated soil. The excavation of these areas would remove all of the known contamination with the exception of initial PAH contaminants.

The results of the investigation identified the potential PCB impacted areas to be remediated. These results indicate that an estimated minimum volume of 25,000 cubic yards of soil has been impacted with PCB contamination. A majority of the Metal, Pesticide and PAH impacted soil will be included within this volume.

The remediation will utilize the delineation results and visual characterization to provide the initial limits of the remedial excavation. Due to the type and level of contaminants detected, the RAW will require that qualified personnel perform the remedial activities in order to minimize health risk and further spreading of contamination. The PCB contaminated soil/concrete will be properly excavated and loaded directly into trucks. This removed material will be manifested by licensed carriers, and disposed of at a TSCA-PCB permitted facility.

Post excavation verification sampling will be performed to assess achievement of remediation goals. A post excavation sample grid will be established for each zoned area. One post excavation sample will be collected and analyzed per 30 linear feet of sidewall. One post excavation base sample will be collected and analyzed per 900 square feet.

The excavation areas are depicted in Figure 1, Attachment 1. An estimated total of approximately 450 post excavation sample are anticipated.

Although the potential impacted areas have been identified, due the nature of the contaminants and the method of remediation, the initial clean up may not be entirely successful. It is very likely that additional hot spot remediation will be required. Areas

outside the initial area will also be investigated to ensure that adjacent areas have not been impacted.

The post excavation sample results will be evaluated in order to determine if any grids require further remedial actives and additional post excavation sampling.

3.3 Sampling Procedures

All sampling is to be performed in accordance with the latest version of the NJDEP's Field Sampling Procedures Manual and the Technical Requirements for Remediation of

Contaminated Sites (N.J.A.C. 7:26 E et al). Verification sampling of PCBs will be performed after remediation to assess achievement of remediation goals based on a combination NJDEP requirements and EPA Subpart O (40 CFR 761.260).

Analysis for PCB Aroclors will be performed as Method 8082 from SW-846, or a method validated under Subpart Q (40 CFR 761.320).

All sampling will include quality control samples including field duplicates, equipment blanks, laboratory duplicates, and matrix spike/matrix spike duplicates. These samples should be collected at a frequency of 1 sample per 20 samples collected.

3.4 Applicable Standards

The soils in the areas of concern that contain PCB will remediated to below the current NJDEP's Impact to Groundwater Standard (IGWS). The soils in the areas of concern that contain Metals and Pesticide compounds will remediated to below the current NJDEP's Site Remediation Standards (SRS). The soil in the historic fill area of concern will contain several PAH compounds above Site Remediation Standards (SRS).

3.5 Quality Assurance/Quality Control

Laboratory

Laboratory analysis for the project will be conducted by Alpha Analytical, 8 Walkup Drive Westboro, Ma. The laboratory deliverables are being validated by de maximis Data Management Solutions Inc. Clinton, New Jersey

Analytical Methods/Quality Assurance Summary Table

Analysis	Media	EPA Method	Preservation	Holding Time	Container
SVOC	Soil	8270	cool to 4 deg c	14 Days (Extraction)	Amber Glass Teflon-lined cap

PP Metals	Soil	6010 7471 Hg	cool to 4 deg c	180 days (Extraction)	Amber Glass Teflon-lined cap
Pesticides	Soil	8081	cool to 4 deg c	14 Days (Extraction)	Amber Glass Teflon-lined cap
PCBs	Soil	8082	cool to 4 deg c	14 Days (Extraction)	Amber Glass Teflon-lined cap

Chain of Custody Procedures

Upon completion of sample collection, a chain of custody for the samples will be completed by the sampler. The chain of custody will be maintained with the samples at all times. Strict chain of custody protocol will be maintained to ensure the validity of the data generated by the sampling activities. Every transfer of custody will be noted abnd signed for with a copy of the record being kept for each individual that endorsed it. The chain of custody record will always include the following information

Contactor name and address
Sample identification number
Sample collection date and time
Sample information (matrix type, analysis, number of containers etc.)
Name and signature of sampler
Signatures of all individuals who have had custody of the samples

Sample Storage Procedures

All sample holding times will be met. Chain of Custody procedures will be implemented to document and track the samples and temperature inside the shipping cooler was noted as 4 degrees Celsius upon receipt at Alpha Analytical.

Laboratory Data Deliverable Format

Laboratory data deliverables will be provide in a NJDEP reduced format, in both paper copy and electronic Portable Document Format (PDF). Electronic Data Deliverables (EDDs) will also be provided with the required Dataset (DTST), Sample (HZSAMPLE) and Result (HZRESULT) files.

3.6 Receptor Evaluation

TERMS conducted a Baseline Ecological Evaluation in accordance with N.J.A.C. 7:26E. Prior to the commencement of the Site Investigation, TERMS reviewed relevant materials such as the U.S.G.S. Topographical Quadrangle Maps and National Wetlands Inventory Maps in order to identify potential receptors and environmentally sensitive areas. TERMS site area investigation consisted of a detailed survey of the area immediately surrounding the site and a windshield survey of an approximately ½ mile radius surrounding the site.

The area immediately adjacent to the site is used as residential and commercial sites. The property is located between River Road and the Hudson River. The subject site is relatively flat with a rise toward the west and depression to the east. Surface water runoff from the site is controlled by local topography and appears to flow to the east.

The subject property and all adjacent properties are entirely developed as residential/commercial purposes. No environmentally sensitive natural resources were identified within the site boundary or on adjacent properties. No stressed or dead vegetation, discolored soil, sediment or water; absence of biota; or presence of seepage or discharge were noted. No additional investigation of this area is recommended.

3.7 Soil and Sediment Erosion

Soils excavated will be loaded directly onto trucks for proper offsite TSCA-approved facility disposal. During these activities the entire site will be encompassed by silt fence. In order to minimize dust, the soils being remediated will be sprayed with water. A soil erosion sediment control plan will be prepared and implemented by the site contractor.

3.8 Site Specific Health & Safety Plan

A Site Specific Health and Safety Plan (HASP) is included as *Attachment 2*. The HASP will be developed to ensure the protection of the health and safety of all persons involved with the PCB soil investigation/remediation. Adherence to the procedures outlined in this HASP will also assure the protection of the general public while these activities are carried out.

In summary the HASP will include that a Qualified, Certified and Experienced personnel will perform activities. Proper Personal Protective Equipment (PPE) and Engineering Controls will be utilized. The entire site will be encompassed by silt fence, impacted areas will be covered in plastic and soils being remediated will be sprayed with water to mitigate exposure. An exclusion zone, tracking pad and decontamination area will be established. Community Air Monitoring Program (CAMP) maintained.

3.9 Site Restoration Plan & Remedial System Dismantling Plan

The excavations will be backfilled with Quarry Supplied certified clean fill. Restoration of the area will also include leveling to original surface grade.

The proposed remediation/restoration will require capping the entire site with filter fabric/demarcation barrier, Quarry Supplied clean fill or impervious cover (buildings, sidewalks and paved parking). The site future will continue as a park with athletic fields.

Future groundwater investigations will be based on the results of the baseline groundwater sampling round. Additional investigation may require onsite well installation, further investigation, long term monitoring and reporting, Classification Exception Areas, and Biennial Certifications and Deed Notice.

3.10 Treatments And Disposal Methods

The proposed remediation calls for excavation of all previously identified soil with PCB contamination above the NJDEP's IGWS and proper disposal of this soil. The soil will be analyzed for waste characterization parameters to be properly disposed in accordance with TSCA-approved facility.

The initial historic fill remediation will be addressed by capping and filing a Deed Notice as an Institutional Control. Therefore no treatment or disposal methods will be required.

3.11 Cleanup Goals Or Levels

The required cleanup level will be performed utilizing the Self Implementing Option (40 CFR 761.61(a)): as a high occupancy area (HOA).

All PCB contaminated soil will be remediated to below the current NJ NJDEP's Impact to Groundwater Standard (IGWS) 0.2 mg/kg.

The soils in the areas of concern that contain Metals, Pesticides compounds will remediated to below the current NJDEP's Site Remediation Standards (SRS).

The soil in the historic fill area of concern will contain several PAH compounds above Site Remediation Standards (SRS). An engineering control in the form of 2 foot of clean fill and a demarcation geotextile fabric will be utilized across the entire site. An institutional control, in the form of a Deed Notice will be prepared for the entire area

3.12 Permits And Approvals

This Raw will be submitted to the EPA for review and approval.

There are no permits required for the proposed soil remedial action. However, annual Remedial Action Permits as well as biennial certifications of the site conditions will be required. The adopted Site Remediation reform Act (SRRA) requires that a Licensed Site Remediation Professional (LSRP) be involved to provide oversight and to submit the required documents and to issue the appropriate approvals.

3.13 Public Outreach

As required by NJDEP Notification and Public Outreach the party responsible for the remediation described in this RAW shall provide public notice by posting a sign as described in 7:26E-1.4(h).

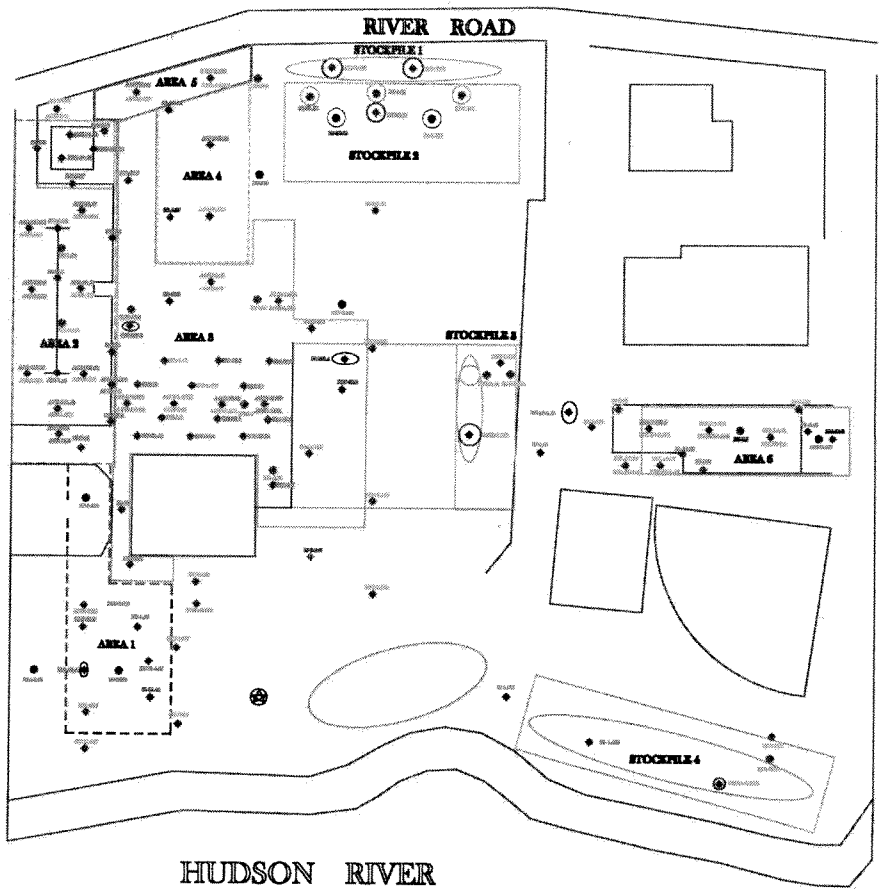
3.14 Innovative Remedial Technologies

There are no innovative remedial technologies proposed for the site. The proposed remediation calls for excavation of all previously identified soil with contamination above the NJDEP's applicable standards and proper disposal of this soil.

There are no innovative remedial technologies proposed for the site. The proposed remediation calls for the proper capping of the historic fill, an institutional control, in the form of a Deed Notice will be prepared for the entire area

4.0 REPORT SUBMITTAL

A Remedial Action Report (RAR) will be prepared and submitted to the NJDEP and EPA at the conclusion of the remedial activities. The report will detail the remedial activities, present the post excavation results and provide the documentation for disposal and clean fill.



LEGEND

- APROX 1 FT
- APROX 2 FT
- APROX 3 FT
- APROX 4 FT
- STOCKPILES
- SURFACE SOIL SAMPLE / COMPOSITE / BASE

PCB Concentrations In Excess of 50 ppm
PCB Concentrations 10-50 ppm
PCB Concentrations 1-10 ppm
PCB Concentrations 0.2-1 ppm
PCB Concentrations Below 0.2 ppm

50' 0 50'
GRAPHIC SCALE

TERMS
Environmental Services, Inc.
300 SPRINGFIELD AVENUE
HAWLEY HEIGHTS, NJ 07604
PHONE (908) 464-8300 FAX (908) 464-8600

VETERANS FIELD
PCB SOIL SAMPLE LOCATIONS/RESULTS
1107 River Road, Edgewater, NJ

REVISION	DATE	PROJECT	
DRAWING	APP	FILE	
DATE	REV	PAGE	1

INVESTIGATION SAMPLE RESULTS SUMMARY TABLE

	S1 30-SEP-13 L1319383-01 0.0-0.5	S2 30-SEP-13 L1319383-02 0.0-0.5	S3 30-SEP-13 L1319383-03 0.0-0.5	S4 30-SEP-13 L1319383-04 0.0-0.5	S5 30-SEP-13 L1319383-05 0.0-0.5	S6 30-SEP-13 L1319383-06 0.0-0.5	S7 30-SEP-13 L1319383-07 0.0-0.5	S8 30-SEP-13 L1319383-08 0.0-0.5	S9 30-SEP-13 L1319383-09 0.0-0.5	S10 30-SEP-13 L1319383-10 0.0-0.5	S11 30-SEP-13 L1319383-11 0.0-0.5	S12 30-SEP-13 L1319383-12 PILE	S13 30-SEP-13 L1319383-13 TP (0.0-2.5)	S14 30-SEP-13 L1319383-14 TP (0.0-2.5)
REVISED	239	259.7	294	159	172.4	66.2	0.065	94.5	108.2	286	68.7	184.9	347	47.1
ORIGINAL	312.6	356.18	402.6	217	226.64	78.35	0.065	128.53	147.71	383.8	83.18	203.8	448.2	62.47

	S15 30-SEP-13 L1319383-15 TP (0.0-2.5)	S16 30-SEP-13 L1319383-16 TP (0.0-2.5)	S17 30-SEP-13 L1319383-17 TP (0.0-2.5)	S18 30-SEP-13 L1319383-18 TP (0.0-2.5)	S19 30-SEP-13 L1319383-19 TP (0.0-2.5)	S20 30-SEP-13 L1319383-20 TP (0.0-2.5)	S21 30-SEP-13 L1319383-21 TP (0.0-2.5)	S22 30-SEP-13 L1319383-22 TP (0.0-2.5)	S23 30-SEP-13 L1319383-23 TP (0.0-2.5)	S24 30-SEP-13 L1319383-24 TP (0.0-2.5)	S25 30-SEP-13 L1319383-25 TP (0.0-2.5)	S26 30-SEP-13 L1319383-26 0.0-0.5	S27 30-SEP-13 L1319383-27 0.0-0.5	S28 30-SEP-13 L1319383-28 0.0-0.5
REVISED	33.9	93	17.36	17.8	23.8	0.535	0.59	59	10.43	1.6	16.4	2.19	1.2	3.68
ORIGINAL	37.36	125.31	19.58	19.83	24.83	0.687	0.59	59	12.322	1.56	18.52	2.686	1.374	4.3

	S1 02-OCT-13 L1319762-01 0.0-0.5	S2 02-OCT-13 L1319762-02 0.0-0.5	S3 02-OCT-13 L1319762-03 0.0-0.5	S4 02-OCT-13 L1319762-04 0.0-0.5	S5 02-OCT-13 L1319762-05 0.0-0.5	S6 02-OCT-13 L1319762-06 PILE
REVISED	2.45	0.029	343	0.0579	0.033	1.57
ORIGINAL	2.985	0.0294	458.1	0.0579	0.043	1.868

	SA 04-OCT-13 L1319812-01 0.0-0.5	SB 04-OCT-13 L1319812-02 0.0-0.5	SC 04-OCT-13 L1319812-03 0.0-0.5	SD 04-OCT-13 L1319812-04 0.0-0.5	SE 04-OCT-13 L1319812-05 0.0-0.5	SF 04-OCT-13 L1319812-06 0.0-0.5	SG 04-OCT-13 L1319812-07 0.0-0.5	SH 04-OCT-13 L1319812-08 0.0-0.5	SI 04-OCT-13 L1319812-09 0.0-0.5	SJ 04-OCT-13 L1319812-10 0.0-0.5	SK 04-OCT-13 L1319812-11 0.0-0.5	SL 04-OCT-13 L1319812-12 0.0-0.5	SM 04-OCT-13 L1319812-13 0.0-0.5	SN 04-OCT-13 L1319812-14 0.0-0.5
REVISED	16.44	5.87	67.8	5.458	0.2408	0.047	0.1116	1.88	12.46	0.092	0.034	10.77	54.8	0.343
ORIGINAL	18.24	7.459	83.67	6.528	0.2698	0.0472	0.1323	2.322	15.507	0.1094	0.034	13.453	68.48	0.3845

	B1P 16-OCT-13 L1320747-01 PILE	B2P 16-OCT-13 L1320747-02 PILE	B3P 16-OCT-13 L1320747-03 PILE	B4T 16-OCT-13 L1320747-04 0.0-0.5	B5T 16-OCT-13 L1320747-05 0.0-0.5	B6T 16-OCT-13 L1320747-06 0.0-0.5	B7T 16-OCT-13 L1320747-07 0.0-0.5	B8T 16-OCT-13 L1320747-08 0.0-0.5	B9T 16-OCT-13 L1320747-09 0.0-0.5	B10P 16-OCT-13 L1320747-10 PILE
REVISED	0.067	0.05	3.05	0.078	0.037	0.102	0.0339	36.2	0.894	0.163
ORIGINAL	0.1088	0.0501	3.61	0.0775	0.0429	0.117	0.0389	48.2	0.782	0.195

	C1T 16-OCT-13 L1320750-01 0.0-0.5	C2T 16-OCT-13 L1320750-02 0.0-0.5	C3T 16-OCT-13 L1320750-03 0.0-0.5	C4T 16-OCT-13 L1320750-04 0.0-0.5
REVISED	0.017	0.0255	65.5	ND
ORIGINAL	0.0169	0.0293	83.6	ND

INVESTIGATION SAMPLE RESULTS SUMMARY TABLE

	FH-1 16-OCT-13 L1320911-01 2.0-2.5	FH-2 16-OCT-13 L1320911-02 2.0-2.5	FH-3 16-OCT-13 L1320911-03 1-1.5	NPL-1 16-OCT-13 L1320911-04 10-1.5	NPL-1D 16-OCT-13 L1320911-05 3.0-3.5	NPL-2 16-OCT-13 L1320911-06 1.0-1.5	NPL-2D 16-OCT-13 L1320911-07 3.5-4.0	NPL-3 16-OCT-13 L1320911-08 1.0-1.5	NPL-3D 16-OCT-13 L1320911-09 3.5-4.0	NPL-4 16-OCT-13 L1320911-10 0.0-0.5	NPL-4D 16-OCT-13 L1320911-11 2.0-2.5	NPL-5 16-OCT-13 L1320911-12 0.0-0.5	NPL-5D 16-OCT-13 L1320911-13 2.0-2.5	S-1CB 16-OCT-13 L1320911-14 0.5-1.0
REVISED	64.45	91.41	132.98	1.71	0.238	0.536	2.115	287.9	0.168	0.0586	1.436	0.0557	0.0127	0.0304
ORIGINAL	81.85	113.81	183.99	2.283	0.2762	0.649	2.1652	310.8	0.1988	0.1008	1.806	0.0564	0.0122	0.0835

	S-2CB 16-OCT-13 L1320911-15 0.5-1.0	S-3CB 16-OCT-13 L1320911-16 0.5-1.0
REVISED	3.83	4.37
ORIGINAL	4.993	5.32

	P1 04-NOV-13 L1322410-01 PILE	P2 04-NOV-13 L1322410-02 PILE	P3 04-NOV-13 L1322410-03 PILE	P4 04-NOV-13 L1322410-04 PILE	P5 04-NOV-13 L1322410-05 PILE
REVISED	21.52	19.88	4.86	0.528	0.472
ORIGINAL	25.585	25.014	5.507	0.664	0.504

	D1 04-NOV-13 L1322413-01 3.5-4.0	D2 04-NOV-13 L1322413-02 3.5-4.0	D3 04-NOV-13 L1322413-03 2.5-3.0	D4 04-NOV-13 L1322413-04 2.5-3.0	D5 04-NOV-13 L1322413-05 2.5-3.0	D6 04-NOV-13 L1322413-06 1.0-1.5	D7 04-NOV-13 L1322413-07 1.0-1.5	D8 04-NOV-13 L1322413-08 0.0-0.5	D9 04-NOV-13 L1322413-09 3.0-3.5	D10 04-NOV-13 L1322413-10 3.0-3.5	D11 04-NOV-13 L1322413-11 1.0-1.5	D12 04-NOV-13 L1322413-12 2.0-2.5	D13 04-NOV-13 L1322413-13 2.0-2.5	D14 04-NOV-13 L1322413-14 0.0-0.5	D15 04-NOV-13 L1322413-15 1.0-1.5	D16 04-NOV-13 L1322413-16 0.0-0.5
REVISED	0.07	1.63	0.02973	0.0503	ND	ND	ND	0.2633	2.7244	0.0225	0.0338	ND	0.221	0.033	0.694	0.168
ORIGINAL	0.07	1.63	0.02973	0.0503	ND	ND	ND	0.3133	3.2174	0.0282	0.0338	ND	0.2803	0.0326	0.8913	0.1675

	D17 04-NOV-13 L1322413-17 0.0-0.5	D18 04-NOV-13 L1322413-18 0.0-0.5
REVISED	0.042	68.9
ORIGINAL	0.0484	98.52

	SM 30-SEP-13 L1319384-01 PILE	SP1 30-SEP-13 L1319384-02 PILE	SP2 30-SEP-13 L1319384-03 PILE
REVISED	89.4	54.5	5.97
ORIGINAL	89.38	54.5	5.969

AREA DEPTHS

AREA 1 100' X 225' X2 FT (1666 CY)

	C2T	C4T	SP2	S1	D12	SP1	D14	S-3CB	C1T	S-1CB	SH	C3T	S-2CB	D13	D8
PILE			5.97			54.5									
0-0.5	0.0255	ND	5.97	12.46			0.033		0.017		1.88	65.5			0.2633
0.5-1								4.37		0.0594			3.83		
1-1.5															
1.5-2															
2-2.5					ND									0.221	
2.5-3															
3-3.5															
3.5-4															

AREA 2 100' X 375' X 4FT (5555 CY)

	S8	A8T	A8B	S5	A7T	A9T	A9B	A1T	A6T	A6B	S26	D1	A2T	A2B	A5T	A5B	S27	D2	S3	S28	A4T	A4B	A3T	A3B
0-0.5	94.8			172.4							2.19						1.2		294	3.68				
0.5-1		85.2			161.41	19.358		100.43	189.73	0.369			48.42		231.7						128.06		90.17	
1-1.5																								
1.5-2																								
2-2.5																								
2.5-3			14.05				5.66			0.369				0.599		2.095								0.0833
3-3.5																								
3.5-4												0.07						1.63				0.858		

AREA 2

	S2	FH-1	FH-3	S1	FH-2	S10	A20T	A20B
0-0.5	259.7			239		286	0.00979	
0.5-1								
1-1.5			132.99					
1.5-2								
2-2.5		64.45			91.41			
2.5-3								0.0154
3-3.5								
3.5-4								

AREA DEPTHS

AREA 3 250' X 300' 3FT (8333 CY)

	SG	S9	SF	S6	B6T	S13	D4	SE	S17	S25	S23	S14	S18	S24	A13T	A13B	A12T	A12B	A11T	A11B	A10T	A10B	S16	S20	S22	B8T	SM	S15	S19	S21
PILE																											54.8			
TEST PIT																														
0-0.5	0.1116	105.2	0.047	66.2	0.102	347		0.2408	17.34	16.4	10.43	47.1	17.5	1.6	53.22		19.08		1.4782		3.811		93	0.535	0.59	36.2		33.9	22.8	0.59
0.5-1																														
1-1.5																														
1.5-2																														
2-2.5																														
2.5-3							0.0503									12.81		0.545		0.0104		0.0483								
3-3.5																														
3.5-4																														

AREA 3

	B5T	S12	SD	D18	D17	A15T	A15B	D5	SC	A14T	A14B	S11
PILE		154.9										
0-0.5	0.037		5.458	69.9	0.042	9.553			67.8	3.42		69.7
0.5-1												
1-1.5												
1.5-2												
2-2.5												
2.5-3							1.263	ND			0.087	
3-3.5												
3.5-4												

AREA 4 125' X 175' X 1FT (810 CY)

	A16T	S8	D6	A17T
0-0.5	0.2661	5.87		68.82
0.5-1				
1-1.5			ND	
1.5-2				
2-2.5				
2.5-3				
3-3.5				
3.5-4				

AREA 5 25' x 225' X 2FT (416 CY)

	D7	A18T	A18B	SA	A19T	A19B
0-0.5		8.075				
0.5-1					16.77	
1-1.5	ND			16.44		
1.5-2						
2-2.5			0.00885			
2.5-3						0.028
3-3.5						
3.5-4						

AREA 6 75' X 225' X 3FT (1875 CY)

	SM	D10	S1	S2	NPL-1	NPL-1D	D9	NPL-2	NPL-2D	S3	SL	NPL-4	NPL-4D	NPL-3	NPL-3D	S4	NPL-5	NPL-5D
0-0.5	54.8		2.45	0.029						343	10.77	0.0686				0.0579	0.0557	
0.5-1																		
1-1.5					1.71			0.536	2.115					267.9				0.0122
1.5-2																		
2-2.5													1.428					0.0122
2.5-3																		
3-3.5		0.0225				0.238	1.7244											
3.5-4									2.115						0.168			

STOCKPILE 1 (0 CY)

B1P PILE	B2P PILE
0.067	0.05

STOCKPILE 2 ESTIMATED AREA & PILES 80' x 250' X 3FT (2222 CY)

P1 PILE	P2 PILE	P3 PILE	B3P PILE	P4 PILE	P5 PILE
21.52	19.88	4.88	3.05	0.528	0.472

STOCKPILE 3 ESTIMATED AREA & PILES 50' x 125' X 2FT (648 CY)

	B9T	D15	D16	B10P
PILE				0.163
0-0.5	0.694		0.168	
0.5-1				
1-1.5		0.694		
1.5-2				
2-2.5				

STOCKPILE 4 ESTIMATED AREA & PILES 75' x 300' X 4FT (3333 CY)

	SN	D11	RGA1	S6
PILE**	0.343		0.809	1.57
0-0.5				
0.5-1				
1-1.5		0.0338		