

Remedial Action Work Plan Site No. V00178-8

Location:

Stuart Park Complex – Ultralife Battery
2000 Technology Parkway
Newark, New York

Prepared for:

Ultralife Corporation
2000 Technology Parkway
Newark, New York 14513



LaBella Project No. 209025

January 2010

January 15, 2010

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Ms. Charlotte Theobald
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

Re: Remedial Action Selection Report &
Remedial Action Work Plan
VCP Site #V00178-8
Stuart Park Complex – Ultralife Battery
2000 Technology Parkway, Newark, New York
LaBella Project No. 209025

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Dear Ms. Theobald:


LaBella Associates P.C. ("LaBella") is submitting this letter on behalf of Ultralife Corporation for the Stuart Park Complex, Ultralife Battery facility located at 2000 Technology Parkway, Newark, New York, herein after referred to as the "Site". The Site is listed as New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) Site #V00178-8.

Attached please find a Remedial Action Selection Report and a Remedial Action Work Plan for the Site. These reports have been revised based on NYSDEC's October 8, 2009 letter and our subsequent discussions. Currently, the remedial actions are being scheduled for the Spring of 2010. LaBella will notify the NYSDEC at least seven days in advance of initiating remedial activities.

If you have any questions regarding the attached report and work plan, please call me at (585) 295-6611.

Respectfully submitted,

LABELLA ASSOCIATES, P.C.


Daniel P. Noll, PE
Project Manager

DPN/lk

cc: John Diggory, Ultralife
Pete Comerford, Ultralife w/o attachments
Linda Shaw, Knauff Shaw
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Melissa Menetti, NYSDOH
Maura Desmond, Esq., NYSDEC w/o attachment
Bart Putzig, NYSDEC w/o attachment
David Pratt, NYSDEC w/o attachment

Remedial Action Work Plan

Site No. V00178-8

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LaBella Project No. 209025

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300 State Street, W43614
Rochester, New York 14614
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1.0 Introduction and Purpose

This Remedial Action Work Plan (RAWP) details a plan for implementing the selected remedy for New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) Site #V00178-8, which is located within 2000 Technology Parkway, located in the Village of Newark, Wayne County, New York, hereinafter referred to as "the Site." A Site location map is included as Figure 1. The development of this RAWP is in accordance with Voluntary Cleanup Program Guide dated May 2004.

Site Description and History

The VCP Site consists of an approximate 14.24-acre portion of a larger (approximate 67-acre) tax parcel. The VCP Site and larger parcel are a manufacturing Site. *[Note: As discussed with NYSDEC, the VCP Site boundary will be redefined based on the extent of the remedial work. A survey of the VCP Site boundary will be completed subsequent to the remedial work being completed and will be included in the Final Engineering Report.]* The VCP Site is improved with one approximate 117,000-square foot building. In addition to the building, property improvements include parking lots, paved access roads, and paved loading/unloading areas. The remainder of the VCP Site consists of grass, landscaped areas, and undeveloped vegetated and wooded land. The facility is located in a zoned industrial park (the Stuart Park Complex) situated in a primarily agricultural/rural and residential area. The Site was initially developed in 1968 by Sara Coventry as a corporate headquarters and distribution center. In the early 1980's Eastman Kodak purchased the Site and began a battery manufacturing operation. In 1991, Ultralife purchased the operations from Kodak. Figure 2 is an aerial photograph of the Site and illustrates the general Site features.

Storm water runoff from the property (including some roof drains) discharges to two (2) outfalls. Outfall #1 is located on the northern portion of the property and Outfall #2 is located on the eastern portion of the property as shown on Figure 2. Outfall #1 previously received non-contact cooling water; however, the non-contact cooling water consisted only of potable water and was redirected to the sanitary sewer in September 2008. Runoff is directed to the outfalls via a series of on-site catch basins with associated underground conduits, and/or surface channels. Flow from the two (2) outfalls is directed to a wetland area, which eventually joins Marbletown Creek.

Previous Investigations and Summary of Environmental Conditions

GeoQuest conducted an investigation to evaluate the nature and extent of contaminants of concern at the Site. Findings of GeoQuest's Final Investigation Report include:

- previous underground wastewater storage vault remedial work was effective and no further remediation was recommended.
- soil types consist of topsoil, fill deposits, buried topsoil, a lacustrine deposit, and a glacial till deposit (no coal or ash was observed within test pits excavated).
- depth to groundwater varied between 0.5 and 6.55-feet below ground surface (BGS) with groundwater flow direction generally to the north.
- volatile organic compounds (VOCs) were not detected in photoionization detector (PID) headspace scans.

- two areas of sediment impacted with polyaromatic hydrocarbons (PAHs) and heavy metals were identified (Outfall #1 and Outfall #2) and the nature and extent of such contaminants were delineated both on and off the defined VCP Site.
- the impacted sediments associated with the two (2) outfalls should be remediated. Specifically, the RI Report indicated that the drainage ditch of Outfall #1 was impacted from the discharge point to 200 ft. downgradient and the drainage ditch of Outfall #2 was impacted from the discharge point to 110 ft. downgradient.

For reference, figures 7 through 12 of the Final Investigation Report have been included in Appendix 1.

Summary of the Remedy

Based on the Geoquest Final Investigation Report, a Remedial Action Selection (RAS) Report was completed (dated January 2010). The RAS report recommended the remedy for the Site be Removal of Sediment Impacts above SCGs defined in the RI Report. Specifically, sediments impacted with heavy metals and PAHs would be removed to between 2 and 3 feet in depth for predetermined lengths of the drainage ditches (based on the existing sampling data). As such, the purpose of this RAWP is to present details on the implementation of the remedial work and restoration activities. It should be noted that the land use will remain the same after the remedy (i.e., manufacturing facility).

The following sections present the methods for implementation of the remedy and subsequent restoration activities.

2.0 Extent of Remediation Areas

The extent of the removal areas are detailed below. These areas are based on the RI Report findings and approval of the report by NYSDEC. In general, the 4 parts per million (ppm) of total PAHs and elevated metal concentrations were the criteria used for determining the extents of removal. In addition, Figures 3 and 4 illustrate the removal areas. The intent of the removal will be to remove sediments which have deposited along the base and sides of the drainage ditch. Care will be taken to minimize disturbing and/or removing soils from the slope of the drainage ditch.

Outfall #1

- Length of Removal – from outfall discharge point to about 200-feet of ditch length as defined in the RI Report.
- Width of Removal – about 2-feet on either side of ditch centerline (i.e., about 4-feet wide). [Note: Since the width of the ditch may vary along the length of the ditch, the removal width may vary (i.e., +/-4 ft.) along the length of the ditch. The intent is to remove the sides and bottom of the ditch (i.e., where sediments have accumulated).]
- Depth of Removal – Since impacts are at higher concentrations at the discharge point, the depth of removal will be 3-feet in depth at the outfall discharge point to approximately 20-feet downstream of the discharge point; however, the remaining length of the removal area (i.e., 180 ft.) will be excavated to 2-feet in depth. Depths will be confirmed with a tape measure.

Outfall #2

- Length of Removal – from outfall discharge point to about 110-feet of ditch length as defined in the RI Report.
- Width of Removal – about 2-feet on either side of ditch centerline (i.e., about 4-feet wide). [Note: Since the width of the ditch may vary along the length of the ditch, the removal width may vary (i.e., +/-4 ft.) along the length of the ditch. The intent is to remove the sides and bottom of the ditch (i.e., where sediments have accumulated).]
- Depth of Removal - Since impacts are at higher concentrations at the discharge point, the depth of removal will be 3-feet in depth at the outfall discharge point to approximately 20-feet downstream of the discharge point; however, the remaining length of the removal area (i.e., 90 ft.) will be excavated to 2-feet in depth. Depths will be confirmed with a tape measure.

3.0 Removal Plan

An environmental contractor will be retained to conduct the removal of sediments and transport the sediments for disposal. A LaBella field representative will be on-site during these activities. NYSDEC will be notified of the removal work at least 7 days in advance. The removal plan is detailed below:

- Work and Staging Area – To facilitate the removal of sediments, a Work and Staging Area will be established along the length of the removal areas for each outfall. This will consist of removing trees and brush along the length of the removal areas from one side of the ditches. It is anticipated that approximately a 15-ft. width will be required to allow for equipment to access the areas. The anticipated location of the Work and Staging Areas for each outfall are illustrated on Figures 3 and 4. [Note: The side of the drainage ditch used for access that is depicted on the figures may change based on actual field conditions.] At this time it is not anticipated that temporary roadways will be necessary.
- Sediment Controls – In order to prevent turbid waters from impacting downstream locations water discharges from the outfalls will be redistributed to an upland location and allowed to infiltrate into surface soils. This will be accomplished by initially excavating a sump (approximately 4-ft. deep and 4-ft. in length) at the discharge point of each outfall, prior to conducting the full removal of sediments. [Note: The sediments excavated as part of the sump will be removed and staged on-Site prior to off-site disposal with the other removed sediments (see below).]. The sump will be used to collect waters entering the area and pump these waters at least 100-ft. from the ditch area. At the discharge location, hay bales will be placed in a semi-circle on the downgradient side of the discharge area in order to retain any sediment. [Note: In the event that hay bales are not adequate to reduce turbidity, silt fencing will also be installed.]

In addition to the above measures, hay bales will be placed at the end of the removal area in order to further reduce the potential for sediments/turbid waters to flow out of the removal areas. These hay bales will be placed prior to installation of the sump. This additional measure will be implemented for the event that precipitation occurs during the removal work. The sediment control measures are illustrated on Figures 3 and 4.

- *Sediment Removal* – Currently it is anticipated that sediments will be temporarily staged on-Site on 2 layers of 6-mil poly sheeting and covered with poly sheeting. The staging area will also consist of berms on the downgradient sides along with a water collection sump to allow liquids that drain from the sediments to collect in one location for subsequent pumping/containerizing. If sufficient water accumulates (i.e., does not evaporate), the waters will be containerized, characterized and disposed of off-site at a NYSDEC approved facility. When all of the impacted media has been excavated and allowed to dewater, the materials will be loaded into NYSDEC Part 364 permitted vehicles to dispose of the media at a NYSDEC Part 360 landfill. Transport trucks will only utilize roadways during Site work. Since the sediments will be allowed to dewater, lining of trucks is not anticipated to be necessary. However, in the event that sediment moisture content remains high, the trucks will be lined.
- *Decontamination* – The contractor will provide equipment that has been decontaminated prior to entry onto the Site. All excavation equipment that contacts impacted media will be decontaminated at the end of the project. The decontamination will consist of removing bulk materials with shovels followed by a power wash to remove remaining materials. Based on the nature of the work, it is anticipated that power washing activities can be completed over the final transport truck (i.e., the excavator bucket and loader bucket are the only anticipated portions of equipment to encounter impacted materials). This final truck will be lined due to the decontamination water. If deemed necessary, a decon pad will be built and the liquids containerized.
- *Evaluation of Effectiveness* – As previously discussed with NYSDEC the effectiveness of the remedial action will be evaluated based on achieving the predetermined depths and removal area lengths proposed above. The depth and length of removal have been determined based on the RI data and the types of contaminants (i.e., poly aromatic hydrocarbons that adhere to the soil matrix and do not readily migrate to depth). [*Note: Confirmatory soil samples will not be collected.*]

4.0 Restoration Plan

The areas disturbed (i.e., sediment removal areas and areas disturbed to facilitate removal) will be restored to minimize erosion and impacting downgradient locations with turbid waters and to restore the riparian area to its current species make-up and plant density. The intent of the restoration plan detailed below is to quickly establish a vegetative cover that will retain the soils and allow for the local plants to reestablish over time throughout the disturbed areas. Figures 3 and 4 illustrate the restoration plan described below:

- *Base of drainage ditch* – the base of the drainage ditch, which is defined as locations that are below the average waterline, will be backfilled with bank run gravel. The sump will also be backfilled with bank and run. The bank run gravel will consist of small gravel intermixed with sand and lesser amounts of fines. The existing grade and sinuosity of the drainage ditch will be maintained during the backfilling operations. The backfill will be compacted with the excavator bucket in 6 to 8-inch lifts.

All backfill imported to the Site will be pre-approved by NYSDEC prior to being transported to the Site. Information on the source of the backfill and if necessary laboratory sampling data of the backfill will be provided to NYSDEC for approval. In the event that sampling is required, the samples will be analyzed for Target Compound List (TCL) volatile organic compounds (VOCs),

TCL semi-VOCs (SVOCs), Target Analyte List (TAL) Metals + cyanide, pesticides and polychlorinated biphenyls (PCBs). The sampling will be consistent with 6 NYCRR 375-6.7(d) and NYSDEC Draft DER-10.

- Slope of drainage ditch – the sloped portion of the drainage ditch that is removed as part of the work will be replaced with topsoil (i.e., soil with sufficient organic material and nutrients to promote vegetative growth). Subsequent to placing and compacting (with the excavator bucket) the topsoil, the area will be seeded. The seed mix will be Ernst Seeds ERNMX-178 or equivalent.
- Removal and Staging Area – The areas disturbed for equipment access along the length of the removal area will be restored to the same grade as prior to the remedial work (e.g., rutting will be graded). If necessary, additional topsoil will be placed along the areas disturbed for equipment access. Subsequent to restoring grades and placing topsoil (if necessary), the area will be seeded with the ERNMX-178 seed mix (or equivalent) in order to allow a vegetative cover to be established quickly and minimize the potential for erosion and turbidity to enter the drainage area.
- Erosion control – Since the removal area will be focused on removing impacted sediments (i.e., base of the drainage ditch) and care will be taken to minimize disturbing the slopes, it is not anticipated that additional erosion control measures will be necessary as part of the restoration work. However, in the event that significant disturbances of the sloped portion of the drainage ditch are incurred, the following actions will be implemented: 1) silt fencing and hay bales to retain turbidity in stormwaters from entering the drainage ditch and retarding flows along the top of the slope and/or 2) placing and securing (staking) biodegradable erosion control mats on the sloped portion of the removal area to stabilize the slope and promote reestablishment of vegetative cover. [Note: If needed, the erosion control mats shall be a biodegradable jute mesh, refer to Appendix 2 for specifications. Equivalent mats shall be constructed of natural fibers (e.g., jute fiber) and not photodegradable threads.].
- Monitoring of restoration – the bank stability and vegetative community composition (species and density) will be periodically monitored to ensure that Site restoration measures accomplish the objectives of establishing an initial vegetative cover (90% cover by end of first year), maintaining slope stability and reestablishing the local plants. The monitoring will be accomplished by observing the area approximately 1 month, 6 months and 1 year after completion of the work. The areas will be photographed for documentation and submitted in summary letter to NYSDEC after each monitoring event. In the event that restoration (vegetative cover incomplete or slopes are not stable) then appropriate actions will be implemented (e.g., erosion controls, additional topsoil and seeding, etc.).

5.0 Health and Safety

All contractors and on-site workers directly involved with the remedial project will have up to date OSHA HAZWOPER Training. These credential can be supplied to NYSDEC upon request.

The remedial work will be implemented under the Health and Safety Plan (HASP) included as Appendix 3. In addition, during the remedial work, air monitoring will be completed in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP) which is included as Appendix 4.

6.0 Schedule and Organization Chart

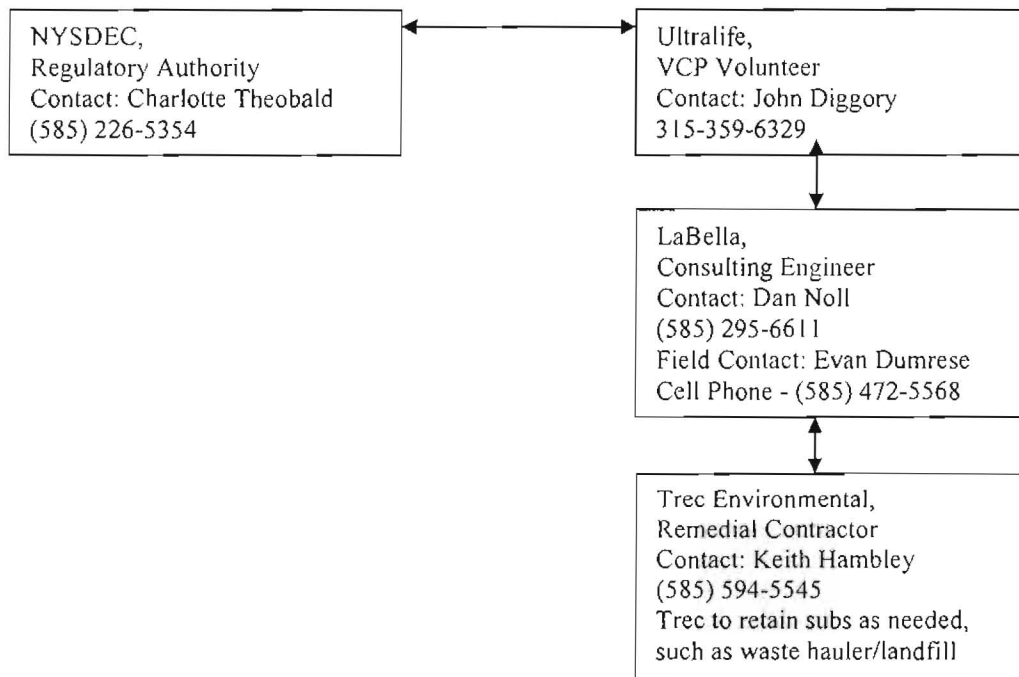
Schedule

Based on the requirements of Site restoration, the remedial work will be completed in the Spring of 2010. The specific start date of the work will be depend on the weather conditions at the time. However, an anticipated schedule is provided below that indicates the amount of time required for each task

Task	Estimated Duration of Work	Estimated Completion Date
Implementation of Remedial Work	3-4 days	May 2010
Site Restoration Work	2-3 days	May 2010
1 Month Monitoring of Restoration	0.5 days	June 2010
Final Engineering Report	90 days	July 2010
6 Month Monitoring	0.5 days	November 2010
1 Year Monitoring	0.5 days	May 2011

Project Organization

A project organizational chart is provided below to indicate the various parties involved in the remedial work.



7.0 Final Engineering Report

Subsequent to completing the work LaBella will develop a Final Engineering Report (FER) that documents the work completed, waste disposal documentation, etc. The FER will be certified by a Professional Engineer and submitted within 90 days of remedy activities.

Y:\ULTRALIFE CORPORATION\209025\REPORTS\RPT.2010.01.15.SEPARATED - RAWP.DOC

LaBELLA

LaBella Associates, P.C.

300 State Street

Rochester, New York 14614

Figures



209025
FIGURE 1

**SITE LOCATION WITH USGS
7.5 MINUTE TOPO MAP
NEWARK QUAD
1:24,438**

DATE	BY	REVIEW	DATE
11/15/00	WJS	WJS	11/15/00

Ultralife Batteries
Remedial Action Work Plan

1350 Route 88 South
Newark, New York

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Associates, P.C.

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ROCHESTER, NY 14614
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PROJECT/DRAWING NUMBER
209025
FIGURE 2

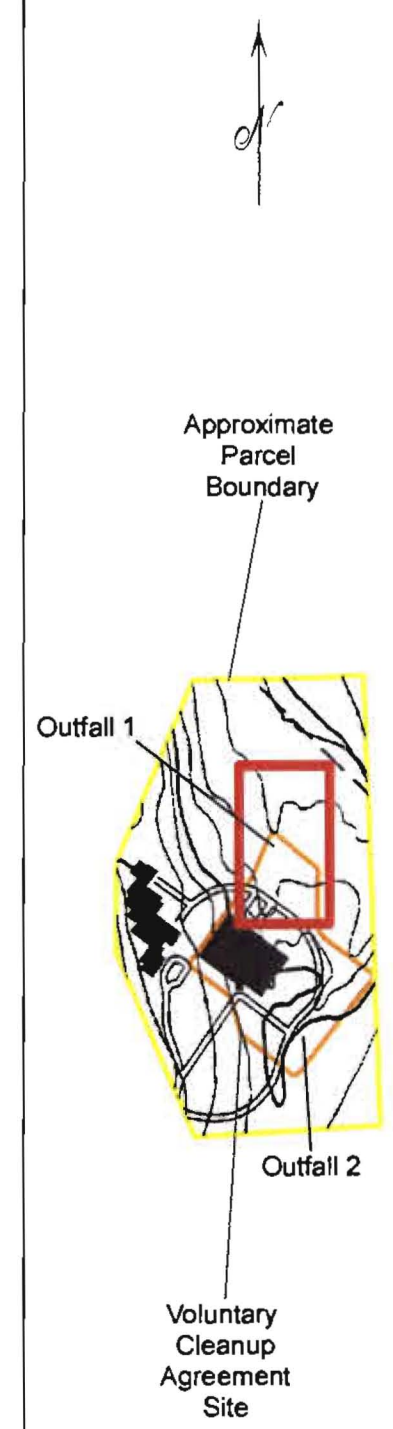
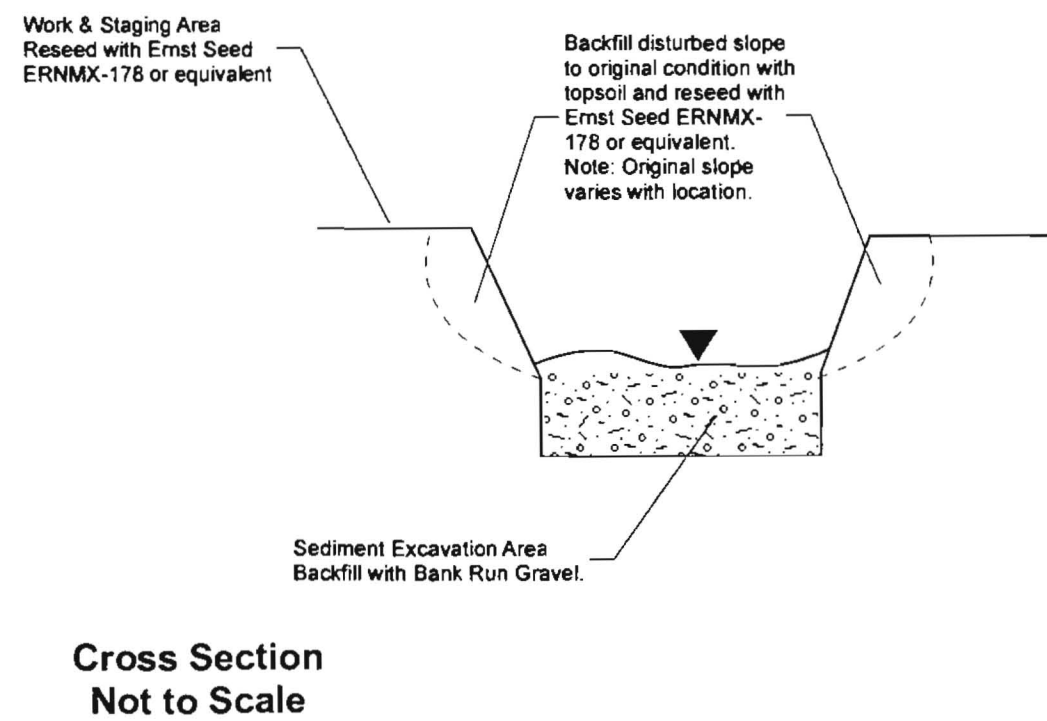
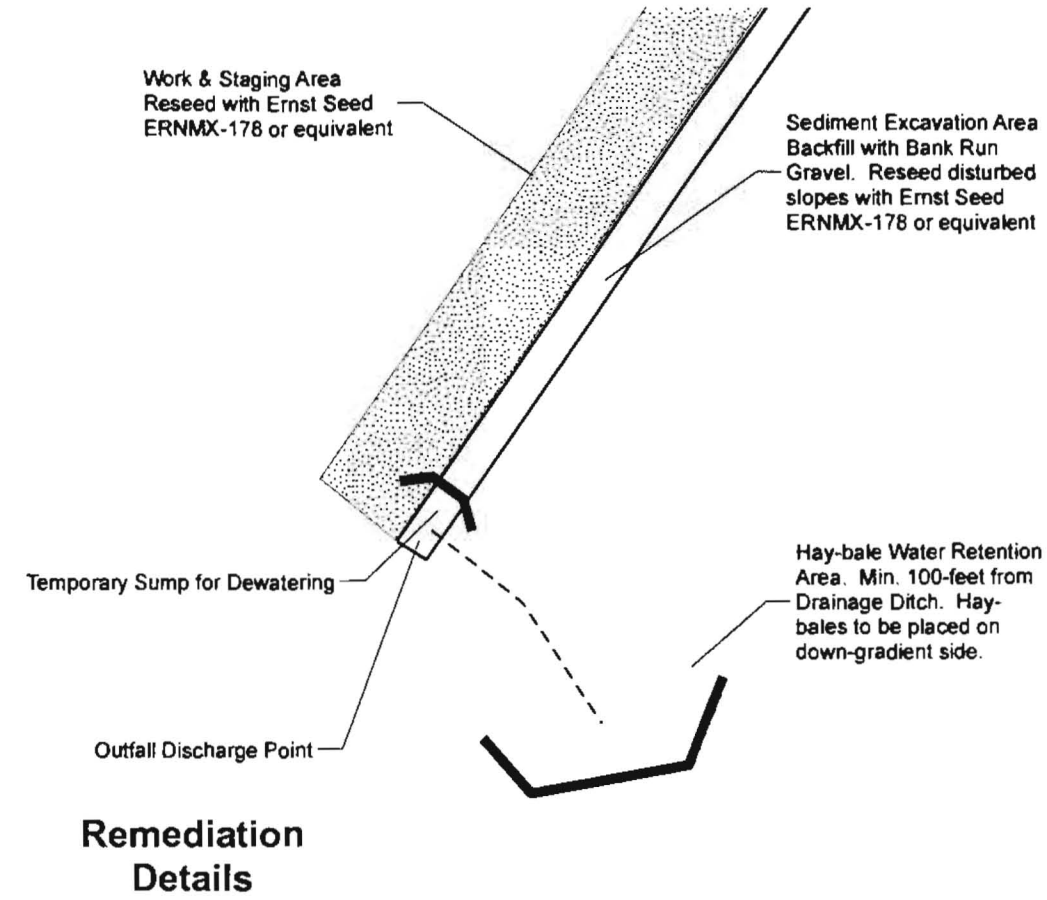
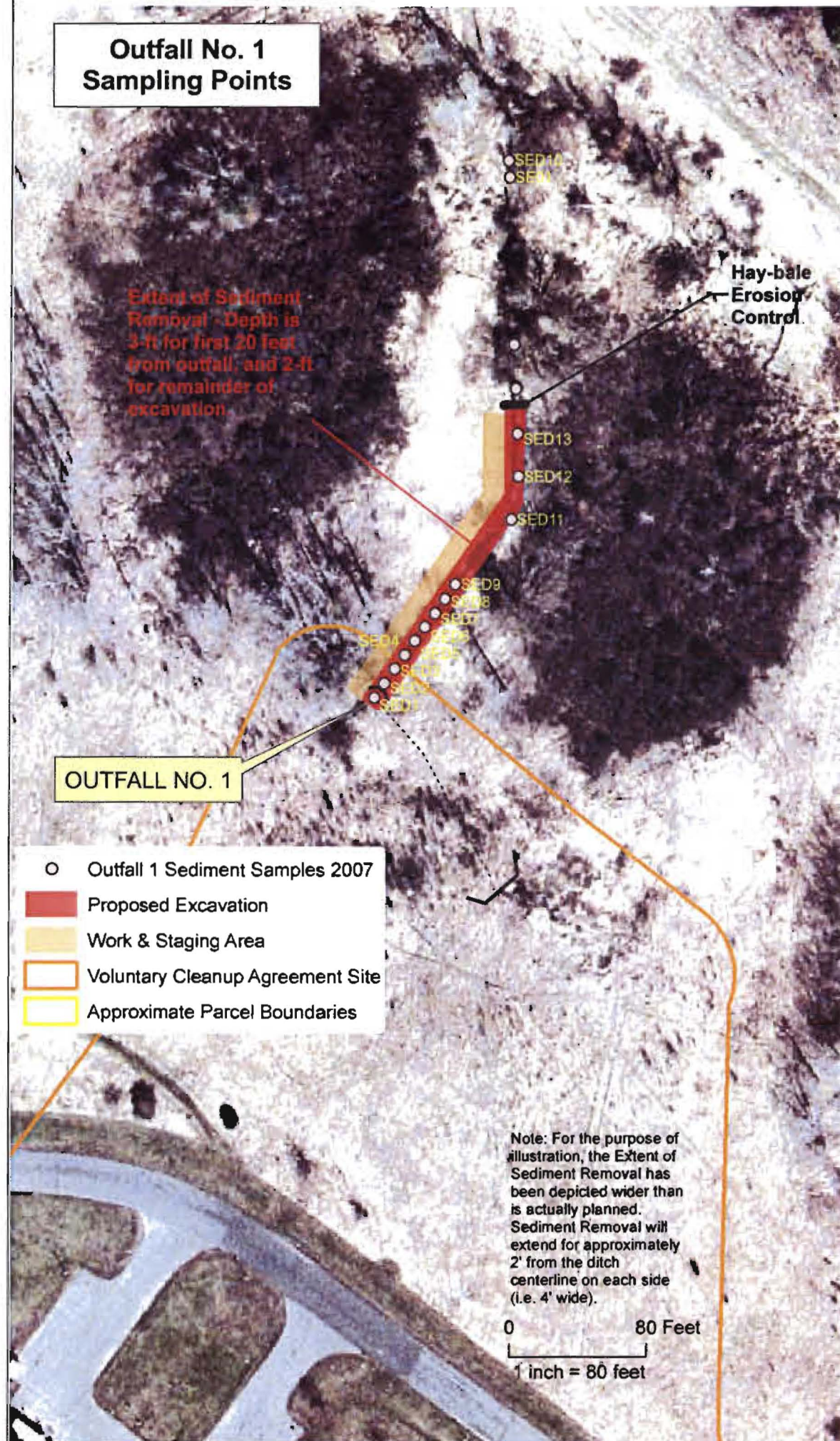
DRAWING TITLE
**Outfall Locations and
Approximate Parcel Boundaries**

DESIGNED BY RCN	DATE 3/13/2009
DRAWN BY RCN	
CHECKED BY RCN	
REVIEWED BY RCN	

PROJECT/CLIENT
**Ultralife Batteries
Remedial Action Work Plan**
**1350 Route 88 South
Newark, New York**

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Ultralife Batteries
Remedial Action Work Plan

1350 Route 88 South
Newark, New York

DRAWING TITLE

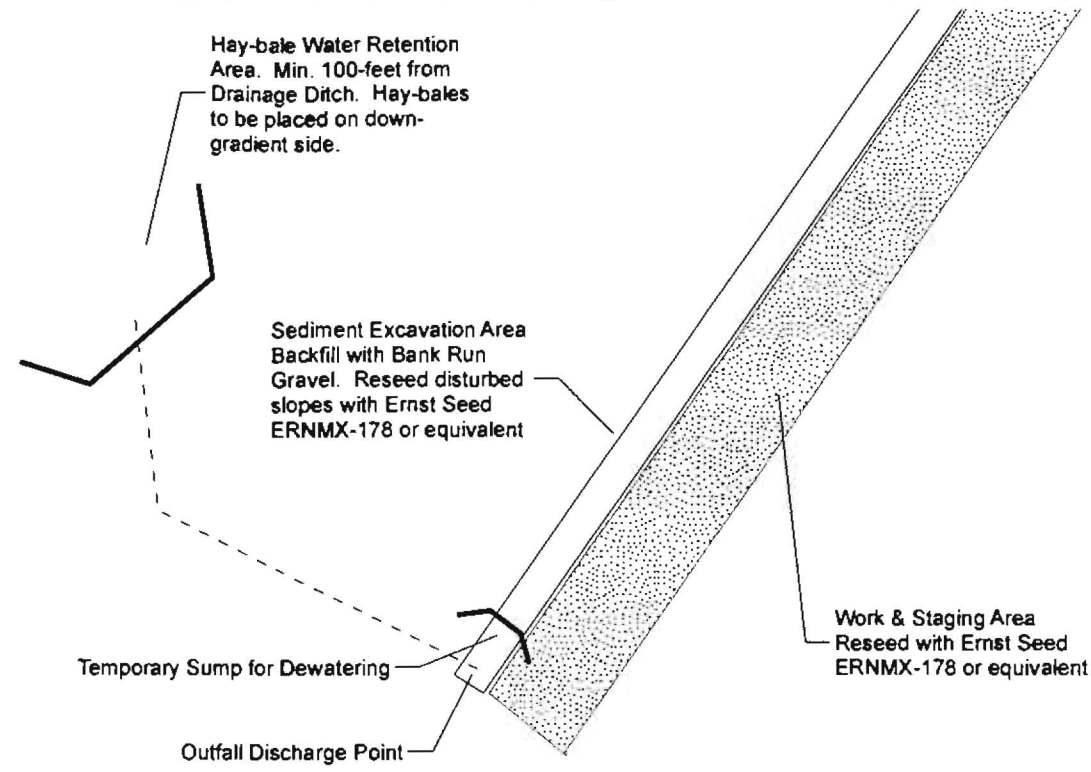
Outfall No. 1 Sediment Sample
Locations, Remediation Plan,
and Restoration Details

DESIGNED BY	RCN
DRAWN BY	RCN
DATE	7/17/2009
REVIEWED BY	DPN

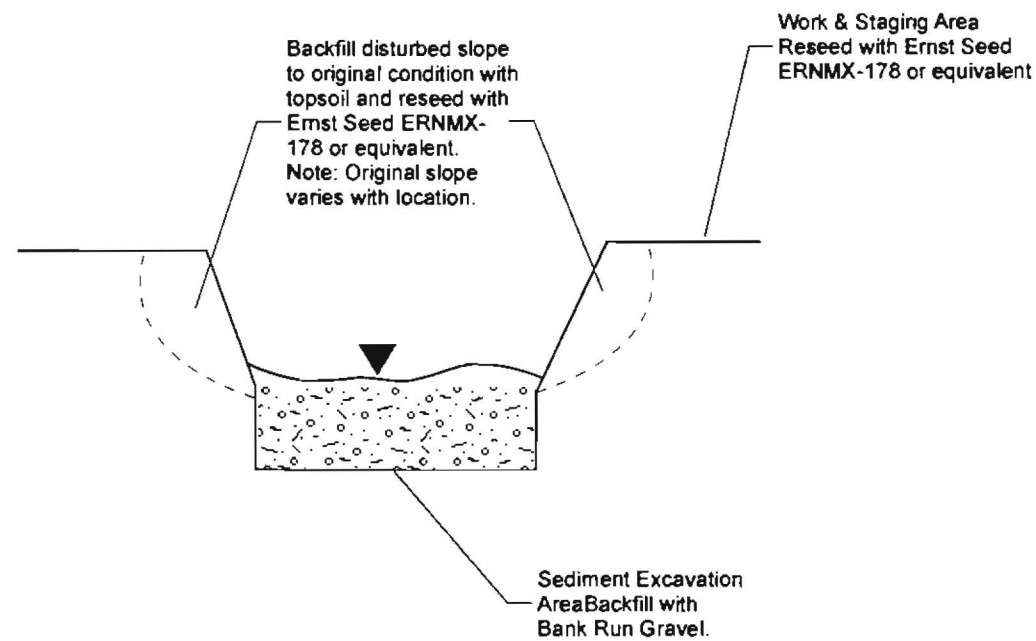
PROJECT/DRAWING NUMBER

209025

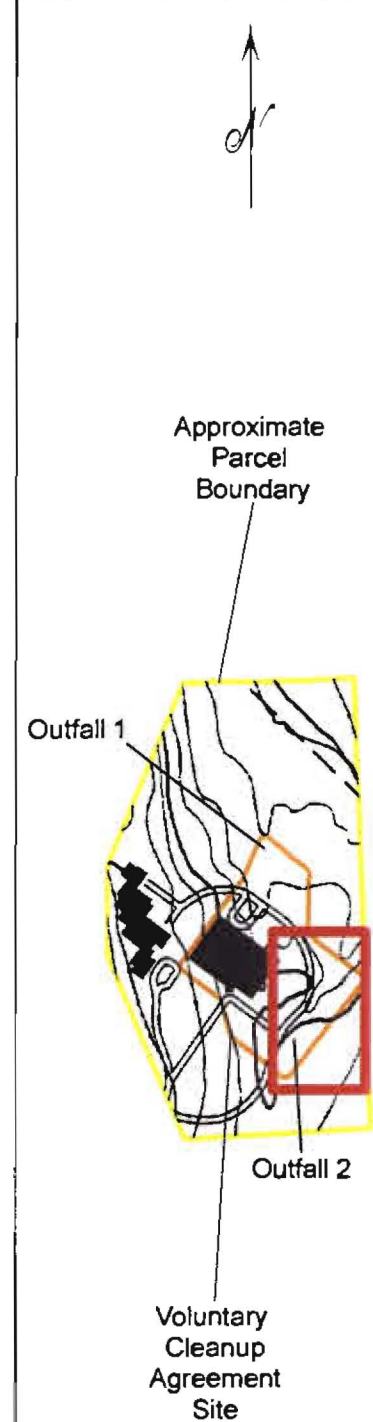
FIGURE 3



Remediation Details



Cross Section Not to Scale



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Ultralife Batteries
Remedial Action Work Plan
1350 Route 88 South
Newark, New York

DRAWING TITLE

Outfall No. 2 Sediment Sample
Locations, Remediation Plan,
and Restoration Details

ISSUED FOR	REVIEW	DATE	7/17/2009
DESIGNED BY	RCN	DATE	7/17/2009
DRAWN BY	RCN	DATE	7/17/2009
CHECKED BY	RCN	DATE	7/17/2009

PROJECT/DRAWING NUMBER

209025

FIGURE 4



LaBella Associates, P.C.

300 State Street

Rochester, New York 14614

Appendix 1

Figures from GeoQuest Final Investigation Report

PHASE 1

OUTFALL #1	SED 1 (0.0-0.5 FT)	SED 1 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	10.0	12.0
COPPER	81.8	--
MANGANESE	--	826

OUTFALL #1	SED 2 (0.0-0.5 FT)	SED 2 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	21.2	--
CADMIUM	2.1B	--
CHROMIUM	32.6	--
COPPER	--	56.5
MANGANESE	--	518
MERCURY	0.17B	--
NICKEL	23.1	--
SILVER	5.9	--

OUTFALL #1	SED 3 (0.0-0.5 FT)	SED 3 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	7.7	--
COPPER	--	75.2
LEAD	36.3	--
SILVER	14B	--
ZINC	--	185

OUTFALL #1	SED 4 (0.0-0.5 FT)	SED 4 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	32.7	--
CADMIUM	0.60B	--
COPPER	--	35.9
MANGANESE	--	478

OUTFALL #1	SED 5 (0.0-0.5 FT)	SED 5 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	9.0	7.8
CADMIUM	0.77B	--
LEAD	40.3	--
SILVER	1.1B	--

OUTFALL #1	SED 6 (0.0-0.5 FT)
METALS	PPM
ARSENIC	9.1
LEAD	47.0

OUTFALL #1	SED 7 (0.0-0.5 FT)
METALS	PPM
ARSENIC	27.4
CADMIUM	4.2B
CHROMIUM	29.5
SILVER	4.9B

OUTFALL #1	SED 8 (0.0-0.5 FT)	SED 8 (0.5-1.0 FT)
METALS	PPM	PPM
CADMIUM	2.8B	--
COPPER	--	28.0
SILVER	3.6B	--

OUTFALL #1	SED 9 (0.0-0.5 FT)	SED 9 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	14.7	--
COPPER	--	55.7
IRON	26,700	--
LEAD	58.7	--
MERCURY	0.18B	--
MANGANESE	617	--



PHASE 2

OUTFALL #1	SED 15 (0.0-0.5 FT)
METALS	PPM
COPPER	25.9

OUTFALL #1	SED 13 (0.0-0.5 FT)	SED 13 (0.5-1.0 FT)
METALS	PPM	PPM
ZINC	219	--
COPPER	--	26.2

OUTFALL #1	SED 12 (0.0-0.5 FT)	SED 12 (0.5-1.0 FT)
METALS	PPM	PPM
ARSENIC	12.0	--
CADMIUM	0.79B	--
CHROMIUM	28.5	--
COPPER	--	40.4
IRON	34,000	--
LEAD	77.7	--
MERCURY	0.17B	--
NICKEL	25.9	--

OUTFALL #1	SED 11 (0.5-1.0 FT)
METALS	PPM
MANGANESE	540
SILVER	10B
ZINC	183

OUTFALL NO. 1

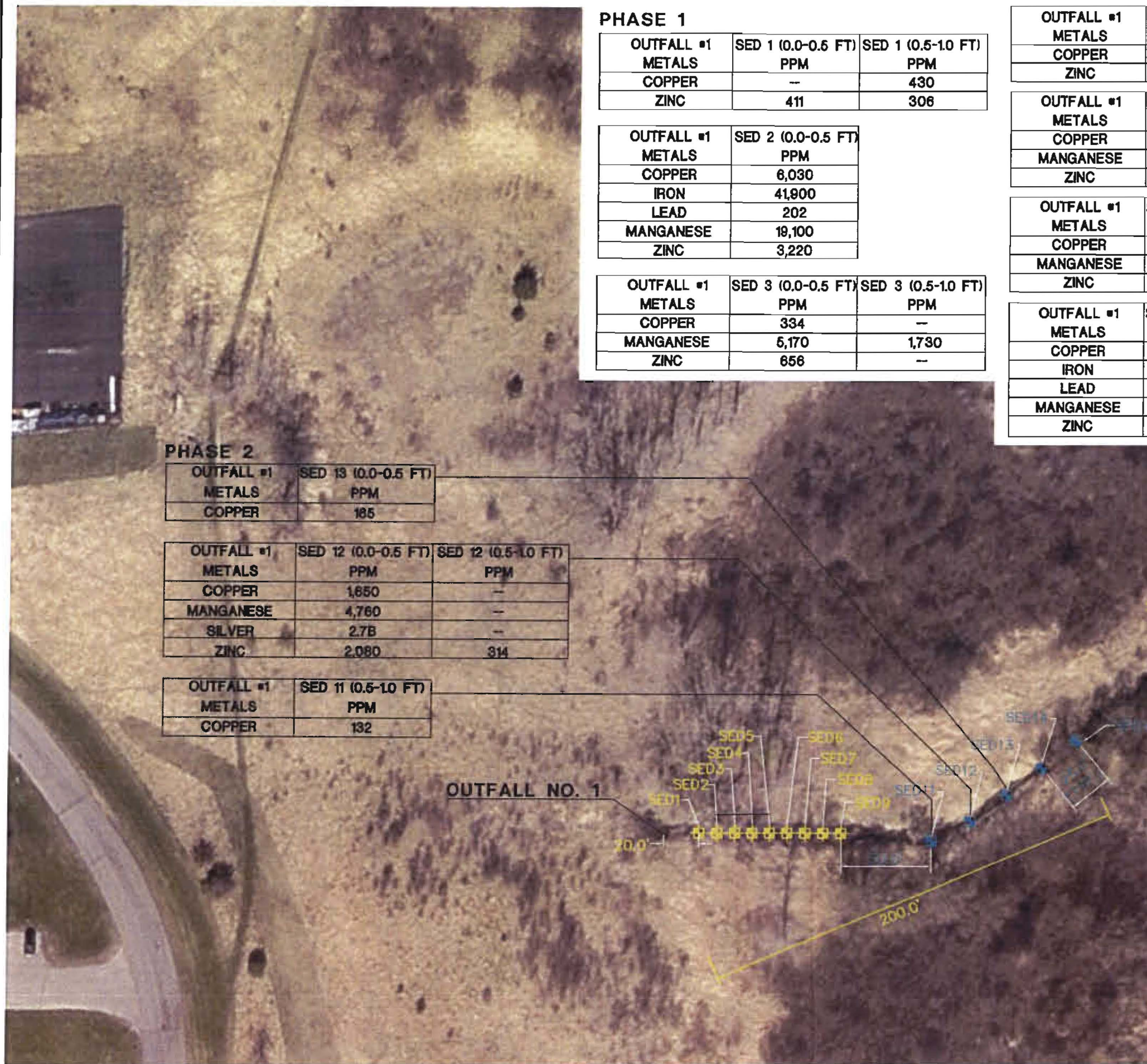


CONTAMINANT DISTRIBUTION MAP ULTRALIFE BATTERIES, INC. PHASE 1 AND PHASE 2

NEWARK, NEW YORK
OUTFALL #1 - SEDIMENT ANALYSIS SUMMARY
METAL CONCENTRATIONS THAT EXCEED
LOW EFFECT LEVELS
SCALE: 1"=60' FIG. 7



THE PIANO WORKS
349 WEST COMMERCIAL STREET
SUITE 3200
EAST ROCHESTER, NY 14445
T 585.586.0200 F 585.586.6752
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PARRONE engineering



PHASE 1

OUTFALL #1	SED 1 (0.0-0.5 FT)	SED 1 (0.5-1.0 FT)
METALS	PPM	PPM
COPPER	--	430
ZINC	411	306

OUTFALL #1	SED 2 (0.0-0.5 FT)
METALS	PPM
COPPER	6,030
IRON	41,900
LEAD	202
MANGANESE	19,100
ZINC	3,220

OUTFALL #1	SED 3 (0.0-0.5 FT)	SED 3 (0.5-1.0 FT)
METALS	PPM	PPM
COPPER	334	--
MANGANESE	5,170	1,730
ZINC	656	--

OUTFALL #1	SED 4 (0.0-0.5 FT)
METALS	PPM
COPPER	952
ZINC	503

OUTFALL #1	SED 5 (0.0-0.5 FT)
METALS	PPM
COPPER	543
MANGANESE	2,810
ZINC	651

OUTFALL #1	SED 6 (0.0-0.5 FT)
METALS	PPM
COPPER	280
MANGANESE	2,040
ZINC	426

OUTFALL #1	SED 7 (0.0-0.5 FT)
METALS	PPM
COPPER	12,100
IRON	40,200
LEAD	269
MANGANESE	16,400
ZINC	6,500

OUTFALL #1	SED 8 (0.0-0.5 FT)
METALS	PPM
ARSENIC	35.6
COPPER	9,870
IRON	57,700
LEAD	282
MANGANESE	8,010
ZINC	6,120

OUTFALL #1	SED 9 (0.0-0.5 FT)
METALS	PPM
COPPER	2,890
ZINC	1,640

OUTFALL #1	SED 10 (0.0-0.5 FT)
METALS	PPM
COPPER	126

PHASE 2

OUTFALL #1	SED 13 (0.0-0.5 FT)
METALS	PPM
COPPER	185

OUTFALL #1	SED 12 (0.0-0.5 FT)	SED 12 (0.5-1.0 FT)
METALS	PPM	PPM
COPPER	1,650	--
MANGANESE	4,760	--
SILVER	2.7B	--
ZINC	2,080	314

OUTFALL #1	SED 11 (0.5-1.0 FT)
METALS	PPM
COPPER	132

CONTAMINANT DISTRIBUTION MAP
ULTRALIFE BATTERIES, INC.
PHASE 1 AND PHASE 2

NEWARK, NEW YORK
OUTFALL #1 - SEDIMENT ANALYSIS SUMMARY

METAL CONCENTRATIONS THAT EXCEED
SEVERE EFFECT LEVELS

SCALE: 1"=60'

FIG. 8



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SUITE 3200
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PHASE 1

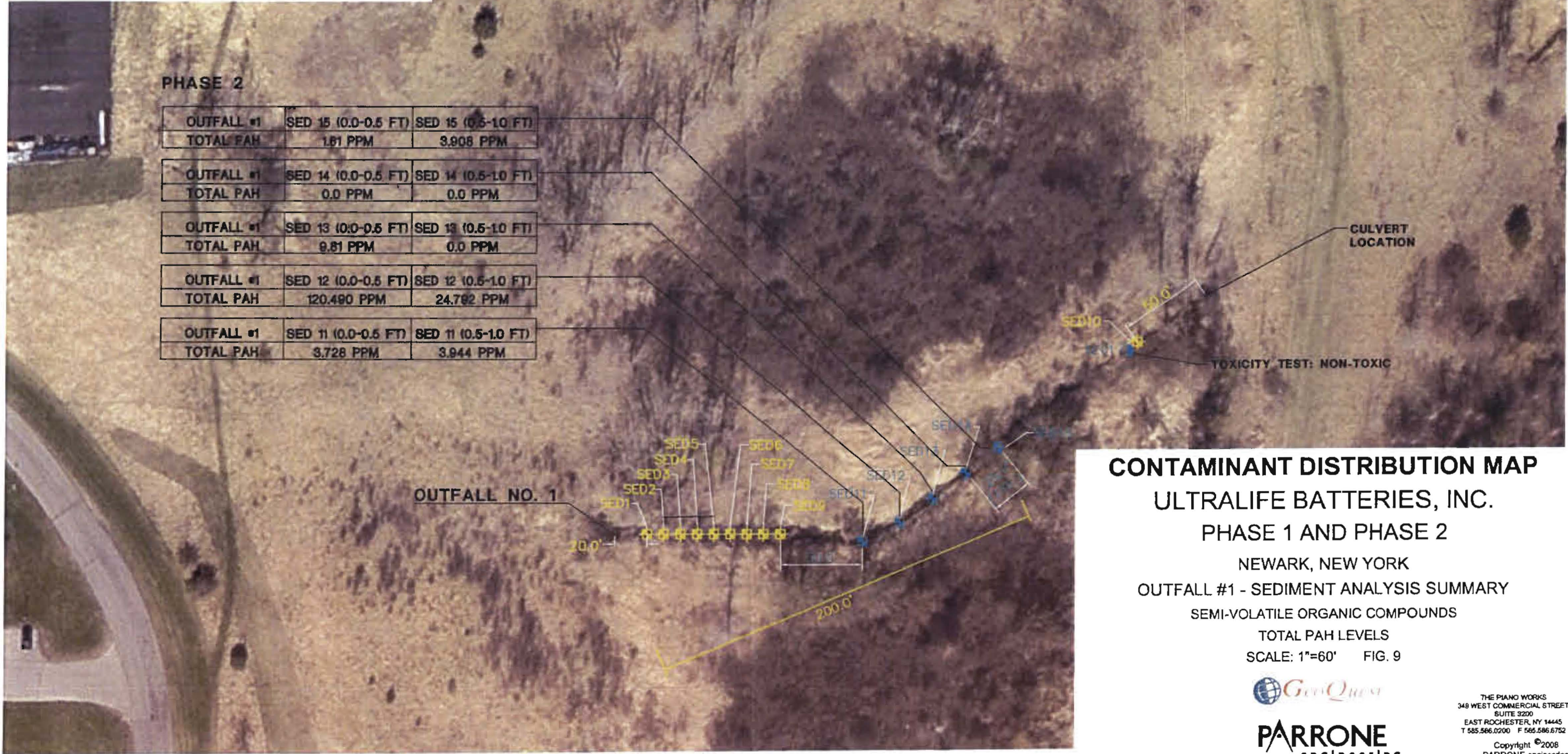
OUTFALL #1	SED 1 (0.0-0.5 FT)	SED 1 (0.5-1.0 FT)
TOTAL PAH	5,141.400 PPM	5,806.000 PPM
OUTFALL #1	SED 2 (0.0-0.5 FT)	SED 2 (0.5-1.0 FT)
TOTAL PAH	4,403.000	260.580 PPM
OUTFALL #1	SED 3 (0.0-0.5 FT)	SED 3 (0.5-1.0 FT)
TOTAL PAH	1,810.100 PPM	8,314.000 PPM
OUTFALL #1	SED 4 (0.0-0.5 FT)	SED 4 (0.5-1.0 FT)
TOTAL PAH	210.170 PPM	85.890 PPM

OUTFALL #1	SED 5 (0.0-0.5 FT)	SED 5 (0.5-1.0 FT)
TOTAL PAH	331.800 PPM	3.167 PPM
OUTFALL #1	SED 6 (0.0-0.5 FT)	SED 6 (0.5-1.0 FT)
TOTAL PAH	417.000 PPM	31.500 PPM
OUTFALL #1	SED 7 (0.0-0.5 FT)	SED 7 (0.5-1.0 FT)
TOTAL PAH	877.900 PPM	100.370 PPM

OUTFALL #1	SED 8 (0.0-0.5 FT)	SED 8 (0.5-1.0 FT)
TOTAL PAH	1,299.200 PPM	5.582 PPM
OUTFALL #1	SED 9 (0.0-0.5 FT)	SED 9 (0.5-1.0 FT)
TOTAL PAH	1,156.700 PPM	138.310 PPM
OUTFALL #1	SED 10 (0.0-0.5 FT)	SED 10 (0.5-1.0 FT)
TOTAL PAH	3.311 PPM	0.047 PPM

PHASE 2

OUTFALL #1	SED 15 (0.0-0.5 FT)	SED 15 (0.5-1.0 FT)
TOTAL PAH	1.61 PPM	3.908 PPM
OUTFALL #1	SED 14 (0.0-0.5 FT)	SED 14 (0.5-1.0 FT)
TOTAL PAH	0.0 PPM	0.0 PPM
OUTFALL #1	SED 13 (0.0-0.5 FT)	SED 13 (0.5-1.0 FT)
TOTAL PAH	9.81 PPM	0.0 PPM
OUTFALL #1	SED 12 (0.0-0.5 FT)	SED 12 (0.5-1.0 FT)
TOTAL PAH	120.490 PPM	24.792 PPM
OUTFALL #1	SED 11 (0.0-0.5 FT)	SED 11 (0.5-1.0 FT)
TOTAL PAH	3.728 PPM	3.944 PPM



CONTAMINANT DISTRIBUTION MAP
ULTRALIFE BATTERIES, INC.
PHASE 1 AND PHASE 2

NEWARK, NEW YORK
OUTFALL #1 - SEDIMENT ANALYSIS SUMMARY
SEMI-VOLATILE ORGANIC COMPOUNDS
TOTAL PAH LEVELS
SCALE: 1"=60' FIG. 9



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PHASE 1		
OUTFALL #2 METALS	SED 1 (0.0-0.5 FT) PPM	SED 1 (0.5-1.0 FT) PPM
ANTIMONY	2.3B	--
ARSENIC	6.8	--
CADMIUM	13B	0.82B
CHROMIUM	35.0	--
COPPER	89.9	29.5
LEAD	76.7	41.3
MANGANESE	1070	--
NICKEL	215	--
SILVER	12B	--

OUTFALL #2 METALS	SED 2 (0.0-0.5 FT) PPM
ZINC	155

OUTFALL #2 METALS	SED 3 (0.5-1.0 FT) PPM
COPPER	16.2

OUTFALL #2 METALS	SED 4 (0.0-0.5 FT) PPM	SED 4 (0.5-1.0 FT) PPM
COPPER	--	16.2
MANGANESE	616	852

OUTFALL #2 METALS	SED 5 (0.0-0.5 FT) PPM	SED 5 (0.5-1.0 FT) PPM
MANGANESE	--	496
ZINC	156	--

OUTFALL #2 METALS	SED 6 (0.0-0.5 FT) PPM	SED 6 (0.5-1.0 FT) PPM
MANGANESE	869	838
ZINC	--	120

PHASE 2		
OUTFALL #2 METALS	SED 7 (0.0-0.5 FT) PPM	SED 7 (0.5-1.0 FT) PPM
ARSENIC	--	7.6
MANGANESE	--	525
ZINC	172	--

OUTFALL #2 METALS	SED 8 (0.0-0.5 FT) PPM
LEAD	48.6

OUTFALL #2 METALS	SED 9 (0.0-0.5 FT) PPM	SED 9 (0.5-1.0 FT) PPM
COPPER	25.3	--
MANGANESE	--	772

CONTAMINANT DISTRIBUTION MAP
ULTRALIFE BATTERIES, INC.
PHASE 1 AND PHASE 2
NEWARK, NEW YORK
OUTFALL #2 - SEDIMENT ANALYSIS SUMMARY
METAL CONCENTRATIONS THAT EXCEED
LOW EFFECT LEVELS
SCALE: 1"=60' FIG. 10



PHASE 1

OUTFALL #2	SED 1 (0.0-0.5 FT)	SED 1 (0.5-1.0 FT)
TOTAL PAH	31.600 PPM	5.160 PPM

OUTFALL #2	SED 2 (0.0-0.5 FT)	SED 2 (0.5-1.0 FT)
TOTAL PAH	42.050	2.623 PPM

OUTFALL #2	SED 3 (0.0-0.5 FT)	SED 3 (0.5-1.0 FT)
TOTAL PAH	0.400 PPM	0.018 PPM

OUTFALL #2	SED 4 (0.0-0.5 FT)	SED 4 (0.5-1.0 FT)
TOTAL PAH	13.520 PPM	11.940 PPM

OUTFALL #2	SED 5 (0.0-0.5 FT)	SED 5 (0.5-1.0 FT)
TOTAL PAH	3.070 PPM	0.120 PPM

OUTFALL #2	SED 6 (0.0-0.5 FT)	SED 6 (0.5-1.0 FT)
TOTAL PAH	4.030 PPM	1.182 PPM

PHASE 2

OUTFALL #2	SED 7 (0.0-0.5 FT)	SED 7 (0.5-1.0 FT)
TOTAL PAH	2.421 PPM	0.0 PPM

OUTFALL #2	SED 8 (0.0-0.5 FT)	SED 8 (0.5-1.0 FT)
TOTAL PAH	2.493 PPM	0.451 PPM

OUTFALL #2	SED 9 (0.0-0.5 FT)	SED 9 (0.5-1.0 FT)
TOTAL PAH	61.120 PPM	1730 PPM

CONTAMINANT DISTRIBUTION MAP
ULTRALIFE BATTERIES, INC.
PHASE 1 AND PHASE 2

NEWARK, NEW YORK
OUTFALL #2 - SEDIMENT ANALYSIS SUMMARY
SEMI-VOLATILE ORGANIC COMPOUNDS
TOTAL PAH LEVELS
SCALE: 1"=60' FIG. 12



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LaBella

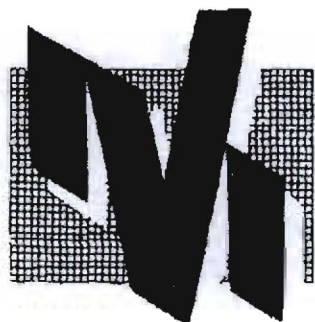
LaBella Associates, P.C.

300 State Street

Rochester, New York 14614

Appendix 2

Erosion Control Mat Specifications



Indian Valley Industries, Inc.

PO BOX 810, 60-100 CORLISS AVENUE, JOHNSON CITY NY 13790

PHONE: 800-659-5111 / FAX: 607-729-5158

www.iviindustries.com

IVI JUTE MESH SPECIFICATIONS

Property	Test Method	Typical Value	English / Metric Units
Yarn Fiber	-	Woven jute, undyed & unbleached	
Yarn Count-	Warp	78 per width minimum	
	Weft	42 per linear yard, minimum	
Color	-	Natural (Brown, Earth Tone)	
Fabric Width	-	48" / 1.23m	Inches / Meters
Fabric Weight	-	.92lbs / 417g	lbs/sq. yd. - g/sq. m
Strands per ft/mt-	Warp	ASTM D-3775	19.5 / 63.5
	Weft	ASTM D-3775	14.0 / 45.0
Mass per Unit Area	ASTM D-3776 Warp	14.7 / 400	oz/sq. yd g/sq. m
Grab Tensile - Dry	ASTM D-4632 Warp	300/1.38	lbs/ft - KN
	(modified) Fill	175/70	lbs/ft - KN
Grab Tensile - Wet	ASTM D-4632 Warp	125/50	lbs/ft - KN
	(modified) Fill	65/28	lbs/ft - KN
Elongation at Break	ASTM D-4632 Warp	10	%
	(modified) Fill	10	%
Open Area	C.O.E. CW 002215.	60-65	%
Durability	Field Experience	1-2	Years
Water Velocity	University Channel Test	8/2.4	ft/sec - m/sec
Unit Shear Test	University Channel Test	2.76	lbs/sq. ft.
		132	n/sq. meter
"C" Factor (1.5:1 Slope)	-	0.3	-
Mannings N	University Channel Test	0.0237	-

Minimum Mesh Opening: .5 inches

Erosion mat shall resist degradation for a minimum 6 month period after installation



Indian Valley Industries, Inc.

PO BOX 810, 60-100 CORLISS AVENUE, JOHNSON CITY NY 13790

PHONE: 800-659-5111 / FAX: 607-729-5158

www.iviindustries.com

JUTE MESH

An erosion control fabric designed to protect seeds and slopes during the establishment of vegetation and stabilizes soil on slopes during rainwater run off. Jute mesh holds grass seed in place until germination is complete. The fabric is constructed from natural fibers which are biodegradable and during the decomposition cycle adds organic matter to the soil.



FABRIC STRUCTURE	WOVEN
YARN	JUTE
WIDTH & LENGTH	4' x 225'
YARN COUNT	WARP 78 PER WIDTH WEFT 41 PER LINEAR YARD MINIMUM
WEIGHT	1.5 lbs AVERAGE PER RUNNING YARD
WATER ABSORPTION	450% OF FABRIC WEIGHT
OPEN AREA	60 - 65%
DURABILITY	1 - 2 YEARS

Roll Packing: 4'x225' - 100 Sq. Yd - 92 lbs

LaBELLA

LaBella Associates, P.C.

300 State Street

Rochester, New York 14614

Appendix 3

Health and Safety Plan

Site Health and Safety Plan

Location:

Stuart Park Complex – Ultralife Battery
2000 Technology Parkway
Newark, New York

Prepared For:

Ultralife Corporation
2000 Technology Parkway
Newark, New York

LaBella Project No. 209025

January 2010

Site Health and Safety Plan

Location:

Stuart Park Complex – Ultralife Battery
2000 Technology Parkway
Newark, New York

Prepared For:

Ultralife Corporation
2000 Technology Parkway
Newark, New York

LaBella Project No. 209025

January 2010

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SITE HEALTH AND SAFETY PLAN

Project Title: Remedial Action Voluntary Cleanup Program Site #V00178-8

Project Number: 209025

Project Location (Site): 2000 Technology Parkway,
Newark, New York

Environmental Director: Gregory Senecal, CHMM

Project Manager: Dan Noll, P.E.

Plan Review Date: _____

Plan Approval Date: _____

Plan Approved By: _____
Mr. Richard Rote, CIH

Site Safety Supervisor: Mike Pelychaty

Site Contact: To Be Determined

Safety Director: Rick Rote, CIH

Proposed Date(s) of Field Activities: Anticipated for April 2010 (may vary)

Site Conditions: Slightly sloping, encompassing approximately 14.24 acres

Site Environmental Information Provided By: Prior Environmental Report by GeoQuest Environmental, Inc. dated December 2008.

Air Monitoring Provided By: LaBella Associates, P.C.

Site Control Provided By: Contractor(s)




EMERGENCY CONTACTS

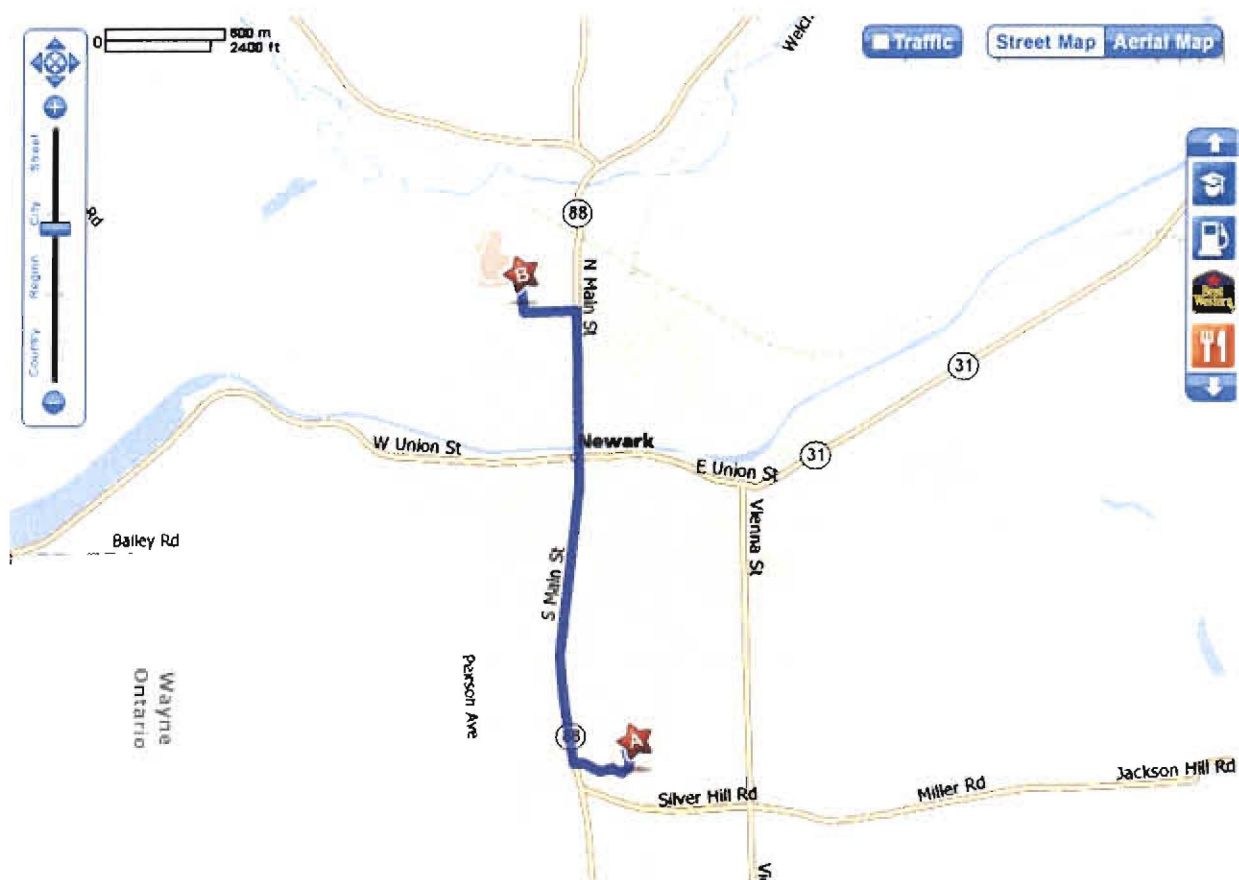
	Name	Phone Number
Ambulance:	As Per Emergency Service	911
Hospital Emergency:	Newark-Wayne Community Hospital	585-922-4000
Poison Control Center:	Finger Lakes Poison Control	585-273-3854
Police (local, state):	Newark Police Department	911
Fire Department:	Newark Fire Department	911
Site Contact:	John Diggory	Cell: 315-359-6329
Agency Contact:	NYSDEC – Charlotte Theobald Finger Lakes Poison Control NYSDOH – Melissa Menetti	585-226-5354 1-800-222-1222 1-800-458-1158 ext. 27860
Environmental Director:	Greg Senecal, CHMM	Direct: 585-295-6243 Cell: 585-752-6480 Home: 585-323-2142
Project Manager:	Dan Noll, P.E.	Direct: 585-295-611 Cell: 585-301-8458
Site Safety Supervisor:	Mike Pelychaty	Direct: 585-295-6253 Cell: 585-451-6225
Safety Director	Rick Rote, CIH	Direct: 585-295-6241

MAP AND DIRECTIONS TO THE MEDICAL FACILITY NEWARK-WAYNE COMMUNITY HOSPITAL

Total Time: 8 minutes
Total Distance: 2.9 miles

Start: 2000 Technology Parkway, Newark, NY

START	1. Start out going SOUTH on Technology Parkway .	~500 ft.
	2. At the traffic circle, take the 2nd exit and stay on Technology Pkwy .	0.2 mi
	3. Turn right at S Main St/NY-88 .	2.3 mi
	4. Turn left at Stuerwald Ave	0.2 mi
	5. Turn right at Driving Park Ave	0.2 mi
END	6. End at 1200 Driving Park Ave, Newark, NY	
Total Mileage/Time		~2.9 mi / 8 min



- iii -

Site Health and Safety Plan
Stuart Park Complex – Ultralife Battery
2000 Technology Parkway, Newark, New York
LaBella Project No. 209025

LABELLA

1.0 Introduction

The purpose of this Health and Safety Plan (HASP) is to provide guidelines for responding to potential health and safety issues that may be encountered during the Remedial Action (RA) at the Site located at 2000 Technology Parkway in the Village of Newark, Wayne County, New York. This HASP only reflects the policies of LaBella Associates P.C. The requirements of this HASP are applicable to all approved LaBella personnel at the work site. This document's project specifications and the Community Air Monitoring Plan (CAMP) are to be consulted for guidance in preventing and quickly abating any threat to human safety or the environment. The provisions of the HASP were developed in general accordance with 29 CFR 1910 and 29 CFR 1926 and do not replace or supersede any regulatory requirements of the USEPA, NYSDEC, OSHA or any other regulatory body.

2.0 Responsibilities

This HASP presents guidelines to minimize the risk of injury to project personnel, and to provide rapid response in the event of injury. The HASP is applicable only to activities of approved LaBella personnel and their authorized visitors. The Project Manager shall implement the provisions of this HASP for the duration of the project. It is the responsibility of LaBella employees to follow the requirements of this HASP, and all applicable company safety procedures.

3.0 Activities Covered

The activities covered under this HASP are limited to the following:

- ☐ Management of environmental remediation activities
- ☐ Environmental Monitoring
- ☐ Collection of samples
- ☐ Management of excavated soil, sediments and water.

4.0 Work Area Access and Site Control

The contractor(s) will have primary responsibility for work area access and site control.

5.0 Potential Health and Safety Hazards

This section lists some potential health and safety hazards that project personnel may encounter at the project site and some actions to be implemented by approved personnel to control and reduce the associated risk to health and safety. This is not intended to be a complete listing of any and all potential health and safety hazards. New or different hazards may be encountered as site environmental and site work conditions change. The suggested actions to be taken under this plan are not to be substituted for good judgment on the part of project personnel. At all times, the Site Safety Officer has responsibility for site safety and his or her instructions must be followed.

5.1 *Hazards Due to Heavy Machinery*

Potential Hazard:

Heavy machinery including trucks, excavators, backhoes, etc will be in operation at the site. The presence of such equipment presents the danger of being struck or crushed. Use caution when working near heavy machinery.

Protective Action:

Make sure that operators are aware of your activities, and heed operator's instructions and warnings. Wear bright colored clothing and walk safe distances from heavy equipment. A hard hat, safety glasses and steel toe shoes are required.

5.2 *Excavation Hazards*

Potential Hazard:

Excavations and trenches can collapse, causing injury or death. Edges of excavations can be unstable and collapse. Toxic and asphyxiant gases can accumulate in confined spaces and trenches. Excavations that require working within the excavation will require air monitoring in the breathing zone (refer to Section 9.0).

Excavations left open create a fall hazard which can cause injury or death.

Protective Action:

Personnel must receive approval from the Project Manager to enter an excavation for any reason. Subsequently, approved personnel are to receive authorization for entry from the Site Safety Officer. Approved personnel are not to enter excavations over 4 feet in depth unless excavations are adequately sloped. Additional personal protective equipment may be required based on the air monitoring.

Personnel should exercise caution near all excavations at the site as it is expected that excavation sidewalls will be unstable.

Fencing and/or barriers accompanied by "no trespassing" signs should be placed around all excavations when left open for any period of time when work is not being conducted.

5.3 *Cuts, Punctures and Other Injuries*

Potential Hazard:

In any excavation or construction, work site there is the potential for the presence of sharp or jagged edges on rock, metal materials, and other sharp objects. Serious cuts and punctures can result in loss of blood and infection.

Protective Action:

The Project Manager is responsible for making First Aid supplies available at the work site to treat minor injuries. The Site Safety Officer is responsible for arranging the transportation of authorized on-site personnel to medical facilities when First Aid treatment is not sufficient. Do not move seriously injured workers. All injuries requiring treatment are to be reported to the Project Manager. Serious injuries are to be reported immediately to the Site Safety Officer.

5.4 *Injury Due to Exposure of Chemical Hazards*

Potential Hazards:

Volatile organic vapors from petroleum products, chlorinated solvents or other chemicals may be encountered during excavation activities at the project work site. Inhalation of high concentrations of organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause irritation, chemical burn, or dermatitis.

Protective Action:

The presence of organic vapors may be detected by their odor and by monitoring instrumentation. Approved employees will not work in environments where hazardous concentrations of organic vapors are present. Air monitoring (refer to Section 9.0) of the work area will be performed at least every 60 minutes or more often using a Photoionization Detector (PID). Personnel are to leave the work area whenever PID measurements of ambient air exceed 25 ppm consistently for a 5 minute period. In the event that sustained total volatile organic compound (VOC) readings of 25 ppm are encountered personnel should upgrade personal protective equipment to Level C (refer to Section 8.0) and an Exclusion Zone should be established around the work area to limit and monitor access to this area (refer to Section 6.0).

5.5 *Injuries Due to Extreme Hot or Cold Weather Conditions*

Potential Hazards:

Extreme hot weather conditions can cause heat exhaustion, heat stress and heat stroke or extreme cold weather conditions can cause hypothermia.

Protective Action:

Precaution measures should be taken such as dress appropriately for the weather conditions and drink plenty of fluid. If personnel should suffer from any of the above conditions, proper techniques should be taken to cool down or heat up the body and taken to the nearest hospital if needed.

5.6 *Biological Hazards*

Potential Hazards:

Biological hazards include insects, snakes, poisonous/irritant plants, and wild animals.

Protective Action:

Precaution measures should be taken to dress appropriately in order to avoid contact with biological hazards. Based on the location of the work and the heavy equipment employed, wild animals are not anticipated to be a significant concern; however, in the event wild animals are observed, personnel should avoid contact with animals and attempt to scare animals off (e.g., honking a horn or yelling). In the event animals are not deterred or appear rabid, the local game warden and/or NYSDEC should be contacted.

6.0 Work Zones

In the event that conditions warrant establishing various work zones (i.e., based on hazards - Section 5.4), the following work zones should be established:

Exclusion Zone (EZ):

The EZ will be established in the immediate vicinity and adjacent downwind direction of site activities that elevate breathing zone VOC concentrations to unacceptable levels based on field screening. These site activities include contaminated soil excavation and soil sampling activities. If access to the site is required to accommodate non-project related personnel then an EZ will be established by constructing a barrier around the work area (yellow caution tape and/or construction fencing). The EZ barrier shall encompass the work area and any equipment staging/soil staging areas necessary to perform the associated work. The contractor(s) will be responsible for establishing the EZ and limiting access to approved personnel. Depending on the condition for establishing the EZ, access to the EZ may require adequate PPE (e.g., Level C).

Contaminant Reduction Zone (CRZ):

The CRZ will be the area where personnel entering the EZ will don proper PPE prior to entering the EZ and the area where PPE may be removed. The CRZ will also be the area where decontamination of equipment and personnel will be conducted as necessary.

7.0 Decontamination Procedures

Upon leaving the work area, approved personnel shall decontaminate footwear as needed. Under normal work conditions, detailed personal decontamination procedures will not be necessary. Work clothing may become contaminated in the event of an unexpected splash or spill or contact with a contaminated substance. Minor splashes on clothing and footwear can be rinsed with clean water. Heavily contaminated clothing should be removed if it cannot be rinsed with water. Personnel assigned to this project should be prepared with a change of clothing whenever on site.

Personnel will use the contractor's disposal container for disposal of PPE.

8.0 Personal Protective Equipment

Generally, site conditions at this work site require level of protection of Level D or modified Level D. However, air monitoring will be conducted to determine if up-grading to Level C PPE is required (refer to Section 9.0). Descriptions of the typical safety equipment associated with Level D and Level C are provided below:

Level D:

Hard hat, safety glasses, rubber nitrile sampling gloves, steel toe construction grade boots, etc.

Level C:

Level D PPE and full or ½-face respirator and tyvek suit (if necessary). *[Note: Organic vapor cartridges are to be changed after each 8-hours of use or more frequently.]*

9.0 Air Monitoring

According to 29 CFR 1910.120(h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection required for personnel working onsite. Air monitoring will consist at a minimum of the procedure listed below. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

The Air Monitor will utilize a photoionization Detector (PID) to screen the ambient air in the work areas (excavation, soil staging, and soil grading areas) for total Volatile Organic Compounds (VOCs) and a DustTrak tm Model 8520 aerosol monitor or equivalent for measuring particulates. Work area ambient air will generally be monitored in the work area and downwind of the work area. Air monitoring of the work areas and downwind of the work areas will be performed at least every 60 minutes or more often using a PID, and the DustTrak meter.

If sustained PID readings of greater than 25 ppm are recorded in the breathing zone, then either personnel are to leave the work area until satisfactory readings are obtained or approved personnel may re-enter the work areas wearing at a minimum a ½ face respirator with organic vapor cartridges for an 8-hour duration (i.e., upgrade to Level C PPE). Organic vapor cartridges are to be changed after each 8-hours of use or more frequently, if necessary. If PID readings are sustained, in the work area, at levels above 50 ppm for a 5 minute average, work will be stopped immediately until safe levels of VOCs are encountered or additional PPE will be required (i.e., Level B).

If dust concentrations exceed the upwind concentration by $100 \mu\text{g}/\text{m}^3$ ($0.1 \text{ mg}/\text{m}^3$) consistently for a 10 minute period within the work area or at the downwind location, then LaBella personnel may not re-enter the work area until dust concentrations in the work area decrease below $100 \mu\text{g}/\text{m}^3$ ($0.1 \text{ mg}/\text{m}^3$), which may be accomplished by the construction manager implementing dust control or suppression measures.

10.0 Emergency Action Plan

In the event of an emergency, employees are to turn off and shut down all powered equipment and leave the work areas immediately. Employees are to walk or drive out of the Site as quickly as possible and wait at the assigned 'safe area'. Follow the instructions of the Site Safety Officer.

Employees are not authorized or trained to provide rescue and medical efforts. Rescue and medical efforts will be provided by local authorities.

11.0 Medical Surveillance

Medical surveillance will be provided to all employees who are injured due to overexposure from an emergency incident involving hazardous substances at this site.

12.0 Employee Training

Personnel who are not familiar with this site plan will receive training on its entire content and organization before working at the Site.

Individuals directly involved with the remedial work will be 40-hour OSHA HAZWOPER trained with current 8-hour refresher certification.

Y:\ULTRALIFE CORPORATION\209025\REPORTS\RPT 2010 01.15.HASP.DOC

Table 1
Exposure Limits and Recognition Qualities

Compound	PEL-TWA (ppm)(b)(d)	TLV-TWA (ppm)(c)(d)	STEL (ppm)(b)	LEL (%) (e)	UEL (%) (f)	IDLH (ppm)(g)(d)	Odor	Odor Threshold (ppm)	Ionization Potential
Acetone	750	500	NA	2.15	13.2	20,000	Sweet	4.58	9.69
Anthracene	.2	.2	NA	NA	NA	NA	Faint aromatic	NA	NA
Benzene	1	0.5	5	1.3	7.9	3000	Pleasant	8.65	9.24
Benzo (a) pyrene (coal tar pitch volatiles)	0.2	0.1	NA	NA	NA	700	NA	NA	NA
Benzo (a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (b) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo (k) Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	10.88
Carbon Disulfide	20	1	NA	1.3	50	500	Odorless or strong garlic type	.096	10.07
Chlorobenzene	75	10	NA	1.3	9.6	2,400	Faint almond	0.741	9.07
Chloroform	50	2	NA	NA	NA	1,000	ethereal odor	11.7	11.42
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethylene	200	200	NA	9.7	12.8	400	Acrid	NA	9.65
1,2-Dichlorobenzene	50	25	NA	2.2	9.2		Pleasant		9.07
Ethylbenzene	100	100	NA	1.0	6.7	2,000	Ether	2.3	8.76
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	50	NA	12	23	5,000	Chloroform-like	10.2	11.35
Naphthalene	10, Skin	10	NA	0.9	5.9	250	Moth Balls	0.3	8.12
n-propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethane	NA	NA	NA	NA	NA	NA	Sweet	NA	NA
Toluene	100	100	NA	0.9	9.5	2,000	Sweet	2.1	8.82
Trichloroethylene	100	50	NA	8	12.5	1,000	Chloroform	1.36	9.45
1,2,4-Trimethylbenzene	NA	25	NA	0.9	6.4	NA	Distinct	2.4	NA
1,3,5-Trimethylbenzene	NA	25	NA	NA	NA	NA	Distinct	2.4	NA
Vinyl Chloride	1	1	NA	NA	NA	NA	NA	NA	NA
Xylenes (o,m,p)	100	100	NA	1	7	1,000	Sweet	1.1	8.56
Metals									
Arsenic	0.01	0.2	NA	NA	NA	100, Ca	Almond		NA
Cadmium	0.2	0.5	NA	NA	NA				NA
Chromium	1	0.5	NA	NA	NA				NA
Lead	0.05	0.15	NA	NA	NA	700			NA
Mercury	0.05	0.05	NA	NA	NA	28	Odorless		NA
Selenium	0.2	0.02	NA	NA	NA	Unknown			NA

- (a) Skin = Skin Absorption
 (b) OSHA-PEL Permissible Exposure Limit (time weighted average, 8-hour) NIOSH Guide, June 1990
 (c) ACGIH - 8 hour time weighted average from Threshold Limit Values and Biological Exposure Indices for 2003
 (d) Metal compounds in mg/m³
 (e) Lower Exposure Limit (%)
 (f) Upper Exposure Limit (%)
 (g) Immediately Dangerous to Life or Health Level: NIOSH Guide, June 1990

- Notes:**
 1. All values are given in parts per million (PPM) unless otherwise indicated
 2. Ca = Possible Human Carcinogen, no IDLH information

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Appendix 4

Community Air Monitoring Plan

APPENDIX 1A

New York State Department of Health Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

