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# LETTER OF TRANSMITTAL

VIA: FedEx 1 day

TO
NY Department of Environmental Conservation
Division of Hazardous Waste Remediation
6274 E Avon-Lima Road
Avon, NY 14414-9519

| | |
|---|---|
| Date: July 28, 2005 | Job No. NY01-911 |
| Attention: Timothy Schneider | |
| RE: McInerney Farm Site | |
| ID # 8-08-005 | |

We are sending you:

[X] Attached [ ] Under separate cover via ______ the following items:

[ ] Shop Drawings [ ] Prints [ ] Plans [ ] Samples [ ] Specifications

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| 1 | 7-28-05 | | Revised Feasibility Study, McInerney Farm Site, July 28, 2005 |
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RECEIVED
JUL 29 2005
SPILLS / BULK STORAGE
NYS DEC REGION 8

Signed:

Stephen W. Kirschner
Project Consultant

# REVISED FEASIBILITY STUDY
# McINERNEY FARM SITE
# NYSDEC SITE
# I.D. #8-08-005

# REVISED FEASIBILITY STUDY
# McINERNEY FARM SITE
# NYSDEC SITE
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*Prepared for:*

**UNISYS CORPORATION**
**Eagan, Minnesota**

*Prepared by:*

**ADVANCED GEOSERVICES ENGINEERING, P.C.**
**West Chester, Pennsylvania**

**Project No. 2001-911-07**
**July 16, 2002**
**Revised March 28, 2003**
**Revised December 22, 2004**
**Revised July 28, 2005**

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# REVISED FEASIBILITY STUDY
# McINERNEY FARM SITE
# NYSDEC SITE
# I.D. #8-08-005

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**West Chester, Pennsylvania**

**Project No. 2001-911-07**
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**Revised July 28, 2005**

**Daniel A. Daily, P.E.**
**New York PE License #077314**

STATE OF NEW YORK
DANIEL A. DAILY
077314-1
LICENSED PROFESSIONAL ENGINEER

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## 1.0 INTRODUCTION

This Revised Feasibility Study (RFS) has been developed to evaluate potentially feasible remedial alternatives at the McInerney Farm property ("the property") located in the Village of Southport, Chemung County, New York. The location of the Site is shown in Figure 1, approximately 0.5 mile southeast of the intersection of State Routes 14 and 427 (formerly 379).

On July 16, 2002 Unisys Corporation submitted the RFS to the New York State Department of Environmental Conservation (NYSDEC) to present a comprehensive assessment of suitable and applicable remedial technologies for the McInerney Farm Site. The NYSDEC approved the RFS in April 2003, which included higher cleanup goals for surface metals and subsurface PCB contamination. Unfortunately, a Record of Decision (ROD) Amendment could not be procured due to the proposed subsurface PCB cleanup goal. This goal of 25 ppm was considered to be inconsistent with a State-wide standard for similar sites.

As documented in a letter dated September 7, 2004, the NYSDEC has notified Unisys Corporation (Unisys) that it is now applying a PCB cleanup goal of 10 ppm for subsurface soil at the Site. The surface soil PCB cleanup goal of 1 ppm and the higher cleanup goals proposed in the RFS for lead, cadmium, and nickel remain acceptable to ROD amendment. This "new" Revised Feasibility Study reflects the required changes back to the original subsurface soil PCB cleanup goal of 10 ppm as agreed to by Unisys Corporation in the 1993 Order of Consent.

The property once consisted of two overlapping areas that are listed on the NYSDEC list as two sites of inactive hazardous waste disposal sites, as referenced in the March 1992 ROD developed by NYSDEC Division of Hazardous Waste Remediation. The southern area with an east-west orientation was designated the Chemung Correctional Facility Site (ID 8-08-020). Remedial actions in that area were completed between 1987 and 1989 and NYSDEC has indicated that no further action is required. The other area with a north-south orientation has also been referred to as the Remington Rand Machinery Division Sperry Rand Site (NYSDEC ID 8-08-005). Remedial activities were completed in 1993 to the satisfaction of NYSDEC on that portion south of Seeley Creek prior to March 1992. Hereinafter, this study refers to the "Site" as that portion of the McInerney Farm property located north of Seeley Creek.

Extensive remediation activities were conducted on the parcel north of Seeley Creek between 1993 and into early 1994 by Unisys. Remediation undertaken in accordance with the ROD resulted in excavation and off-site disposition at a permitted treatment, storage, and disposal facility (TSD) of somewhat greater than 10,000 ex-situ cubic yards of waste/soils (Interim Remedial Report, March 1995) containing elevated levels of polychlorinated biphenyls (PCBs) and metals of concern. The volume of waste/soil removed was 100% more than the estimated volume in the ROD (i.e., 5,360 cy). The results of verification sampling and analysis performed subsequent to site remediation activities, however, revealed constituents of concern (COCs) at continuing elevated levels. Based upon an estimate of 6,000 - 12,000 cy of material remaining at the Site that is above the cleanup standards in the ROD. NYSDEC authorized the development of this RFS to re-evaluate and recommend a remedial alternative to address the remaining impacted material on-site. Current site conditions are summarized in Section 4 of this report.

This RFS presents the comprehensive assessment of suitable and applicable remedial technologies. As such, a wide spectrum of remedial alternatives that are considered to be potentially applicable to achieve the stated remedial action objectives of TAGM HWR-92-4030 have been examined.

## 1.1 PURPOSE OF STUDY

Consistent with NYSDEC's policies and guidance, the purpose of this RFS is to identify a prudent course of remedial action that meets the Remedial Action Objectives (RAOs) in the 1992 ROD. This RFS consists of 10 sections: Introduction; Environmental Setting; Land Use; Site Conditions; Identification of Applicable Relevant and Appropriate Requirements/Standards, Criteria and Guidelines (ARARs/SCGs); Remedial Action Objectives; Development of Cleanup Criteria; Development of Remedial Technologies; Development of Remedial Alternatives; and Evaluation of Remedial Alternatives.

This RFS uses current and site-specific information, while previously implemented remedial actions are considered and alternative technologies are identified and ranked based on the following criteria:

- Compliance with SCGs;
- Overall protection of human health and the environment;
- Short-term effectiveness;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility or volume;
- Implementability; and,
- Cost.

This RFS has been developed in accordance with NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) HWR-92-4030 entitled *"Selection of Remedial Actions at Inactive Hazardous Waste Sites"* (NYSDEC, 1992b). The guidance provided in other NYSDEC TAGMs has also been used to guide the technology evaluation and remedial action screening process.

## 1.2 INVESTIGATION HISTORY

The Site has undergone numerous and extensive environmental investigations since 1987. Rather than summarize or repeat these activities in this report, a list of key activities and documents is provided to aid the reviewer in understanding what has occurred at the Site. Each report contains significant data and/or conclusions which are key to understanding the content of this document. To the extent the reviewer is unfamiliar with these documents, it is suggested that they be referenced as necessary. Please refer to the Bibliography section at the end of this report for a complete listing of relevant documents and references.

- March 1987--*Preliminary Assessment Report* by NUS Corporation for U.S. Environmental Protection Agency (USEPA).

- March 1988--*Preliminary Site Assessment and RI/FS Work Plan* by Dames & Moore for Unisys Corporation.

- December 1989--*Remedial Investigation Report* by Dames & Moore for Unisys Corporation, including Baseline Risk Assessment and Ecological Survey.

- July 1990--*Round IV Sampling and Analysis Plan* by Dames & Moore by Unisys Corporation.

- November 1991--*Remedial Investigation Report* by Unisys considered technically complete by NYSDEC after completion of additional sampling (Rounds 5 & 6).

- January 1992--*Final Feasibility Study* by Dames & Moore for Unisys Corporation.

- March 1992--*Record of Decision* executed by Unisys Corporation and NYSDEC.

- March 1993--*Remedial Program Work Plan* issued by Dames & Moore for Unisys Corporation. Addenda to this work plan include additional monitoring wells, staging/decon pad remediation tasks and soil boring program.

- Summer 1993--Unisys, with supervision by Dames & Moore, conducted a remedial program and excavated over 10,000 cubic yards of materials from the Site for off-site disposal; additional soil sampling was conducted at that time.

- February 1994--Dames & Moore, for Unisys, conducted additional boring and sampling at the Site.

- November 1994--*Sampling and Analysis Boring Program Report* by Dames & Moore for Unisys Corporation.

- November 1994--*Draft Revised Feasibility Study* by BHE and Environmental Standards for Unisys Corporation.

- March 1995--*Draft Interim Remedial Report* by Dames & Moore for Unisys Corporation

- November 1995--*Remedial Program Work Plan, Amendment #5, Confirmatory Investigation* by BHE and Environmental Standards for Unisys Corporation.

- July 1996--*Draft Conceptual Remedial Approach Report* by Environmental Standards for Unisys Corporation.

- November 1996--*Interim Report* by Environmental Standards for Unisys Corporation.

- December 1996--*Confirmatory Investigation Report* by Dames & Moore for Unisys Corporation.

- April 1997--Revised Feasibility Study by Environmental Standards for Unisys Corporation.

- March 2003--Revised Feasibility Study by Advanced GeoServices Engineering, P.C. for Unisys Corporation.

- April 2003--NYSDEC Approval of March 2003 Revised Feasibility Study.

- September 2004--NYSDEC Request for Revision of Subsurface PCB Soil Cleanup Criteria to 1992 ROD Levels.

# 2.0 ENVIRONMENTAL SETTING

This section provides a brief summary of the general environmental characteristics (topography, climate, hydrology, geology, soils and ecology) of the Site and surrounding area. Further details may be found in various documents previously submitted to NYSDEC and incorporated as part of the Site Administrative Record (see Bibliography).

## 2.1 TOPOGRAPHY

The Site is located in the southwestern plateau region of New York, characterized by a series of flat-topped hills and ridges with steep slopes. The valleys have been formed by erosion of the plateau during pre-glacial, glacial and post-glacial times. Across Chemung County, the highlands range from 1,500 to 1,800 feet elevation and the valley floors range from 775 to 900 feet elevation referenced to the national geodetic vertical datum (NGVD). Typical relief is approximately 900 feet. The Site is situated on the relatively flat, broad-bottomed valley of Seeley Creek, an easterly flowing tributary of the Chemung River. The confluence of Seeley Creek and the Chemung River is approximately 2 miles downstream from the Site (Dames & Moore, 1988).

## 2.2 CLIMATE

The region lies within the broad mid-latitude land mass where most weather systems travel from west to east. The Southport area is subject to warm, humid summers and cold winters. Mean daily temperatures during January and July are 19° F and 59° F, respectively. The distribution of precipitation shows late spring and summer to be the wettest period with total annual precipitation of approximately 34 inches. During winter, winds are predominantly west and northwesterly, and west to southwesterly during the summer. The mean seasonal snowfall is approximately 41 inches (Dames & Moore, 1988).

## 2.3 SURFACE DRAINAGE

Seeley Creek flows in an easterly direction and forms the southern boundary of the Site. A flood control levee was constructed by the U. S. Army Corps of Engineers in 1949 to redirect the creek which migrates within its channel. The flood control levee forms the northern boundary of the Site. The NYSDEC maintains the area within the levee as a flood control project and periodically clears areas prone to debris jams during floods.

The Site is completely within the 100-year flood plain as shown in Figure 2. Natural drainage from the Site is toward the creek and the highly permeable soils limit the amount of surface runoff that reaches the creek.

## 2.4 HYDROGEOLOGY

There are three sources of groundwater in the region: (1) the outwash deposits in the Chemung River valley, (2) glacial till on the uplands, and (3) bedrock. The outwash sand and gravel is the principal aquifer with water supply yields capable of up to 1,000 gallons per minute (gpm). The depth to groundwater typically varies from 5 to 20 feet with aquifer thicknesses in the range of 10 to 100 feet, most typically 15 to 40 feet. Seasonal fluctuations in groundwater depth at the Site are reported to be 8 to 12 feet. Water levels are highest and gradients are steeper during spring runoff relative to other times of the year. Water levels and gradients are lowest during summer and autumn. Groundwater flow beneath the Site is generally easterly toward the confluence with the Chemung River (Dames & Moore, 1988).

The glacial till aquifer in the uplands is characterized as a marginal water producer in which a large diameter well may produce 100 gallons per day. Bedrock well production is limited and dependent upon fractures in the rock; supply wells drawing from bedrock typically produce about 8 gpm (Dames & Moore, 1988).

## 2.5 GEOLOGY

The stratigraphy of the Site consists of relatively thin alluvial soils overlying thick glacial deposits on bedrock. The alluvial soils were formed by sediments derived from surface waters, and range in size from very fine sand and silt to coarse sand and gravels. The glacial deposits may be 100 feet or more in thickness and consist, in descending order, of outwash sands and gravels, lacustrine silts, and glacial till (Dames & Moore, 1988).

Surface soils are developed as a result of climate, plant and animal life, parent material, topography and time. At this Site, soils are silty and gravelly, typical of alluvial deposits which drain rapidly. As a result, surface soils are loose and permeable (Dames & Moore, 1988).

## 2.6 ECOLOGICAL CONSIDERATIONS

During performance of the *Remedial Investigation* (Dames & Moore, 1989), an ecological survey was completed for the Site. The survey characterized site flora and fauna which are endemic to forested flood plains in the Chemung River valley. A further review of site ecological characteristics was performed by Environmental Standards in October 1994. This review included a site visit by a wildlife biologist and wetland ecology specialist who examined the fauna and flora along five north to south, evenly spaced site transects. Soil cores were collected at four points along each transect and soil characteristics were observed and recorded. In addition, native species were identified and documented.

Results from the ecological surveys confirmed that the Site continues to maintain a viable forested flood plain ecological community that sustains numerous fauna habitats. The vegetative cover exhibits many of the functional qualities common to a flood plain region. These types of ecological communities can sometimes aid in the dissipation of erosion forces by buffering a site from flood events.

In 1999, a fish tissue sampling program was completed by Unisys for Seeley Creek at the request of the New York State Department of Health (NYSDOH) and NYSDEC. The results of the study indicated no significant difference in PCB fish tissue data and other media sampled between upstream and downstream sampling locations.

## 3.0 LAND USE

The Site was part of the McInerney Farm until it was acquired by the Remington Rand Corporation (a predecessor entity to Unisys Corporation) in 1952. From the 1940s to the mid-1960s, the Site was reportedly used for the disposition of industrial wastes, such as wood pallets, paint wastes, metal chips, oily waste, coal ash, and possibly some plating wastes (NYSDEC, 1992a). In 1949, a flood control levee was constructed by the Army Corps of Engineers along the northern flank of the Site, which is located within the 100-year flood plain (Dames & Moore, 1988).

After the Site was added to the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites in 1983, remedial investigation led to excavation and off-site disposal of more than 10,000 cu. yd of impacted soil to a permitted TSD facility. Post-remedial soil sampling and analysis in 1994 revealed that specific subsurface soil locations on the Site continue to exhibit elevated concentrations of PCBs and metals of concern (i.e., cadmium, lead, and nickel).

The Site is generally accessible by dirt road to vehicles or pedestrians over the flood levee from NY Route 427 and adjacent properties to the north. In addition to the Site and adjacent areas in the flood plain being subject to periodic flooding, the typical current uses of the forested and vegetated areas are hiking, biking, horseback riding, and other forms of recreation. The Site has been institutionally restricted based on its location within the flood plain defined by the aforementioned flood-control levee as indicated on specific property deeds associated with the Site (see Appendix A). Accordingly, the Site is subject to use restrictions consistent with those allowed by the State and local community. Based on this irrevocable institutional control, future industrial or commercial development of the Site is not possible, nor is future development for residential or structurally intrusive recreational use. However, there are no engineering controls in-place that restricts this Site from public pedestrian access nor restricts the current "open space" recreational use as previously described.

The village of Southport, which is adjacent to the Site on its north face, is serviced by the local water utility, the Elmira Water Board. It obtains potable water from surface water intake structures in the Chemung River upstream of Clinton Island and from groundwater well fields adjacent to the Chemung River in the vicinity of the surface water intake structures, about 2 miles northwest of the McInerney Farm Site (Dames & Moore, 1988). Supplemental potable water is available from Hoffman Creek Reservoir, which is located about 2.5 miles to the northwest of the Chemung County Court House in the City of Elmira.

# 4.0 CURRENT SITE CONDITIONS

Site conditions were evaluated utilizing soil characterization data collected from September 1993 to the present. A summary of the analytical results for the 541 soil samples collected for laboratory analysis of PCBs, nickel, cadmium and lead is presented in Table 1. This table is divided into surface and subsurface depths for each COC as well as chemical concentration intervals in mg/kg.

The first round of analytical data included in this RFS was collected during remedial activities beginning in September, 1993 and continuing through March, 1994. Data generated from that period included samples from work zones N1 through N4, excavation area sidewall samples, north work area perimeter samples, haul road samples, and waste staging pad samples. The 1994 72-Boring Program was the next sampling effort at the McInerney Site which was performed as a screening program. Approximately 239 samples were collected and analyzed in the field. Of the samples collected during this program, 17 were submitted for laboratory analysis and the results were evaluated for this report. The March 1996 Remedial Program produced 222 more samples collected throughout the Site and the September 1996 surface re-sampling event provided an additional 20 samples. The data from these four sampling events are presented in Appendix B.

The Site data described above is 10 years old or more depending on the particular investigation event. During this time, the surface distribution of Site COCs may have been altered due to the flooding of Seeley Creek. This flooding may have caused a re-distribution of impacted soils due to erosion, sedimentation, tree uprooting, and surface scouring from submerged floating debris. This re-distribution is not expected to alter the conceptual model for the Site but areas previously remediated will be addressed as part of a pre-design investigation (PDI). A PDI Work Plan will be submitted as part of the remedial design phase for NYSDEC review and approval prior to its implementation.

## 4.1 DATA ANALYSIS AND PRESENTATION

A graphic depiction of the location of soil samples collected since initiation of the remedial investigation at the Site is presented in Figure 3. A 25-foot grid system tied to an established benchmark was used to survey the sample locations, as well as the monitoring wells shown on the figure.

Figure 3 also shows the boundaries of previously completed excavation efforts that resulted in the removal of more than 10,000 yd of soil from the Site. The excavated soils were transported off-site for treatment/disposal at a permitted TSD facility. Confirmation samples collected from the sidewalls and bottom face of the excavations are designated as CS and WS, respectively. Also shown in Figure 3 is the additional 400 feet of rip rap erosion protection emplaced along the north bank of Seeley Creek on behalf of Unisys in December 1994. This rip rap abuts the approximately 1,000 feet of rip rap previously placed upstream along the north bank of the creek by the NYSDEC Division of Water, Bureau of Flood Protection several years earlier. Thus, there is a continuous, 1,400-foot erosion protection structure along the north bank of the creek which completely flanks the areas where COCs were subsequently identified.

## 4.2 SURFACE CONDITIONS

Surface samples were collected for PCBs, cadmium, and lead from 0 to 6 inches below ground surface (bgs). The PCB results were evaluated at two different depths: surface and subsurface. Nickel was also evaluated at two depth intervals: 0 to 4 feet and greater than 4 feet. Cadmium and lead surface samples were collected only during the March and September 1996 sampling events. Sample results are presented in Appendix B.

### 4.2.1 PCBs

A total of 155 surface samples were collected and laboratory analyzed for PCBs during the remedial efforts at the McInerney Farm Site. Of these, 50 samples were found to contain PCBs at levels below the applicable detection limits. A total of 98 samples had less than 1 mg/kg while no samples contained greater than 10 mg/kg.

### 4.2.2 Nickel

There were 205 samples collected within the 0 to 4 foot depth interval and laboratory analyzed for nickel since 1993. Of these, 192 samples had less than 500 mg/kg, while 12 samples contained between 500 and 2,000 mg/kg. Only one sample exceeded 2,000 mg/kg nickel with a concentration of 5,960 mg/kg.

### 4.2.3 Cadmium

There were 87 surface samples collected for cadmium between March and September 1996. Of these, 14 samples contained less than the applicable detection limit for cadmium and 73 were found to have less than 10 mg/kg cadmium. No samples had greater than 10 mg/kg.

### 4.2.4 Lead

There were 86 surface samples collected for lead since the March 1996 remedial program at the McInerney Farm Site. Of these, 85 contained less than 350 mg/kg. The remaining one sample had 566 mg/kg.

## 4.3 SUBSURFACE CONDITIONS

Those samples considered to be subsurface data for PCBs, cadmium, and lead were collected from greater than 1 foot bgs. A depth of greater than 4 feet bgs was considered to be subsurface during nickel evaluations. Analysis of this data was subdivided into depth-specific intervals only for PCBs and nickel. Lead and cadmium were analyzed as depth independent, and the depth intervals depicted in Table 1 are only to provide a breakdown of the sampling and analysis results for these two constituents. Sample results are presented in Appendix B.

#### 4.3.1 PCBs

Of the 378 subsurface samples collected and laboratory analyzed since 1993, 345 contained less than 10 mg/kg. Of the remaining samples, 16 were less than 25 mg/kg and 13 were less than 300 mg/kg. Only four subsurface PCB samples exceeded 300 mg/kg.

#### 4.3.2 Nickel

There were 179 subsurface nickel samples analyzed since 1993. Of these, 171 of these had less than 1,000 mg/kg. Only six were reported to contain less than 2,000 mg/kg, while the remaining two samples were greater than 2,000 mg/kg at concentrations of 2,110 mg/kg and 3,580 mg/kg.

#### 4.3.3 Cadmium

There were 290 subsurface cadmium samples collected during the course of the remedial programs at the McInerney Farm Site. A total of 112 were below the applicable cadmium detection limits. There were 234 samples with less than 10 mg/kg and the remaining 17 had less than 50 mg/kg cadmium.

#### 4.3.4 Lead

There were 290 subsurface samples collected for lead. Of these, 268 contained less than 350 mg/kg, while 19 samples had less than 2,000 mg/kg lead. Only three samples exceeded 2,000 mg/kg.

### 4.4 GROUNDWATER

There are nine groundwater monitoring wells (MWs 1, 9, 12, 13, 14R, 15, 16, 17, and 18) at the Site that have been used to characterize the overburdened aquifer as shown in Figure 4. Groundwater sampling analysis results indicate no detectable volatile organics, semivolatile organics, or pesticide compounds in the groundwater. Dissolved metals have been measured in the groundwater at concentrations considered to be naturally occurring based on the concentration of metals in the upgradient monitoring wells, MW-1 and MW-18.

Groundwater sampling was conducted at the property during December 1990, August 1994, and June 1995. On December 28, 1990, monitoring wells MW-1 and MW-9 were sampled. Samples collected from monitoring well MW-1 were analyzed for VOCs, pesticides/PCBs and metals and a sample collected from MW-9 was analyzed for metals.

During the month of August 1994, all on-site monitoring wells were sampled and analyzed for PCBs and metals of concern (cadmium, lead, and nickel). All samples were analyzed as unfiltered and several were also analyzed as filtered. Only monitoring well MW-14 detected concentrations of PCBs which exceeded the Class GA groundwater standard. The New York State Code of Rules and Regulations (NYCRR) identifies GA waters as those "that are fresh waters found within the saturated ground of unconsolidated deposits and consolidated rock or bedrock."

A natural flood event destroyed MW-14 before a confirmatory sample could be collected. A replacement well, MW-14R, was installed adjacent to the former location of MW-14 soon thereafter. The replacement well was sampled on November 2, 1994, for analysis of PCBs (filtered and unfiltered) and cadmium, lead, and nickel. The analytical results indicate that PCBs were detected in the unfiltered sample at 0.14 μg/L. However, the analytical results from the filtered sample were below laboratory detection limits (-mg/L), suggesting that the PCBs detected in the unfiltered sample were adsorbed to fine particulates entrained in the samples during the collection procedure. A piezometric surface map derived from groundwater elevations measured before sample collection in November 1994 is shown in Figure 4. In June 1995, five of the monitoring wells were again sampled and analyzed for PCBs as both unfiltered and filtered parameters. The results were presented in the response to NYSDEC's comments on the draft FS submitted November 1994, and confirmed that the quality of groundwater beneath the Site continued to be acceptable. Table 2 summarizes the data associated with the aforementioned sampling events.

## 4.5 GROUNDWATER MONITORING PLAN

Based on the collective groundwater assessment, no active groundwater remediation is necessary at this time, therefore, this RFS does not include any evaluations for groundwater. However, the nine groundwater monitoring wells (MWs 1, 9, 12, 13, 14R, 15, 16, 17, and 18) at the property, plus monitoring wells MW-2, 3, 8, and 10 located on the southern parcel (south of Seeley Creek), north of Chemung Correctional Facility, will be sampled three times during a 5-year period after completion of the remedial activities to confirm the soil remediation has not adversely impacted the groundwater. Sampling rounds will be scheduled for one year, two years, and five years after remedial action.

The samples collected during each sampling event will be analyzed for PCBs, lead, cadmium, and nickel. The sampling protocol will be the same as identified in the Dames & Moore remedial design/remedial action work plan. In the event that any monitoring well is damaged, a replacement well will be installed adjacent to the damaged monitoring well.

## 4.6 FLOOD PLAIN CHARACTERISTICS

Federal regulations require the completion of a flood plain analysis to demonstrate that any structure placed within a regulated flood plain will not cause any increase in the base flood elevation within the flood way and not more than one (1) foot within the remaining portions of the flood plain. The Town of Southport's Municipal Code 32.5.1 and 35.5.3 governing development in flood plains are consistent with the federal regulations. Therefore, to properly evaluate any on-site containment remedies, a hydraulic analysis of Seeley Creek would need to be performed.

A baseline hydraulic site analysis was performed using site-specific topographic data, the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) for the Town of Southport (revised 1991), Seeley Creek drainage basin discharge data independently developed by the Town of Southport's Drainage Officer, and recent hydraulic modeling performed by New York State Department of Transportation on the section of Seeley Creek immediately upstream of the Site (see Appendix C). The results of the baseline model using the FEMA FIS discharge data indicated the following:

- The FEMA FIS 100-year base flood elevation is approximately 0.2 to 0.6 feet lower than the site-specific analysis;
- A site-specific encroachment study indicates the flood way location encompasses less of the impacted soil areas than suggested by the FEMA FIS flood way mapping (see Figure 1 in Appendix C);
- Area 1 is predominantly (approximately 85%) outside of the flood way;
- Area 1 is predominantly (approximately 75%) above the 100-year base flood elevation and not subject to inundation and therefore, potential erosion or scour during a base flood event. The base flood velocities for the portion of Area 1 within the base flood limits range between <1 ft/sec to 2 ft/sec and the average depth is less than 2 ft. as shown in the velocity profiles included in Appendix C;
- Area 2 is entirely within the limits of a 100-year base flood event and base flood velocities range between <1 ft/sec and 3 ft/sec and the average depth is 2 to 3 ft. as shown in the velocity profile included in Appendix C; and,
- Area 2 is approximately 50% within the flood way.

The results of the baseline hydraulic model show that previous descriptive terms such as "swiftly flowing" used to describe flood water velocities were potentially misleading and not entirely accurate for the majority of the Site, with the exception of some areas within the flood way and the main creek channel. The portions of Areas 1 and 2 that are within the flood way are not predicted by the model to be exposed to erosive velocities (i.e., >4 ft/sec); however, localized occurrences of eddies and turbulence are possible. Eddies and turbulence typically occur in areas of sudden constrictions or widenings in channels. Based on the surface topography, the southeastern portion of Area 1, which is within the flood way, may be susceptible to localized increases in velocity (although not predicted by the model) due to the sudden change in the flood way.

NYSDEC's Division of Water, Bureau of Flood Protection Engineer has verbally reported his observation of eddies on-site during the August 1994 flood caused by Hurricane Beryl. In addition, during this event, the flood stage was observed to be higher than the predicated flood stage during 100-year base flood (using FEMA information) and the majority of Area 1 was inundated. However, no written engineering report has been provided which could be used to support a remedial design. Area 2 is not expected to be susceptible to increases in velocity (not predicted by the model) since there are no observed sudden changes in the flood way alignment.

## 5.0 <u>IDENTIFICATION OF ARARs/SCGs</u>

Remedial actions at the Site should strive to attain New York State Standards, Criteria and Guidelines (SCGs) and Federal Applicable, Relevant and Appropriate Requirements (ARARs). These and other potentially applicable Federal ARARs fall within three general categories: chemical-specific, action-specific, and location-specific. These categories are briefly described below.

- Chemical-Specific ARARs -- technology or risk-based numerical limitations or methodologies that result in the establishment of acceptable concentrations of a chemical, when applied to site-specific conditions, that may be found in or discharged to, the ambient environment. Information regarding the use of chemical-specific ARARs in risk assessments is presented in *Risk Assessment Guidance for Superfund, Volume I -- Human Health Evaluation Manual Part A, Interim Final* (USEPA 1989a), and *Risk Assessment Guidance for Superfund, Volume II -- Environmental Evaluation Manual, Interim Final* (USEPA 1989b).

- Action-Specific ARARs -- technology or activity-based requirements or limitations on actions usually taken with respect to hazardous substances. These requirements typically define acceptable treatment, storage, and disposal procedures for hazardous substances during the implementation of the response action. The requirements generally set performance or design standards for specific activities related to managing hazardous substances or hazardous wastes.

- Location-Specific ARARs -- restrictions placed on the concentration of hazardous substances or the conduct of activity solely because the activities occur at a specific location. These requirements pertain to the geographic or physical location of the Site rather than the nature of the materials or the proposed remedial action. These requirements limit the type of remedial action that can be implemented and may impose additional constraints on a cleanup action. For instance, the restrictions caused by flood plains are among the most common location-specific potential ARARs for municipal landfill sites (USEPA 1991b).

NYSDEC has elected to categorize its ARARs as SCGs. The list of NYSDEC SCGs examined during development of the 1994 RFS was dated August 1991, and appeared as Appendix E in NYSDEC's draft document entitled *Cleanup Policy and Guidelines* (NYSDEC, 1993a). NYSDEC has also divided SCGs into the aforementioned three categories: chemical-specific, action-specific, and location-specific. The following sections identify and review the Federal ARARs and NYSDEC SCGs for the Site.

## 5.1 POTENTIALLY APPLICABLE CHEMICAL-SPECIFIC ARARs/SCGs

Site related documents were used to identify the spectrum of chemical-specific ARARs potentially applicable at the Site. Table 3 lists the chemical-specific ARARs developed for this RFS. The promulgated regulatory protocol established by NYSDEC mandates that site groundwater must meet the most stringent of three standards:

- Standards for Class GA groundwaters;
- NYS maximum contaminant levels (MCLs) for public water supplies; or
- Federal MCLs promulgated under the Safe Drinking Water Act (SDWA).

### 5.1.1 PCBs

Potentially applicable PCB ARARs/SCGs include NYSDEC's standards for PCBs and Class GA groundwaters. NYSDEC's standards for Class GA groundwaters are applicable for those groundwaters which may be used as a potential source of drinking water. The NYSDEC Class GA SCG for PCBs is 0.1 µg/L (6 NYCRR Part 703). This concentration is lower than the NYS MCL for public water supplies and the federally promulgated MCL (also ARAR) as 0.5 µg/L.

There is no promulgated soil or sediment ARARs/SCGs requiring consideration for a proposed remedy; however, NYSDEC and the USEPA have to-be-considered (TBC) values for constituents in these media. The NYSDEC TBC for PCBs in soil for unrestricted land use is 1 mg/kg in surface soils and 10 mg/kg in subsurface soils (NYSDEC, 1994a). The NYSDEC stated in its September 7, 2004 letter that it is applying a general PCB cleanup goal of 10 ppm for subsurface soil at the Site. The reason for this change is to maintain State-wide consistency with the continuing discovery of PCB-contaminated sites. Therefore, the subsurface soil PCB cleanup goal for restricted land use will be 10 ppm instead of 25 ppm. NYSDEC has also published *Technical Guidance for Screening Contaminated Sediments* (NYSDEC, 1994b), which provides TBC sediment values. This document states that these values are TBCs and should by no means be considered promulgated ARARs: "These criteria do not <u>necessarily</u> represent the final concentrations that must be achieved through sediment remediation" (emphasis in original).

### 5.1.2 <u>Lead</u>

Potentially applicable lead ARARs/SCGs include NYSDEC's *Standards for Lead in Class GA Groundwaters* (NYSDEC, 1991a). The NYSDEC standards are applicable for groundwaters which may be used as a potential source of drinking water. The NYSDEC Class GA SCG for lead is 25 µg/L (6 NYCRR Part 703). This concentration is greater than the Federally promulgated MCL (also an ARAR) of 15 µg/L. There is no NYS MCL for public water supplies for lead; however, the lead action level for public water supplies is exceeded at the concentration of lead if more than 10 percent of first draft tap water samples collected during any monitoring period exceeds 15 µg/L.

There are no promulgated soil or sediment ARARs/SCGs for lead requiring consideration for a proposed remedy; therefore, TBCs are mentioned here as possible cleanup standards which could be considered. The site-specific background concentration of lead in soil is the TBC value provided in NYSDEC TAGM WR-94-4046 (NYSDEC, 1994a). The NYSDEC sediment screening level TBC for lead is 31 mg/kg.

### 5.1.3 Cadmium

Potentially applicable cadmium ARARs/SCGs for groundwater include NYSDEC's *Standards for Cadmium Class GA Groundwaters* (NYSDEC, 1991a). The NYSDEC standards are applicable for groundwaters which may be used as potential sources of drinking water. The NYSDEC Class GA SCG for cadmium is 10 μg/L (6 NYCRR Part 703). This concentration is greater than the NYS MCL for public water supplies in the Federally promulgated MCL (also ARARs) of 5 μg/L.

The NYSDEC TAGM SCG soil value for cadmium is either 1 mg/kg or the site-specific background concentrations if lower than 1 mg/kg. The sediment value of 0.6 mg/kg is the TBC for cadmium.

### 5.1.4 Nickel

Potentially applicable nickel ARARs/SCGs include NYSDEC's *Standards for Nickel in Class GA Groundwaters* (NYSDEC, 1991a). The NYSDEC standards are applicable to those groundwaters which may be used as a potential source of drinking water. There is no NYSDEC Class GA groundwater SCG for nickel. The Federal MCL for nickel is 100 μg/L.

The NYSDEC TAGM SCG soil value for nickel is either 13 mg/kg or the site-specific background concentration if lower than 13 mg/kg. The NYSDEC sediment screening level TBC for nickel is 13 mg/kg.

## 5.2 POTENTIALLY APPLICABLE ACTION-SPECIFIC ARARs/SCGs

Available documents, including the 1992 ROD, were used to identify the spectrum of action-specific ARARs potentially applicable at the Site. Table 4 lists the action-specific ARARs developed for this RFS.

### 5.2.1 Capping

Capping or closure with waste in place, may result in compliance with the ARARs identified in Table 4. It should be noted that while the wastes at the Site are not necessarily hazardous wastes (e.g., not a listed waste subject to land ban restrictions or not hazardous by characteristic), a Resource Conservation Recovery Act (RCRA) design criteria for a cap and the pre-treatment/stabilization of the cap material may be relevant and appropriate. Additional RCRA considerations may include providing for post-closure monitoring of the cap's integrity and run-on and run-off control (groundwater management) to minimize potential erosion.

While the Toxic Substances Control Act (TSCA) treatment requirements are applicable and relevant in some circumstances, they are TBC criteria at the Site. This is because TSCA applies only to PCB wastes generated and/or in place after 1987 (not the case for wastes at the Site). Thus, TSCA requirements do not apply to the McInerney Farm Site. However, TSCA is an ARAR for waste management and ultimate disposal/treatment, if wastes are exhumed and removed from the Site.

### 5.2.2 Excavation and Removal

Numerous excavation removal ARARs have been identified for this Site. The ARARs and SCGs identified were grouped into two main categories as shown in Table 4: on-site construction management and excavated waste management. On-site construction ARARs include those associated with disturbing RCRA wastes and the removal of these wastes from the Site. In addition, the fugitive dust emission requirements of the National Ambient Air Quality Standards (NAAQs) are expected to be applicable. Because excavation for remediation to date and potential future excavations have not and most likely are not expected to extend below the top of the water table, dewatering, construction permitting and purge water management ARARs/SCGs have been excluded from consideration.

Excavated materials must be managed in a manner consistent with Federal ARARs and New York State SCGs for transport, storage, and material handling protocols. These protocols will be dependent upon the specific characteristics of the materials excavated, which have previously been shown to have considerable variability. Thus, transport, storage, and disposal of excavated materials may require compliance with specific aspects of RCRA, TSCA, and NYSDEC hazard and solid waste management ARARs/SCGs.

## 5.3 POTENTIALLY APPLICABLE LOCATION-SPECIFIC ARARs/SCGs

Available documents, including a 1992 ROD, were reviewed to identify location-ARARs potentially available at the Site. Table 5 lists the location-specific ARARs developed for the RFS.

### 5.3.1 Flood Plain Considerations

Remedies for materials located within a flood plain (40 CFR 6.302 [b]) must be considered so that the integrity of the floodplain is not compromised. For example, remedial action should not be designed and constructed in a manner that destroys the usefulness of a flood plain, thereby potentially causing adjacent areas to become flooded.

Local and federal flood plain regulations prohibit residential, commercial, or industrial development in flood plains and restrict activities which could threaten the integrity of flood control structures. Specifically, this is the case at the Site where the property is institutionally restricted, limiting activities to recreational uses.

The Town of Southport Municipal Code 32.5.1-5(4) indicates some increases in the water surface elevation of the base flood may be permitted in the flood plain provided it endorses the application to FEMA. However, NYSDEC's May 22, 2002 letter stated no net increase in the base flood elevation would be allowed.

The Town of Southport Municipal Code 32.5.2 states the following regarding floodways:

> *"...all encroachments including fill, new construction, substantial improvements, and other development are prohibited within the limits of the floodway unless a technical evaluation demonstrates that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge."*

### 5.3.2 Area Affecting River or Streams

Any modifications of alluvial or stream which diverts a channel or may adversely effect fish or wildlife require consultation with the U. S. Department of Interior, Fish and Wildlife Commission. Although Seeley Creek is a seasonal stream which routinely dries up during the summer months, it may be subject to this provision, and a remedial action must consider the applicability of the Fish and Wildlife Conservation Act (16 USC 661 et seq.). However, according to NYSDEC, the U.S. Fish and Wildlife Service does not comment on maintenance activities within a State-Maintained Flood Control project including work to re-establish the channel and banks of Seeley Creek.

### 5.3.3 Groundwater

The New York State Code of Rules and Regulations (NYCRR) identifies GA waters as those "that are fresh waters found within the saturated ground of unconsolidated deposits and consolidated rock or bedrock." Thus, groundwaters at the Site are considered to be Class GA and associated standards are considered location-specific ARARs.

## 5.4 PROTOCOL FOR ESTABLISHING CLEANUP STANDARDS

USEPA guidance entitled *CERCLA Compliance with Other Laws Manual* (USEPA, 1988a) points out that a requirement (e.g., cleanup standard) under Federal or State laws may be either "applicable" or "relevant and appropriate." New York State and USEPA have not promulgated soil criteria for the chemicals of concern that would apply as applicable standards. However, there are risk-based criteria used by USEPA at Superfund Sites as guidance in determining cleanup standards for various media (USEPA, 1996a). Because no Federal or State applicable standards exist for PCBs, cadmium, lead, and nickel in soils, relevant and appropriate requirements have been determined on the basis of a number of site-specific factors. These factors include the characteristics of the remedial action, the hazardous substances present at the Site, and the physical circumstances of the Site (USEPA, 1988a). Furthermore, USEPA has issued guidance for assisting in the determination of site-specific cleanup levels in the form of soil screening levels (USEPA, 1996b). USEPA's CERCLA guidance stipulates:

> "ARARs [Applicable or Relevant and Appropriate Requirements] and (TBCs necessary for protection)[1] pertaining both to constituent levels and to performance or design standards should generally be attained at all points of potential exposure, or at the point specified by the ARAR itself."
>
> CERCLA requires, to the maximum extent practicable, to use the use of permanent solutions and alternative treatment technologies. Any waste left in place should either be brought to health-based levels or managed according to performance or design specifications. At sites where a TBC value is used to set a protective level of cleanup or where the ARAR does not specify the point of compliance, there is discretion to determine where the requirement shall be attained to ensure protectiveness. At each potential point of exposure, a reasonable maximum exposure scenario should be assumed, and cleanup goals set accordingly to ensure protectiveness, using best professional judgement (USEPA, 1988a)."

Subsequent to the issuance of the Site ROD in March 1992, NYSDEC published TAGM 94-4046 entitled, *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC, 1994a).

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[1] TBCs - To-Be-Considered Material are non-promulgated advisories or guidance issued by Federal or State agencies that are not legally binding and do not have the status of potential ARARs. However, in many circumstances, health-based TBCs are to be considered along with ARARs as part of the site risk assessment and may be used in determining the necessary level of cleanup for protection of health or the environment.

It was recognized in this document that restoration of sites to pre-disposal conditions (to the extent authorized by law) is frequently infeasible.

More recently, USEPA revised its position regarding the use of permanent solutions in the remedy selection process (FR 19448, 5-1-96). The use of treatment to address principal threats posed by a site is to be considered whenever practicable and cost-effective. The use of engineering controls, such as containment for relatively low long-term threats, is considered acceptable when treatment is impracticable. These determinations are to be made in a manner which is consistent with available, protective, risk-based media cleanup standards on a site-specific basis.

Moreover, the generic cleanup objectives developed in the technology evaluation sections of a feasibility study may be impracticable if they cannot be achieved using potentially applicable technologies to site-specific conditions, or if the implementation of the remedy results in significant adverse impacts. In such circumstances, alternative cleanup levels may be developed for final consideration during the remedy selection process.

# 6.0 REMEDIAL ACTION OBJECTIVES AND CLEANUP CRITERIA

Three remedial action objectives (RAOs) were identified in the *Final Feasibility Study* (Dames & Moore 1992). The following sections discuss the validity and applicability of the RAOs in this Revised Feasibility Study.

## 6.1 MINIMIZE DIRECT CONTACT EXPOSURE

The first RAO (RAO #1) is to reduce the potential for direct exposure to wastes/soils that are considered a potential risk for human exposure. Several remedial actions may potentially achieve this objective, and a key function of this RFS is to review these technologies in the context of the remedial actions completed in 1993 and subsequent sampling/analysis activities to characterize current site conditions. This RAO is still considered valid and applicable for the Site.

## 6.2 REDUCED MATERIAL TOXICITY, MOBILITY OR VOLUME

The second RAO (RAO #2) is to reduce toxicity, mobility or volume of waste constituents in soil as stipulated in the Record of Decision for the Site and National Oil and Hazardous Substance Pollution Contingency Plan (NCP), and is a general goal of waste management regulatory programs and site remediation efforts nationwide (USEPA, 1990a). Action has already been taken toward achieving this RAO through the remedial effort (excavation of over 10,000 cu. yd of material with off-site disposal) completed during 1993. Therefore, implementing one of the RFS alternatives evaluated in subsequent sections will, at a minimum, serve to augment those actions already taken. This RAO is still considered valid and applicable for the Site.

## 6.3 PRESERVE OR ENHANCE SITE RESOURCES

The third RAO (RAO #3) is to preserve or enhance the unique natural, environmental, ecological and recreational resource characteristics of the Site. The Site is situated in a functional flood plain and the existence of U.S. Army Corps of Engineer flood plain management structures are significant location-specific features which need to be addressed in evaluating the various remedial alternatives. Additionally, the Site has a relatively stable ecological status consistent with adjacent properties in the forested flood plain with regard to the proliferation of hardwood trees, undergrowth and grasses.

Being situated between the levee and Seeley Creek, widely considered the most flood prone creek in the region, the Site exists in an environment engineered to convey flood waters. The State of New York purchased perpetual easements on this land specifically so that it may be operated with flood protection as its primary function. The lives and property which are protected by the State's proper operation of these lands for flood control take precedence over any other land use considerations. This means that habitat concerns and interest in preserving natural, ecological or recreational resources must sometimes be sacrificed. Protection of human lives and property has been deemed the priority land use for state flood control lands such as this Site.

This RAO is thus eliminated from further consideration in this RFS based on NYSDEC's stated position (NYSDEC, 2003).

## 6.4 SOIL CLEANUP CRITERIA

### 6.4.1 1992 Record of Decision (ROD)

The site related soil cleanup goals for PCBs, lead, cadmium and nickel published in the 1992 ROD and are listed below:

| | | | |
|---|---|---|---|
| PCBs: | Surface | = | 1 ppm; Subsurface (> 6 inches) = 10 ppm; |
| Lead: | Surface and Subsurface | = | 350 ppm; |
| Cadmium: | Surface and Subsurface | = | 10 ppm; and |
| Nickel: | Surface (0-36 inches) | = | 500 ppm; Subsurface (>36 inches) = 1,000 ppm |

These values were determined to be reasonable and appropriate in protecting public health, the environment and technically feasible to achieve provided that site access was restricted and a one foot (1') clean soil cap be installed over the surface PCB contamination.

### 6.4.2 2003 Revised Feasibility Study (RFS)

Alternative soil cleanup goals were proposed for PCBs, lead, cadmium and nickel are listed below.

| | | | | |
|---|---|---|---|---|
| PCBs: | Surface (0-6 inches) | | = | 1 ppm; Subsurface (>6 inches) = 25 ppm; |
| Lead: | Surface Subsurface | and | = | 1,000 ppm; |
| Cadmium: | Surface Subsurface | and | = | 20 ppm; and |
| Nickel: | Surface Subsurface | and | = | 1,000 ppm. |

These values were approved provided that a two foot (2') thick vegetated and clean soil cap, underlain by a geotextile be installed over the remaining in-place soils.

### 6.4.3 2005 Revised Feasibility Study (RFS)

Based on the inability to procure a ROD amendment from the 2003 RFS, the NYSDEC in a letter dated September 7, 2004 letter, requested the following soil cleanup goals:

| | | | | |
|---|---|---|---|---|
| PCBs: | Surface (0-6 inches) | | = | 1 ppm; Subsurface (>6 inches) = 10 ppm; |
| Lead: | Surface Subsurface | and | = | 1,000 ppm; |
| Cadmium: | Surface Subsurface | and | = | 20 ppm; and |
| Nickel: | Surface Subsurface | and | = | 1,000 ppm. |

These values were approved provided that a one and one half foot (1 ½') thick vegetated and clean soil cap, underlain by a geotextile be installed over the remaining in-place soils.

# 7.0 DEVELOPMENT OF REMEDIAL TECHNOLOGIES

## 7.1 REMEDIAL RESPONSE ACTIONS

In Section 6, RAOs were identified and used for assessing various potential remedial actions at the Site which would result in protection of human health and the environment. To achieve these objectives, it was necessary to identify evaluate and select specific technologies (or processes) that may be applicable for implementation. To focus the evaluation of potentially applicable technologies, a limited number of remedial response actions (RRAs) were established to allow for grouping those technologies which have similar functional characteristics. The following RRA groups cover essentially all the technologies that are potentially applicable based on the site characteristics described in Sections 2, 3, and 4.

- No action;
- Institutional controls;
- Containment;
- Ex situ treatment;
- In situ treatment; and,
- Excavation and off-site disposition.

A "no action" alternative is routinely evaluated in accordance with USEPA guidelines to provide a baseline for comparison of potential technologies. The "no action" alternative is not evaluated further in this report because significant remedial actions have already been implemented toward achievement of the RAOs. The remedial actions included excavation and removal of more than 10,000 $yd^3$ of PCB-and metals-contaminated soils, erosion control enhancement along the north bank of Seeley Creek, confirmation of institutional controls to restrict site development and use, and groundwater monitoring. Table 6 summarizes the RRAs relative to their applicability to the RAOs. As indicated, they may be applicable to more than one RAO.

## 7.2 IDENTIFICATION AND INITIAL SCREENING OF TECHNOLOGIES

### 7.2.1 Screening Process

An initial screening was carried out by expanding each RRA into a series of technologies or processes available for potential application in site remediation. Some process options were subdivided where appropriate to evaluate their applicability for achieving the Site RAOs. For instance, several cap designs were considered, each of which could effectively contain the COCs. Each cap design has a specific purpose or design feature, but such details need not be evaluated during the initial screening process.

Each of the technologies identified was screened against the RAOs, taking into account the expected effectiveness, implementability, and other relevant factors. Proven technologies received prime consideration, but innovative technologies were also considered when there was reason to believe that the innovations could improve effectiveness, ease the implementation effort, or diminish the potential adverse impacts compared to conventional remedial technologies.

### 7.2.2 Identification of Potentially Applicable Technologies and Processes

The following technologies and processes were evaluated relative to their ability to achieve the RAOs:

- Institutional Controls
  - Deed restrictions to prevent future development
  - Fencing to limit access

- Containment
  - RCRA cap
  - Modified RCRA cap (asphalt/concrete/membrane composite)
  - Soil cap
  - Surface controls (dust suppression, flood protection structures, erosion control)
  - On-site vault (above grade containment structure)
  - On-site landfill (RCRA/TSCA landfill)

- Ex situ treatment
  - Physical treatment (debris separation/soil washing)
  - Physical/chemical treatment (solidification/stabilization)
  - Chemical treatment (dehalogenation of PCBs)
  - Thermal treatment (low temperature thermal)

- In situ treatment
  - Chemical oxidation
  - Bioremediation
  - Vitrification
  - Physical/chemical treatment (soil flushing, solidification/stabilization, grout injection, deep soil mixing)
  - Low temperature thermal treatment (steam/hot air sparging and/or extraction)

- Excavation and removal to off-site permitted TSD facility
  - "Hot Spot" removal to off-site TSD facility and enhancement of erosion control
  - Area-wide excavation and off-site disposal to TSD facility

### 7.2.3 Technologies and Processes Eliminated from Evaluation

As a function of the screening process, many options were eliminated from further consideration because they would not be viable or because the RAO could not be attained. Additionally, all technologies that were technically infeasible due to physical limitations or technological limitations (e.g., not applicable to specific compounds involved) were also eliminated from further consideration. The following technologies and processes, which are shaded on Table 7, were eliminated.

- No action, certain RRAs have already been implemented.

- Access restrictions, which would not achieve the RAO to preserve the natural habitat and recreational resource.

- Short-term dust suspension does do not satisfy the RAO to reduce the volume, and toxicity of the COCs in the soil, and would likely be vulnerable to substantial deterioration under flood conditions.

- Flood protection by levees or headwalls is not technically feasible due to institutional restrictions on development or construction within the existing floodplain.

- Construction of an on-site containment structure or RCRA/TSCA landfill is technically infeasible due to the potential adverse effects of periodic inundation on the liner and leachate collection systems, and does not achieve the RAOs to reduce volume or toxicity or to preserve the natural habitat and recreational resource.

- Potentially applicable ex situ physical treatment using soil/debris washing, with or without chemical additives is technically unproven for PCBs and the degree of metals reduction needed for the site waste/soils matrix. Similarly, dehalogenation of PCBs from waste/soil matrices in the concentration range found on-site is an unproven technology. Ex situ solidification serves only to contain the COCs and will result in a waste/soil volume increase of up to 40%, thereby reducing the flood plain capacity and not satisfying the RAO to reduce volume.

- Potentially applicable technologies and processes for in-situ treatment of the waste/soils are essentially all technically infeasible due to the heterogenous distribution of COCs, the physical and chemical characteristics of the waste/soils that would severely impede effective mass and/or heat transfer, and/or the inability of such technologies to meet the RAOs (e.g. stabilization/solidification results in waste/soil volume increase up to 40%).

7.2.4 Technologies and Processes Selected for Development of Remedial Alternatives

The following technologies and processes passed the initial screening and will be evaluated further.

- Deed and institutional restrictions on future development of the property;
- Containment capping;
- Ex-situ stabilization for metals;
- Erosion control (e.g., rip rap, non-biodegradable erosion geotextiles) and site revegetation; and
- Excavation and removal to off-site permitted TSD facility.

## 7.3 FINAL EVALUATION OF TECHNOLOGIES

A number of technologies and process options were identified above that have the potential to achieve the RAOs established for the Site. These remaining potentially applicable technologies and process options are evaluated for effectiveness and implementability as required by the NYSDEC in accordance with guidelines in TAGM HWR-90-4030 for the Selection of Remedial Actions at Inactive Hazardous Waste Sites (NYSDEC, 1992b).

### 7.3.1 Institutional Controls

Deed restrictions are covenants incorporated into a property deed which limit the use of a property. A permanent, "in perpetuity" covenant precluding development of the Site would reduce human contact with soils at the Site and, therefore, partially meet the goal of RAO #1. However, it would not achieve RAO #2. A deed restriction that identifies the property as being located in the flood plain has been recorded in the deeds of the parcels which make up the Site. Thus, the future use of the property is institutionally limited to those activities allowed by the State and local community, such as hiking, biking and horseback-riding that are not in conflict with federal flood regulations. Furthermore, since the Site is within an existing floodplain, development of the Site is institutionally restricted without prior governmental approval.

### 7.3.2 Capping

#### 7.3.2.1 Multiple Layer Low Permeability

This technology consists of an impermeable surface cover or cap which would be compliant with the requirements of RCRA and TSCA. These types of caps typically include multiple layers of low permeability materials to prevent infiltration and subsequent degradation of groundwater. The combined cross-sectional thickness is typically 3 to 5 ft. depending on the selected design. Installation of a cap would require removal of trees and other vegetation in areas of concern. Surface grading would also be necessary where a cap is emplaced.

The cap would be installed at the Site over areas where sampling and analysis have indicated concentrations greater than one or more of the cleanup standards for PCBs, cadmium, lead, or nickel. Therefore, if areas exceeding cleanup standards for PCBs would be capped, areas that also exceed the cleanup standards for cadmium, lead and/or nickel would also have been capped. The cap would potentially eliminate exposure of COCs to humans (RAO #1), minimize the amount of water infiltrating the soil, thus reducing the potential for leaching constituents of concern (even though none has been identified) in the soil and vadose zone, and reduce the mobility of the COCs (RAO #2) by providing a protective barrier against erosion. The areas to be capped are within the floodplain and floodway; therefore, detailed hydraulic modeling would be necessary, in accordance with federal regulations, to demonstrate the impact to the 100 year base flood elevation would be zero in the floodway and less than 1 ft. outside of the floodway. In addition, the cap would need to be designed to withstand potential buoyant forces due to a high water table during a flood. Caps are generally considered permanent remedies; however, long-term maintenance is necessary to maintain the effectiveness of the cap.

7.3.2.2 **Asphalt/Concrete Cover**

A surface cover utilizing asphalt or concrete could be substituted for the multiple layer low permeability cover discussed above to achieve the RAOs #1 and #2. This type of cover would include a 6 to 8 inch gravel subbase beneath a 4 to 6 inch asphalt or concrete surface. This type of cover would not decrease infiltration; however, groundwater data has shown no impact above regulatory levels and future impact is not anticipated since the COCs are typically not mobile at the concentrations present at the Site. As with the multiple layer cap, installation would require removal of trees and other vegetation in areas of concern. Similar to the multiple layer cap, detailed hydraulic analysis would be necessary to demonstrate the impact on the base flood elevation and floodway would not exceed the floodplain regulations. Significant surface grading, more than the multiple layer cap, would be necessary to reduce the surface topographic irregularities, otherwise, the long-term permanence could be severely compromised. Removal of existing vegetation would have the potential short-term effect of increasing the rate of erosion, unless compensated for in the cap design and installation. In addition, the cap would need to be designed to withstand potential buoyant forces due to high water table conditions during flooding.

7.3.2.3 **Soil Cover**

A surface cover utilizing a soil cover only could be utilized to achieve RAO #1. This type of cap would consist of 12 inches of general soil fill and 6 inches of topsoil on top. The soil cap would be installed over designated areas of COCs that exceed the site cleanup standards. As with the two other capping options, trees and other vegetation would need to be removed to install the soil cover in a manner which would minimize topographic irregularities which cause localized high velocity conditions. The soil cap top elevation will be at or below the existing grade having positive drainage flow. Minor regrading may be necessary in areas where remedial excavation does not exceed 18 inches.

A soil cover, alone, would not be sufficient to withstand erosion within the floodway portion of the floodplain. Long-term maintenance of the cap and vegetation free of "woody" growth would be required to address potential erosion due to localized high velocity areas or eddy conditions.

7.3.3 <u>Ex-Situ Stabilization</u>

This technology consists of the use of proprietary reagents to stabilize leachable metals via altering the speciation of the metals, or other properties of the soil. These reagents typically result in a 1 to 5% increase in volume. The stabilization process can typically be performed in containers if the volume is small or using pugmills for larger volumes. Stabilization is a proven and permanent technology for metals but not PCBs. Therefore, the technology would be used in combination with excavation/removal technologies to perform on-site treatment and thus lower off-site disposal costs.

This technology does not eliminate direct exposure to the COCs by itself (RAO #1); however, it does reduce the mobility of the inorganic COCs.

### 7.3.4 Surface Controls

#### 7.3.4.1 **Erosion Control Materials**

Erosion control materials are used in multiple land development application scenarios to mitigate potential soil erosion along stream banks, drainage channels, and steep slopes. Erosion control materials consist of a wide variety of material which can be used to withstand velocities up to 20 feet per second (fps). Examples include gabion blanks, rip-rap, and biodegradable and non-biodegradable mats and geosynthetics. Depending on the material selected, thin layers of topsoil (i.e., 4-6 inches) is used beneath the material or used to fill in void spaces to facilitate vegetative growth.

Based on the predicted velocities in the hydraulic model (see Section 4.6), erosion control materials would effectively prevent the erosion of the surface soils and exposure to subsurface soils (RAO #1), and therefore, also reduce the potential mobility of the COCs (RAO #2). Rip-rap and high-strength geosynthetics would also be able to withstand impact/damage from submerged debris carried by flood waters. Detailed hydraulic modeling would be required as part of the final design since the areas to be protected are within the floodway and floodplain. Installation of the erosion control materials would require the removal of the undergrowth and brush but not the trees. In addition, significant grading changes would not be necessary in areas that are not being disturbed for other reasons. Erosion control materials are considered permanent remedies for erosion; however, long-term maintenance is necessary to maintain the effectiveness of the material.

#### 7.3.4.2 **Revegetation**

Natural vegetation is an effective means to minimize erosion in a floodplain if the velocities are less than 3 fps. During the remedial actions in 1993, it was necessary to remove stands of mature trees in areas that were excavated on the Site. Trees and ground vegetation (turf grasses) serve to dampen low velocity erosional forces but may not be effective at high velocities or for surface gouging by objects carried by floods and tree overturning. Natural vegetation may minimize the potential for erosion of surface soils and exposure to subsurface soils in non-floodway areas (i.e., low velocity and shallow depth areas); however, in higher velocity areas (i.e., floodway), trees may be uprooted and subsequently expose subsurface soils (RAO #1 and #2).

For example, when trees were removed during the 1993 excavation activity, erosion took place in some disturbed areas during subsequent flooding. Supplemental rip rap has since been emplaced and revegetation has stabilized these areas. Revegetation has included grasses, shrubs, and sapling hardwood trees in various areas previously disturbed by excavation. Gradual reforestation is expected over time as trees grow and mature to emulate the forested nature of the floodplain immediately adjacent to the Site and across the creek.

### 7.3.5 Excavation of Soil and Off-Site Disposition

Excavating and removing waste/soil where elevated COCs have been characterized can be completed using standard earthwork equipment. Excavation and removal will eliminate future on-site long-term exposure to the COCs; however, short-term exposure would be significantly increased due to potential airborne emissions, direct contact, and erosion if a flood event occurred (RAO #1 and #2).

Aggressive erosion control and revegetation measures would be needed following the removal to prevent sediment loading to Seeley Creek. This remedy would be considered permanent for the Site; however, the soil/waste material would be transferred to an off-site landfill.

## 8.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES USING RETAINED TECHNIQUES

### 8.1 OVERVIEW

The original ROD evaluated six remedial alternatives and selected Alternative No. 6: Site Access Restrictions, Excavation and Off-Site Disposal. This remedy was partially implemented in 1993/94; however, due to the significant increase (>100%) in volume above the assumed ROD volumes, NYSDEC has allowed Unisys to perform a focused reassessment of remedial technologies and alternatives. The remedial technology review completed in Sections 7 and 8 did not identify any new technologies which had either: 1) been evaluated in the original ROD and screened out that were now applicable; and 2) were new technologies not evaluated in the ROD and are now applicable. Therefore, in accordance with TAGM #4030, Section 4, a preliminary screening of remedial alternatives will not be performed since the number of viable alternatives able to address site problems is limited.

### 8.2 DESCRIPTION OF REMEDIAL ALTERNATIVES

#### 8.2.1 Alternative 1 - Original ROD

Alternative 1, the original ROD remedy, consists of the following:

- Site access restrictions;
- Excavation of soil/waste above the ROD cleanup goals (unrestricted land use); and
- Transportation and off-site disposal of the excavated soil/waste in an appropriately permitted TSD facility.

Alternative 1 was implemented on-site in accordance with the ROD between 1993 and into early 1994 by Unisys Corporation (Unisys). Remediation undertaken in accordance with the ROD resulted in excavation and off-site disposition at a permitted treatment, storage, and disposal facility (TSD) of somewhat greater than 10,000 cubic yards of waste/soils containing elevated levels of polychlorinated biphenyls (PCBs) and metals of concern. The volume of waste/soil removed was 100% more than the estimated volume in the ROD (i.e., 5,360 cy). The results of verification sampling and analysis performed subsequent to site remediation activities, however, revealed constituents of concern (COCs) at continuing elevated levels. Based upon an estimate of 6,000 - 12,000 cy of material remaining at the Site that is above the cleanup standards in the ROD.

Implementation of Alternative 1 will require several site preparation tasks to be completed prior to excavation of soil/waste. Initially, site management zones (i.e., exclusion, decontamination, support) will need to be established. Erosion and sediment control structures will subsequently be installed followed by the construction of vehicle haul roads. Areas 1 and 2 (approximately 1.5 acres) will be cleared and the aboveground vegetation removed from the Site. Subsequently, the removal areas will be located and marked by a New York licensed surveyor. The assumed soil/waste to be excavated totals approximately 12,280 inplace cubic yards (cy)[2] and has been subdivided into three categories based on chemical-specific SCGs.

| | | |
|---|---|---|
| Type A (TSCA/RCRA) | - Soil/waste containing PCBs above 100 ppm and heavy metals above 3000 ppm (i.e., material likely to exceed characteristic hazardous waste criteria) | (3310 insitu cy) |
| Type B (TSCA/Non-RCRA) | - Soil/waste containing PCBs between 50-100 ppm and heavy metals less than 3000 ppm | (3360 insitu cy) |
| Type C (Non-TSCA/Non-RCRA) | - Soil/waste containing PCBs below 50 ppm and heavy metals below 3000 ppm and above unrestricted use standards | (5610 insitu cy) |

2 The estimated volume of material to be excavated is based on the potential limits of excavation shown on Figure 5 and a 100% contingency. The 100% contingency is based on the 100% increase in excavated material during the 1993/1994 removal activities.

Pre-excavation waste disposal characterization sampling and landfill approval will be obtained if possible to help reduce the amount and time excavated material needs to be temporarily staged/stockpiled on-site prior to transportation to the appropriate TSD facility. The individual material types will be excavated separately and staged separately in either temporary stockpiles or directly loaded into off-site transportation vehicles if possible. Type A material would be stabilized on-site to eliminate the potential for metals to leach above RCRA characteristic toxicity criteria concentrations. Confirmation sampling would be performed to document compliance with the cleanup goals or the need for additional removal. All vehicles would be decontaminated at the existing decontamination area (from the previous removal activities) prior to leaving the Site. In addition, dust suppression techniques would be utilized as necessary to ensure compliance with OSHA and NAAQS requirements.

A detailed excavation and restoration schedule would be needed to minimize exposure of excavated (both contaminated and clean disturbed) areas to potential flood waters. Contingency erosion control measures would need to be established to ensure protective measures could be swiftly implemented to protect against cross-contamination of adjacent soils and Seeley Creek in the event of a flood event, or other significant runoff event. Typical measures utilized include:

- Extended weather and creek stage monitoring;
- Limiting the maximum amount of areas which can be excavated at a time and staging of excavated material;
- Backfill and restoration immediately following successful attainment of cleanup goals;
- Standby time due to pending severe weather; and
- On-site staging of emergency construction materials, such as geotextiles and stone, to cover exposed areas.

Final restoration of the Site would require a combination of imported soil and existing site soils to be used to grade the Site to create positive drainage. All areas would be seeded with a mixture appropriate to the region and floodplain characteristics of the Site. Areas subject to potential erosive velocities may also require additional erosion control mattings or rip-rap. Specific velocities at individual locations would dictate the need and type of erosion control measures utilized.

Long-term operation and maintenance will be limited to ensuring the ground surface is sufficiently revegetated to minimize soil erosion. The O&M period would likely last one to two years. No groundwater monitoring would be required since all of the impacted soil above the unrestricted land use cleanup goals would be removed.

### 8.2.2 Alternative 2 - Excavation/Removal to 2005 RFS Cleanup Goals and Soil Cap

Alternative 2 consists of the following:

- Site deed restrictions;
- Excavation of soil/waste above the 2005 RFS cleanup goals;
- Transportation and off-site disposal of the excavated soil/waste in an appropriately permitted TSD facility;
- Installation of a 18-inch soil cap, with an underlying geotextile, to prevent erosion of the surface soils and subsequent exposure of subsurface soils;
- Re-vegetation of disturbed areas; and,

- Long-term maintenance and monitoring of the soil cap, including annual certification, in accordance with a NYSDEC-approved Site Management Plan (SMP).

Implementation of Alternative 2 will require the same/similar site preparation tasks to Alternative #1 to be completed prior to excavation of soil/waste, including removal of all trees in Areas 1 and 2. The assumed soil/waste totals approximately 9630 inplace cubic yards (cy)[3] and as been subdivided into three categories based on chemical-specific SCGs.

| | | |
|---|---|---|
| Type A (TSCA/RCRA) | - Soil/waste containing PCBs above 100 ppm and heavy metals above 3000 ppm (i.e., material likely to exceed characteristic hazardous waste criteria) | (2890 insitu cy) |
| Type B (TSCA/Non-RCRA) | - Soil/waste containing PCBs between 50-100 ppm and heavy metals less than 3000 ppm | (2890insitu cy) |
| Type C (Non-TSCA/Non-RCRA) | - Soil/waste containing PCBs less than 50 and Heavy Metals below 3000 ppm and above restricted use | (3850 insitu cy) |

Pre-excavation waste disposal characterization sampling and landfill approval will be obtained if possible to help reduce the amount and time excavated material needs to be temporarily staged/stockpiled on-site prior to transportation to the appropriate TSD facility. The individual material types will be excavated separately and staged separately in either temporary stockpiles or directly loaded into off-site transportation vehicles if possible. Type A material would be stabilized on-site to eliminate the potential for metals to leach above RCRA characteristic toxicity criteria concentrations. Confirmation sampling would be performed to document compliance with the cleanup goals or the need for additional removal. All vehicles would be decontaminated at the existing decontamination area (from the previous removal activities) prior

3 The estimated volume of material to be excavated is based on the potential limits of excavation shown on Figure 6 and 100% contingency. The 100% contingency is based on the 100% increase in excavated material during the 1993/1994 removal activities.

to leaving the Site. In addition, dust suppression techniques would be utilized as necessary to ensure compliance with OSHA and NAAQS requirements.

A detailed excavation and restoration schedule would be needed to minimize exposure of excavated (both contaminated and clean disturbed) areas to potential flood waters. Contingency erosion control measures would need to be established to ensure protective measures could be swiftly implemented to protect against cross-contamination of adjacent soils and Seeley Creek in the event of a flood event or other significant runoff event. Typical measures utilized include:

- Extended weather and creek stage monitoring;
- Limiting the maximum amount of areas which can be excavated at a time and staging of excavated material;
- Backfill and restoration immediately following successful attainment of cleanup goals;
- Standby time due to pending severe weather; and,
- On-site staging of emergency construction materials, such as geotextiles and stone, to cover exposed areas.

Once the excavation of Areas 1 and 2 are completed the excavations will be backfilled and compacted to the approximate existing lines and grades. The top 18-inches of the backfill shall be constructed in accordance with the provisions of the soil cap. The soil cap would consist of approximately 6 inches of topsoil, underlain by 12 inches of general fill, and a geotextile. For excavations less than 18-inches in depth, additional grading will be required to achieve full cap depth and top elevation at or below existing grade. In addition, some beneficial regarding of the areas maybe performed to reduce the potential to create obstructions during flood events. This will help reduce potential direct contact exposure to humans and the environment due to erosion.

Final restoration of the Site would require a combination of imported soil and existing site soils be used to grade the Site to create positive drainage. NYSDEC has indicated borrow material may be available from the channel or overbank areas of Seeley Creek to minimize imported soil. NYSDEC routinely removes accumulated fill from these areas to maintain the floodway and floodplain. All areas would be seeded with a mixture appropriate to the region and floodplain characteristics of the Site. Restored areas subject to potential erosive velocities may also require additional erosion control mattings or rip-rap. Specific velocities at individual locations would dictate the need and type of erosion control measure utilized.

Long-term operation and maintenance (O&M) will be limited to ensuring the ground surface is sufficiently revegetated to minimize soil erosion and prevent "woody" growth. The O&M would likely be more intensive the first or second year after restoration to ensure established growth of stable vegetation; thereafter, O&M would likely be minimal. Limited post-removal groundwater monitoring will be performed as previously described in Section 4.5 of this RFS to confirm the soil remediation has not adversely impacted the groundwater. Specific O&M requirements would be developed in the SMP.

## 8.3 DETAILED ANALYSIS OF ALTERNATIVES

### 8.3.1 Analysis Criteria

This section presents the detailed analysis of the three remedial alternatives to be considered. The remedial alternatives will be individually analyzed based on the criteria described in the "Technical and Administrative Guidance Memorandum for the Selection of Remedial Action at Inactive Hazardous Waste Sites." The criteria are listed below:

- Compliance with Applicable New York State Standards, Criteria and Guidelines (SCGs);

- Overall Protection of Human Health and the Environment;

- Short-term Impacts and Effectiveness;

- Long-term Effectiveness and Permanence;

- Reduction of Toxicity, Mobility or Volume;

- Implementability; and,

- Cost (see Table 8).

### 8.3.2 Alternative #1: Original ROD Remedy

#### 8.3.2.1 Compliance with Applicable New York State Standards, Criteria and Guidelines (SCGs)

This alternative's main components include site access restrictions, the removal and off-site disposal of all impacted soils in Areas 1 and 2 above the unrestricted land use cleanup goals, as well as, erosion and sedimentation control structures.

Adherence to chemical-specific SCGs will be attained by the removal of impacted soil with PCBs, lead, cadmium and nickel concentrations above the unrestricted land use cleanup goals.

Adherence with action-specific SCGs will be attained by using USEPA-approved technologies already proven to be effective such as the excavation and off-site disposal and/or incineration of the material in an applicable TSD facility.

Adherence with location-specific SCGs will be attained by maintaining or lowering the elevation of the existing grades in Areas 1 and 2 so that it will not affect the level of flood waters inherent to the site. It will also allow the existing dike to the north of the Site to continue to control the flood waters of the Seeley Creek to the south. The permits required for work in a flood plain should be readily obtainable since no increase in the base flood elevation is expected. Additionally, site restrictions placed on deed of property restrict any future development on the Site.

8.3.2.2 **Overall Protection of Human Health and the Environment**

This alternative will eliminate the potential for future on-site direct exposure to waste/soils that are considered a risk for human exposure by removing them from the Site; however, short-term risks during construction will be high due to the handling of the large volume of soil and potential for cross-contamination due to a flood event (RAO #1). This alternative will also lower the flood risks to the Town of Southport. The lower post-RA surface grades and clearing of the Site will allow water to more easily flow through the Site without the risk of debris dams creating backwater conditions. A portion of the material (Type A material) being disposed off-site will be treated on-site for leachable metals via stabilization prior to off-site transportation and landfilling, thus, a small reduction in toxicity and mobility will be achieved (RAO #2).

8.3.2.3 **Short-Term Impacts and Effectiveness**

This alternative will require the use of standard construction excavation and trucking equipment to remove the estimated 12,280 insitu cy of impacted material from the Site. The impacted soil will need to be trucked through the Town of Southport and possibly Elmira, depending on the transportation route and landfill location. Approximately 980 round trip truck trips[4] will be necessary. Several risk studies have demonstrated the greatest site risks for environmental cleanups are associated with truck traffic both on-site and off-site. These risks can be controlled

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4 Assume 15 cubic yards per truck load and a 1.2 bulking factor.

on-site and to a limited degree off-site by using licensed drivers, inspection of vehicles and the use of mandatory routes to/from the Site through the community.

Excavation of the material will create dust which could cause short-term risks to the community and workers; however, proper use of dust suppression techniques and personal protective equipment should adequately mitigate these potential risks.

It is estimated that this alternative will require 6 to 12 months to complete, and the restoration of the ground surface vegetation will require approximately two years. During the implementation time, exposed, excavated materials will present an environmental risk to cross-contamination of both clean floodplain areas and Seeley Creek itself in the event of a significant flood. Some protective measures can be employed to reduce this environmental risk; however, it is probable that some release could occur during a flood event.

#### 8.3.2.4 **Long-Term Effectiveness and Permanence**

This alternative is considered permanent based on the excavation and disposal, and stabilization of soils with COCs above the SCGs. Removal of material to unrestricted land use (i.e., residential) cleanup goals will result in the post-RA risk levels being significantly below those necessary to be protective for the actual current and future restricted land use of the Site. With the removal of the shrubbery within the excavation areas, there will be some early erosion after restoration. In time, however, the seeding will take effect, turf will be established and the erosion concerns should dissipate.

#### 8.3.2.5 **Reduction of Toxicity, Mobility or Volume**

The Type A (≈25% of the total volume) will be permanently treated on-site for leachable metals prior to disposal to reduce the mobility of the COCs. The treatment is expected to provide a permanent order of magnitude decrease in mobility; however, due to the minimal volume of material being treated versus the total volume which will be landfilled, it is expected the risk reduction will be significantly less. The volume of material will not be significantly reduced since the majority of the material will be direct landfilled. No change in toxicity is expected.

8.3.2.6 **Implementability**

This alternative uses conventional excavation equipment which should not present any implementability problems, with the exception of risks associated with cross-contamination if a flood occurs during excavation activities. Exposed soils would be susceptible to erosion of varying degrees depending on the magnitude of a flood and location of the active excavations and stockpiles. On-site stabilization for metals is a proven technology which should be implementable but startup testing to determine an appropriate treatment formula and materials handling procedures would be necessary. This alternative may result in substantial increases in the volume of material to be excavated; however, increases in volume should not affect the reliability of the individual technologies comprised in the alternative but the duration would increase proportional with the volume increase. Monitoring of this alternative's ability to meet the cleanup goals and health and safety performance requirements are readily implementable.

Administrative feasibility should be high since this alternative was partially implemented in 1993/1994.

All of the necessary services and materials should be readily available to implement this alternative.

8.3.2.7 **Cost**

The estimated capital costs of this alternative are $4,330,000. The estimated present worth O&M costs after implementation are $35,000 for 5 years. The present worth cost of this alternative based on an inflation rate of 6.8% is $4,365,000. This information is summarized in Table 8 and Appendix D.

### 8.3.3 Alternative #2: Excavation/Removal to 2005 RFS Cleanup Goals and Soil Cap

#### 8.3.3.1 **Compliance with Applicable New York State Standards, Criteria and Guidelines (SCGs)**

This alternative's main components include the removal and off-site disposal of impacted soils in Areas 1 and 2 above the 2005 RFS cleanup goals, and installation of a 18-inch soil cap.

Adherence to chemical-specific SCGs will be attained by the removal of impacted soil with PCBs, lead, cadmium and nickel concentrations above the 2005 RFS cleanup goals and installation, maintenance and monitoring of the soil cap to assure continued protection from the subsurface soils.

Adherence with action-specific SCGs will be attained by using USEPA-approved technologies already proven to be effective such as the excavation and off-site disposal, and stabilization of the material with leachable metals above the RCRA characteristic toxicity criteria.

Incorporating location-specific SCGs require maintaining or lowering the elevation of the existing grades in Areas 1 and 2 post-remediation so that it will not affect the level of flood waters inherent to the Site. It will also allow the existing dike to the north of the Site to continue to control the flood waters of the Seeley Creek to the south. The permits required for work in a floodplain will need to be approved by the Town of Southport since fill material will be placed in the floodplain and floodway. This remedy's implementation would be contingent upon compliance with municipal code requirements and approval by the Town of Southport. According to NYSDEC Division of Water, Bureau of Flood Protection, permitting for this type of work is routine and should not be difficult to obtain approval. Additionally, site restrictions will be placed on the property deed to restrict any future development on the Site.

#### 8.3.3.2 **Overall Protection of Human Health and the Environment**

This alternative will eliminate the potential for future on-site direct exposure to waste/soils that may be considered a risk for human exposure by removing them from the Site; however, short-term risks during construction will be moderate due to the handling of the soil and potential for new impacts due to a flood event (RAO #1). This alternative will also lower the flood risks to the Town of Southport. The clearing of the Site will allow water to more easily flow through the Site without the risk of debris dams creating backwater conditions. A portion of the material (Type A material) being disposed off-site will be treated on-site for leachable metals via stabilization prior to off-site transportation and landfilling, thus, a small reduction in toxicity and mobility will be achieved (RAO #2).

#### 8.3.3.3 **Short-Term Impacts and Effectiveness**

This alternative will require the use of standard construction excavation and trucking equipment to remove the estimated 9630 insitu cy of impacted material from the Site. The impacted soil will need to be trucked through the Town of Southport and possibly Elmira, depending on the transportation route and landfill location. Approximately 770 round trip truck trips[5] will be necessary. Several risk studies have demonstrated the greatest site risks for environmental cleanups are associated with truck traffic both on-site and off-site. These risks can be controlled on-site and to a limited degree off-site by using licensed drivers, inspection of vehicles and the use of mandatory routes to/from the Site through the community.

Excavation of the material will create dust which could cause short-term risks to the community and workers; however, proper use of dust suppression techniques and personal protective equipment should adequately mitigate these potential risks.

It is estimated that this alternative will require 4 to 9 months to complete, and the restoration of the ground surface vegetation will require approximately two years. During the implementation

5 Assumes 15 cubic yards per truck load and a bulking factor of 1.2.

period, exposed, excavated materials will present an environmental risk to cross-contamination of both clean floodplain areas and Seeley Creek itself in the event of a significant flood. Some protective measures can be employed to reduce this environmental risk; however, it is probable that some release could occur during a flood event.

### 8.3.3.4 **Long-Term Effectiveness and Permanence**

This alternative is considered permanent based on the excavation and disposal and stabilization of soils with COCs above the SCGs. Removal of material to restricted land use (i.e., non-residential) cleanup goals will result in the post-RA risk levels being significantly below those necessary to be protective for the Site.

Long-term maintenance (i.e., erosion repair) would be necessary in the floodway portion of the Site since grass turf surfaces alone may erode due to the higher velocities and potential for gouging from debris.

### 8.3.3.5 **Reduction of Toxicity, Mobility or Volume**

The Type A material (≈25% of the total volume) will be permanently treated on-site for leachable metals prior to disposal to reduce the mobility of the COCs. The treatment is expected to provide a permanent order of magnitude decrease in mobility; however, due to the moderate volume of material being treated versus the total volume which will be landfilled, it is expected the risk reduction will be significantly less. Removal of the soil/waste will reduce mobility of the soils. The volume of material will not be significantly reduced since the majority of the material will be direct landfilled. No change in toxicity is expected.

#### 8.3.3.6 **Implementability**

The alternative uses conventional excavation equipment which should not present any implementation problems, with the exception of risks associated with cross-contamination if a flood occurs during excavation activities. The exposed soils, although less than Alternative #1, would be susceptible to erosion of varying degrees depending on the magnitude of a flood and location of the active excavations and stockpiles. On-site stabilization for metals is a proven technology which should be implementable but startup testing to determine the appropriate treatment formula and materials handling procedures would be necessary. The potential for volume increases is possible but increases in volume would not affect the reliability of the individual technologies comprised in the alternative but the duration would increase proportional to the volume increase. Monitoring of this alternative's ability to meet the cleanup goals and health and safety requirements are readily implementable.

Administrative feasibility would be high for the excavation/removal portion of the alternative due to similarity to the work already completed in 1993/1994. The soil cap may need to be permitted locally due to municipal codes limiting fill placement in floodways and floodplains; however, NYSDEC Division of Water, Bureau of Flood Protection personnel have indicated they will assist with facilitating the review of any permit application.

All necessary services and materials should be readily available to implement this alternative.

#### 8.3.3.7 **Cost**

The estimated capital costs of this alternative are \$3,500,000. The estimated present worth O&M costs after implementation are \$35,000 for 30 years. The present worth cost of this alternative based on an inflation rate of 6.8% is \$3,535,000. This information is summarized in Table 8 and Appendix D.

## 8.4 COMPARATIVE ANALYSIS OF ALTERNATIVES

### 8.4.1 Compliance with Applicable New York State Standards, Criteria and Guidelines (SCGs)

This criterion is a threshold criteria for the analysis of each alternative. Based on the detailed analysis, both alternatives are expected to adhere to applicable New York State SCGs.

### 8.4.2 Overall Protection of Human Health and the Environment

This criterion is also a threshold criteria for the analysis of each alternative. All of the alternatives will attain a level of human health protection necessary for the current and future land use for the Site. Previous studies have shown no impacts to the groundwater or adjacent creek above regulatory limits. However alternative 2 provides the addition of a geosynthetic demarcation and erosion control barrier in the event that the flooding of Seeley Creek displaces the 18" soil cap.

Therefore, Alternative 2 is expected to provide a significant increase in protection of the environment and the potential exposure of a contaminant pathway. The same level of long-term O&M will be required for both alternatives.

### 8.4.3 Short-Term Impacts and Effectiveness

All of the alternatives utilize the same basic construction equipment and materials during implementation. However, the volume of soil to be excavated for Alternative 1 is 1.5 times greater than Alternative 2; therefore, the short-term risks to the community and construction workers are expected to be increased as well.

The duration of Alternative 1 is expected to be at least 1.5 times as long as Alternative 2; therefore, the risk of cross-contamination due to flooding is the highest.

Alternative 2 has less short-term impacts than Alternative 1. The short-term effectiveness are equal for all alternatives.

### 8.4.4 Long-Term Effectiveness and Permanence

Both alternatives will remain effective because the impacted soil above the cleanup goals will be removed from the Site. Alternative 2 relies on capping to prevent future direct contact exposure to subsurface soils (i.e., > 6 inches below the existing ground surface) versus Alternative 1 which requires removal to an unrestricted land use scenario in addition to a 12" thick clean soil cap over surface PCB contamination. NYSDEC has identified surface erosion and gouging during flooding events to be the primary concern for future direct contact exposure. This process typically occurs only in the floodway or small localized eddies.

### 8.4.5 Reduction of Toxicity, Mobility or Volume

Alternative 1 will result in the greatest reduction in on-site volume of impacted material due to the lower cleanup goals associated with unrestricted land use. The actual volume of impacted material is not reduced by either alternative. No changes in toxicity will be achieved by the alternatives. A reduction in mobility will be achieved by all of the alternatives due to the disposal of impacted material in a secure landfill. Alternative 1 provides a higher reduction due to the lower cleanup goals.

### 8.4.6 Implementability

The technical implementation of both alternatives is equivalent because each alternative utilizes predominantly the same equipment and services. However, Alternative 1 has the greatest potential for an increase in volume based on previous field activities at the Site.

The administrative ease of implementation for Alternative 1 is greater than Alternative 2. Alternative 2 has a lower ease of implementation since placement of significant fill to construct the 18-inch soil cap may be prohibited by the Town of Southport. Nonetheless, NYSDEC Division of Water, Bureau of Flood Protection personnel have indicated the earthwork associated with Alternative 2 is routine and a local permit should be obtainable.

### 8.4.7 Cost

Alternative 1 has the highest capital and present worth cost of the alternatives due to the unrestricted land use cleanup goals. Alternative 1 also has the greatest likelihood of significantly increasing in cost based on the experience from the 1993/1994 field activities which attempted to implement this alternative.

## 9.0 RECOMMENDED ALTERNATIVE

The selection of a remedial alternative should be based on the expected current and future use of a site and sound technical analysis of the evaluation criteria that can subsequently be the basis for the remedial design of the remedy. Both alternatives meet the requirements of the two threshold criteria of:

1) Compliance with New York State SCGs; and
2) Overall protection of human health and the environment.

However, Alternative 1 is based on a future unrestricted land use of the Site which is inconsistent with the current and future institutional controls on the Site. It is extremely unlikely that the Site use will ever change from its current flood control use given the proximity of Seeley Creek. Therefore, since Alternative 2 meets the threshold criteria and is consistent with the current and future use of the Site, Alternative 1 is not the recommended alternative.

As discussed in Section 4.0, a Pre-Design Investigation (PDI) should be the first step completed for implementation of the recommended alternative. The objective of the PDI will be to characterize the extent of the soils which require excavation and removal. Characterizing the extent and volume of previously determined soil contamination as well as evaluating the potential for erosional cross contamination of previously remediated areas will allow better materials management during implementation, and reduce the risk of cross-contamination (due to flooding) associated with the exposure of excavated soils and open excavations within the floodplain of Seeley Creek. This PDI will not reduce or eliminate the required confirmatory sampling for all contaminant excavations.

# TABLES

**TABLE 1**

**Distribution of Soil Sample Results**
**McInerney Farm Site**
**Southport, New York**

**PCBs**

| Surface | ND | <1 mg/kg | >1-10 mg/kg | >10-50 mg/kg | >50-300 mg/kg | >300 mg/kg |
|---|---|---|---|---|---|---|
| 0-1 ft. | 50 | 98 | 7 | 0 | 0 | 0 |

| Subsurface | ND | <=10 mg/kg | >10-25 mg/kg | >25-50 mg/kg | >50-300 mg/kg | >300 mg/kg |
|---|---|---|---|---|---|---|
| >1-8 ft. | 26 | 284 | 16 | 7 | 5 | 4 |
| >8-12 ft. | 3 | 29 | 0 | 0 | 1 | 0 |
| >12 ft. | 0 | 3 | 0 | 0 | 0 | 0 |

**Nickel**

| Surface | ND | <500 mg/kg | >500-2000 mg/kg | >2000 mg/kg |
|---|---|---|---|---|
| 0-4 ft. | 3 | 189 | 12 | 1 |

| Subsurface | ND | <1000 mg/kg | >1000-2000 mg/kg | >2000 mg/kg |
|---|---|---|---|---|
| >4-8 ft. | 3 | 131 | 6 | 2 |
| >8-12 ft. | 3 | 31 | 0 | 0 |
| >12 ft. | 0 | 3 | 0 | 0 |

**Cadmium**

| Surface | ND | <10 mg/kg | >10-50 mg/kg | >50 mg/kg |
|---|---|---|---|---|
| 0-1 ft. | 14 | 73 | 0 | 0 |

| Subsurface | ND | <10 mg/kg | >10-50 mg/kg | >50 mg/kg |
|---|---|---|---|---|
| >1-8 ft. | 89 | 148 | 16 | 0 |
| >8-12 ft. | 23 | 10 | 1 | 0 |
| >12 ft. | 0 | 3 | 0 | 0 |

**Lead**

| Surface | ND | <350 mg/kg | >350-400 mg/kg | >400-2000 mg/kg | >2000 mg/kg |
|---|---|---|---|---|---|
| 0-1 ft. | 0 | 85 | 0 | 1 | 0 |

| Subsurface | ND | <350 mg/kg | >350-400 mg/kg | >400-2000 mg/kg | >2000 mg/kg |
|---|---|---|---|---|---|
| >1-8 ft. | 15 | 207 | 2 | 15 | 1 |
| >8-12 ft. | 0 | 43 | 0 | 2 | 2 |
| >12 ft. | 0 | 3 | 0 | 0 | 0 |

ND - Compound was not detected by the analytical method employed for sample analysis. Detection limits may vary for the same compound within the database.

# TABLE 2
## Summary of Groundwater Analytical Data

| Summary of Groundwater Analytical Data | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sampling Event** | **Analyte Concentration (ppm)** | | | | | | | | | | |
| **Analyte** | **MW-1** | **MW-9** | **MW-12** | **MW-13** | **MW-14** | **MW-14R** | **MW-15** | **MW-15D** | **MW-16** | **MW-17** | **MW-18** |
| **1991 (a)** | | | | | | | | | | | |
| Pesticides/PCBs | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Volatiles | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Barium | 43 | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Calcium | 28600 | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Potassium | 2380 | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Sodium | 26200 | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **1992 (b)** | | | | | | | | | | | |
| Cadmium - UF | <IDL | <IDL | <IDL | <IDL | <IDL | 0.45 B | <IDL | <IDL | <IDL | <IDL | <IDL |
| Cadmium - F | NA | <IDL | NA | NA | NA | NA | NA | NA | <IDL | NA | NA |
| Lead - UF | NA | NA | <IDL | <IDL | <IDL | <IDL | <IDL | NA | 12.8 | NA | <IDL |
| Lead - F | NA | <IDL | NA | NA | NA | NA | NA | NA | <IDL | NA | NA |
| Nickel - UF | NA | NA | <IDL | <IDL | NA | NA | NA | NA | 164 | <IDL | NA |
| Nickel - F | NA | NA | NA | NA | NA | NA | NA | NA | 45 | NA | NA |
| Aroclor 1242 - UF | NA | <IDL | <IDL | <IDL | <IDL | 0.14 | <IDL | <IDL | <IDL | <IDL | <IDL |
| Aroclor 1242 - F | <IDL | <IDL | NA | NA | <IDL | <IDL | NA | NA | <IDL | NA | NA |
| Aroclor 1248 - UF | NA | 0.065 | 0.059 | <IDL | 0.41 | <IDL | 0.071 | 0.076 | <IDL | <IDL | <IDL |
| Aroclor 1248 - F | <IDL | <IDL | 0.049 J | NA | 0.31 | <IDL | NA | NA | <IDL | NA | NA |
| Aroclor 1254 - UF | NA | 0.036 J | <IDL | <IDL | <IDL | <IDL | <IDL | <IDL | <IDL | <IDL | 0.025 |
| Aroclor 1254 - F | <IDL | <IDL | NA | NA | <IDL | <IDL | NA | NA | <IDL | NA | NA |
| **1995 (b)** | | | | | | | | | | | |
| Aroclor 1242 - UF | NA | <IDL | <IDL | NA | NA | <IDL | <IDL | NA | NA | NA | <IDL |
| Aroclor 1242 - F | NA | <IDL | <IDL | NA | NA | <IDL | <IDL | NA | NA | NA | <IDL |
| Aroclor 1248 - UF | NA | 0.14 | <IDL | NA | NA | <IDL | 0.03 J | NA | NA | NA | 0.047 |
| Aroclor 1248 - F | NA | <IDL | <IDL | NA | NA | <IDL | <IDL | NA | NA | NA | <IDL |
| Aroclor 1254 - UF | NA | 0.063 | <IDL | NA | NA | <IDL | <IDL | NA | NA | NA | 0.048 |
| Aroclor 1254 - F | NA | <IDL | <IDL | NA | NA | <IDL | <IDL | NA | NA | NA | <IDL |

(a) It is unknown whether or not these samples were filtered. TAL metals list analyzed. Only detected metals shown.
(b) Aroclors 1016, 1221, 1232, and 1260 analyzed for, but not detected.
ND - Not detected
NA - Not analyzed
<IDL - Compound was not detected at instrument detection level (IDL).
F - Filtered; UF - Unfiltered

**TABLE 3**

**Potential Chemical-Specific ARARs/SCGs**
**McInerney Farm Site**
**Southport, New York**

| Medium | Requirement | Prerequisites | Citation | Comments |
|---|---|---|---|---|
| Groundwater | Site groundwater must meet NYS Class GA groundwater standards. These standards are most stringent of:<br>Standards for Class GA Groundwaters<br>NYS MCLs for Public Water Supplies<br>Federal MCLs promulgated under the Safe Drinking Act | Compounds in groundwater must exceed applicable standards | 6 NYCRR Part 703<br>6 NYCRR Part 703.5<br>10 NYCRR Subpart 5-1<br>10 NYCRR Part 170<br><br>40 CFR Part 141 | Realistic evaluation of probability of ingestion as a water supply helpful in assessing relevance |
| Surface Water | Surface water at the site must meet NYS Ambient Water Quality Standards for Class GA water bodies, Class D water bodies, or U.S. EPA AWQCs, whichever is most restrictive | Surface water must exceed NYS AWQS/GVs or U.S. EPA AWQCs | 6 NYCRR Part 701.14<br>Quality Criteria for Water, 1986 | |

## TABLE 4

**Potential Action-Specific ARARs/SCGs**
**McInerney Farm Site**
**Southport, New York**

| Action | Requirement | Prerequisites | Citation | Comments |
|---|---|---|---|---|
| Capping (Closure with Waste In-Place) | Placement of a cap over hazardous waste may require a cover with specific design characteristics | RCRA Waste in Landfill<br>Significant Management of RCRA hazardous waste will make requirements applicable; capping without disturbance will not make requirements applicable but technical requirements may be relevant and appropriate | 40 CFR 264.258(B) | RCRA capping requirements could be relevant and appropriate to capping hazardous waste in place The appropriateness of RCRA requirements is also based on each requirement=s technical merit in a given situation |
| | Restrict post-closure property use to prevent cover damage | | 40 CFR 264.117(c) | |
| | Prevent run-on and run-off from damaging cover | | 40 CFR 264.228(b)<br>40 CFR 264.310(b) | |
| | Disposal or decontamination of equipment, structures, and soils | | 40 CFR 264.111 | |
| | Stabilization of remaining waste and waste residue to support cover | | 40 CFR 264.228(a)(2) & 40 CFR 264.258(b) | |
| | Installation of final cover to provide long-term infiltration minimization | | 40 CFR 264.310 | |
| | Post-closure care and groundwater monitoring | | 40 CFR 264.310 | |

## TABLE 4

**Potential Action-Specific ARARs/SCGs**
**McInerney Farm Site**
**Southport, New York**

| | | | | |
|---|---|---|---|---|
| Excavation and Removal | General performance standards require minimizing need for further maintenance and control; minimization or elimination of post-closure escape of hazardous waste, hazardous constituents, leachate contaminant runoff, or hazardous waste decomposition products | Disturbance of RCRA hazardous waste and movement outside the unit or area of contamination<br><br>May apply to contaminated soil disturbed in the course of excavation and returned to land | 40 CFR 264.111 | Clean closure and removal may not be feasible for some landfill sites due to large waste volumes. However, removal of areas containing extraordinarily high concentrations of certain wastes may be possible |
| | Removal or decontamination of all waste residues, contaminated containment system components, contaminated subsoils, structures, and equipment waste | Not applicable to undisturbed material | 40 CFR 264.228(a) | |
| | Disposal or decontamination of equipment, structures, and soils | | 40 CFR 264.111 & 40 CFR 264.268 | |
| | Handling, transport, storage and material disposal complies with NYSDEC/USEPA regulations | Excavated material may be considered hazardous by NYSDEC or meet TSCA PCB Waste Criteria | 6 NYCRR Part 373 & 40 CFR 761.60-761.79 | Specifically Subpart D: Storage and Disposal<br>These regulations specify treatment, storage and disposal requirements for PCBs based on form and concentration |
| | Control fugitive dusts | Air quality during removal must meet National Air Quality Standard (AAQS) for particulate matter | 40 CFR Part 50 | |
| | Meet health-based action levels | | | |

## TABLE 5

**Potential Location-Specific ARARs/SCGs**
**McInerney Farm Site**
**Southport, New York**

| Location | Requirement | Prerequisites | Citation | Comments |
|---|---|---|---|---|
| Within 100 yr. Flood Plain | Facility must be designed, constructed, operated and maintained to avoid washout | RCRA hazardous waste; PCB treatment, storage or disposal | 40 CFR 264.18(b)<br>40 CFR 761.75 | Applicable if part of waste is in 100 year flood plain |
| Within Flood Plain | Action to avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values of the flood plain | Action that will occur in a flood plain i.e., lowlands and relatively flat areas adjoining inland and coastal waters and other flood-prone areas | Executive Order 11988 Protection of Flood Plains (40 CFR 6 Appendix A) | Applicable if part of waste is in 100 year flood plain |
| Area Affecting Stream or River | Action to protect fish and/or wildlife | Diversion, channeling or other activity that modifies a stream or river and affects fish or wildlife | Fish and Wildlife Coordination Act (16 USC 661 et.seq.)<br>40 CFR 6.302 | The Fish and Wildlife Coordination Act requires consultation with the Department of Fish and Wildlife prior to any action that would alter a body of water of the United States |

## TABLE 6

**Remedial Response Actions**
**McInerney Farm Site**
**Southport, New York**

| Remedial Action Objective | Remedial Response Action: No Action | Institutional Controls* | Containment | Ex Situ Treatment | In Situ Treatment | Excavation and Off-Site Disposition* |
|---|---|---|---|---|---|---|
| Reduce direct contact exposure with waste/soils presenting localized high potential risks | Not Applicable; Some remedial actions have already been implemented at the site | X | X | X | X | X |
| Reduce toxicity, mobility or volume of waste and soil contaminants | | | X | | | X |
| Preserve or enhance unique natural environmental, ecological and recreational resource characteristics | | X | X | | | |

* Indicates this action has already been implemented, to some extent, at the site

# TABLE 7

## Initial Screening of Technologies and Process Options
## McInerney Farm Site
## Southport, New York

| Remedial Response Action | Remedial Technology | Process Options | Screening Comments |
|---|---|---|---|
| No Action | N/A | N/A | Not applicable, certain remedial actions already implemented |
| Institutional | Development Restrictions | Deed restrictions to limit future property development | Potentially applicable |
| | Access Restrictions | Fencing to limit site access | Not implementable due to location in flood plain |
| Containment | Cap | Cap of compacted clay and soil (RCRA cap) | Potentially applicable |
| | | Cap of asphalt/concrete | Potentially applicable |
| | | Cap remediated area with soil cover | Potentially applicable |
| | Erosion Controls | Flood protection levees or headwalls | Not implementable due to flood plain development restrictions |
| | | Geosynthetic and/or rip-rap materials | Potentially applicable |
| | | Sod cover only | Potentially applicable |
| | On-site Vault | Above ground containment structure | Not implementable due to location in flood plain` |
| | On-site Landfill | RCRA/TSCA Landfill | Not implementable due to location in flood plain |
| Ex Situ Treatment | Physical Treatment | Soil/debris washing for metal removal | Not effective for PCBs; technically unreliable for metals in site soils matrix |
| | Physical/Chemical Treatment | Solidification/stabilization with pozzolanic material | Not effective for PCBs, increases volume; reduces flood plain capacity |
| | Chemical Treatment | Dehalogenation for PCBs removal | Technically unproven for site soils matirx; not applicable for metals |

## TABLE 7

**Initial Screening of Technologies and Process Options**
**McInerney Farm Site**
**Southport, New York**

| Remedial Response Action | Remedial Technology | Process Options | Screening Comments |
|---|---|---|---|
| In Situ Treatment | Physical/Chemical/ Biological Treatment | Chemical oxidation | Not effective for site COCs |
| | | Bioremediation | Not effective for PCBs; not applicable for metals |
| | | Vitrification | Not implementable in floodplain |
| | | Soil flushing with/without mobilizing chemicals | Not effective for degree of reduction required |
| | | Low temperature thermal treatment | Not effective for high MW PCBs; not applicable for metals |
| | | Grout injection | Not effective for COCs and soil media |
| | | High Temperature Thermal Wells | Not effective for metals, not implementable in floodplain |
| | Physical/Chemical Treatment | Solidification/stabilization with pozzolanic material | Not effective for PCBs, does not reduce volume; reduces flood plain capacity |
| Excavation and Removal | Excavate Soil | Transport to permitted TSD facility for treatment and disposal | Potentially applicable |

Note:
- MW - molecular weight
- TSD - treatment, storage, and disposal
- COCs - constituents of concern
- RAO - remedial action objective
- PCBs - polychlorinated biphenyls

- Shaded areas do not meet RAOs or are technically not feasible

## TABLE 8
## Cost Estimate Summary

| Remedial Alternative | Capital Cost 2005 | Annual O&M 2005 | Total Cost Present Worth 2005 (a) |
|---|---|---|---|
| 1 | 4,330,000 | 35,000 | 4,365,000 |
| 2 | 3,500,000 | 35,000 | 3,540,000 |

Description of Remedial Alternative

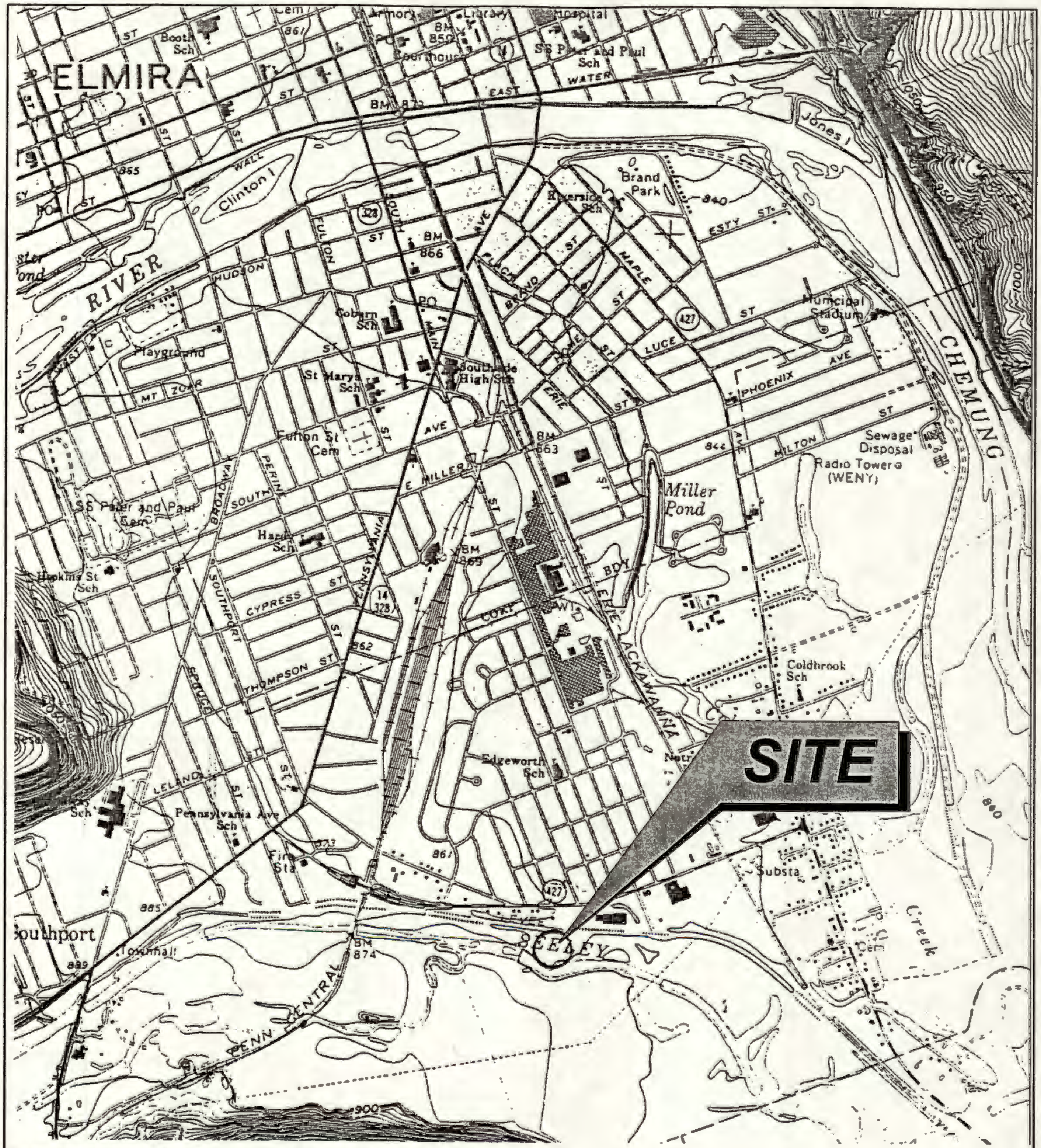
Alternative 1 Original ROD Remedy
Alternative 2 Excavation/Removal to Restricted Land Use Standards

(a) All alternatives based on 3 rounds of post-remediation groundwater monitoring over 5-year period

# TABLE 9
## Summary of Detailed Alternatives Analysis

| Criteria | ALTERNATIVES | |
|---|---|---|
| | Alternative #1 | Alternative #2 |
| Compliance with SCGs | Meets threshold criteria | Meets threshold criteria. |
| Overall Protection of Human Health and Environment | Meets threshold criteria | Meets threshold criteria. |
| Long-Term Effectiveness and Permanence | Permanent remedy. Minimal long-term O&M | Permanent remedy, minimal long-term O&M. |
| Reduction of Mobility, Toxicity or Volume | Reduction in mobility, no reduction in toxicity or volume | Reduction in mobility, no reduction in toxicity or volume |
| Implementability | Technical implementability high due to conventional equipment, reliability not affected by potential volume increases. Administrative implementability high based on previous 1993/1994 work | Technical implementability high due to conventional equipment and procedures, reliability not affected by potential volume increases. |
| Short-Term Impacts and Effectiveness | Large excavations will have cross-contamination risks due to potential flooding, may require 6-12 months to implement | Large excavations will have cross-contamination risks due to potential flooding, may require 4 to 9 months to implement |
| Cost | Capital Cost = 4,330,000<br>O&M = 35,000<br>PW Cost = 4,365,000 | Capital Cost = 3,464,000<br>O&M = 35,000<br>PW Cost = 3,500,000 |

# FIGURES




SOURCE: UGGS 7.5 min ELMIRA, NY QUADRANGLE

# McInerney Farms

TOWN OF SOUTHPORT, CHEMUNG COUNTY, NEW YORK

Scale: Approx. 1"=2000'
Originated By: S.W.K.
Drawn By: P.S.G.
Checked By: S.W.K.
Project Mgr: S.W.K.
Dwg No. 2001911-07-06
Issued: JUL 2 8 2005

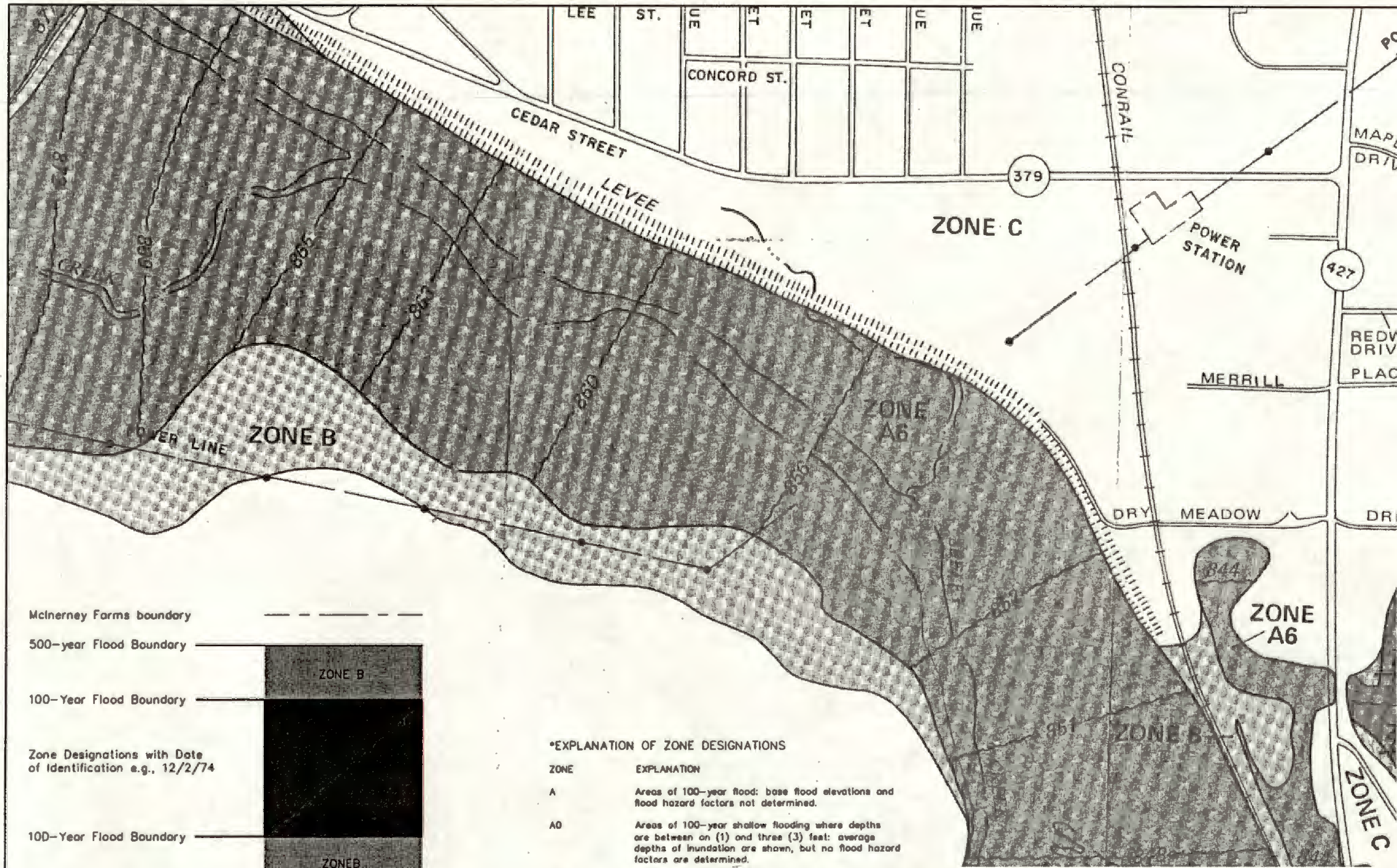
SITE LOCATION MAP

Advanced GeoServices Engineering P.C.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

Project No. 2001911-07

FIGURE: 1

J:\McInerney Farm\DRAWINGS\2001-911-07\2001911-07-06




| | |
|---|---|
| McInerney Farms boundary | — — —— — — |
| 500-year Flood Boundary | ZONE B |
| 100-Year Flood Boundary | |
| Zone Designations with Date of Identification e.g., 12/2/74 | |
| 100-Year Flood Boundary | ZONEB |
| 500-Year Flood Boundary | |
| Base Flood Elevation Line with Elevation in Feet | 513 |
| Base Flood Elevation in Feet Where Uniform within Zone. | (EL 987) |
| Elevation Reference Mark | RM7 x |
| River Mile | • M1.5 |

** Referenced to the National Geodec Vertical Datum of 1929.

*EXPLANATION OF ZONE DESIGNATIONS

| ZONE | EXPLANATION |
|---|---|
| A | Areas of 100-year flood: base flood elevations and flood hazard factors not determined. |
| AO | Areas of 100-year shallow flooding where depths are between on (1) and three (3) feet: average depths of inundation are shown, but no flood hazard factors are determined. |
| AH | Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet: base flood elevations are shown, but no flood hazard factors are determined. |
| A1-A30 | Areas of 100-year flood: base flood elevations and flood hazard factors determined. |
| B | Areas between limits of the 100-year flood and 500-year flood: or certain areas subject to 100-year flooding with average depths less than one (1) foot of where the contributing drainage area is less than one square mile: or areas protected by levees from the base flood. (Medium shading). |
| C | Areas of minimal flooding. (No shading) |

BASE MAP SOURCE:

National Flood Insurance Program town of Southport, New York, Chemung County Panel 30 of 40. Flood insurance Rate Map effective May 1, 1980.

J:\McInerney Farm\DRAWINGS\2001-911-07\2001911-07-03

# McInerney Farms

TOWN OF SOUTHPORT, CHEMUNG COUNTY, NEW YORK

| | |
|---|---|
| Scale: N.T.S. | FLOOD HAZARD MAP |
| Originated By: S.W.K. | |
| Drawn By: P.S.G. | |
| Checked By: S.W.K. | Advanced GeoServices Engineering P.C. 1055 Andrew Drive Suite A West Chester, Pennsylvania 19380 (610) 840-9100 FAX: (610) 840-9199 |
| Project Mgr: S.W.K. | |
| Dwg No. 2001911-07-03 | |
| JUL 28 2003 | Project No. 2001-911-07 — FIGURE: 2 |

**APPENDIX A**
**Institutional Restrictions**
**(previously submitted in Revised Feasibility Study, April 1997)**

# APPENDIX B
# Post-ROD Soil Data

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B51A/.5-2.5 | Cadmium | 7440439 | 21.9 | | mg/Kg | INOR | .5-2.5 | 3/21/96 |
| B10A/S | Cadmium | 7440439 | 0.36 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B11A/S | Cadmium | 7440439 | 0.41 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B12A/S | Cadmium | 7440439 | 1.5 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B13A/S | Cadmium | 7440439 | 0.36 | J | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B14A/S | Cadmium | 7440439 | 0.81 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B156A/S | Cadmium | 7440439 | 0.43 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B15A/S | Cadmium | 7440439 | 0.71 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B166A/S | Cadmium | 7440439 | 0.39 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B16A/S | Cadmium | 7440439 | 0.87 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B171A/S | Cadmium | 7440439 | 0.26 | U | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B17A/S | Cadmium | 7440439 | 0.53 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B18A/S | Cadmium | 7440439 | 0.36 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B19A/S | Cadmium | 7440439 | 0.83 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B1A/S | Cadmium | 7440439 | 0.58 | J | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B20A/S | Cadmium | 7440439 | 2.0 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B21A/S | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B22A/S | Cadmium | 7440439 | 0.19 | U | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B23A/S | Cadmium | 7440439 | 0.21 | U | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B24A/S | Cadmium | 7440439 | 0.69 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B25A/S | Cadmium | 7440439 | 0.17 | U | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B26A/S | Cadmium | 7440439 | 0.23 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B27A/S | Cadmium | 7440439 | 0.22 | U | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B28A/S | Cadmium | 7440439 | 0.24 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B29A/S | Cadmium | 7440439 | 0.19 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B2A/S | Cadmium | 7440439 | 2.5 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B30A/S | Cadmium | 7440439 | 0.22 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B31A/S | Cadmium | 7440439 | 0.26 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B32A/S | Cadmium | 7440439 | 0.48 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B33A/S | Cadmium | 7440439 | 0.30 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B34A/S | Cadmium | 7440439 | 0.15 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B35A/S | Cadmium | 7440439 | 0.24 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B36A/S | Cadmium | 7440439 | 0.41 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B37A/S | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B38A/S | Cadmium | 7440439 | 0.32 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B39A/S | Cadmium | 7440439 | 0.36 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B3A/S | Cadmium | 7440439 | 0.29 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B40A/S | Cadmium | 7440439 | 0.38 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B41A/S | Cadmium | 7440439 | 0.39 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B42A/S | Cadmium | 7440439 | 0.49 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B43A/S | Cadmium | 7440439 | 0.96 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B44A/S | Cadmium | 7440439 | 0.58 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B45A/S | Cadmium | 7440439 | 0.50 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B46A/S | Cadmium | 7440439 | 0.43 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B47A/S | Cadmium | 7440439 | 0.31 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B48A/S | Cadmium | 7440439 | 0.36 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B49A/S | Cadmium | 7440439 | 0.33 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B4A/S | Cadmium | 7440439 | 0.30 | J | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B50A/S | Cadmium | 7440439 | 0.39 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B51A/S | Cadmium | 7440439 | 0.38 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B52A/S | Cadmium | 7440439 | 0.35 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B53A/S | Cadmium | 7440439 | 0.27 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B54A/S | Cadmium | 7440439 | 0.50 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B55A/S | Cadmium | 7440439 | 0.36 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B56A/S | Cadmium | 7440439 | 0.31 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B57A/S | Cadmium | 7440439 | 0.35 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57B/S | Cadmium | 7440439 | 0.33 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57C/S | Cadmium | 7440439 | 0.32 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57D/S | Cadmium | 7440439 | 0.35 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57E/S | Cadmium | 7440439 | 0.31 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57F/S | Cadmium | 7440439 | 0.38 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B58A/S | Cadmium | 7440439 | 0.32 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B59A/S | Cadmium | 7440439 | 0.36 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B5A/S | Cadmium | 7440439 | 1.8 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B60A/S | Cadmium | 7440439 | 0.34 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B61A/S | Cadmium | 7440439 | 0.28 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B62A/S | Cadmium | 7440439 | 0.29 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B63A/S | Cadmium | 7440439 | 0.30 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B64A/S | Cadmium | 7440439 | 0.30 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B65A/S | Cadmium | 7440439 | 0.63 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B66A/S | Cadmium | 7440439 | 0.38 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B67A/S | Cadmium | 7440439 | 0.33 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B68A/S | Cadmium | 7440439 | 0.33 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B69A/S | Cadmium | 7440439 | 0.34 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B6A/S | Cadmium | 7440439 | 0.48 | J | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B70A/S | Cadmium | 7440439 | 0.16 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B71A/S | Cadmium | 7440439 | 0.27 | U | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B72A/S | Cadmium | 7440439 | 0.33 | | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B7A/S | Cadmium | 7440439 | 1.1 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B8A/S | Cadmium | 7440439 | 0.42 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B9A/S | Cadmium | 7440439 | 0.31 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| BTPBA/S | Cadmium | 7440439 | 0.31 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBB/S | Cadmium | 7440439 | 3.7 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBC/S | Cadmium | 7440439 | 0.28 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBD/S | Cadmium | 7440439 | 0.21 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| N3B-WS-166 | Cadmium | 7440439 | 2.7 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3C-WS-170 | Cadmium | 7440439 | 3.3 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3C-WS-170D | Cadmium | 7440439 | 3.5 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| B39-A | Cadmium | 7440439 | 0.56 | | mg/Kg | INOR | 0-1.3 | 3/1/94 |
| N1-CS-SW-101 | Cadmium | 7440439 | 6.4 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2A-CS-NW-101 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2B-CS-SW-101 | Cadmium | 7440439 | 6.1 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2C-CS-WW-101 | Cadmium | 7440439 | 2.5 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2D-CS-SW-101 | Cadmium | 7440439 | 1.2 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N3A-WS-103 | Cadmium | 7440439 | 5.2 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-150A | Cadmium | 7440439 | 0.81 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-188 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-192A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-155 | Cadmium | 7440439 | 0.96 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-160 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-164 | Cadmium | 7440439 | 5.1 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-166 | Cadmium | 7440439 | 28.2 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-170 | Cadmium | 7440439 | 17.1 | | mg/Kg | INOR | 0-4 C | 12/2/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3C-WS-175 | Cadmium | 7440439 | 2.9 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-180A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-190 | Cadmium | 7440439 | 0.52 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-193A | Cadmium | 7440439 | 2.2 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3D-WS-183A | Cadmium | 7440439 | 0.86 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3D-WS-191A | Cadmium | 7440439 | 1.2 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N4A-WS-131 | Cadmium | 7440439 | 0.64 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4A-WS-132 | Cadmium | 7440439 | 7 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4A-WS-135 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-115 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-148 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-150 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-153 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 12/10/93 |
| TPA-CS-NW-101 | Cadmium | 7440439 | 2 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPB-CS-NW-101 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPC-CS-EW-101 | Cadmium | 7440439 | 1.8 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPC-CS-EW-102 | Cadmium | 7440439 | 1.5 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| B11A/1-3 | Cadmium | 7440439 | 0.28 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B12A/1-3 | Cadmium | 7440439 | 0.81 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B14A/1-3 | Cadmium | 7440439 | 1.2 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B157A/1-3 | Cadmium | 7440439 | 0.36 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B158A/1-3 | Cadmium | 7440439 | 0.67 | | mg/Kg | INOR | 1-3 | 3/25/96 |
| B15A/1-3 | Cadmium | 7440439 | 0.29 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B167A/1-3 | Cadmium | 7440439 | 0.19 | U | mg/Kg | INOR | 1-3 | 3/25/96 |
| B21A/1-3 | Cadmium | 7440439 | 0.61 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B22A/1-3 | Cadmium | 7440439 | 0.24 | U | mg/Kg | INOR | 1-3 | 3/20/96 |
| B23A/1-3 | Cadmium | 7440439 | 0.93 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B24A/1-3 | Cadmium | 7440439 | 0.30 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B25A/1-3 | Cadmium | 7440439 | 0.25 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B26A/1-3 | Cadmium | 7440439 | 0.25 | U | mg/Kg | INOR | 1-3 | 3/21/96 |
| B27A/1-3 | Cadmium | 7440439 | 4.9 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B2A/1-3 | Cadmium | 7440439 | 0.99 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B31A/1-3 | Cadmium | 7440439 | 8.3 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B32A/1-3 | Cadmium | 7440439 | 0.37 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B33A/1-3 | Cadmium | 7440439 | 0.27 | U | mg/Kg | INOR | 1-3 | 3/21/96 |
| B34A/1-3 | Cadmium | 7440439 | 0.27 | U | mg/Kg | INOR | 1-3 | 3/21/96 |
| B36A/1-3 | Cadmium | 7440439 | 1.9 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B38A/1-3 | Cadmium | 7440439 | 0.27 | U | mg/Kg | INOR | 1-3 | 3/21/96 |
| B43A/1-3 | Cadmium | 7440439 | 18.9 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B48A/1-3 | Cadmium | 7440439 | 0.29 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B49A/1-3 | Cadmium | 7440439 | 3.2 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B50A/1-3 | Cadmium | 7440439 | 9.0 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B54A/1-3 | Cadmium | 7440439 | 2.5 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B55A/1-3 | Cadmium | 7440439 | 0.32 | | mg/Kg | INOR | 1-3 | 3/25/96 |
| B57A/1-3 | Cadmium | 7440439 | 0.35 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B57B/1-3 | Cadmium | 7440439 | 0.73 | J | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57C/1-3 | Cadmium | 7440439 | 0.50 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57D/1-3 | Cadmium | 7440439 | 0.77 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57E/1-3 | Cadmium | 7440439 | 0.67 | J | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57F/1-3 | Cadmium | 7440439 | 0.74 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B58A/1-3 | Cadmium | 7440439 | 0.50 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B59A/1-3 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 1-3 | 3/25/96 |
| B5A/1-3 | Cadmium | 7440439 | 0.81 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B61A/1-3 | Cadmium | 7440439 | 0.17 | U | mg/Kg | INOR | 1-3 | 3/25/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B65A/1-3 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 1-3 | 3/25/96 |
| B66A/1-3 | Cadmium | 7440439 | 0.38 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B67A/1-3 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 1-3 | 3/25/96 |
| B68A/1-3 | Cadmium | 7440439 | 0.51 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B69A/1-3 | Cadmium | 7440439 | 0.22 | U | mg/Kg | INOR | 1-3 | 3/25/96 |
| B6A/1-3 | Cadmium | 7440439 | 0.27 | UJ | mg/Kg | INOR | 1-3 | 3/19/96 |
| B70A/1-3 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 1-3 | 3/25/96 |
| B71A/1-3 | Cadmium | 7440439 | 0.39 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B72A/1-3 | Cadmium | 7440439 | 0.36 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B7A/1-3 | Cadmium | 7440439 | 1.3 | J | mg/Kg | INOR | 1-3 | 3/19/96 |
| B8A/1-3 | Cadmium | 7440439 | 0.31 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| BTPBA/1-3 | Cadmium | 7440439 | 0.23 | U | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBB/1-3 | Cadmium | 7440439 | 0.31 | U | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBC/1-3 | Cadmium | 7440439 | 0.25 | U | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBD/1-3 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 1-3 | 3/20/96 |
| N3A-CS-048B | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-049A | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-050B | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-051 | Cadmium | 7440439 | 6.4 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3B-CS-052A | Cadmium | 7440439 | 0.57 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-053 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-056 | Cadmium | 7440439 | 0.51 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-064B | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3B-CS-066 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-034A/73A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/18/93 |
| N3C-CS-063B | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3C-CS-065 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 12/6/93 |
| N3C-CS-069A | Cadmium | 7440439 | 0.75 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-074 | Cadmium | 7440439 | 0.81 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-076 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3D-CS-087 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3D-CS-088 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3D-CS-089 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 1-4 | 11/19/93 |
| N4B-CS-006 | Cadmium | 7440439 | 1 | | mg/Kg | INOR | 1-4 | 10/12/93 |
| N4C-BE-P/M | Cadmium | 7440439 | 1.6 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-BW-P/M | Cadmium | 7440439 | 1.2 | | mg/Kg | INOR | 1-4 | 9/13/93 |
| N4C-EW-P/M | Cadmium | 7440439 | 0.54 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-NW | Cadmium | 7440439 | 1.3 | | mg/Kg | INOR | 1-4 | 9/24/93 |
| N4C-SW-P/M | Cadmium | 7440439 | 0.79 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-WW-P/M | Cadmium | 7440439 | 0.81 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| B20-A | Cadmium | 7440439 | 0.6 | | mg/Kg | INOR | 1-6 | 2/10/94 |
| B17-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 10-11 W | 2/25/94 |
| B18-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 10-11.5 W | 3/3/94 |
| B59-E | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 10-11.5 W | 2/28/94 |
| B62-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 10-11.5 W | 2/17/94 |
| B19A/10-12 | Cadmium | 7440439 | 0.30 | J | mg/Kg | INOR | 10-12 | 3/21/96 |
| B30-E | Cadmium | 7440439 | 0.68 | | mg/Kg | INOR | 10-12 W | 3/1/94 |
| B71-D | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 10-12 W | 2/17/94 |
| B138A/12-14 | Cadmium | 7440439 | 0.54 | J | mg/Kg | INOR | 12-14 | 3/21/96 |
| B38A/12-14 | Cadmium | 7440439 | 0.64 | J | mg/Kg | INOR | 12-14 | 3/21/96 |
| B45-D | Cadmium | 7440439 | 0.6 | U | mg/Kg | INOR | 12-16 W | 3/2/94 |
| B21-E | Cadmium | 7440439 | 1.54 | | mg/Kg | INOR | 13-15 | 2/7/94 |
| B1A/2-4 | Cadmium | 7440439 | 1.9 | J | mg/Kg | INOR | 2-4 | 3/19/96 |
| B33-A | Cadmium | 7440439 | 3.95 | | mg/Kg | INOR | 2-7 | 2/8/94 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B42-A | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 2-7 | 2/22/94 |
| B32-A | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 2.5-4.5 | 2/11/94 |
| B38-H | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 20-21 W | 2/11/94 |
| B112A/3-5 | Cadmium | 7440439 | 1.9 | J | mg/Kg | INOR | 3-5 | 3/19/96 |
| B115A/3-5 | Cadmium | 7440439 | 3.4 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B12A/3-5 | Cadmium | 7440439 | 3.0 | J | mg/Kg | INOR | 3-5 | 3/19/96 |
| B13A/3-5 | Cadmium | 7440439 | 2.2 | J | mg/Kg | INOR | 3-5 | 3/19/96 |
| B14A/3-5 | Cadmium | 7440439 | 6.3 | J | mg/Kg | INOR | 3-5 | 3/19/96 |
| B15A/3-5 | Cadmium | 7440439 | 3.8 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B16A/3-5 | Cadmium | 7440439 | 0.64 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B20/3-5 | Cadmium | 7440439 | 7.5 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B21A/3-5 | Cadmium | 7440439 | 0.27 | U | mg/Kg | INOR | 3-5 | 3/20/96 |
| B22A/3-5 | Cadmium | 7440439 | 8.2 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B23A/3-5 | Cadmium | 7440439 | 0.68 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B24A/3-5 | Cadmium | 7440439 | 13.3 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B25A/3-5 | Cadmium | 7440439 | 5.9 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B26A/3-5 | Cadmium | 7440439 | 3.7 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B31A/3-5 | Cadmium | 7440439 | 13.5 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B32A/3-5 | Cadmium | 7440439 | 0.25 | U | mg/Kg | INOR | 3-5 | 3/21/96 |
| B34A/3-5 | Cadmium | 7440439 | 5.1 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B37A/3-5 | Cadmium | 7440439 | 0.42 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B48A/3-5 | Cadmium | 7440439 | 1.3 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B49A/3-5 | Cadmium | 7440439 | 0.62 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B50A/3-5 | Cadmium | 7440439 | 14.0 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B55A/3-5 | Cadmium | 7440439 | 0.55 | J | mg/Kg | INOR | 3-5 | 3/25/96 |
| B57A/3-5 | Cadmium | 7440439 | 0.92 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57B/3-5 | Cadmium | 7440439 | 7.3 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57C/3-5 | Cadmium | 7440439 | 3.0 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57D/3-5 | Cadmium | 7440439 | 0.34 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57E/3-5 | Cadmium | 7440439 | 0.64 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57F/3-5 | Cadmium | 7440439 | 0.43 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B5A/3-5 | Cadmium | 7440439 | 0.60 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B6A/3-5 | Cadmium | 7440439 | 0.29 | UJ | mg/Kg | INOR | 3-5 | 3/19/96 |
| B8A/3-5 | Cadmium | 7440439 | 0.28 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| BTPBA/3-5 | Cadmium | 7440439 | 0.23 | U | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBB/3-5 | Cadmium | 7440439 | 1.2 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBC/3-5 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBD/3-5 | Cadmium | 7440439 | 0.23 | U | mg/Kg | INOR | 3-5 | 3/20/96 |
| B09-A | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 4-5.5 | 2/22/94 |
| B54A/4-6 | Cadmium | 7440439 | 0.23 | J | mg/Kg | INOR | 4-6 | 3/25/96 |
| B64-B | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 4-6 W | 2/21/94 |
| B72-B | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 4-7 W | 2/21/94 |
| B02-B | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 4-7.5 | 2/24/94 |
| N1-CS-001 | Cadmium | 7440439 | 2.1 | | mg/Kg | INOR | 4-8 | 11/30/93 |
| N2D-CS-001 | Cadmium | 7440439 | 0.41 | U | mg/Kg | INOR | 4-8 | 11/30/93 |
| N3A-CS-011 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-019 | Cadmium | 7440439 | 9.5 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3A-CS-020 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-021 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3A-CS-030 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-031 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-046 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-054 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-055 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/10/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3B-CS-057 | Cadmium | 7440439 | 0.88 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-058 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-061 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3B-CS-062 | Cadmium | 7440439 | 0.81 | | mg/Kg | INOR | 4-8 | 12/13/93 |
| N3C-CS-067 | Cadmium | 7440439 | 0.6 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-068 | Cadmium | 7440439 | 1.3 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-070A | Cadmium | 7440439 | 0.59 | | mg/Kg | INOR | 4-8 | 11/18/93 |
| N3C-CS-072A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/18/93 |
| N3C-CS-075 | Cadmium | 7440439 | 0.43 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-078A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/16/93 |
| N3C-CS-081 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-081 | Cadmium | 7440439 | 1.65 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3D-CS-083 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N3D-CS-084 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3D-CS-085 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/19/93 |
| N3D-CS-086 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/19/93 |
| N4A-CS-033 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4A-CS-034 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4B-CS-001 | Cadmium | 7440439 | 1 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-002a | Cadmium | 7440439 | 1.6 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-003 | Cadmium | 7440439 | 0.81 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-004 | Cadmium | 7440439 | 1.1 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-005 | Cadmium | 7440439 | 0.75 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-014 | Cadmium | 7440439 | 1.3 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-020a | Cadmium | 7440439 | 0.89 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-025 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4B-CS-026 | Cadmium | 7440439 | 3.7 | | mg/Kg | INOR | 4-8 | 12/9/93 |
| N4B-CS-028 | Cadmium | 7440439 | 1.8 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-039A | Cadmium | 7440439 | 0.64 | U | mg/Kg | INOR | 4-8 | 10/14/93 |
| N4B-CS-052B | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 4-8 | 10/22/93 |
| TPA-CS-001 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 4-8 | 11/30/93 |
| N1-CS-SW-102 | Cadmium | 7440439 | 4.2 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2A-CS-NW-102 | Cadmium | 7440439 | 3.2 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2B-CS-SW-102 | Cadmium | 7440439 | 15.1 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2C-CS-WW-102 | Cadmium | 7440439 | 4 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N3A-WS-192B | Cadmium | 7440439 | 14.3 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3C-WS-180B | Cadmium | 7440439 | 2.3 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3C-WS-193B | Cadmium | 7440439 | 5.4 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3D-WS-183B | Cadmium | 7440439 | 25.9 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3D-WS-191B | Cadmium | 7440439 | 7.5 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| TPB-CS-NW-102 | Cadmium | 7440439 | 0.87 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| B19-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 4.8-5.3 | 2/23/94 |
| B57-B | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 5-6 | 2/15/94 |
| B57E/5-6 | Cadmium | 7440439 | 0.80 | J | mg/Kg | INOR | 5-6 | 3/22/96 |
| B12A/5-7 | Cadmium | 7440439 | 3.1 | J | mg/Kg | INOR | 5-7 | 3/19/96 |
| B132A/5-7 | Cadmium | 7440439 | 14.4 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B13A/5-7 | Cadmium | 7440439 | 0.64 | J | mg/Kg | INOR | 5-7 | 3/19/96 |
| B14A/5-7 | Cadmium | 7440439 | 3.9 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B15A/5-7 | Cadmium | 7440439 | 12.5 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B16A/5-7 | Cadmium | 7440439 | 0.28 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B20A/5-7 | Cadmium | 7440439 | 3.3 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B21A/5-7 | Cadmium | 7440439 | 5.6 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B22A/5-7 | Cadmium | 7440439 | 3.4 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B23A/5-7 | Cadmium | 7440439 | 0.50 | J | mg/Kg | INOR | 5-7 | 3/20/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B24A/5-7 | Cadmium | 7440439 | 0.53 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B25A/5-7 | Cadmium | 7440439 | 16.5 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B26A/5-7 | Cadmium | 7440439 | 12.7 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B32A/5-7 | Cadmium | 7440439 | 15.9 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B49A/5-7 | Cadmium | 7440439 | 2.3 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B50A/5-7 | Cadmium | 7440439 | 1.5 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B55A/5-7 | Cadmium | 7440439 | 0.19 | J | mg/Kg | INOR | 5-7 | 3/25/96 |
| B57A/5-7 | Cadmium | 7440439 | 0.94 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57B/5-7 | Cadmium | 7440439 | 3.9 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57C/5-7 | Cadmium | 7440439 | 6.8 | | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57F/5-7 | Cadmium | 7440439 | 0.45 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B5A/5-7 | Cadmium | 7440439 | 1.4 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B6A/5-7 | Cadmium | 7440439 | 0.49 | J | mg/Kg | INOR | 5-7 | 3/19/96 |
| BTPBA/5-7 | Cadmium | 7440439 | 0.68 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| BTPBB/5-7 | Cadmium | 7440439 | 0.26 | U | mg/Kg | INOR | 5-7 | 3/20/96 |
| BTPBD/5-7 | Cadmium | 7440439 | 11.7 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B56-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 6-6.5 | 2/16/94 |
| B57-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 6-7 | 2/15/94 |
| B31-D | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 6-7.5 | 2/24/94 |
| B10A/6-8 | Cadmium | 7440439 | 0.37 | J | mg/Kg | INOR | 6-8 | 3/19/96 |
| B11A/6-8 | Cadmium | 7440439 | 0.56 | J | mg/Kg | INOR | 6-8 | 3/19/96 |
| B13-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 6-8 | 2/9/94 |
| B25-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 7-10 | 2/7/94 |
| B120A/7-9 | Cadmium | 7440439 | 1.9 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B20A/7-9 | Cadmium | 7440439 | 1.4 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B21A/7-9 | Cadmium | 7440439 | 1.1 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B26A/7-9 | Cadmium | 7440439 | 0.69 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B33A/7-9 | Cadmium | 7440439 | 0.45 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B49-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 7-9 | 2/15/94 |
| B49A/7-9 | Cadmium | 7440439 | 0.57 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B55A/7-9 | Cadmium | 7440439 | 0.20 | U | mg/Kg | INOR | 7-9 | 3/25/96 |
| B57A/7-9 | Cadmium | 7440439 | 0.42 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B57B/7-9 | Cadmium | 7440439 | 1.0 | J | mg/Kg | INOR | 7-9 | 3/22/96 |
| BTPBC/7-9 | Cadmium | 7440439 | 0.30 | U | mg/Kg | INOR | 7-9 | 3/20/96 |
| BTPBCC/7-9 | Cadmium | 7440439 | 0.24 | U | mg/Kg | INOR | 7-9 | 3/20/96 |
| B21-C | Cadmium | 7440439 | 2.6 | | mg/Kg | INOR | 8-10 | 2/7/94 |
| N2A-CS-001 | Cadmium | 7440439 | 2.9 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2C-CS-001 | Cadmium | 7440439 | 0.51 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N3A-CS-009A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/19/93 |
| N3A-CS-010A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/19/93 |
| N3A-CS-024 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-025 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3A-CS-026 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3A-CS-029 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-035 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-036 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-040 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-041 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-042 | Cadmium | 7440439 | 1 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-045 | Cadmium | 7440439 | 0.62 | U | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3B-CS-059 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3B-CS-060 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3C-CS-077A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/18/93 |
| N3C-CS-079A | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/18/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3C-CS-080 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 12/6/93 |
| N3C-CS-080 | Cadmium | 7440439 | 1.65 | U | mg/Kg | INOR | 8-12 | 12/6/93 |
| N3D-CS-082 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 12/13/93 |
| N3D-CS-082 | Cadmium | 7440439 | 1.65 | U | mg/Kg | INOR | 8-12 | 12/13/93 |
| N4A-CS-040 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 12/7/93 |
| TPC-CS-001 | Cadmium | 7440439 | 0.36 | U | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2B-CS-001 | Cadmium | 7440439 | 0.32 | U | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2A-CS-NW-103 | Cadmium | 7440439 | 0.41 | | mg/Kg | INOR | 8-12 C | 11/30/93 |
| TPB-CS-NW-103 | Cadmium | 7440439 | 3 | | mg/Kg | INOR | 8-12 C | 11/30/93 |
| B46-D | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 8-12 W | 2/28/94 |
| B16A/9-11 | Cadmium | 7440439 | 0.37 | J | mg/Kg | INOR | 9-11 | 3/20/96 |
| B20A/9-11 | Cadmium | 7440439 | 12.1 | J | mg/Kg | INOR | 9-11 | 3/20/96 |
| B21A/9-11 | Cadmium | 7440439 | 0.25 | U | mg/Kg | INOR | 9-11 | 3/20/96 |
| B26A/9-11 | Cadmium | 7440439 | 0.77 | J | mg/Kg | INOR | 9-11 | 3/21/96 |
| B38A/9-11 | Cadmium | 7440439 | 3.6 | J | mg/Kg | INOR | 9-11 | 3/21/96 |
| B55-C | Cadmium | 7440439 | 0.4 | U | mg/Kg | INOR | 9-12 W | 2/15/94 |
| B51A/.5-2.5 | Lead | 7439921 | 697 | J | mg/Kg | INOR | .5-2.5 | 3/21/96 |
| B10A/S | Lead | 7439921 | 9.8 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B11A/S | Lead | 7439921 | 17.6 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B12A/S | Lead | 7439921 | 61.2 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B13A/S | Lead | 7439921 | 18.7 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B14A/S | Lead | 7439921 | 15.4 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B156A/S | Lead | 7439921 | 17.5 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B15A/S | Lead | 7439921 | 14.2 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B166A/S | Lead | 7439921 | 23.3 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B16A/S | Lead | 7439921 | 54.1 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B171A/S | Lead | 7439921 | 16.7 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B17A/S | Lead | 7439921 | 8.9 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B18A/S | Lead | 7439921 | 12.1 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B19A/S | Lead | 7439921 | 36.9 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B1A/S | Lead | 7439921 | 76.2 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B20A/S | Lead | 7439921 | 73.8 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B21A/S | Lead | 7439921 | 12.4 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B22A/S | Lead | 7439921 | 16.1 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B23A/S | Lead | 7439921 | 32.9 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B24A/S | Lead | 7439921 | 13.2 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B25A/S | Lead | 7439921 | 12.3 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B26A/S | Lead | 7439921 | 40.5 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B27A/S | Lead | 7439921 | 15.6 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B28A/S | Lead | 7439921 | 16.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B29A/S | Lead | 7439921 | 8.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B2A/S | Lead | 7439921 | 76.8 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B30A/S | Lead | 7439921 | 12.9 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B31A/S | Lead | 7439921 | 13.3 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B32A/S | Lead | 7439921 | 17.9 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B33A/S | Lead | 7439921 | 12.4 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B34A/S | Lead | 7439921 | 11.3 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B35A/S | Lead | 7439921 | 19.2 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B36A/S | Lead | 7439921 | 16.2 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B37A/S | Lead | 7439921 | 18.1 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B38A/S | Lead | 7439921 | 14.5 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B39A/S | Lead | 7439921 | 15.8 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B3A/S | Lead | 7439921 | 16.2 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B40A/S | Lead | 7439921 | 9.3 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B41A/S | Lead | 7439921 | 10.3 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B42A/S | Lead | 7439921 | 16.2 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B43A/S | Lead | 7439921 | 33.1 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B44A/S | Lead | 7439921 | 29.8 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B45A/S | Lead | 7439921 | 10.6 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B46A/S | Lead | 7439921 | 9.2 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B47A/S | Lead | 7439921 | 15.5 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B48A/S | Lead | 7439921 | 14.7 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B49A/S | Lead | 7439921 | 13.2 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B4A/S | Lead | 7439921 | 11.8 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B50A/S | Lead | 7439921 | 16.9 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B51A/S | Lead | 7439921 | 12.8 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B52A/S | Lead | 7439921 | 25.5 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B53A/S | Lead | 7439921 | 15.7 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B54A/S | Lead | 7439921 | 19.6 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B55A/S | Lead | 7439921 | 14.0 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B56A/S | Lead | 7439921 | 16.5 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B57A/S | Lead | 7439921 | 17.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57B/S | Lead | 7439921 | 20.3 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57C/S | Lead | 7439921 | 20.5 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57D/S | Lead | 7439921 | 17.5 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57E/S | Lead | 7439921 | 13.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57F/S | Lead | 7439921 | 14.1 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B58A/S | Lead | 7439921 | 16.6 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B59A/S | Lead | 7439921 | 10.8 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B5A/S | Lead | 7439921 | 566 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B60A/S | Lead | 7439921 | 15.8 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B61A/S | Lead | 7439921 | 13.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B62A/S | Lead | 7439921 | 12.1 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B63A/S | Lead | 7439921 | 15.5 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B64A/S | Lead | 7439921 | 13.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B65A/S | Lead | 7439921 | 38.3 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B66A/S | Lead | 7439921 | 22.6 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B67A/S | Lead | 7439921 | 20.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B68A/S | Lead | 7439921 | 19.0 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B69A/S | Lead | 7439921 | 26.4 | J | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B6A/S | Lead | 7439921 | 11.0 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B70A/S | Lead | 7439921 | 12.8 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B71A/S | Lead | 7439921 | 20.9 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B72A/S | Lead | 7439921 | 13.3 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B7A/S | Lead | 7439921 | 48.4 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B8A/S | Lead | 7439921 | 26.1 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B9A/S | Lead | 7439921 | 14.0 | J | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| BTPBA/S | Lead | 7439921 | 13.8 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBB/S | Lead | 7439921 | 102 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBC/S | Lead | 7439921 | 12.5 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBD/S | Lead | 7439921 | 13.7 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| N2-CS-WW-101 | Lead | 7439921 | 12.4 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| TPC-CS-EW-101 | Lead | 7439921 | 21.4 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| B39-A | Lead | 7439921 | 19.9 | | mg/Kg | INOR | 0-1.3 | 3/1/94 |
| N1-CS-SW-101 | Lead | 7439921 | 215 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2A-CS-NW-101 | Lead | 7439921 | 38.1 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2B-CS-SW-101 | Lead | 7439921 | 170 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2C-CS-WW-101 | Lead | 7439921 | 566 | | mg/Kg | INOR | 0-4 C | 11/30/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N2D-CS-SW-101 | Lead | 7439921 | 158 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N3A-WS-103 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-150A | Lead | 7439921 | 73.7 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-188 | Lead | 7439921 | 45.9 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-192A | Lead | 7439921 | 21 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-155 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-160 | Lead | 7439921 | 24.6 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-164 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-166 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-170 | Lead | 7439921 | 261 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-175 | Lead | 7439921 | 121 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-180A | Lead | 7439921 | 21.1 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-190 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-193A | Lead | 7439921 | 186 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3D-WS-183A | Lead | 7439921 | 36 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3D-WS-191A | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N4A-WS-131 | Lead | 7439921 | 62 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4A-WS-132 | Lead | 7439921 | 122 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4A-WS-135 | Lead | 7439921 | 14.9 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-115 | Lead | 7439921 | 44.4 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-148 | Lead | 7439921 | 54.2 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-150 | Lead | 7439921 | 23.9 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-153 | Lead | 7439921 | 27.8 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| TPA-CS-NW-101 | Lead | 7439921 | 264 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPB-CS-NW-101 | Lead | 7439921 | 23.1 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPC-CS-EW-101 | Lead | 7439921 | 637 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPC-CS-EW-102 | Lead | 7439921 | 145 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| B11A/1-3 | Lead | 7439921 | 18.8 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B12A/1-3 | Lead | 7439921 | 33.0 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B14A/1-3 | Lead | 7439921 | 41.8 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B157A/1-3 | Lead | 7439921 | 17.7 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B158A/1-3 | Lead | 7439921 | 69.7 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B15A/1-3 | Lead | 7439921 | 15.6 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B167A/1-3 | Lead | 7439921 | 14.9 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B21A/1-3 | Lead | 7439921 | 12.8 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B22A/1-3 | Lead | 7439921 | 12.8 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B23A/1-3 | Lead | 7439921 | 120 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B24A/1-3 | Lead | 7439921 | 51.1 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B25A/1-3 | Lead | 7439921 | 12.0 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B26A/1-3 | Lead | 7439921 | 69.7 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B27A/1-3 | Lead | 7439921 | 430 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B2A/1-3 | Lead | 7439921 | 49.0 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B31A/1-3 | Lead | 7439921 | 181 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B32A/1-3 | Lead | 7439921 | 12.3 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B33A/1-3 | Lead | 7439921 | 10.0 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B34A/1-3 | Lead | 7439921 | 18.8 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B36A/1-3 | Lead | 7439921 | 118 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B38A/1-3 | Lead | 7439921 | 13.6 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B43A/1-3 | Lead | 7439921 | 739 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B48A/1-3 | Lead | 7439921 | 12.4 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B49A/1-3 | Lead | 7439921 | 117 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B50A/1-3 | Lead | 7439921 | 295 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B54A/1-3 | Lead | 7439921 | 144 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B55A/1-3 | Lead | 7439921 | 25.9 | J | mg/Kg | INOR | 1-3 | 3/25/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B57A/1-3 | Lead | 7439921 | 25.9 | J | mg/Kg | INOR | 1-3 | 3/21/96 |
| B57B/1-3 | Lead | 7439921 | 73.9 | J | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57C/1-3 | Lead | 7439921 | 38.3 | J | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57D/1-3 | Lead | 7439921 | 51.7 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57E/1-3 | Lead | 7439921 | 40.3 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57F/1-3 | Lead | 7439921 | 45.8 | J | mg/Kg | INOR | 1-3 | 3/22/96 |
| B58A/1-3 | Lead | 7439921 | 91.1 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B59A/1-3 | Lead | 7439921 | 12.2 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B5A/1-3 | Lead | 7439921 | 92.5 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B61A/1-3 | Lead | 7439921 | 10.5 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B65A/1-3 | Lead | 7439921 | 9.5 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B66A/1-3 | Lead | 7439921 | 40.1 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B67A/1-3 | Lead | 7439921 | 16.2 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B68A/1-3 | Lead | 7439921 | 32.2 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B69A/1-3 | Lead | 7439921 | 15.4 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B6A/1-3 | Lead | 7439921 | 17.0 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B70A/1-3 | Lead | 7439921 | 15.6 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B71A/1-3 | Lead | 7439921 | 16.6 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B72A/1-3 | Lead | 7439921 | 16.1 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B7A/1-3 | Lead | 7439921 | 75.7 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B8A/1-3 | Lead | 7439921 | 14.3 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| BTPBA/1-3 | Lead | 7439921 | 13.3 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBB/1-3 | Lead | 7439921 | 15.4 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBC/1-3 | Lead | 7439921 | 16.4 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBD/1-3 | Lead | 7439921 | 12.9 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| N3A-CS-048B | Lead | 7439921 | 136 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-049A | Lead | 7439921 | 66.2 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-050B | Lead | 7439921 | 76.5 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-051 | Lead | 7439921 | 209 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3B-CS-052A | Lead | 7439921 | 40 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-053 | Lead | 7439921 | 54.3 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-056 | Lead | 7439921 | 29.2 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-064B | Lead | 7439921 | 26.9 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3B-CS-066 | Lead | 7439921 | 30.6 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-034A/73A | Lead | 7439921 | 32.8 | | mg/Kg | INOR | 1-4 | 11/18/93 |
| N3C-CS-063B | Lead | 7439921 | 16.2 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3C-CS-065 | Lead | 7439921 | 15.9 | | mg/Kg | INOR | 1-4 | 12/6/93 |
| N3C-CS-069A | Lead | 7439921 | 115 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-074 | Lead | 7439921 | 24.4 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-076 | Lead | 7439921 | 102 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3D-CS-087 | Lead | 7439921 | 9.2 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3D-CS-088 | Lead | 7439921 | 18.5 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3D-CS-089 | Lead | 7439921 | 24.6 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N4B-CS-006 | Lead | 7439921 | 22.5 | | mg/Kg | INOR | 1-4 | 10/12/93 |
| N4C-BE-P/M | Lead | 7439921 | 66.6 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-BW-P/M | Lead | 7439921 | 48.6 | | mg/Kg | INOR | 1-4 | 9/13/93 |
| N4C-EW-P/M | Lead | 7439921 | 23.9 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-NW | Lead | 7439921 | 53.2 | | mg/Kg | INOR | 1-4 | 9/24/93 |
| N4C-SW-P/M | Lead | 7439921 | 31.7 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-WW-P/M | Lead | 7439921 | 28.9 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| B20-A | Lead | 7439921 | 88.4 | | mg/Kg | INOR | 1-6 | 2/10/94 |
| B17-C | Lead | 7439921 | 15.6 | | mg/Kg | INOR | 10-11 W | 2/25/94 |
| B18-C | Lead | 7439921 | 33.2 | | mg/Kg | INOR | 10-11.5 W | 3/3/94 |
| B59-E | Lead | 7439921 | 18.6 | | mg/Kg | INOR | 10-11.5 W | 2/28/94 |

| Sample #. | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B62-C | Lead | 7439921 | 25.4 | | mg/Kg | INOR | 10-11.5 W | 2/17/94 |
| B19A/10-12 | Lead | 7439921 | 22.6 | J | mg/Kg | INOR | 10-12 | 3/21/96 |
| B30-E | Lead | 7439921 | 11.9 | | mg/Kg | INOR | 10-12 W | 3/1/94 |
| B71-D | Lead | 7439921 | 20.5 | | mg/Kg | INOR | 10-12 W | 2/17/94 |
| B138A/12-14 | Lead | 7439921 | 132 | J | mg/Kg | INOR | 12-14 | 3/21/96 |
| B38A/12-14 | Lead | 7439921 | 179 | J | mg/Kg | INOR | 12-14 | 3/21/96 |
| B45-D | Lead | 7439921 | 12.4 | | mg/Kg | INOR | 12-16 W | 3/2/94 |
| B21-E | Lead | 7439921 | 94.8 | | mg/Kg | INOR | 13-15 | 2/7/94 |
| B1A/2-4 | Lead | 7439921 | 120 | | mg/Kg | INOR | 2-4 | 3/19/96 |
| B33-A | Lead | 7439921 | 188 | | mg/Kg | INOR | 2-7 | 2/8/94 |
| B42-A | Lead | 7439921 | 160 | | mg/Kg | INOR | 2-7 | 2/22/94 |
| B32-A | Lead | 7439921 | 44 | | mg/Kg | INOR | 2.5-4.5 | 2/11/94 |
| B38-H | Lead | 7439921 | 38.3 | | mg/Kg | INOR | 20-21 W | 2/11/94 |
| B112A/3-5 | Lead | 7439921 | 246 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| B115A/3-5 | Lead | 7439921 | 116 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B12A/3-5 | Lead | 7439921 | 221 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| B13A/3-5 | Lead | 7439921 | 162 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| B14A/3-5 | Lead | 7439921 | 229 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B15A/3-5 | Lead | 7439921 | 92.4 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B16A/3-5 | Lead | 7439921 | 43.1 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B20/3-5 | Lead | 7439921 | 169 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B21A/3-5 | Lead | 7439921 | 13.8 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B22A/3-5 | Lead | 7439921 | 152 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B23A/3-5 | Lead | 7439921 | 77.0 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B24A/3-5 | Lead | 7439921 | 392 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B25A/3-5 | Lead | 7439921 | 52.5 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B26A/3-5 | Lead | 7439921 | 179 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B31A/3-5 | Lead | 7439921 | 389 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B32A/3-5 | Lead | 7439921 | 9.2 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B34A/3-5 | Lead | 7439921 | 772 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B37A/3-5 | Lead | 7439921 | 12.0 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B48A/3-5 | Lead | 7439921 | 91.9 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B49A/3-5 | Lead | 7439921 | 116 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B50A/3-5 | Lead | 7439921 | 276 | J | mg/Kg | INOR | 3-5 | 3/21/96 |
| B55A/3-5 | Lead | 7439921 | 37.0 | J | mg/Kg | INOR | 3-5 | 3/25/96 |
| B57A/3-5 | Lead | 7439921 | 90.7 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57B/3-5 | Lead | 7439921 | 901 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57C/3-5 | Lead | 7439921 | 159 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57D/3-5 | Lead | 7439921 | 20.7 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57E/3-5 | Lead | 7439921 | 41.1 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57F/3-5 | Lead | 7439921 | 26.5 | J | mg/Kg | INOR | 3-5 | 3/22/96 |
| B5A/3-5 | Lead | 7439921 | 71.2 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B6A/3-5 | Lead | 7439921 | 10.8 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| B8A/3-5 | Lead | 7439921 | 14.5 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| BTPBA/3-5 | Lead | 7439921 | 86.1 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBB/3-5 | Lead | 7439921 | 145 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBC/3-5 | Lead | 7439921 | 31.9 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBD/3-5 | Lead | 7439921 | 10.1 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B09-A | Lead | 7439921 | 16 | | mg/Kg | INOR | 4-5.5 | 2/22/94 |
| B54A/4-6 | Lead | 7439921 | 13.2 | J | mg/Kg | INOR | 4-6 | 3/25/96 |
| B64-B | Lead | 7439921 | 36.4 | | mg/Kg | INOR | 4-6 W | 2/21/94 |
| B72-B | Lead | 7439921 | 16.9 | | mg/Kg | INOR | 4-7 W | 2/21/94 |
| B02-B | Lead | 7439921 | 37.5 | | mg/Kg | INOR | 4-7.5 | 2/24/94 |
| N1-CS-001 | Lead | 7439921 | 452 | | mg/Kg | INOR | 4-8 | 11/30/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N2D-CS-001 | Lead | 7439921 | 75.2 | | mg/Kg | INOR | 4-8 | 11/30/93 |
| N3A-CS-011 | Lead | 7439921 | 17.2 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-019 | Lead | 7439921 | 153 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3A-CS-020 | Lead | 7439921 | 147 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-021 | Lead | 7439921 | 16.9 | | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3A-CS-030 | Lead | 7439921 | 79.4 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-031 | Lead | 7439921 | 19.9 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-046 | Lead | 7439921 | 17.6 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-054 | Lead | 7439921 | 57.6 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-055 | Lead | 7439921 | 96.7 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-057 | Lead | 7439921 | 65.5 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-058 | Lead | 7439921 | 54.3 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-061 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3B-CS-062 | Lead | 7439921 | 54.1 | | mg/Kg | INOR | 4-8 | 12/13/93 |
| N3C-CS-067 | Lead | 7439921 | 96.5 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-068 | Lead | 7439921 | 75.1 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-070A | Lead | 7439921 | 40.7 | | mg/Kg | INOR | 4-8 | 11/18/93 |
| N3C-CS-072A | Lead | 7439921 | 13.9 | | mg/Kg | INOR | 4-8 | 11/18/93 |
| N3C-CS-075 | Lead | 7439921 | 42 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-078A | Lead | 7439921 | 42.5 | | mg/Kg | INOR | 4-8 | 11/16/93 |
| N3C-CS-081 | Lead | 7439921 | 46.6 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-081 | Lead | 7439921 | 73.2 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3D-CS-083 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N3D-CS-084 | Lead | 7439921 | 225 | | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3D-CS-085 | Lead | 7439921 | 14.6 | | mg/Kg | INOR | 4-8 | 11/19/93 |
| N3D-CS-086 | Lead | 7439921 | 21 | | mg/Kg | INOR | 4-8 | 11/19/93 |
| N4A-CS-033 | Lead | 7439921 | 19.4 | | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4A-CS-034 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4B-CS-001 | Lead | 7439921 | 18.4 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-002a | Lead | 7439921 | 32.2 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-003 | Lead | 7439921 | 24.4 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-004 | Lead | 7439921 | 73.1 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-005 | Lead | 7439921 | 23.2 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-014 | Lead | 7439921 | 64.9 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-020a | Lead | 7439921 | 14.3 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-025 | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4B-CS-026 | Lead | 7439921 | 15.9 | | mg/Kg | INOR | 4-8 | 12/9/93 |
| N4B-CS-028 | Lead | 7439921 | 152 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-039A | Lead | 7439921 | 18.9 | | mg/Kg | INOR | 4-8 | 10/14/93 |
| N4B-CS-052B | Lead | 7439921 | 16.9 | | mg/Kg | INOR | 4-8 | 10/22/93 |
| TPA-CS-001 | Lead | 7439921 | 47.7 | | mg/Kg | INOR | 4-8 | 11/30/93 |
| N1-CS-SW-102 | Lead | 7439921 | 579 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2A-CS-NW-102 | Lead | 7439921 | 333 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2B-CS-SW-102 | Lead | 7439921 | 498 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2C-CS-WW-102 | Lead | 7439921 | 165 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N3A-WS-192B | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3C-WS-180B | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3C-WS-193B | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3D-WS-183B | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3D-WS-191B | Lead | 7439921 | 7.12 | U | mg/Kg | INOR | 4-8 C | 12/2/93 |
| TPB-CS-NW-102 | Lead | 7439921 | 101 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| B19-C | Lead | 7439921 | 30.3 | | mg/Kg | INOR | 4.8-5.3 | 2/23/94 |
| B57-B | Lead | 7439921 | 35 | | mg/Kg | INOR | 5-6 | 2/15/94 |
| B57E/5-6 | Lead | 7439921 | 44.4 | J | mg/Kg | INOR | 5-6 | 3/22/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B12A/5-7 | Lead | 7439921 | 176 | | mg/Kg | INOR | 5-7 | 3/19/96 |
| B132A/5-7 | Lead | 7439921 | 560 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B13A/5-7 | Lead | 7439921 | 49.4 | | mg/Kg | INOR | 5-7 | 3/19/96 |
| B14A/5-7 | Lead | 7439921 | 134 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B15A/5-7 | Lead | 7439921 | 813 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B16A/5-7 | Lead | 7439921 | 20.2 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B20A/5-7 | Lead | 7439921 | 89.1 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B21A/5-7 | Lead | 7439921 | 217 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B22A/5-7 | Lead | 7439921 | 624 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B23A/5-7 | Lead | 7439921 | 9.7 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B24A/5-7 | Lead | 7439921 | 152 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B25A/5-7 | Lead | 7439921 | 653 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B26A/5-7 | Lead | 7439921 | 452 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B32A/5-7 | Lead | 7439921 | 256 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B49A/5-7 | Lead | 7439921 | 202 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B50A/5-7 | Lead | 7439921 | 54.7 | J | mg/Kg | INOR | 5-7 | 3/21/96 |
| B55A/5-7 | Lead | 7439921 | 15.2 | J | mg/Kg | INOR | 5-7 | 3/25/96 |
| B57A/5-7 | Lead | 7439921 | 22.9 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57B/5-7 | Lead | 7439921 | 194 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57C/5-7 | Lead | 7439921 | 3270 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57F/5-7 | Lead | 7439921 | 57.1 | J | mg/Kg | INOR | 5-7 | 3/22/96 |
| B5A/5-7 | Lead | 7439921 | 98.0 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B6A/5-7 | Lead | 7439921 | 22.0 | | mg/Kg | INOR | 5-7 | 3/19/96 |
| BTPBA/5-7 | Lead | 7439921 | 96.2 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| BTPBB/5-7 | Lead | 7439921 | 47.9 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| BTPBD/5-7 | Lead | 7439921 | 746 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B56-C | Lead | 7439921 | 21.3 | | mg/Kg | INOR | 6-6.5 | 2/16/94 |
| B57-C | Lead | 7439921 | 42.9 | | mg/Kg | INOR | 6-7 | 2/15/94 |
| B31-D | Lead | 7439921 | 25.3 | | mg/Kg | INOR | 6-7.5 | 2/24/94 |
| B10A/6-8 | Lead | 7439921 | 13.3 | | mg/Kg | INOR | 6-8 | 3/19/96 |
| B11A/6-8 | Lead | 7439921 | 37.9 | | mg/Kg | INOR | 6-8 | 3/19/96 |
| B13-C | Lead | 7439921 | 21 | | mg/Kg | INOR | 6-8 | 2/9/94 |
| B25-C | Lead | 7439921 | 24.7 | | mg/Kg | INOR | 7-10 | 2/7/94 |
| B120A/7-9 | Lead | 7439921 | 59.5 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B20A/7-9 | Lead | 7439921 | 44.7 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B21A/7-9 | Lead | 7439921 | 334 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B26A/7-9 | Lead | 7439921 | 11400 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B33A/7-9 | Lead | 7439921 | 24.9 | | mg/Kg | INOR | 7-9 | 3/21/96 |
| B49-C | Lead | 7439921 | 26.4 | | mg/Kg | INOR | 7-9 | 2/15/94 |
| B49A/7-9 | Lead | 7439921 | 42.4 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B55A/7-9 | Lead | 7439921 | 13.6 | J | mg/Kg | INOR | 7-9 | 3/25/96 |
| B57A/7-9 | Lead | 7439921 | 11.2 | J | mg/Kg | INOR | 7-9 | 3/21/96 |
| B57B/7-9 | Lead | 7439921 | 50.1 | J | mg/Kg | INOR | 7-9 | 3/22/96 |
| BTPBC/7-9 | Lead | 7439921 | 10.0 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| BTPBCC/7-9 | Lead | 7439921 | 9.1 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B21-C | Lead | 7439921 | 114 | | mg/Kg | INOR | 8-10 | 2/7/94 |
| N2A-CS-001 | Lead | 7439921 | 105 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2C-CS-001 | Lead | 7439921 | 43.6 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N3A-CS-009A | Lead | 7439921 | 44.2 | | mg/Kg | INOR | 8-12 | 11/19/93 |
| N3A-CS-010A | Lead | 7439921 | 13.1 | | mg/Kg | INOR | 8-12 | 11/19/93 |
| N3A-CS-024 | Lead | 7439921 | 82.8 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-025 | Lead | 7439921 | 22.6 | | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3A-CS-026 | Lead | 7439921 | 19.2 | | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3A-CS-029 | Lead | 7439921 | 23.1 | | mg/Kg | INOR | 8-12 | 11/10/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3A-CS-035 | Lead | 7439921 | 50.3 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-036 | Lead | 7439921 | 21.1 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-040 | Lead | 7439921 | 35.5 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-041 | Lead | 7439921 | 29.7 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-042 | Lead | 7439921 | 94.8 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-045 | Lead | 7439921 | 133 | | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3B-CS-059 | Lead | 7439921 | 32.6 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3B-CS-060 | Lead | 7439921 | 229 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3C-CS-077A | Lead | 7439921 | 125 | | mg/Kg | INOR | 8-12 | 11/18/93 |
| N3C-CS-079A | Lead | 7439921 | 140 | | mg/Kg | INOR | 8-12 | 11/18/93 |
| N3C-CS-080 | Lead | 7439921 | 18.5 | | mg/Kg | INOR | 8-12 | 12/6/93 |
| N3C-CS-080 | Lead | 7439921 | 19.4 | | mg/Kg | INOR | 8-12 | 12/6/93 |
| N3D-CS-082 | Lead | 7439921 | 17.9 | | mg/Kg | INOR | 8-12 | 12/13/93 |
| N3D-CS-082 | Lead | 7439921 | 24.7 | | mg/Kg | INOR | 8-12 | 12/13/93 |
| N4A-CS-040 | Lead | 7439921 | 34.5 | | mg/Kg | INOR | 8-12 | 12/7/93 |
| TPC-CS-001 | Lead | 7439921 | 12.5 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2B-CS-001 | Lead | 7439921 | 32.7 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2A-CS-NW-103 | Lead | 7439921 | 47.7 | | mg/Kg | INOR | 8-12 C | 11/30/93 |
| TPB-CS-NW-103 | Lead | 7439921 | 1130 | | mg/Kg | INOR | 8-12 C | 11/30/93 |
| B46-D | Lead | 7439921 | 19.5 | | mg/Kg | INOR | 8-12 W | 2/28/94 |
| B16A/9-11 | Lead | 7439921 | 18.1 | | mg/Kg | INOR | 9-11 | 3/20/96 |
| B20A/9-11 | Lead | 7439921 | 242 | J | mg/Kg | INOR | 9-11 | 3/20/96 |
| B21A/9-11 | Lead | 7439921 | 16.1 | J | mg/Kg | INOR | 9-11 | 3/20/96 |
| B26A/9-11 | Lead | 7439921 | 14900 | J | mg/Kg | INOR | 9-11 | 3/21/96 |
| B38A/9-11 | Lead | 7439921 | 528 | J | mg/Kg | INOR | 9-11 | 3/21/96 |
| B55-C | Lead | 7439921 | 69.9 | | mg/Kg | INOR | 9-12 W | 2/15/94 |
| B51A/.5-2.5 | Nickel | 7440020 | 622 | | mg/Kg | INOR | .5-2.5 | 3/21/96 |
| B10A/S | Nickel | 7440020 | 13.5 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B11A/S | Nickel | 7440020 | 29.4 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B12A/S | Nickel | 7440020 | 38.9 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B13A/S | Nickel | 7440020 | 31.6 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B14A/S | Nickel | 7440020 | 26.7 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B156A/S | Nickel | 7440020 | 26.8 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B15A/S | Nickel | 7440020 | 25.6 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B166A/S | Nickel | 7440020 | 40.5 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B16A/S | Nickel | 7440020 | 24.6 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B171A/S | Nickel | 7440020 | 18.8 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B17A/S | Nickel | 7440020 | 14.6 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B18A/S | Nickel | 7440020 | 14.9 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B19A/S | Nickel | 7440020 | 31.9 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B1A/S | Nickel | 7440020 | 170 | J | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B20A/S | Nickel | 7440020 | 86.0 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B21A/S | Nickel | 7440020 | 21.7 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B22A/S | Nickel | 7440020 | 35.5 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B23A/S | Nickel | 7440020 | 39.8 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B24A/S | Nickel | 7440020 | 18.8 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B25A/S | Nickel | 7440020 | 18.9 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B26A/S | Nickel | 7440020 | 55.1 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B27A/S | Nickel | 7440020 | 19.1 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B28A/S | Nickel | 7440020 | 19.4 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B29A/S | Nickel | 7440020 | 13.9 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B2A/S | Nickel | 7440020 | 69.0 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B30A/S | Nickel | 7440020 | 18.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B31A/S | Nickel | 7440020 | 16.8 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B32A/S | Nickel | 7440020 | 27.7 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B33A/S | Nickel | 7440020 | 18.9 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B34A/S | Nickel | 7440020 | 16.1 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B35A/S | Nickel | 7440020 | 27.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B36A/S | Nickel | 7440020 | 30.2 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B37A/S | Nickel | 7440020 | 18.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B38A/S | Nickel | 7440020 | 13.1 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B39A/S | Nickel | 7440020 | 15.7 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B3A/S | Nickel | 7440020 | 21.4 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B40A/S | Nickel | 7440020 | 16.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B41A/S | Nickel | 7440020 | 15.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B42A/S | Nickel | 7440020 | 33.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B43A/S | Nickel | 7440020 | 47.2 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B44A/S | Nickel | 7440020 | 25.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B45A/S | Nickel | 7440020 | 16.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B46A/S | Nickel | 7440020 | 20.5 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B47A/S | Nickel | 7440020 | 19.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B48A/S | Nickel | 7440020 | 21.9 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B49A/S | Nickel | 7440020 | 17.8 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B4A/S | Nickel | 7440020 | 17.7 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B50A/S | Nickel | 7440020 | 22.1 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B51A/S | Nickel | 7440020 | 19.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B52A/S | Nickel | 7440020 | 20.6 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B53A/S | Nickel | 7440020 | 20.8 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B54A/S | Nickel | 7440020 | 25.5 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B55A/S | Nickel | 7440020 | 18.8 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B56A/S | Nickel | 7440020 | 21.9 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| B57A/S | Nickel | 7440020 | 23.9 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57B/S | Nickel | 7440020 | 24.5 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57C/S | Nickel | 7440020 | 22.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57D/S | Nickel | 7440020 | 23.7 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57E/S | Nickel | 7440020 | 18.9 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B57F/S | Nickel | 7440020 | 22.2 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B58A/S | Nickel | 7440020 | 20.0 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B59A/S | Nickel | 7440020 | 17.4 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B5A/S | Nickel | 7440020 | 89.0 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| B60A/S | Nickel | 7440020 | 23.2 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B61A/S | Nickel | 7440020 | 20.8 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B62A/S | Nickel | 7440020 | 20.6 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B63A/S | Nickel | 7440020 | 20.0 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B64A/S | Nickel | 7440020 | 20.4 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B65A/S | Nickel | 7440020 | 49.2 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B66A/S | Nickel | 7440020 | 35.5 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B67A/S | Nickel | 7440020 | 35.6 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B68A/S | Nickel | 7440020 | 24.0 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B69A/S | Nickel | 7440020 | 21.6 | | mg/Kg | INOR | 0-0.5 | 3/22/96 |
| B6A/S | Nickel | 7440020 | 19.3 | J | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B70A/S | Nickel | 7440020 | 19.0 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B71A/S | Nickel | 7440020 | 24.0 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B72A/S | Nickel | 7440020 | 22.3 | J | mg/Kg | INOR | 0-0.5 | 3/25/96 |
| B7A/S | Nickel | 7440020 | 74.4 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B8A/S | Nickel | 7440020 | 45.9 | | mg/Kg | INOR | 0-0.5 | 3/19/96 |
| B9A/S | Nickel | 7440020 | 18.0 | | mg/Kg | INOR | 0-0.5 | 3/21/96 |
| BTPBA/S | Nickel | 7440020 | 18.4 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| BTPBB/S | Nickel | 7440020 | 106 | | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBC/S | Nickel | 7440020 | 18.6 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| BTPBD/S | Nickel | 7440020 | 16.9 | J | mg/Kg | INOR | 0-0.5 | 3/20/96 |
| N1-CS-SW-101 | Nickel | 7440020 | 17.6 | E | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N2-CS-WW-101 | Nickel | 7440020 | 17.3 | E | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N2B-CS-SW-101 | Nickel | 7440020 | 14.3 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3B-WS-164 | Nickel | 7440020 | 15.4 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3B-WS-166 | Nickel | 7440020 | 14.2 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3C-WS-170 | Nickel | 7440020 | 17.6 | E | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3C-WS-170D | Nickel | 7440020 | 19.6 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N3C-WS-193A | Nickel | 7440020 | 27.5 | E | mg/kg | INOR | 0-0.5 | 9/23/96 |
| N4A-WS-132 | Nickel | 7440020 | 18.6 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| TPA-CS-NW-101 | Nickel | 7440020 | 18.7 | | mg/kg | INOR | 0-0.5 | 9/23/96 |
| B39-A | Nickel | 7440020 | 28.9 | | mg/Kg | INOR | 0-1.3 | 3/1/94 |
| N1-CS-SW-101 | Nickel | 7440020 | 914 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2A-CS-NW-101 | Nickel | 7440020 | 19.9 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2B-CS-SW-101 | Nickel | 7440020 | 768 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2C-CS-WW-101 | Nickel | 7440020 | 539 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N2D-CS-SW-101 | Nickel | 7440020 | 262 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| N3A-WS-103 | Nickel | 7440020 | 289 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-150A | Nickel | 7440020 | 106 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-188 | Nickel | 7440020 | 118 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3A-WS-192A | Nickel | 7440020 | 34.8 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-155 | Nickel | 7440020 | 143 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-160 | Nickel | 7440020 | 32.6 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-164 | Nickel | 7440020 | 726 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3B-WS-166 | Nickel | 7440020 | 715 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-170 | Nickel | 7440020 | 576 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-175 | Nickel | 7440020 | 451 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-180A | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-190 | Nickel | 7440020 | 46.3 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3C-WS-193A | Nickel | 7440020 | 1120 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3D-WS-183A | Nickel | 7440020 | 306 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N3D-WS-191A | Nickel | 7440020 | 55.3 | | mg/Kg | INOR | 0-4 C | 12/2/93 |
| N4A-WS-131 | Nickel | 7440020 | 88.2 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4A-WS-132 | Nickel | 7440020 | 1420 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4A-WS-135 | Nickel | 7440020 | 21.1 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-115 | Nickel | 7440020 | 57.3 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-148 | Nickel | 7440020 | 126 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-150 | Nickel | 7440020 | 25.7 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| N4B-WS-153 | Nickel | 7440020 | 492 | | mg/Kg | INOR | 0-4 C | 12/10/93 |
| TPA-CS-NW-101 | Nickel | 7440020 | 574 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPB-CS-NW-101 | Nickel | 7440020 | 31.2 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPC-CS-EW-101 | Nickel | 7440020 | 120 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| TPC-CS-EW-102 | Nickel | 7440020 | 329 | | mg/Kg | INOR | 0-4 C | 11/30/93 |
| B11A/1-3 | Nickel | 7440020 | 40.7 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B12A/1-3 | Nickel | 7440020 | 62.5 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B14A/1-3 | Nickel | 7440020 | 140 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B157A/1-3 | Nickel | 7440020 | 33.1 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B158A/1-3 | Nickel | 7440020 | 48.0 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B15A/1-3 | Nickel | 7440020 | 20.0 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B167A/1-3 | Nickel | 7440020 | 19.9 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B21A/1-3 | Nickel | 7440020 | 19.3 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B22A/1-3 | Nickel | 7440020 | 15.6 | | mg/Kg | INOR | 1-3 | 3/20/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B23A/1-3 | Nickel | 7440020 | 163 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B24A/1-3 | Nickel | 7440020 | 22.9 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B25A/1-3 | Nickel | 7440020 | 18.2 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B26A/1-3 | Nickel | 7440020 | 5960 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B27A/1-3 | Nickel | 7440020 | 365 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B2A/1-3 | Nickel | 7440020 | 68.6 | J | mg/Kg | INOR | 1-3 | 3/20/96 |
| B31A/1-3 | Nickel | 7440020 | 419 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B32A/1-3 | Nickel | 7440020 | 17.0 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B33A/1-3 | Nickel | 7440020 | 12.8 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B34A/1-3 | Nickel | 7440020 | 21.8 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B36A/1-3 | Nickel | 7440020 | 98.0 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B38A/1-3 | Nickel | 7440020 | 10.0 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B43A/1-3 | Nickel | 7440020 | 1170 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B48A/1-3 | Nickel | 7440020 | 18.1 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B49A/1-3 | Nickel | 7440020 | 178 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B50A/1-3 | Nickel | 7440020 | 252 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B54A/1-3 | Nickel | 7440020 | 166 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B55A/1-3 | Nickel | 7440020 | 35.8 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B57A/1-3 | Nickel | 7440020 | 31.1 | | mg/Kg | INOR | 1-3 | 3/21/96 |
| B57B/1-3 | Nickel | 7440020 | 63.4 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57C/1-3 | Nickel | 7440020 | 52.6 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57D/1-3 | Nickel | 7440020 | 72.8 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57E/1-3 | Nickel | 7440020 | 52.4 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B57F/1-3 | Nickel | 7440020 | 71.2 | | mg/Kg | INOR | 1-3 | 3/22/96 |
| B58A/1-3 | Nickel | 7440020 | 48.4 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B59A/1-3 | Nickel | 7440020 | 17.9 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B5A/1-3 | Nickel | 7440020 | 30.5 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| B61A/1-3 | Nickel | 7440020 | 17.1 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B65A/1-3 | Nickel | 7440020 | 18.4 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B66A/1-3 | Nickel | 7440020 | 229 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B67A/1-3 | Nickel | 7440020 | 20.1 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B68A/1-3 | Nickel | 7440020 | 49.5 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B69A/1-3 | Nickel | 7440020 | 25.3 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B6A/1-3 | Nickel | 7440020 | 14.3 | J | mg/Kg | INOR | 1-3 | 3/19/96 |
| B70A/1-3 | Nickel | 7440020 | 18.8 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B71A/1-3 | Nickel | 7440020 | 20.5 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B72A/1-3 | Nickel | 7440020 | 22.1 | J | mg/Kg | INOR | 1-3 | 3/25/96 |
| B7A/1-3 | Nickel | 7440020 | 112 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| B8A/1-3 | Nickel | 7440020 | 18.5 | | mg/Kg | INOR | 1-3 | 3/19/96 |
| BTPBA/1-3 | Nickel | 7440020 | 25.9 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBB/1-3 | Nickel | 7440020 | 16.2 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBC/1-3 | Nickel | 7440020 | 20.3 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| BTPBD/1-3 | Nickel | 7440020 | 18.2 | | mg/Kg | INOR | 1-3 | 3/20/96 |
| N3A-CS-048B | Nickel | 7440020 | 104 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-049A | Nickel | 7440020 | 204 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-050B | Nickel | 7440020 | 85.2 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3A-CS-051 | Nickel | 7440020 | 351 | | mg/Kg | INOR | 1-4 | 10/18/93 |
| N3B-CS-052A | Nickel | 7440020 | 54.9 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-053 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-056 | Nickel | 7440020 | 38.6 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3B-CS-064B | Nickel | 7440020 | 55.8 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3B-CS-066 | Nickel | 7440020 | 55.1 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-034A/73A | Nickel | 7440020 | 72.7 | | mg/Kg | INOR | 1-4 | 11/18/93 |
| N3C-CS-063B | Nickel | 7440020 | 21.1 | | mg/Kg | INOR | 1-4 | 11/19/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3C-CS-065 | Nickel | 7440020 | 109 | | mg/Kg | INOR | 1-4 | 12/6/93 |
| N3C-CS-069A | Nickel | 7440020 | 109 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-074 | Nickel | 7440020 | 60.3 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3C-CS-076 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3D-CS-087 | Nickel | 7440020 | 16.3 | | mg/Kg | INOR | 1-4 | 11/10/93 |
| N3D-CS-088 | Nickel | 7440020 | 27.2 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N3D-CS-089 | Nickel | 7440020 | 34.1 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N4B-CS-006 | Nickel | 7440020 | 26.5 | | mg/Kg | INOR | 1-4 | 11/19/93 |
| N4C-BE-P/M | Nickel | 7440020 | 53.6 | | mg/Kg | INOR | 1-4 | 10/12/93 |
| N4C-BW-P/M | Nickel | 7440020 | 68.6 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-EW-P/M | Nickel | 7440020 | 23.4 | | mg/Kg | INOR | 1-4 | 9/13/93 |
| N4C-NW | Nickel | 7440020 | 63.5 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| N4C-SW-P/M | Nickel | 7440020 | 54.7 | | mg/Kg | INOR | 1-4 | 9/24/93 |
| N4C-WW-P/M | Nickel | 7440020 | 59 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| B20-A | Nickel | 7440020 | 53.2 | | mg/Kg | INOR | 1-4 | 9/11/93 |
| B17-C | Nickel | 7440020 | 29.8 | | mg/Kg | INOR | 1-6 | 2/10/94 |
| B18-C | Nickel | 7440020 | 25.5 | | mg/Kg | INOR | 10-11 W | 2/25/94 |
| B59-E | Nickel | 7440020 | 37.3 | | mg/Kg | INOR | 10-11.5 W | 3/3/94 |
| B62-C | Nickel | 7440020 | 66.6 | | mg/Kg | INOR | 10-11.5 W | 2/28/94 |
| B19A/10-12 | Nickel | 7440020 | 47.0 | | mg/Kg | INOR | 10-11.5 W | 2/17/94 |
| B30-E | Nickel | 7440020 | 23.2 | | mg/Kg | INOR | 10-12 | 3/21/96 |
| B71-D | Nickel | 7440020 | 30.9 | | mg/Kg | INOR | 10-12 W | 3/1/94 |
| B138A/12-14 | Nickel | 7440020 | 46.8 | | mg/Kg | INOR | 10-12 W | 2/17/94 |
| B38A/12-14 | Nickel | 7440020 | 41.1 | | mg/Kg | INOR | 12-14 | 3/21/96 |
| B45-D | Nickel | 7440020 | 21.2 | | mg/Kg | INOR | 12-14 | 3/21/96 |
| B21-E | Nickel | 7440020 | 348 | | mg/Kg | INOR | 12-16 W | 3/2/94 |
| B1A/2-4 | Nickel | 7440020 | 818 | | mg/Kg | INOR | 13-15 | 2/7/94 |
| B33-A | Nickel | 7440020 | 740 | J | mg/Kg | INOR | 2-4 | 3/19/96 |
| B42-A | Nickel | 7440020 | 36.2 | | mg/Kg | INOR | 2-7 | 2/8/94 |
| B32-A | Nickel | 7440020 | 236 | | mg/Kg | INOR | 2-7 | 2/22/94 |
| B38-H | Nickel | 7440020 | 30.4 | | mg/Kg | INOR | 2.5-4.5 | 2/11/94 |
| B112A/3-5 | Nickel | 7440020 | 110 | | mg/Kg | INOR | 20-21 W | 2/11/94 |
| B115A/3-5 | Nickel | 7440020 | 474 | J | mg/Kg | INOR | 3-5 | 3/19/96 |
| B12A/3-5 | Nickel | 7440020 | 171 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B13A/3-5 | Nickel | 7440020 | 176 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| B14A/3-5 | Nickel | 7440020 | 321 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| B15A/3-5 | Nickel | 7440020 | 458 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B16A/3-5 | Nickel | 7440020 | 246 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B20/3-5 | Nickel | 7440020 | 185 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B21A/3-5 | Nickel | 7440020 | 34.8 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B22A/3-5 | Nickel | 7440020 | 398 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B23A/3-5 | Nickel | 7440020 | 148 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B24A/3-5 | Nickel | 7440020 | 1430 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B25A/3-5 | Nickel | 7440020 | 132 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B26A/3-5 | Nickel | 7440020 | 1320 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B31A/3-5 | Nickel | 7440020 | 538 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B32A/3-5 | Nickel | 7440020 | 12.5 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B34A/3-5 | Nickel | 7440020 | 1250 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B37A/3-5 | Nickel | 7440020 | 14.7 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B48A/3-5 | Nickel | 7440020 | 112 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B49A/3-5 | Nickel | 7440020 | 96.5 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B50A/3-5 | Nickel | 7440020 | 831 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B55A/3-5 | Nickel | 7440020 | 41.4 | | mg/Kg | INOR | 3-5 | 3/21/96 |
| B57A/3-5 | Nickel | 7440020 | 50.0 | J | mg/Kg | INOR | 3-5 | 3/25/96 |
| | | | | | | | 3-5 | 3/22/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B57B/3-5 | Nickel | 7440020 | 576 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57C/3-5 | Nickel | 7440020 | 477 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57D/3-5 | Nickel | 7440020 | 21.9 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57E/3-5 | Nickel | 7440020 | 31.9 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B57F/3-5 | Nickel | 7440020 | 27.2 | | mg/Kg | INOR | 3-5 | 3/22/96 |
| B5A/3-5 | Nickel | 7440020 | 26.8 | J | mg/Kg | INOR | 3-5 | 3/20/96 |
| B6A/3-5 | Nickel | 7440020 | 14.4 | J | mg/Kg | INOR | 3-5 | 3/19/96 |
| B8A/3-5 | Nickel | 7440020 | 17.0 | | mg/Kg | INOR | 3-5 | 3/19/96 |
| BTPBA/3-5 | Nickel | 7440020 | 71.7 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBB/3-5 | Nickel | 7440020 | 194 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBC/3-5 | Nickel | 7440020 | 1060 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| BTPBD/3-5 | Nickel | 7440020 | 16.4 | | mg/Kg | INOR | 3-5 | 3/20/96 |
| B09-A | Nickel | 7440020 | 23.4 | | mg/Kg | INOR | 4-5.5 | 2/22/94 |
| B54A/4-6 | Nickel | 7440020 | 22.6 | J | mg/Kg | INOR | 4-6 | 3/25/96 |
| B64-B | Nickel | 7440020 | 30 | | mg/Kg | INOR | 4-6 W | 2/21/94 |
| B72-B | Nickel | 7440020 | 26.6 | | mg/Kg | INOR | 4-7 W | 2/21/94 |
| B02-B | Nickel | 7440020 | 63.1 | | mg/Kg | INOR | 4-7.5 | 2/24/94 |
| N1-CS-001 | Nickel | 7440020 | 588 | | mg/Kg | INOR | 4-8 | 11/30/93 |
| N2D-CS-001 | Nickel | 7440020 | 153 | | mg/Kg | INOR | 4-8 | 11/30/93 |
| N3A-CS-011 | Nickel | 7440020 | 116 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-019 | Nickel | 7440020 | 112 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3A-CS-020 | Nickel | 7440020 | 242 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-021 | Nickel | 7440020 | 17.5 | | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3A-CS-030 | Nickel | 7440020 | 108 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-031 | Nickel | 7440020 | 92.2 | | mg/Kg | INOR | 4-8 | 10/18/93 |
| N3A-CS-046 | Nickel | 7440020 | 21.4 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-054 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-055 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-057 | Nickel | 7440020 | 138 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-058 | Nickel | 7440020 | 42.3 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3B-CS-061 | Nickel | 7440020 | 111 | | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3B-CS-062 | Nickel | 7440020 | 75.9 | | mg/Kg | INOR | 4-8 | 12/13/93 |
| N3C-CS-067 | Nickel | 7440020 | 79.9 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-068 | Nickel | 7440020 | 87.1 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-070A | Nickel | 7440020 | 236 | | mg/Kg | INOR | 4-8 | 11/18/93 |
| N3C-CS-072A | Nickel | 7440020 | 81.8 | | mg/Kg | INOR | 4-8 | 11/18/93 |
| N3C-CS-075 | Nickel | 7440020 | 118 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-078A | Nickel | 7440020 | 105 | | mg/Kg | INOR | 4-8 | 11/16/93 |
| N3C-CS-081 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3C-CS-081 | Nickel | 7440020 | 85.8 | | mg/Kg | INOR | 4-8 | 11/10/93 |
| N3D-CS-083 | Nickel | 7440020 | 40.7 | | mg/Kg | INOR | 4-8 | 12/7/93 |
| N3D-CS-084 | Nickel | 7440020 | 86.9 | | mg/Kg | INOR | 4-8 | 12/6/93 |
| N3D-CS-085 | Nickel | 7440020 | 17.9 | | mg/Kg | INOR | 4-8 | 11/19/93 |
| N3D-CS-086 | Nickel | 7440020 | 41.3 | | mg/Kg | INOR | 4-8 | 11/19/93 |
| N4A-CS-033 | Nickel | 7440020 | 39.2 | | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4A-CS-034 | Nickel | 7440020 | 90.1 | | mg/Kg | INOR | 4-8 | 12/7/93 |
| N4B-CS-001 | Nickel | 7440020 | 20.9 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-002a | Nickel | 7440020 | 59.6 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-003 | Nickel | 7440020 | 29.4 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-004 | Nickel | 7440020 | 53.3 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-005 | Nickel | 7440020 | 21.6 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-014 | Nickel | 7440020 | 88.9 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-020a | Nickel | 7440020 | 21.6 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-025 | Nickel | 7440020 | 110 | | mg/Kg | INOR | 4-8 | 12/7/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N4B-CS-026 | Nickel | 7440020 | 28.1 | | mg/Kg | INOR | 4-8 | 12/9/93 |
| N4B-CS-028 | Nickel | 7440020 | 65.2 | | mg/Kg | INOR | 4-8 | 10/12/93 |
| N4B-CS-039A | Nickel | 7440020 | 22.9 | | mg/Kg | INOR | 4-8 | 10/14/93 |
| N4B-CS-052B | Nickel | 7440020 | 24.9 | | mg/Kg | INOR | 4-8 | 10/22/93 |
| TPA-CS-001 | Nickel | 7440020 | 102 | | mg/Kg | INOR | 4-8 | 11/30/93 |
| N1-CS-SW-102 | Nickel | 7440020 | 849 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2A-CS-NW-102 | Nickel | 7440020 | 319 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2B-CS-SW-102 | Nickel | 7440020 | 383 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N2C-CS-WW-102 | Nickel | 7440020 | 511 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| N3A-WS-192B | Nickel | 7440020 | 645 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3C-WS-180B | Nickel | 7440020 | 772 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3C-WS-193B | Nickel | 7440020 | 442 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3D-WS-183B | Nickel | 7440020 | 636 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| N3D-WS-191B | Nickel | 7440020 | 436 | | mg/Kg | INOR | 4-8 C | 12/2/93 |
| TPB-CS-NW-102 | Nickel | 7440020 | 292 | | mg/Kg | INOR | 4-8 C | 11/30/93 |
| B19-C | Nickel | 7440020 | 32.5 | | mg/Kg | INOR | 4.8-5.3 | 2/23/94 |
| B57-B | Nickel | 7440020 | 49.7 | | mg/Kg | INOR | 5-6 | 2/15/94 |
| B57E/5-6 | Nickel | 7440020 | 43.5 | | mg/Kg | INOR | 5-6 | 3/22/96 |
| B12A/5-7 | Nickel | 7440020 | 184 | | mg/Kg | INOR | 5-7 | 3/19/96 |
| B132A/5-7 | Nickel | 7440020 | 604 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B13A/5-7 | Nickel | 7440020 | 86.0 | | mg/Kg | INOR | 5-7 | 3/19/96 |
| B14A/5-7 | Nickel | 7440020 | 749 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B15A/5-7 | Nickel | 7440020 | 3580 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B16A/5-7 | Nickel | 7440020 | 42.4 | J | mg/Kg | INOR | 5-7 | 3/20/96 |
| B20A/5-7 | Nickel | 7440020 | 102 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B21A/5-7 | Nickel | 7440020 | 542 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B22A/5-7 | Nickel | 7440020 | 497 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B23A/5-7 | Nickel | 7440020 | 65.1 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B24A/5-7 | Nickel | 7440020 | 51.6 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B25A/5-7 | Nickel | 7440020 | 1410 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B26A/5-7 | Nickel | 7440020 | 1520 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B32A/5-7 | Nickel | 7440020 | 684 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B49A/5-7 | Nickel | 7440020 | 157 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B50A/5-7 | Nickel | 7440020 | 104 | | mg/Kg | INOR | 5-7 | 3/21/96 |
| B55A/5-7 | Nickel | 7440020 | 20.8 | J | mg/Kg | INOR | 5-7 | 3/25/96 |
| B57A/5-7 | Nickel | 7440020 | 31.0 | | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57B/5-7 | Nickel | 7440020 | 743 | | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57C/5-7 | Nickel | 7440020 | 2110 | | mg/Kg | INOR | 5-7 | 3/22/96 |
| B57F/5-7 | Nickel | 7440020 | 34.4 | | mg/Kg | INOR | 5-7 | 3/22/96 |
| B5A/5-7 | Nickel | 7440020 | 28.2 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B6A/5-7 | Nickel | 7440020 | 69.7 | J | mg/Kg | INOR | 5-7 | 3/19/96 |
| BTPBA/5-7 | Nickel | 7440020 | 50.3 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| BTPBB/5-7 | Nickel | 7440020 | 41.2 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| BTPBD/5-7 | Nickel | 7440020 | 550 | | mg/Kg | INOR | 5-7 | 3/20/96 |
| B56-C | Nickel | 7440020 | 33.5 | | mg/Kg | INOR | 6-6.5 | 2/16/94 |
| B57-C | Nickel | 7440020 | 39.8 | | mg/Kg | INOR | 6-7 | 2/15/94 |
| B31-D | Nickel | 7440020 | 29.9 | | mg/Kg | INOR | 6-7.5 | 2/24/94 |
| B10A/6-8 | Nickel | 7440020 | 20.0 | | mg/Kg | INOR | 6-8 | 3/19/96 |
| B11A/6-8 | Nickel | 7440020 | 43.1 | | mg/Kg | INOR | 6-8 | 3/19/96 |
| B13-C | Nickel | 7440020 | 80.5 | | mg/Kg | INOR | 6-8 | 2/9/94 |
| B25-C | Nickel | 7440020 | 22.5 | | mg/Kg | INOR | 7-10 | 2/7/94 |
| B120A/7-9 | Nickel | 7440020 | 71.2 | | mg/Kg | INOR | 7-9 | 3/20/96 |
| B20A/7-9 | Nickel | 7440020 | 62.7 | | mg/Kg | INOR | 7-9 | 3/20/96 |
| B21A/7-9 | Nickel | 7440020 | 238 | | mg/Kg | INOR | 7-9 | 3/20/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B26A/7-9 | Nickel | 7440020 | 4.7 | | mg/Kg | INOR | 7-9 | 3/21/96 |
| B33A/7-9 | Nickel | 7440020 | 162 | | mg/Kg | INOR | 7-9 | 3/21/96 |
| B49-C | Nickel | 7440020 | 30.1 | | mg/Kg | INOR | 7-9 | 2/15/94 |
| B49A/7-9 | Nickel | 7440020 | 34.3 | | mg/Kg | INOR | 7-9 | 3/21/96 |
| B55A/7-9 | Nickel | 7440020 | 22.5 | J | mg/Kg | INOR | 7-9 | 3/25/96 |
| B57A/7-9 | Nickel | 7440020 | 24.6 | | mg/Kg | INOR | 7-9 | 3/21/96 |
| B57B/7-9 | Nickel | 7440020 | 115 | | mg/Kg | INOR | 7-9 | 3/22/96 |
| BTPBC/7-9 | Nickel | 7440020 | 85.3 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| BTPBCC/7-9 | Nickel | 7440020 | 144 | J | mg/Kg | INOR | 7-9 | 3/20/96 |
| B21-C | Nickel | 7440020 | 207 | | mg/Kg | INOR | 8-10 | 2/7/94 |
| N2A-CS-001 | Nickel | 7440020 | 140 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2C-CS-001 | Nickel | 7440020 | 78.4 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N3A-CS-009A | Nickel | 7440020 | 63.5 | | mg/Kg | INOR | 8-12 | 11/19/93 |
| N3A-CS-010A | Nickel | 7440020 | 57.6 | | mg/Kg | INOR | 8-12 | 11/19/93 |
| N3A-CS-024 | Nickel | 7440020 | 123 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-025 | Nickel | 7440020 | 39.1 | | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3A-CS-026 | Nickel | 7440020 | 22.7 | | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3A-CS-029 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-035 | Nickel | 7440020 | 61 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-036 | Nickel | 7440020 | 462 | | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3A-CS-040 | Nickel | 7440020 | 60.7 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-041 | Nickel | 7440020 | 25.5 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-042 | Nickel | 7440020 | 117 | | mg/Kg | INOR | 8-12 | 10/26/93 |
| N3A-CS-045 | Nickel | 7440020 | 61.7 | | mg/Kg | INOR | 8-12 | 10/18/93 |
| N3B-CS-059 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3B-CS-060 | Nickel | 7440020 | 1.2 | U | mg/Kg | INOR | 8-12 | 11/10/93 |
| N3C-CS-077A | Nickel | 7440020 | 200 | | mg/Kg | INOR | 8-12 | 11/18/93 |
| N3C-CS-079A | Nickel | 7440020 | 125 | | mg/Kg | INOR | 8-12 | 11/18/93 |
| N3C-CS-080 | Nickel | 7440020 | 312 | | mg/Kg | INOR | 8-12 | 12/6/93 |
| N3C-CS-080 | Nickel | 7440020 | 334 | | mg/Kg | INOR | 8-12 | 12/6/93 |
| N3D-CS-082 | Nickel | 7440020 | 44 | | mg/Kg | INOR | 8-12 | 12/13/93 |
| N3D-CS-082 | Nickel | 7440020 | 48.4 | | mg/Kg | INOR | 8-12 | 12/13/93 |
| N4A-CS-040 | Nickel | 7440020 | 75.9 | | mg/Kg | INOR | 8-12 | 12/7/93 |
| TPC-CS-001 | Nickel | 7440020 | 173 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2B-CS-001 | Nickel | 7440020 | 82.7 | | mg/Kg | INOR | 8-12 | 11/30/93 |
| N2A-CS-NW-103 | Nickel | 7440020 | 48.4 | | mg/Kg | INOR | 8-12 C | 11/30/93 |
| TPB-CS-NW-103 | Nickel | 7440020 | 914 | | mg/Kg | INOR | 8-12 C | 11/30/93 |
| B46-D | Nickel | 7440020 | 33.6 | | mg/Kg | INOR | 8-12 W | 2/28/94 |
| B16A/9-11 | Nickel | 7440020 | 28.5 | J | mg/Kg | INOR | 9-11 | 3/20/96 |
| B20A/9-11 | Nickel | 7440020 | 573 | | mg/Kg | INOR | 9-11 | 3/20/96 |
| B21A/9-11 | Nickel | 7440020 | 25.9 | | mg/Kg | INOR | 9-11 | 3/20/96 |
| B26A/9-11 | Nickel | 7440020 | 7.6 | | mg/Kg | INOR | 9-11 | 3/21/96 |
| B38A/9-11 | Nickel | 7440020 | 90.2 | | mg/Kg | INOR | 9-11 | 3/21/96 |
| B55-C | Nickel | 7440020 | 206 | | mg/Kg | INOR | 9-12 W | 2/15/94 |
| B51A/.5-2.5 | Total PCBs | 99999999 | 2.28 | | mg/Kg | PEST | .5-2.5 | 3/21/96 |
| B10A/S | Total PCBs | 99999999 | 0.039 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B11A/S | Total PCBs | 99999999 | 0.0041 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B12A/S | Total PCBs | 99999999 | 8 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B13A/S | Total PCBs | 99999999 | 1.98 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B156A/S | Total PCBs | 99999999 | 0.129 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B15A/S | Total PCBs | 99999999 | 0.016 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B166A/S | Total PCBs | 99999999 | 0.5 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B16A/S | Total PCBs | 99999999 | 0.726 | | mg/kg | PEST | 0-0.5 | 3/20/96 |
| B171A/S | Total PCBs | 99999999 | 0.09 | | mg/Kg | PEST | 0-0.5 | 3/25/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B18A/S | Total PCBs | 99999999 | 0.0259 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B19A/S | Total PCBs | 99999999 | 0.35 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B1A/S | Total PCBs | 99999999 | 0.292 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B20A/S | Total PCBs | 99999999 | 0.56 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B21A/S | Total PCBs | 99999999 | 0.028 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B22A/S | Total PCBs | 99999999 | 0.189 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B23A/S | Total PCBs | 99999999 | 0.0399 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B25A/S | Total PCBs | 99999999 | 0.01 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B26A/S | Total PCBs | 99999999 | 2.06 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B27A/S | Total PCBs | 99999999 | 0.0482 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B28A/S | Total PCBs | 99999999 | 0.0036 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B29A/S | Total PCBs | 99999999 | 0.0079 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B2A/S | Total PCBs | 99999999 | 1.29 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B30A/S | Total PCBs | 99999999 | 0.0046 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B31A/S | Total PCBs | 99999999 | 0.039 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B32A/S | Total PCBs | 99999999 | 0.133 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B33A/S | Total PCBs | 99999999 | 0.0274 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B34A/S | Total PCBs | 99999999 | 0.0066 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B35A/S | Total PCBs | 99999999 | 0.022 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B36A/S | Total PCBs | 99999999 | 0.092 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B37A/S | Total PCBs | 99999999 | 0.0093 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B38A/S | Total PCBs | 99999999 | 0.016 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B39A/S | Total PCBs | 99999999 | 0.036 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B3A/S | Total PCBs | 99999999 | 0.043 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B40A/S | Total PCBs | 99999999 | 0.017 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B41A/S | Total PCBs | 99999999 | 0.039 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B42A/S | Total PCBs | 99999999 | 0.148 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B43A/S | Total PCBs | 99999999 | 0.352 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B44A/S | Total PCBs | 99999999 | 0.073 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B45A/S | Total PCBs | 99999999 | 0.0263 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B46A/S | Total PCBs | 99999999 | 0.04 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B47A/S | Total PCBs | 99999999 | 0.0595 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B48A/S | Total PCBs | 99999999 | 0.094 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B49A/S | Total PCBs | 99999999 | 0.0448 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B4A/S | Total PCBs | 99999999 | 0.037 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B50A/S | Total PCBs | 99999999 | 0.363 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B51A/S | Total PCBs | 99999999 | 0.056 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B52A/S | Total PCBs | 99999999 | 0.032 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B53A/S | Total PCBs | 99999999 | 0.052 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B54A/S | Total PCBs | 99999999 | 0.0075 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B55A/S | Total PCBs | 99999999 | 0.045 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B56A/S | Total PCBs | 99999999 | 0.256 | | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| B57A/S | Total PCBs | 99999999 | 0.052 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B57B/S | Total PCBs | 99999999 | 0.048 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B57C/S | Total PCBs | 99999999 | 0.047 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B57D/S | Total PCBs | 99999999 | 0.045 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B57E/S | Total PCBs | 99999999 | 0.045 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B57F/S | Total PCBs | 99999999 | 0.017 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B58A/S | Total PCBs | 99999999 | 0.096 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B59A/S | Total PCBs | 99999999 | 0.043 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B5A/S | Total PCBs | 99999999 | 1.35 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| B60A/S | Total PCBs | 99999999 | 0.044 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B61A/S | Total PCBs | 99999999 | 0.041 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B62A/S | Total PCBs | 99999999 | 0.041 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B63A/S | Total PCBs | 99999999 | 0.048 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B64A/S | Total PCBs | 99999999 | 0.042 | U | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B65A/S | Total PCBs | 99999999 | 0.142 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B66A/S | Total PCBs | 99999999 | 0.73 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B67A/S | Total PCBs | 99999999 | 0.2 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B68A/S | Total PCBs | 99999999 | 0.052 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B69A/S | Total PCBs | 99999999 | 0.04 | | mg/Kg | PEST | 0-0.5 | 3/22/96 |
| B6A/S | Total PCBs | 99999999 | 0.021 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B70A/S | Total PCBs | 99999999 | 0.039 | U | mg/Kg | PEST | 0-0.5 | 3/25/96 |
| B71A/S | Total PCBs | 99999999 | 0.057 | | mg/Kg | PEST | 0-0.5 | 3/25/96 |
| B72A/S | Total PCBs | 99999999 | 0.0164 | | mg/Kg | PEST | 0-0.5 | 3/25/96 |
| B7A/S | Total PCBs | 99999999 | 0.237 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B8A/S | Total PCBs | 99999999 | 0.063 | | mg/kg | PEST | 0-0.5 | 3/19/96 |
| B9A/S | Total PCBs | 99999999 | 0.039 | U | mg/Kg | PEST | 0-0.5 | 3/21/96 |
| BTPBA/S | Total PCBs | 99999999 | 0.0451 | | mg/kg | PEST | 0-0.5 | 3/20/96 |
| BTPBB/S | Total PCBs | 99999999 | 0.378 | | mg/Kg | PEST | 0-0.5 | 3/20/96 |
| BTPBC/S | Total PCBs | 99999999 | 0.0132 | | mg/kg | PEST | 0-0.5 | 3/20/96 |
| N1-CS-SW-101 | Total PCBs | 99999999 | 21 | J | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N2C-CS-WW-101 | Total PCBs | 99999999 | 36.3 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3A-WS-103 | Total PCBs | 99999999 | 46 | J | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3A-WS-188 | Total PCBs | 99999999 | 36 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3A-WS-192A | Total PCBs | 99999999 | 555 | | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3B-WS-164 | Total PCBs | 99999999 | 37.6 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3B-WS-166 | Total PCBs | 99999999 | 39.3 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3C-WS-170 | Total PCBs | 99999999 | 44 | J | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3C-WS-175 | Total PCBs | 99999999 | 23.5 | J | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3C-WS-193A | Total PCBs | 99999999 | 1411 | | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3D-WS-183A | Total PCBs | 99999999 | 36.6 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N3D-WS-191A | Total PCBs | 99999999 | 36 | | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N4A-WS-131 | Total PCBs | 99999999 | 45.2 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N4A-WS-132 | Total PCBs | 99999999 | 46.5 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N4B-WS-148 | Total PCBs | 99999999 | 44.6 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| N4B-WS-153 | Total PCBs | 99999999 | 42.9 | U | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| NHR-05 | Total PCBs | 99999999 | 0.5 | | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-05a | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/3/94 |
| NHR-05b | Total PCBs | 99999999 | 0.3 | U | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-06 | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-06a | Total PCBs | 99999999 | 0.48 | | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-06b | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-07 | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-07a | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NHR-07b | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/4/94 |
| NWA-P-001 | Total PCBs | 99999999 | 0.231 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-002 | Total PCBs | 99999999 | 0.128 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-003 | Total PCBs | 99999999 | 0.361 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-004 | Total PCBs | 99999999 | 0.97 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-006 | Total PCBs | 99999999 | 0.177 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-007 | Total PCBs | 99999999 | 0.094 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-008 | Total PCBs | 99999999 | 0.252 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-009 | Total PCBs | 99999999 | 0.493 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-010 | Total PCBs | 99999999 | 0.335 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-011 | Total PCBs | 99999999 | 0.356 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-012 | Total PCBs | 99999999 | 0.344 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-013 | Total PCBs | 99999999 | 0.265 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| NWA-P-014 | Total PCBs | 99999999 | 0.239 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-015 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-016 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-018 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-019 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-020 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-021 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-022 | Total PCBs | 99999999 | 0.127 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-023 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-024 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-025 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-026 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-027 | Total PCBs | 99999999 | 0.22 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-028 | Total PCBs | 99999999 | 0.221 | | mg/Kg | PEST | 0-0.5 | 1/12/94 |
| NWA-P-029 | Total PCBs | 99999999 | 1.12 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-030 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-031 | Total PCBs | 99999999 | 0.212 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-032 | Total PCBs | 99999999 | 0.85 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-033 | Total PCBs | 99999999 | 0.81 | | mg/Kg | PEST | 0-0.5 | 1/13/94 |
| NWA-P-053 | Total PCBs | 99999999 | 0.47 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-054 | Total PCBs | 99999999 | 0.62 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-055 | Total PCBs | 99999999 | 0.39 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-056 | Total PCBs | 99999999 | 0.48 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-057 | Total PCBs | 99999999 | 0.033 | U | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-061 | Total PCBs | 99999999 | 0.526 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-063 | Total PCBs | 99999999 | 0.097 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-064 | Total PCBs | 99999999 | 0.68 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-065 | Total PCBs | 99999999 | 0.191 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-066 | Total PCBs | 99999999 | 0.509 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-067 | Total PCBs | 99999999 | 0.47 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-068 | Total PCBs | 99999999 | 0.581 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-069 | Total PCBs | 99999999 | 0.213 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-070 | Total PCBs | 99999999 | 0.162 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| NWA-P-071 | Total PCBs | 99999999 | 0.564 | | mg/Kg | PEST | 0-0.5 | 1/14/94 |
| SHR-01 | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/7/94 |
| SHR-02 | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/7/94 |
| SHR-03 | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 0-0.5 | 2/7/94 |
| TPC-CS-EW-102 | Total PCBs | 99999999 | 15.7 | J | ug/Kg | PEST | 0-0.5 | 9/23/96 |
| B39-A | Total PCBs | 99999999 | 0.22 | | mg/Kg | PEST | 0-1.3 | 3/1/94 |
| N1-CS-SW-101 | Total PCBs | 99999999 | 17.1 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| N2A-CS-NW-101 | Total PCBs | 99999999 | 0.41 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| N2B-CS-SW-101 | Total PCBs | 99999999 | 1.41 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| N2C-CS-WW-101 | Total PCBs | 99999999 | 24.7 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| N2D-CS-SW-101 | Total PCBs | 99999999 | 0.05 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| N3A-WS-103 | Total PCBs | 99999999 | 47 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3A-WS-150A | Total PCBs | 99999999 | 0.972 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3A-WS-188 | Total PCBs | 99999999 | 7.1 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3A-WS-192A | Total PCBs | 99999999 | 1.58 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3B-WS-155 | Total PCBs | 99999999 | 0.86 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3B-WS-160 | Total PCBs | 99999999 | 0.36 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3B-WS-164 | Total PCBs | 99999999 | 51.7 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3B-WS-166 | Total PCBs | 99999999 | 11.4 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3C-WS-170 | Total PCBs | 99999999 | 3.88 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3C-WS-175 | Total PCBs | 99999999 | 9.8 | | mg/Kg | PEST | 0-4 C | 12/2/93 |

| Sample #. | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3C-WS-180A | Total PCBs | 99999999 | 0.82 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3C-WS-190 | Total PCBs | 99999999 | 0.215 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3C-WS-193A | Total PCBs | 99999999 | 2.62 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3D-WS-183A | Total PCBs | 99999999 | 81 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N3D-WS-191A | Total PCBs | 99999999 | 4.4 | | mg/Kg | PEST | 0-4 C | 12/2/93 |
| N4A-WS-131 | Total PCBs | 99999999 | 27.4 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| N4A-WS-132 | Total PCBs | 99999999 | 4.39 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| N4A-WS-135 | Total PCBs | 99999999 | 0.063 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| N4B-WS-115 | Total PCBs | 99999999 | 0.4 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| N4B-WS-148 | Total PCBs | 99999999 | 3.3 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| N4B-WS-150 | Total PCBs | 99999999 | 0.103 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| N4B-WS-153 | Total PCBs | 99999999 | 1.17 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| TPA-CS-NW-101 | Total PCBs | 99999999 | 0.646 | | mg/Kg | PEST | 0-4 C | 12/10/93 |
| TPB-CS-NW-101 | Total PCBs | 99999999 | 0.159 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| TPC-CS-EW-101 | Total PCBs | 99999999 | 1.16 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| TPC-CS-EW-102 | Total PCBs | 99999999 | 1 | | mg/Kg | PEST | 0-4 C | 11/30/93 |
| NWA-P-005 | Total PCBs | 99999999 | 4.36 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-017 | Total PCBs | 99999999 | 5.5 | | mg/Kg | PEST | 1 | 1/12/94 |
| NWA-P-034 | Total PCBs | 99999999 | 3.48 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-035 | Total PCBs | 99999999 | 1.31 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-036 | Total PCBs | 99999999 | 0.295 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-037 | Total PCBs | 99999999 | 0.48 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-038 | Total PCBs | 99999999 | 0.14 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-039 | Total PCBs | 99999999 | 3.48 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-040 | Total PCBs | 99999999 | 5.6 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-041 | Total PCBs | 99999999 | 3.3 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-043 | Total PCBs | 99999999 | 0.73 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-044 | Total PCBs | 99999999 | 1.1 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-044 | Total PCBs | 99999999 | 1.7 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-045 | Total PCBs | 99999999 | 1.9 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-046 | Total PCBs | 99999999 | 5.6 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-047 | Total PCBs | 99999999 | 9.2 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-048 | Total PCBs | 99999999 | 1.5 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-049 | Total PCBs | 99999999 | 3.3 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-050 | Total PCBs | 99999999 | 1.6 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-051 | Total PCBs | 99999999 | 2.7 | | mg/Kg | PEST | 1 | 1/13/94 |
| NWA-P-058 | Total PCBs | 99999999 | 3 | | mg/Kg | PEST | 1 | 1/14/94 |
| NWA-P-059 | Total PCBs | 99999999 | 1.8 | | mg/Kg | PEST | 1 | 1/14/94 |
| NWA-P-060 | Total PCBs | 99999999 | 2.2 | | mg/Kg | PEST | 1 | 1/14/94 |
| NWA-P-060 | Total PCBs | 99999999 | 2.8 | | mg/Kg | PEST | 1 | 1/14/94 |
| NWA-P-062 | Total PCBs | 99999999 | 0.95 | | mg/Kg | PEST | 1 | 1/14/94 |
| NWA-P-062 | Total PCBs | 99999999 | 1.51 | | mg/Kg | PEST | 1 | 1/14/94 |
| WPS 1-2 | Total PCBs | 99999999 | 2.2 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS 4-5 | Total PCBs | 99999999 | 2.8 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS 5-6 | Total PCBs | 99999999 | 2.6 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS 6-7 | Total PCBs | 99999999 | 0.29 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WPS01-B | Total PCBs | 99999999 | 2.4 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS01-B | Total PCBs | 99999999 | 8.7 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS01-ES | Total PCBs | 99999999 | 4.5 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS01-NS | Total PCBs | 99999999 | 4.1 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS01-SS | Total PCBs | 99999999 | 2.7 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS02-B | Total PCBs | 99999999 | 1.18 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS02-ES | Total PCBs | 99999999 | 1.28 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS02-NS | Total PCBs | 99999999 | 4.7 | | mg/Kg | PEST | 1 | 11/23/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| WPS02-SS | Total PCBs | 99999999 | 0.62 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS02-WS | Total PCBs | 99999999 | 1.51 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS03-ES | Total PCBs | 99999999 | 8.5 | | mg/Kg | PEST | 1 | 11/22/93 |
| WPS03-ES | Total PCBs | 99999999 | 0.96 | | mg/Kg | PEST | 1 | 1/3/94 |
| WPS03-NS | Total PCBs | 99999999 | 2.4 | | mg/Kg | PEST | 1 | 1/3/94 |
| WPS03-SS | Total PCBs | 99999999 | 2.1 | | mg/Kg | PEST | 1 | 11/29/93 |
| WPS03-WS | Total PCBs | 99999999 | 1.12 | | mg/Kg | PEST | 1 | 11/29/93 |
| WPS04-B | Total PCBs | 99999999 | 8.2 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS04-ES | Total PCBs | 99999999 | 0.67 | | mg/Kg | PEST | 1 | 11/22/93 |
| WPS04-NS | Total PCBs | 99999999 | 0.25 | U | mg/Kg | PEST | 1 | 11/23/93 |
| WPS05-B | Total PCBs | 99999999 | 4.7 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS05-NS | Total PCBs | 99999999 | 1.83 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS05-SS | Total PCBs | 99999999 | 7.6 | | mg/Kg | PEST | 1 | 11/23/93 |
| WPS06-B | Total PCBs | 99999999 | 2 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS06-ES | Total PCBs | 99999999 | 0.59 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS06-NS | Total PCBs | 99999999 | 2.5 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS06-WS | Total PCBs | 99999999 | 0.64 | | mg/Kg | PEST | 1 | 12/3/93 |
| WPS07-C | Total PCBs | 99999999 | 1.06 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS07-ES | Total PCBs | 99999999 | 2.26 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS07-NS | Total PCBs | 99999999 | 0.29 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WPS07-SS | Total PCBs | 99999999 | 0.27 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WPS07-WS | Total PCBs | 99999999 | 1.12 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS08-C | Total PCBs | 99999999 | 2.97 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS08-ES | Total PCBs | 99999999 | 0.27 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WPS08-NS | Total PCBs | 99999999 | 0.38 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS08-SS | Total PCBs | 99999999 | 0.3 | | mg/Kg | PEST | 1 | 12/27/93 |
| WPS08-WS | Total PCBs | 99999999 | 0.28 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WPS09-B | Total PCBs | 99999999 | 0.25 | U | mg/Kg | PEST | 1 | 11/29/93 |
| WPS09-ES | Total PCBs | 99999999 | 1.22 | | mg/Kg | PEST | 1 | 11/29/93 |
| WPS09-NS | Total PCBs | 99999999 | 0.3 | | mg/Kg | PEST | 1 | 11/29/93 |
| WPS09-SS | Total PCBs | 99999999 | 1.85 | | mg/Kg | PEST | 1 | 11/29/93 |
| WPS09-WS | Total PCBs | 99999999 | 4.2 | | mg/Kg | PEST | 1 | 11/29/93 |
| WPS7-8 | Total PCBs | 99999999 | 0.27 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WSP-10 | Total PCBs | 99999999 | 0.23 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-100 | Total PCBs | 99999999 | 0.21 | | mg/Kg | PEST | 1 | 5/26/94 |
| WSP-110 | Total PCBs | 99999999 | 0.24 | | mg/Kg | PEST | 1 | 5/26/94 |
| WSP-120 | Total PCBs | 99999999 | 0.25 | U | mg/Kg | PEST | 1 | 5/26/94 |
| WSP-130 | Total PCBs | 99999999 | 1.14 | | mg/Kg | PEST | 1 | 5/26/94 |
| WSP-140 | Total PCBs | 99999999 | 1.44 | | mg/Kg | PEST | 1 | 5/26/94 |
| WSP-150 | Total PCBs | 99999999 | 9.09 | | mg/Kg | PEST | 1 | 5/26/94 |
| WSP-20 | Total PCBs | 99999999 | 0.05 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-30 | Total PCBs | 99999999 | 0.03 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-40 | Total PCBs | 99999999 | 13.80 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-50 | Total PCBs | 99999999 | 0.52 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-60 | Total PCBs | 99999999 | 0.40 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-70 | Total PCBs | 99999999 | 0.22 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-80 | Total PCBs | 99999999 | 0.31 | | mg/Kg | PEST | 1 | 5/27/94 |
| WSP-90 | Total PCBs | 99999999 | 0.42 | | mg/Kg | PEST | 1 | 5/26/94 |
| WSP03-B | Total PCBs | 99999999 | 0.98 | | mg/Kg | PEST | 1 | 1/3/94 |
| WSP04-SS | Total PCBs | 99999999 | 0.31 | U | mg/Kg | PEST | 1 | 12/27/93 |
| WSP06-SS | Total PCBs | 99999999 | 6.8 | | mg/Kg | PEST | 1 | 12/3/93 |
| B11A/1-3 | Total PCBs | 99999999 | 0.186 | | mg/kg | PEST | 1-3 | 3/19/96 |
| B12A/1-3 | Total PCBs | 99999999 | 2.7 | | mg/kg | PEST | 1-3 | 3/19/96 |
| B14A/1-3 | Total PCBs | 99999999 | 2.67 | | mg/kg | PEST | 1-3 | 3/20/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B157A/1-3 | Total PCBs | 99999999 | 0.64 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B158A/1-3 | Total PCBs | 99999999 | 0.31 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B15A/1-3 | Total PCBs | 99999999 | 0.0065 | | mg/kg | PEST | 1-3 | 3/20/96 |
| B167A/1-3 | Total PCBs | 99999999 | 0.027 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B21A/1-3 | Total PCBs | 99999999 | 0.069 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| B22A/1-3 | Total PCBs | 99999999 | 0.016 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| B23A/1-3 | Total PCBs | 99999999 | 0.65 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| B24A/1-3 | Total PCBs | 99999999 | 0.036 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B25A/1-3 | Total PCBs | 99999999 | 0.15 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B26A/1-3 | Total PCBs | 99999999 | 200 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B27A/1-3 | Total PCBs | 99999999 | 0.0141 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B2A/1-3 | Total PCBs | 99999999 | 0.531 | | mg/kg | PEST | 1-3 | 3/20/96 |
| B31A/1-3 | Total PCBs | 99999999 | 2.63 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B32A/1-3 | Total PCBs | 99999999 | 0.0143 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B33A/1-3 | Total PCBs | 99999999 | 12 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B34A/1-3 | Total PCBs | 99999999 | 0.04 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B36A/1-3 | Total PCBs | 99999999 | 0.68 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B38A/1-3 | Total PCBs | 99999999 | 0.199 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B43A/1-3 | Total PCBs | 99999999 | 62 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B48A/1-3 | Total PCBs | 99999999 | 0.037 | U | mg/Kg | PEST | 1-3 | 3/21/96 |
| B49A/1-3 | Total PCBs | 99999999 | 6.3 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B50A/1-3 | Total PCBs | 99999999 | 14.6 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B54A/1-3 | Total PCBs | 99999999 | 0.824 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B55A/1-3 | Total PCBs | 99999999 | 0.395 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B57A/1-3 | Total PCBs | 99999999 | 0.61 | | mg/Kg | PEST | 1-3 | 3/21/96 |
| B57B/1-3 | Total PCBs | 99999999 | 0.75 | | mg/Kg | PEST | 1-3 | 3/22/96 |
| B57C/1-3 | Total PCBs | 99999999 | 0.718 | | mg/Kg | PEST | 1-3 | 3/22/96 |
| B57D/1-3 | Total PCBs | 99999999 | 0.85 | | mg/Kg | PEST | 1-3 | 3/22/96 |
| B57E/1-3 | Total PCBs | 99999999 | 0.29 | | mg/Kg | PEST | 1-3 | 3/22/96 |
| B57F/1-3 | Total PCBs | 99999999 | 0.262 | | mg/Kg | PEST | 1-3 | 3/22/96 |
| B58A/1-3 | Total PCBs | 99999999 | 0.73 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B59A/1-3 | Total PCBs | 99999999 | 0.037 | U | mg/Kg | PEST | 1-3 | 3/25/96 |
| B5A/1-3 | Total PCBs | 99999999 | 2.81 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| B61A/1-3 | Total PCBs | 99999999 | 0.037 | U | mg/Kg | PEST | 1-3 | 3/25/96 |
| B65A/1-3 | Total PCBs | 99999999 | 0.01 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B66A/1-3 | Total PCBs | 99999999 | 0.221 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B67A/1-3 | Total PCBs | 99999999 | 0.025 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B68A/1-3 | Total PCBs | 99999999 | 0.54 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B69A/1-3 | Total PCBs | 99999999 | 0.436 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B6A/1-3 | Total PCBs | 99999999 | 0.49 | | mg/kg | PEST | 1-3 | 3/19/96 |
| B70A/1-3 | Total PCBs | 99999999 | 0.04 | U | mg/Kg | PEST | 1-3 | 3/25/96 |
| B71A/1-3 | Total PCBs | 99999999 | 0.038 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B72A/1-3 | Total PCBs | 99999999 | 0.0102 | | mg/Kg | PEST | 1-3 | 3/25/96 |
| B7A/1-3 | Total PCBs | 99999999 | 8.7 | | mg/kg | PEST | 1-3 | 3/19/96 |
| B8A/1-3 | Total PCBs | 99999999 | 0.049 | | mg/kg | PEST | 1-3 | 3/19/96 |
| BTPBA/1-3 | Total PCBs | 99999999 | 7.2 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| BTPBB/1-3 | Total PCBs | 99999999 | 2.6 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| BTPBC/1-3 | Total PCBs | 99999999 | 1.23 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| BTPBD/1-3 | Total PCBs | 99999999 | 0.021 | | mg/Kg | PEST | 1-3 | 3/20/96 |
| N3A-CS-048B | Total PCBs | 99999999 | 1.52 | | mg/Kg | PEST | 1-4 | 10/18/93 |
| N3A-CS-049A | Total PCBs | 99999999 | 0.65 | | mg/Kg | PEST | 1-4 | 10/18/93 |
| N3A-CS-050B | Total PCBs | 99999999 | 2.39 | | mg/Kg | PEST | 1-4 | 10/18/93 |
| N3A-CS-051 | Total PCBs | 99999999 | 3.3 | | mg/Kg | PEST | 1-4 | 10/18/93 |
| N3B-CS-052A | Total PCBs | 99999999 | 1.3 | | mg/Kg | PEST | 1-4 | 11/10/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N3B-CS-053 | Total PCBs | 99999999 | 1.9 | | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3B-CS-055 | Total PCBs | 99999999 | 3.1 | | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3B-CS-056 | Total PCBs | 99999999 | 0.39 | | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3B-CS-064B | Total PCBs | 99999999 | 8.26 | | mg/Kg | PEST | 1-4 | 11/19/93 |
| N3B-CS-066 | Total PCBs | 99999999 | 0.128 | | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3C-CS-034A/73A | Total PCBs | 99999999 | 0.069 | | mg/Kg | PEST | 1-4 | 11/18/93 |
| N3C-CS-063B | Total PCBs | 99999999 | 0.04587 | U | mg/Kg | PEST | 1-4 | 11/19/93 |
| N3C-CS-065 | Total PCBs | 99999999 | 0.47 | | mg/Kg | PEST | 1-4 | 12/6/93 |
| N3C-CS-069A | Total PCBs | 99999999 | 0.23 | | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3C-CS-074 | Total PCBs | 99999999 | 0.11 | | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3C-CS-076 | Total PCBs | 99999999 | 0.0363 | U | mg/Kg | PEST | 1-4 | 11/10/93 |
| N3D-CS-087 | Total PCBs | 99999999 | 0.072 | | mg/Kg | PEST | 1-4 | 11/19/93 |
| N3D-CS-088 | Total PCBs | 99999999 | 2.9 | | mg/Kg | PEST | 1-4 | 11/19/93 |
| N3D-CS-089 | Total PCBs | 99999999 | 1.01 | | mg/Kg | PEST | 1-4 | 11/19/93 |
| N4B-CS-006 | Total PCBs | 99999999 | 0.041 | | mg/Kg | PEST | 1-4 | 10/12/93 |
| N4C-BE-P/M | Total PCBs | 99999999 | 0.14 | | mg/Kg | PEST | 1-4 | 9/11/93 |
| N4C-BW-P/M | Total PCBs | 99999999 | 0.39 | | mg/Kg | PEST | 1-4 | 9/13/93 |
| N4C-EW-P/M | Total PCBs | 99999999 | 0.03 | | mg/Kg | PEST | 1-4 | 9/11/93 |
| N4C-NW | Total PCBs | 99999999 | 0.14 | U | mg/Kg | PEST | 1-4 | 9/24/93 |
| N4C-SW-P/M | Total PCBs | 99999999 | 0.18 | | mg/Kg | PEST | 1-4 | 9/11/93 |
| N4C-WW-P/M | Total PCBs | 99999999 | 0.14 | | mg/Kg | PEST | 1-4 | 9/11/93 |
| B20-A | Total PCBs | 99999999 | 22.7 | | mg/Kg | PEST | 1-6 | 2/10/94 |
| B17-C | Total PCBs | 99999999 | 0.15 | | mg/Kg | PEST | 10-11 W | 2/25/94 |
| B18-C | Total PCBs | 99999999 | 0.13 | | mg/Kg | PEST | 10-11.5 W | 3/3/94 |
| B59-E | Total PCBs | 99999999 | 1.3 | | mg/Kg | PEST | 10-11.5 W | 2/28/94 |
| B62-C | Total PCBs | 99999999 | 0.07 | | mg/Kg | PEST | 10-11.5 W | 2/17/94 |
| B19A/10-12 | Total PCBs | 99999999 | 0.6 | | mg/Kg | PEST | 10-12 | 3/21/96 |
| B30-E | Total PCBs | 99999999 | 0.11 | | mg/Kg | PEST | 10-12 W | 3/1/94 |
| B71-D | Total PCBs | 99999999 | 0.16 | | mg/Kg | PEST | 10-12 W | 2/17/94 |
| B138A/12-14 | Total PCBs | 99999999 | 0.6 | | mg/Kg | PEST | 12-14 | 3/21/96 |
| B38A/12-14 | Total PCBs | 99999999 | 0.63 | | mg/Kg | PEST | 12-14 | 3/21/96 |
| B45-D | Total PCBs | 99999999 | 0.05 | | mg/Kg | PEST | 12-16 W | 3/2/94 |
| B21-E | Total PCBs | 99999999 | 6.2 | | mg/Kg | PEST | 13-15 | 2/7/94 |
| B1A/2-4 | Total PCBs | 99999999 | 2.34 | | mg/kg | PEST | 2-4 | 3/19/96 |
| B33-A | Total PCBs | 99999999 | 12 | U | mg/Kg | PEST | 2-7 | 2/8/94 |
| B42-A | Total PCBs | 99999999 | 0.06 | | mg/Kg | PEST | 2-7 | 2/22/94 |
| B32-A | Total PCBs | 99999999 | 0.06 | | mg/Kg | PEST | 2.5-4.5 | 2/11/94 |
| B38-H | Total PCBs | 99999999 | 0.12 | | mg/Kg | PEST | 20-21 W | 2/11/94 |
| B112A/3-5 | Total PCBs | 99999999 | 21.1 | | mg/kg | PEST | 3-5 | 3/19/96 |
| B115A/3-5 | Total PCBs | 99999999 | 0.614 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B12A/3-5 | Total PCBs | 99999999 | 9.4 | | mg/kg | PEST | 3-5 | 3/19/96 |
| B13A/3-5 | Total PCBs | 99999999 | 3.6 | | mg/kg | PEST | 3-5 | 3/19/96 |
| B14A/3-5 | Total PCBs | 99999999 | 1.35 | | mg/kg | PEST | 3-5 | 3/20/96 |
| B15A/3-5 | Total PCBs | 99999999 | 0.587 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B16A/3-5 | Total PCBs | 99999999 | 0.161 | | mg/kg | PEST | 3-5 | 3/20/96 |
| B20/3-5 | Total PCBs | 99999999 | 81 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B21A/3-5 | Total PCBs | 99999999 | 0.262 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B22A/3-5 | Total PCBs | 99999999 | 37.1 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B23A/3-5 | Total PCBs | 99999999 | 0.144 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B24A/3-5 | Total PCBs | 99999999 | 6.06 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B25A/3-5 | Total PCBs | 99999999 | 0.323 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B26A/3-5 | Total PCBs | 99999999 | 29 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B31A/3-5 | Total PCBs | 99999999 | 0.98 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B32A/3-5 | Total PCBs | 99999999 | 0.045 | | mg/Kg | PEST | 3-5 | 3/21/96 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B34A/3-5 | Total PCBs | 99999999 | 0.439 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B37A/3-5 | Total PCBs | 99999999 | 0.0064 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B48A/3-5 | Total PCBs | 99999999 | 0.54 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B49A/3-5 | Total PCBs | 99999999 | 0.53 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B50A/3-5 | Total PCBs | 99999999 | 340 | | mg/Kg | PEST | 3-5 | 3/21/96 |
| B55A/3-5 | Total PCBs | 99999999 | 5.54 | | mg/Kg | PEST | 3-5 | 3/25/96 |
| B57A/3-5 | Total PCBs | 99999999 | 7.02 | | mg/Kg | PEST | 3-5 | 3/22/96 |
| B57B/3-5 | Total PCBs | 99999999 | 0.38 | | mg/Kg | PEST | 3-5 | 3/22/96 |
| B57C/3-5 | Total PCBs | 99999999 | 4.5 | | mg/Kg | PEST | 3-5 | 3/22/96 |
| B57D/3-5 | Total PCBs | 99999999 | 0.352 | | mg/Kg | PEST | 3-5 | 3/22/96 |
| B57E/3-5 | Total PCBs | 99999999 | 0.254 | | mg/Kg | PEST | 3-5 | 3/22/96 |
| B57F/3-5 | Total PCBs | 99999999 | 1.07 | | mg/Kg | PEST | 3-5 | 3/22/96 |
| B5A/3-5 | Total PCBs | 99999999 | 2.85 | | mg/kg | PEST | 3-5 | 3/20/96 |
| B6A/3-5 | Total PCBs | 99999999 | 0.0206 | | mg/kg | PEST | 3-5 | 3/19/96 |
| B8A/3-5 | Total PCBs | 99999999 | 0.018 | | mg/kg | PEST | 3-5 | 3/19/96 |
| BTPBA/3-5 | Total PCBs | 99999999 | 4.5 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| BTPBB/3-5 | Total PCBs | 99999999 | 9.1 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| BTPBC/3-5 | Total PCBs | 99999999 | 1.81 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| BTPBD/3-5 | Total PCBs | 99999999 | 0.296 | | mg/Kg | PEST | 3-5 | 3/20/96 |
| B09-A | Total PCBs | 99999999 | 0.23 | | mg/Kg | PEST | 4-5.5 | 2/22/94 |
| B54A/4-6 | Total PCBs | 99999999 | 0.04 | U | mg/Kg | PEST | 4-6 | 3/25/96 |
| B64-B | Total PCBs | 99999999 | 12 | U | mg/Kg | PEST | 4-6 W | 2/21/94 |
| B72-B | Total PCBs | 99999999 | 12 | U | mg/Kg | PEST | 4-7 W | 2/21/94 |
| B02-B | Total PCBs | 99999999 | 1.8 | | mg/Kg | PEST | 4-7.5 | 2/24/94 |
| N1-CS-001 | Total PCBs | 99999999 | 0.95 | | mg/Kg | PEST | 4-8 | 11/30/93 |
| N2D-CS-001 | Total PCBs | 99999999 | 0.022 | | mg/Kg | PEST | 4-8 | 11/30/93 |
| N3A-CS-011 | Total PCBs | 99999999 | 1.11 | | mg/Kg | PEST | 4-8 | 10/18/93 |
| N3A-CS-019 | Total PCBs | 99999999 | 4.6 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3A-CS-020 | Total PCBs | 99999999 | 2.37 | | mg/Kg | PEST | 4-8 | 10/18/93 |
| N3A-CS-021 | Total PCBs | 99999999 | 0.133 | | mg/Kg | PEST | 4-8 | 12/6/93 |
| N3A-CS-030 | Total PCBs | 99999999 | 4.38 | | mg/Kg | PEST | 4-8 | 10/18/93 |
| N3A-CS-031 | Total PCBs | 99999999 | 0.221 | | mg/Kg | PEST | 4-8 | 10/18/93 |
| N3A-CS-046 | Total PCBs | 99999999 | 0.039 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3B-CS-054 | Total PCBs | 99999999 | 0.32 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3B-CS-057 | Total PCBs | 99999999 | 2 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3B-CS-058 | Total PCBs | 99999999 | 1.2 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3B-CS-061 | Total PCBs | 99999999 | 8.4 | | mg/Kg | PEST | 4-8 | 12/6/93 |
| N3B-CS-062 | Total PCBs | 99999999 | 2 | | mg/Kg | PEST | 4-8 | 12/13/93 |
| N3C-CS-067 | Total PCBs | 99999999 | 0.055 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3C-CS-068 | Total PCBs | 99999999 | 0.098 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3C-CS-070A | Total PCBs | 99999999 | 0.16 | | mg/Kg | PEST | 4-8 | 11/18/93 |
| N3C-CS-072A | Total PCBs | 99999999 | 0.026 | | mg/Kg | PEST | 4-8 | 11/18/93 |
| N3C-CS-075 | Total PCBs | 99999999 | 1.2 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3C-CS-077A | Total PCBs | 99999999 | 0.174 | | mg/Kg | PEST | 4-8 | 11/18/93 |
| N3C-CS-078A | Total PCBs | 99999999 | 0.03762 | U | mg/Kg | PEST | 4-8 | 11/16/93 |
| N3C-CS-081 | Total PCBs | 99999999 | 0.28 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3C-CS-081 | Total PCBs | 99999999 | 0.96 | | mg/Kg | PEST | 4-8 | 11/10/93 |
| N3D-CS-083 | Total PCBs | 99999999 | 0.19 | | mg/Kg | PEST | 4-8 | 12/7/93 |
| N3D-CS-084 | Total PCBs | 99999999 | 6.2 | | mg/Kg | PEST | 4-8 | 12/6/93 |
| N3D-CS-085 | Total PCBs | 99999999 | 0.04125 | U | mg/Kg | PEST | 4-8 | 11/19/93 |
| N3D-CS-086 | Total PCBs | 99999999 | 0.18 | | mg/Kg | PEST | 4-8 | 11/19/93 |
| N4A-CS-033 | Total PCBs | 99999999 | 0.56 | | mg/Kg | PEST | 4-8 | 12/7/93 |
| N4A-CS-034 | Total PCBs | 99999999 | 8.9 | | mg/Kg | PEST | 4-8 | 12/7/93 |
| N4B-CS-001 | Total PCBs | 99999999 | 0.03696 | U | mg/Kg | PEST | 4-8 | 10/12/93 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| N4B-CS-002a | Total PCBs | 99999999 | 0.13 | | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-003 | Total PCBs | 99999999 | 0.088 | | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-004 | Total PCBs | 99999999 | 0.44 | | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-005 | Total PCBs | 99999999 | 0.36 | | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-014 | Total PCBs | 99999999 | 6.3 | | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-020a | Total PCBs | 99999999 | 0.03399 | U | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-025 | Total PCBs | 99999999 | 1.91 | | mg/Kg | PEST | 4-8 | 12/7/93 |
| N4B-CS-026 | Total PCBs | 99999999 | 1.7 | | mg/Kg | PEST | 4-8 | 12/9/93 |
| N4B-CS-028 | Total PCBs | 99999999 | 5.5 | | mg/Kg | PEST | 4-8 | 10/12/93 |
| N4B-CS-039A | Total PCBs | 99999999 | 0.066 | | mg/Kg | PEST | 4-8 | 10/14/93 |
| N4B-CS-052B | Total PCBs | 99999999 | 0.03498 | U | mg/Kg | PEST | 4-8 | 10/22/93 |
| TPA-CS-001 | Total PCBs | 99999999 | 0.17 | | mg/Kg | PEST | 4-8 | 11/30/93 |
| N1-CS-SW-102 | Total PCBs | 99999999 | 0.201 | | mg/Kg | PEST | 4-8 C | 11/30/93 |
| N2A-CS-NW-102 | Total PCBs | 99999999 | 6.2 | | mg/Kg | PEST | 4-8 C | 11/30/93 |
| N2B-CS-SW-102 | Total PCBs | 99999999 | 0.20955 | U | mg/Kg | PEST | 4-8 C | 11/30/93 |
| N2C-CS-WW-102 | Total PCBs | 99999999 | 7.85 | | mg/Kg | PEST | 4-8 C | 11/30/93 |
| N3A-WS-192B | Total PCBs | 99999999 | 0.6 | | mg/Kg | PEST | 4-8 C | 12/2/93 |
| N3C-WS-180B | Total PCBs | 99999999 | 1.36 | | mg/Kg | PEST | 4-8 C | 12/2/93 |
| N3C-WS-193B | Total PCBs | 99999999 | 7.6 | | mg/Kg | PEST | 4-8 C | 12/2/93 |
| N3D-WS-183B | Total PCBs | 99999999 | 13.8 | | mg/Kg | PEST | 4-8 C | 12/2/93 |
| N3D-WS-191B | Total PCBs | 99999999 | 15.8 | | mg/Kg | PEST | 4-8 C | 12/2/93 |
| TPB-CS-NW-102 | Total PCBs | 99999999 | 4600 | | mg/Kg | PEST | 4-8 C | 11/30/93 |
| B19-C | Total PCBs | 99999999 | 6.1 | | mg/Kg | PEST | 4.8-5.3 | 2/23/94 |
| B57-B | Total PCBs | 99999999 | 4114 | | mg/Kg | PEST | 5-6 | 2/15/94 |
| B57E/5-6 | Total PCBs | 99999999 | 0.397 | | mg/Kg | PEST | 5-6 | 3/22/96 |
| B12A/5-7 | Total PCBs | 99999999 | 1.52 | | mg/kg | PEST | 5-7 | 3/19/96 |
| B132A/5-7 | Total PCBs | 99999999 | 2.51 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B13A/5-7 | Total PCBs | 99999999 | 1.4 | | mg/kg | PEST | 5-7 | 3/19/96 |
| B14A/5-7 | Total PCBs | 99999999 | 0.086 | | mg/kg | PEST | 5-7 | 3/20/96 |
| B15A/5-7 | Total PCBs | 99999999 | 5.4 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B16A/5-7 | Total PCBs | 99999999 | 1.52 | | mg/kg | PEST | 5-7 | 3/20/96 |
| B20A/5-7 | Total PCBs | 99999999 | 29.2 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B21A/5-7 | Total PCBs | 99999999 | 9.8 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B22A/5-7 | Total PCBs | 99999999 | 1.18 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B23A/5-7 | Total PCBs | 99999999 | 0.0084 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B24A/5-7 | Total PCBs | 99999999 | 0.073 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B25A/5-7 | Total PCBs | 99999999 | 12.1 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B26A/5-7 | Total PCBs | 99999999 | 16 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B32A/5-7 | Total PCBs | 99999999 | 2.75 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B49A/5-7 | Total PCBs | 99999999 | 8.1 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B50A/5-7 | Total PCBs | 99999999 | 45 | | mg/Kg | PEST | 5-7 | 3/21/96 |
| B55A/5-7 | Total PCBs | 99999999 | 3.43 | | mg/Kg | PEST | 5-7 | 3/25/96 |
| B57A/5-7 | Total PCBs | 99999999 | 0.95 | | mg/Kg | PEST | 5-7 | 3/22/96 |
| B57B/5-7 | Total PCBs | 99999999 | 0.108 | | mg/Kg | PEST | 5-7 | 3/22/96 |
| B57C/5-7 | Total PCBs | 99999999 | 14.5 | | mg/Kg | PEST | 5-7 | 3/22/96 |
| B57F/5-7 | Total PCBs | 99999999 | 0.214 | | mg/Kg | PEST | 5-7 | 3/22/96 |
| B5A/5-7 | Total PCBs | 99999999 | 5.16 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B6A/5-7 | Total PCBs | 99999999 | 23.4 | | mg/kg | PEST | 5-7 | 3/19/96 |
| BTPBA/5-7 | Total PCBs | 99999999 | 0.91 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| BTPBB/5-7 | Total PCBs | 99999999 | 2.54 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| BTPBD/5-7 | Total PCBs | 99999999 | 39.5 | | mg/Kg | PEST | 5-7 | 3/20/96 |
| B56-C | Total PCBs | 99999999 | 12 | U | mg/Kg | PEST | 6-6.5 | 2/16/94 |
| B57-C | Total PCBs | 99999999 | 2057 | | mg/Kg | PEST | 6-7 | 2/15/94 |
| B31-D | Total PCBs | 99999999 | 0.07 | | mg/Kg | PEST | 6-7.5 | 2/24/94 |

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|
| B10A/6-8 | Total PCBs | 99999999 | 0.147 | | mg/kg | PEST | 6-8 | 3/19/96 |
| B11A/6-8 | Total PCBs | 99999999 | 1.64 | | mg/kg | PEST | 6-8 | 3/19/96 |
| B13-C | Total PCBs | 99999999 | 0.05 | | mg/Kg | PEST | 6-8 | 2/9/94 |
| B25-C | Total PCBs | 99999999 | 0.11 | | mg/Kg | PEST | 7-10 | 2/7/94 |
| B120A/7-9 | Total PCBs | 99999999 | 22 | | mg/Kg | PEST | 7-9 | 3/20/96 |
| B20A/7-9 | Total PCBs | 99999999 | 19.2 | | mg/Kg | PEST | 7-9 | 3/20/96 |
| B21A/7-9 | Total PCBs | 99999999 | 3.46 | | mg/Kg | PEST | 7-9 | 3/20/96 |
| B26A/7-9 | Total PCBs | 99999999 | 0.682 | | mg/Kg | PEST | 7-9 | 3/21/96 |
| B33A/7-9 | Total PCBs | 99999999 | 0.71 | | mg/Kg | PEST | 7-9 | 3/21/96 |
| B49-C | Total PCBs | 99999999 | 3.2 | | mg/Kg | PEST | 7-9 | 2/15/94 |
| B49A/7-9 | Total PCBs | 99999999 | 1.34 | | mg/Kg | PEST | 7-9 | 3/21/96 |
| B55A/7-9 | Total PCBs | 99999999 | 6.67 | | mg/Kg | PEST | 7-9 | 3/25/96 |
| B57A/7-9 | Total PCBs | 99999999 | 1.28 | | mg/Kg | PEST | 7-9 | 3/21/96 |
| B57B/7-9 | Total PCBs | 99999999 | 0.56 | | mg/Kg | PEST | 7-9 | 3/22/96 |
| BTPBC/7-9 | Total PCBs | 99999999 | 0.034 | | mg/Kg | PEST | 7-9 | 3/20/96 |
| BTPBCC/7-9 | Total PCBs | 99999999 | 0.076 | | mg/Kg | PEST | 7-9 | 3/20/96 |
| N2A-CS-001 | Total PCBs | 99999999 | 0.29 | | mg/Kg | PEST | 8-12 | 11/30/93 |
| N2C-CS-001 | Total PCBs | 99999999 | 0.88 | | mg/Kg | PEST | 8-12 | 11/30/93 |
| N3A-CS-009A | Total PCBs | 99999999 | 0.06 | | mg/Kg | PEST | 8-12 | 11/19/93 |
| N3A-CS-010A | Total PCBs | 99999999 | 0.59 | | mg/Kg | PEST | 8-12 | 11/19/93 |
| N3A-CS-024 | Total PCBs | 99999999 | 0.4 | | mg/Kg | PEST | 8-12 | 11/10/93 |
| N3A-CS-025 | Total PCBs | 99999999 | 0.84 | | mg/Kg | PEST | 8-12 | 10/18/93 |
| N3A-CS-026 | Total PCBs | 99999999 | 0.135 | | mg/Kg | PEST | 8-12 | 10/18/93 |
| N3A-CS-029 | Total PCBs | 99999999 | 0.04224 | U | mg/Kg | PEST | 8-12 | 11/10/93 |
| N3A-CS-035 | Total PCBs | 99999999 | 0.27 | | mg/Kg | PEST | 8-12 | 11/10/93 |
| N3A-CS-036 | Total PCBs | 99999999 | 0.03729 | U | mg/Kg | PEST | 8-12 | 11/10/93 |
| N3A-CS-040 | Total PCBs | 99999999 | 10 | | mg/Kg | PEST | 8-12 | 10/26/93 |
| N3A-CS-041 | Total PCBs | 99999999 | 0.072 | | mg/Kg | PEST | 8-12 | 10/26/93 |
| N3A-CS-042 | Total PCBs | 99999999 | 10 | | mg/Kg | PEST | 8-12 | 10/26/93 |
| N3A-CS-045 | Total PCBs | 99999999 | 1.2 | | mg/Kg | PEST | 8-12 | 10/18/93 |
| N3B-CS-059 | Total PCBs | 99999999 | 2 | | mg/Kg | PEST | 8-12 | 11/10/93 |
| N3B-CS-060 | Total PCBs | 99999999 | 0.45 | | mg/Kg | PEST | 8-12 | 11/10/93 |
| N3C-CS-079A | Total PCBs | 99999999 | 0.093 | | mg/Kg | PEST | 8-12 | 11/18/93 |
| N3C-CS-080 | Total PCBs | 99999999 | 0.011 | | mg/Kg | PEST | 8-12 | 12/6/93 |
| N3C-CS-080 | Total PCBs | 99999999 | 0.057 | | mg/Kg | PEST | 8-12 | 12/6/93 |
| N3D-CS-082 | Total PCBs | 99999999 | 0.38 | | mg/Kg | PEST | 8-12 | 12/13/93 |
| N3D-CS-082 | Total PCBs | 99999999 | 1.2 | | mg/Kg | PEST | 8-12 | 12/13/93 |
| N4A-CS-040 | Total PCBs | 99999999 | 7.7 | | mg/Kg | PEST | 8-12 | 12/7/93 |
| TPC-CS-001 | Total PCBs | 99999999 | 0.27 | | mg/Kg | PEST | 8-12 | 11/30/93 |
| N2B-CS-001 | Total PCBs | 99999999 | 0.87 | | mg/Kg | PEST | 8-12 | 11/30/93 |
| N2A-CS-NW-103 | Total PCBs | 99999999 | 0.19965 | U | mg/Kg | PEST | 8-12 C | 11/30/93 |
| TPB-CS-NW-103 | Total PCBs | 99999999 | 50.4 | | mg/Kg | PEST | 8-12 C | 11/30/93 |
| B46-D | Total PCBs | 99999999 | 0.17 | | mg/Kg | PEST | 8-12 W | 2/28/94 |
| B16A/9-11 | Total PCBs | 99999999 | 0.253 | | mg/kg | PEST | 9-11 | 3/20/96 |
| B20A/9-11 | Total PCBs | 99999999 | 3.88 | | mg/Kg | PEST | 9-11 | 3/20/96 |
| B21A/9-11 | Total PCBs | 99999999 | 0.011 | | mg/Kg | PEST | 9-11 | 3/20/96 |
| B26A/9-11 | Total PCBs | 99999999 | 0.99 | | mg/Kg | PEST | 9-11 | 3/21/96 |
| B38A/9-11 | Total PCBs | 99999999 | 0.78 | | mg/Kg | PEST | 9-11 | 3/21/96 |
| B55-C | Total PCBs | 99999999 | 18.6 | | mg/Kg | PEST | 9-12 W | 2/15/94 |

**B- samples are depth specific**

**C = Composite samples**

**N- and T- samples not indicated as composites are post remediation excavation floor samples collected within the indicated range.**

**W = Wet samples collected below the water table**

**WPS- and WSP- samples were collected in the waste staging areas and covered with one foot of soil after remediation**

| Sample # | Analyte | CAS # | Results | Qualifier | Units | Data Group | Depth (feet) | Date Collected |
|---|---|---|---|---|---|---|---|---|

NWA-P- samples at depths of 1 foot are perimeter surface samples covered with 1 foot of soil after past remediation efforts

# APPENDIX C
# Baseline Hydraulic Site Analysis

# Advanced GeoServices Engineering, P.C.

Chadds Ford Business Campus
Rts. 202 & 1, Brandywine One - Suite 202
Chadds Ford, PA 19317-9676
(610) 558-3300 Fax (610) 558-2620

January 23, 2002 2001-911-04

Mr. Scott Foti
New York State Department of Environmental Conservation
276 Sing Sing Road
Horseheads, NY 14845

Reference: Existing Conditions Hydraulic Model
Seeley Creek
McInerney Farm Site, Town of Southport, New York

Gentlemen:

Advanced GeoServices Engineering, P.C. (AGE) has developed an existing conditions hydraulic model in order to evaluated remedial design alternatives for the impacted soil areas within the floodplain (and floodway) of Seeley Creek at the McInerney Farm Site (Site) in the Town of Southport, Chemung County, New York. The impacted soils at the Site are at two locations designated as Area 1 and Area 2. The location of these areas are shown on Figure 1. The remedial design alternatives which will be evaluated for these two areas consist of the following:

**Alternative 1** Tree removal, capping of both areas with 24 inches of cover soil (with an underlying geotextile) and revegetation with an appropriate grass mixture reinforced with an erosion mat, as necessary, in potential high velocity areas (i.e., > 3 to 4 feet per second).

**Alternative 2** Tree removal within both areas and revegetation with an appropriate grass mixture reinforced with an erosion mat, as necessary, in potential high velocity areas.

Alternative 1 has been proposed by the NYSDEC and Alternative 2 has been included as an alternative to minimize fill placement in the floodplain (and floodway).

The existing conditions hydraulic model was developed using the Hydraulic Engineering Center's River Analysis System (HEC-RAS) modeling software developed by the U.S. Army Corps. of Engineers. HEC-RAS is the Windows version of an updated and improved HEC-2 model originally developed in DOS format. The HEC-2 model was used extensively by FEMA to produce the current floodplain mapping of the river systems in the United States.



COPY

This letter describes the methodology used to develop the existing conditions hydraulic model for Seeley Creek at the Site. The remainder of this document has been formatted as follows:

- Past Hydraulic Modeling;
- Development of Existing Conditions Hydraulic Model; and,
- 100-Year Floodplain Characteristics.

## PAST HYDRAULIC MODELING

AGE reviewed the FEMA Flood Insurance Study (FIS) for the Town of Southport (revised August 1991). This study included a detailed hydraulic analysis (i.e., a HEC-2 hydraulic analysis) for Seeley Creek. AGE filed an information request to FEMA to obtain the HEC-2 hydraulic analysis; however, FEMA could not locate a copy of this study.

AGE contacted Larry Tolfa of the New York State Department of Transportation (NYDOT) to determine if NYDOT performed any hydraulic studies for Seeley Creek as part of the Route 14 reconstruction. NYDOT provided AGE with a copy of the original FEMA FIS hydraulic analysis (which had been converted into HEC-RAS format) as well as a HEC-RAS analysis reflecting the floodplain characteristics anticipated following the completion of the Route 14 reconstruction (NYDOT analysis). The original FEMA FIS hydraulic analysis extends from the Corporate Limits of the Town of Southport (located approximately 3,500 feet downstream of the Site) to about 3,000 feet upstream of the Route 14 bridge (located about 6,700 feet upstream of the Site). Two cross sections used in the FEMA FIS hydraulic analysis are located within the Site. The NYDOT hydraulic analysis extends from directly upstream of the Site (at the confluence with South Creek) to about 900 feet upstream of the Route 14 bridge.

## DEVELOPMENT OF EXISTING CONDITIONS HYDRAULIC MODEL

### Incorporation of Past Models

The input data from the NYDOT hydraulic analysis was combined with the input data from the original FEMA FIS hydraulic analysis to create a base model. All of the NYDOT data and one FEMA FIS cross section were used for the upstream input data. The FEMA FIS input data was used for all downstream data. The two FEMA FIS cross sections located within the Site were eliminated and replaced with site-specific information as described below.

Site Survey

AGE engaged Weiler Associates of Horseheads, New York to perform a cross section survey of the floodplain of Seeley Creek in the vicinity of Areas 1 and 2. This survey was initiated on December 12, 2001 and consisted of the surveying of twelve (12) cross sections. Eleven (11) of the cross sections were surveyed within the Site. These cross sections were surveyed from the existing levee to the southern bank of the main channel. The topographical information from an existing base map was used to define the limits of the southern floodplain (southern overbank area) beyond the limits of the cross section survey. The location and topographical data of these cross sections are shown on Figure 1. The remaining cross section was surveyed at the former Conrail crossing located about 2,200 feet upstream of the Site. This cross section was surveyed in order to horizontally "tie in" the Site cross sections with the cross sections used in the FEMA FIS and NYDOT hydraulic analyses.

Manning's n Values

AGE performed a site reconnaissance on December 12, 2001 to visually evaluate the floodplain of Seeley Creek within the site area in order to obtain site-specific hydraulic parameters (i.e., Manning's n values and corresponding overbank station locations). The Manning's n values used for the site overbank area range from 0.035 to 0.07. The site overbank area along the levee is a maintained grass area/gravel road and was assigned a Manning's n value of 0.035. The remainder of the overbank area contains areas of medium to tall grass, light to heavy brush, and trees. These areas were assigned Manning's n values ranging from 0.055 to 0.07. The Manning's n values assigned to the main channel and southern overbank area are 0.04 and 0.065, respectively, which are consistent with the values used in the FEMA FIS hydraulic analyses.

100-Year Peak Discharge Values

The 100-year peak discharge values for Seeley Creek listed in the FEMA FIS were used to develop the existing conditions hydraulic model. It is understood that the Town of Southport has performed studies which suggest higher peak discharge values. AGE will contact the Town of Southport to obtain copies of these studies. AGE will review and consider this data during the Feasibility Study and subsequent Remedial Design activities.

## 100-YEAR FLOODPLAIN CHARACTERISTICS

The 100-year base flood elevations, location of floodway, and channel and overbank velocities within the site area as calculated by the existing conditions HEC-RAS hydraulic model are described below.

Base Flood Elevations

The base flood elevations at the Site range from elevation 862.89 at Cross Section A to elevation 859.48 at Cross Section K. At this range in elevation, the base flood level is generally about 2 feet below the top of the levee. Area 1 (excluding the northeastern and southeastern corners) is not inundated during a 100-year flood. Area 2 is inundated. The approximate base flood elevations throughout the Site are plotted on Figure 1. Cross sections showing the base flood elevations, as well as an output table from the HEC-RAS analysis, are provided in Attachment A.

Cross Sections B and G are located in the vicinity of the cross sections used in the FEMA FIS hydraulic model. The base flood levels at Cross Sections B and G are 0.21 feet and 0.61 feet, respectively, above the base flood levels reported at these locations by the FEMA FIS hydraulic model. The differences in the base flood elevations can be expected due to the more accurate topographical data used in the site-specific hydraulic model.

Floodway Determination

The floodway of Seeley Creek within the site area (northern overbank area) was mapped in the FEMA FIS. The FEMA FIS floodway limit is located at about the center of the overbank area. A review of the survey data and site base map indicates that the FEMA FIS floodway mapping is inconsistent with the site topography. Therefore, the floodway was recalculated via the encroachment methods provided in HEC-RAS. The calculated floodway for this analysis was defined as the limit of encroachment within the floodplain toward the main channel that produced a change in the base flood elevation of one foot. The location of the calculated site-specific floodway for the site overbank is shown on Figure 1. The southeastern portions of both Area 1 and Area 2 are within this calculated floodway. Supporting output documentation from the HEC-RAS model for the floodway determination is provided in Attachment B. The location of the encroachment stations are shown on the cross sections included in Attachment A.

Main Channel and Overbank Velocities

Main channel velocities within the site area range from about 3 to 14 feet per second (fps). The overbank velocities within the site area range from about 1 to 5 fps. The higher site overbank velocities are located along the levee where flow depths are deeper and the Manning's n values are lower. The site overbank velocities decrease toward the middle of the overbank where the flow depths are more shallow and the Manning's n values are higher. Velocity distributions are shown on the site cross sections included in Attachment A.

The HEC-RAS model calculates velocities assuming steady-state flow conditions. Localized areas of higher velocities are expected to occur in some portions of the site overbank area. The potential and magnitude of these localized velocities will be evaluated during the Remedial Design.

If you have any questions concerning this matter, please contact us a (610) 558-3300.

Sincerely,

ADVANCED GEOSERVICES ENGINEERING, P.C.

Stephen W. Kirschner
Project Consultant

Daniel A. Daily, P.E.
President

SWK:DAD:vm

Enclosures

cc: M. D. Mehta, P.E., NYSDEC
Paul Brookner, Unisys

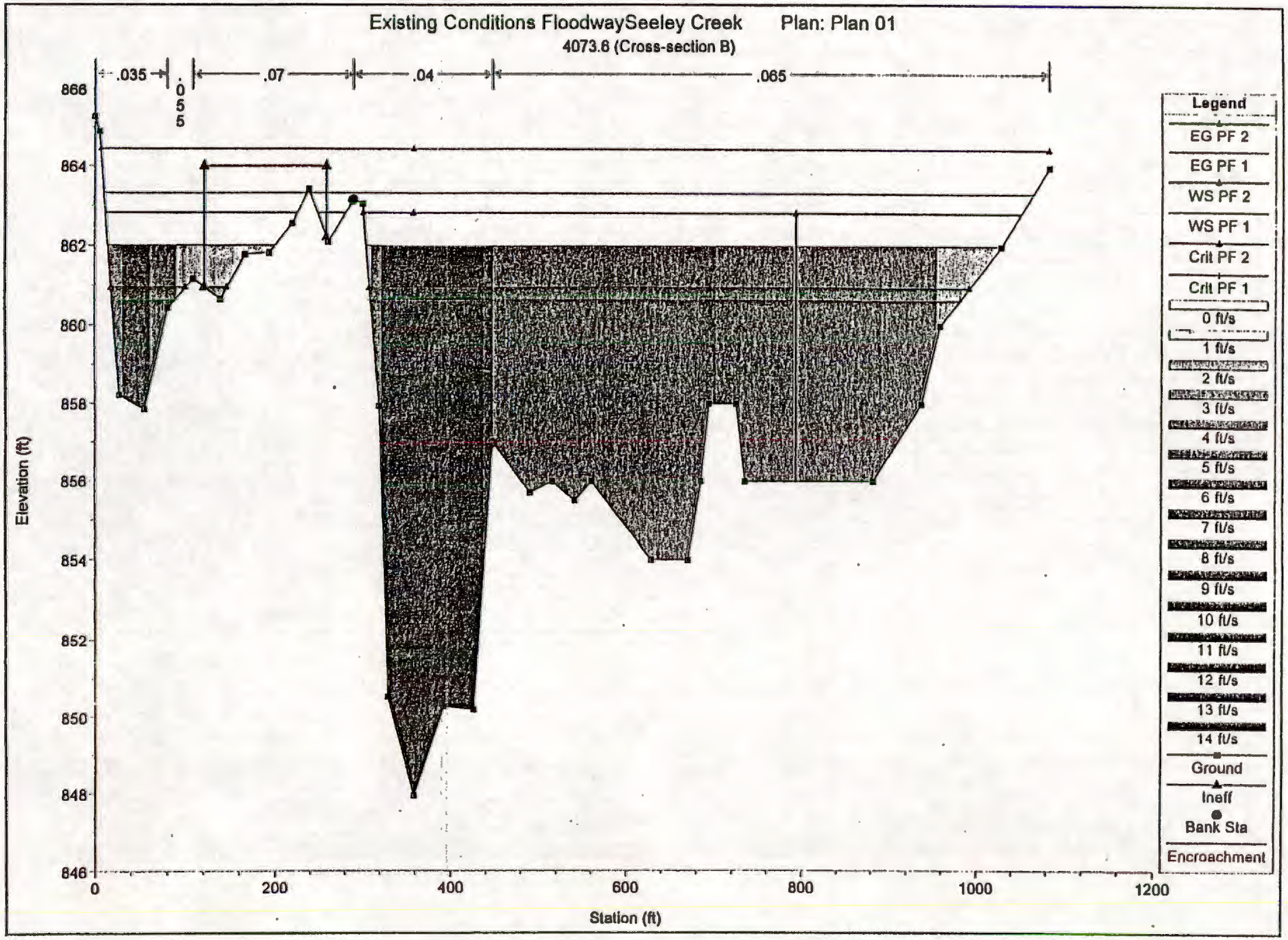
**FIGURE**

# ATTACHMENT A

HEC-RAS Plan: Plan 01 River: Seeley Creek Reach: Seeley Creek Profile: PF 1

| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Vel Left (ft/s) | Vel Right (ft/s) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Seeley Creek | 11802.0 | 27200.00 | 884.81 | 896.68 | 893.67 | 898.83 | 0.003360 | 12.79 | 2.41 | 4.57 | 0.70 |
| Seeley Creek | 11473.9 | 27200.00 | 880.91 | 896.17 | 892.41 | 897.79 | 0.002024 | 10.34 | 2.31 | | 0.54 |
| Seeley Creek | 11145.8 | 27200.00 | 880.58 | 892.77 | 892.39 | 896.57 | 0.006176 | 15.85 | | 4.06 | 0.92 |
| Seeley Creek | 10939.1 | 27200.00 | 878.02 | 892.87 | 888.19 | 894.10 | 0.001589 | 8.89 | | | 0.48 |
| Seeley Creek | 10899.9 | Bridge | | | | | | | | | |
| Seeley Creek | 10860.4 | 27200.00 | 877.33 | 892.39 | 887.84 | 893.71 | 0.001703 | 9.20 | | | 0.49 |
| Seeley Creek | 10722.6 | 27200.00 | 876.02 | 888.70 | 888.70 | 892.56 | 0.007580 | 15.78 | | 0.35 | 0.99 |
| Seeley Creek | 10709.4 | 27200.00 | 874.34 | 887.19 | 885.44 | 889.82 | 0.004145 | 13.01 | | | 0.75 |
| Seeley Creek | 10571.5 | 27200.00 | 871.23 | 886.65 | 882.32 | 888.28 | 0.002025 | 10.25 | | | 0.54 |
| Seeley Creek | 10048.4 | 27200.00 | 871.26 | 884.85 | 882.52 | 887.35 | 0.003524 | 12.71 | | 0.14 | 0.70 |
| Seeley Creek | 9715.3 | 27200.00 | 870.14 | 882.99 | 881.44 | 886.00 | 0.004517 | 13.94 | | 0.34 | 0.79 |
| Seeley Creek | 9387.2 | 27200.00 | 868.87 | 881.84 | 879.77 | 884.54 | 0.003838 | 13.18 | | | 0.73 |
| Seeley Creek | 9059.1 | 27200.00 | 867.59 | 880.62 | 878.49 | 883.28 | 0.003763 | 13.09 | | | 0.72 |
| Seeley Creek | 8731.0 | 27200.00 | 866.24 | 878.67 | 877.38 | 881.83 | 0.004905 | 14.27 | | 0.99 | 0.82 |
| Seeley Creek | 8403.0 | 27200.00 | 864.73 | 877.64 | 875.89 | 880.26 | 0.003704 | 13.12 | | 2.48 | 0.72 |
| Seeley Creek | 8074.9 | 27200.00 | 863.42 | 876.75 | 874.70 | 879.04 | 0.003134 | 12.40 | | 2.86 | 0.67 |
| Seeley Creek | 7746.8 | 27200.00 | 862.21 | 874.20 | 873.24 | 877.62 | 0.005441 | 14.85 | | 1.11 | 0.86 |
| Seeley Creek | 7418.7 | 27200.00 | 860.76 | 874.03 | 871.77 | 875.77 | 0.002761 | 10.88 | | 3.14 | 0.62 |
| Seeley Creek | 7090.6 | 27200.00 | 859.74 | 873.92 | 869.66 | 874.85 | 0.001350 | 7.96 | | 2.64 | 0.44 |
| Seeley Creek | 6969.2 | 27200.00 | 859.06 | 874.03 | 867.78 | 874.62 | 0.000734 | 6.56 | | 2.58 | 0.33 |
| Seeley Creek | 6762.5 | 27200.00 | 858.20 | 871.13 | 869.81 | 874.12 | 0.004308 | 14.02 | 2.25 | | 0.78 |
| Seeley Creek | 6746.1 | 27200.00 | 858.20 | 870.79 | 869.81 | 874.03 | 0.004832 | 14.56 | 2.28 | | 0.82 |
| Seeley Creek | 6431.2 | 27200.00 | 857.71 | 869.78 | 869.10 | 872.38 | 0.004448 | 13.26 | 2.34 | 2.63 | 0.78 |
| Seeley Creek | 6103.1 | 27200.00 | 856.66 | 869.10 | 867.52 | 870.75 | 0.002617 | 11.17 | 2.58 | 3.24 | 0.61 |
| Seeley Creek | 5998.1 | 27200.00 | 856.17 | 868.98 | 867.01 | 870.43 | 0.002201 | 10.54 | 2.65 | 3.05 | 0.57 |
| Seeley Creek | 5673.3 | 27200.00 | 854.63 | 865.92 | 865.68 | 869.21 | 0.005945 | 14.68 | 2.23 | 1.36 | 0.89 |
| Seeley Creek | 5004.0 | 34000.00 | 852.56 | 864.13 | 861.91 | 865.83 | 0.002738 | 11.00 | 1.90 | 3.96 | 0.62 |
| Seeley Creek | 4596.0 | 34000.00 | 851.30 | 864.04 | 859.49 | 864.64 | 0.001471 | 6.38 | 1.71 | 1.65 | 0.36 |
| Seeley Creek | 4188.6 | 34000.00 | 848.12 | 862.89 | 860.42 | 863.80 | 0.003253 | 10.10 | 4.93 | 4.30 | 0.54 |
| Seeley Creek | 4073.6 | 34000.00 | 847.95 | 862.00 | 860.64 | 863.33 | 0.004683 | 11.91 | 5.42 | 4.78 | 0.65 |
| Seeley Creek | 3961.6 | 34000.00 | 848.04 | 862.04 | 858.86 | 862.72 | 0.002671 | 8.86 | 3.74 | 4.21 | 0.49 |
| Seeley Creek | 3871.6 | 34000.00 | 847.91 | 861.92 | 857.52 | 862.44 | 0.002166 | 7.84 | 4.26 | 3.46 | 0.44 |
| Seeley Creek | 3748.6 | 34000.00 | 847.91 | 861.66 | 857.01 | 862.19 | 0.001906 | 7.59 | 3.23 | 4.01 | 0.42 |
| Seeley Creek | 3695.6 | 34000.00 | 847.91 | 861.56 | 856.31 | 861.97 | 0.001441 | 6.81 | 2.49 | 3.83 | 0.37 |
| Seeley Creek | 3540.6 | 34000.00 | 848.07 | 861.28 | 857.28 | 861.81 | 0.001854 | 7.89 | 2.75 | 4.00 | 0.42 |
| Seeley Creek | 3462.6 | 34000.00 | 847.98 | 861.14 | 858.24 | 861.68 | 0.001865 | 7.98 | 3.17 | 3.60 | 0.42 |

Cross Sections →



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.055
.07
.04
.065
Elevation (ft)
Station (ft)
Legend
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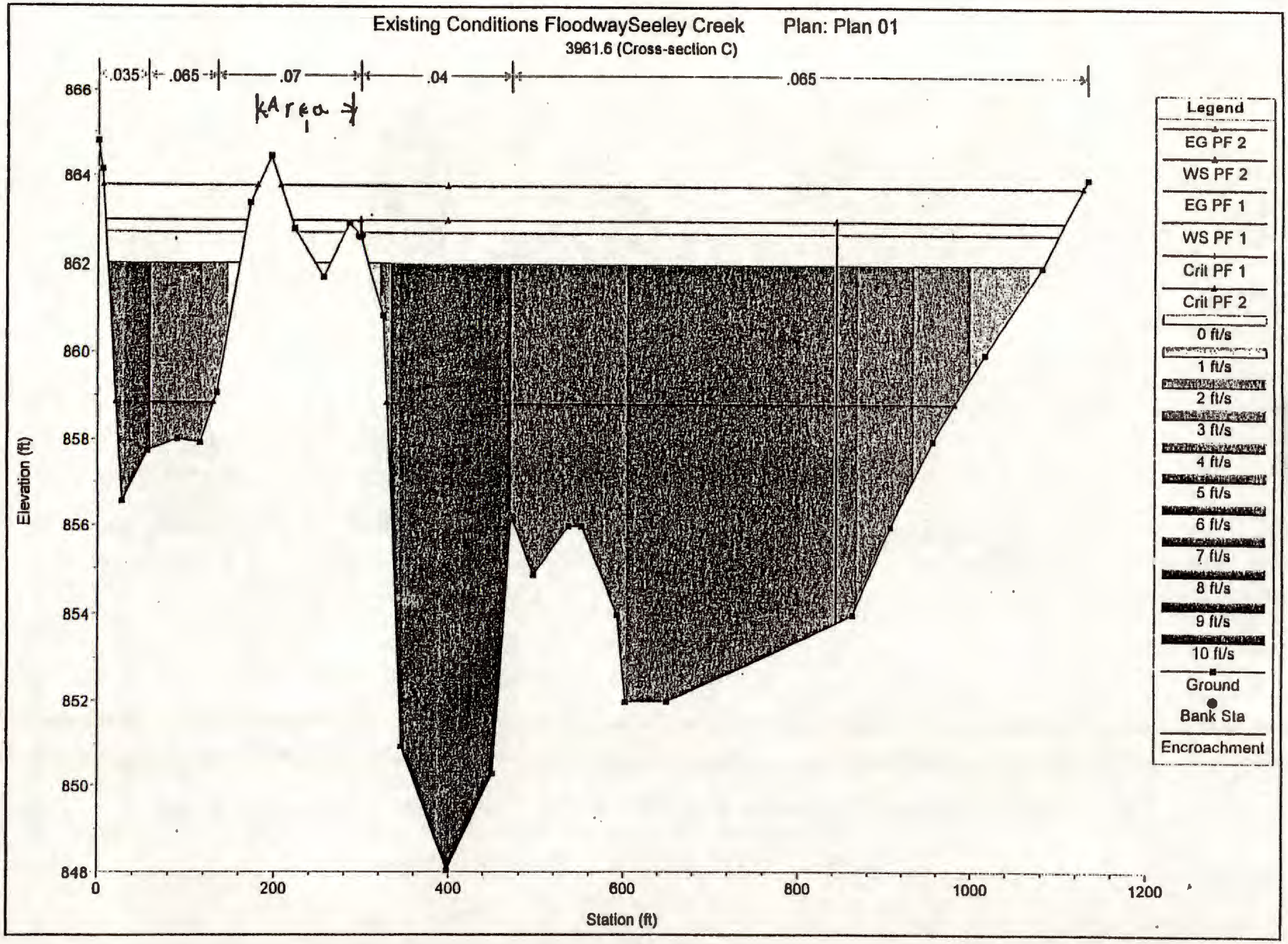
EG PF 1
WS PF 2
WS PF 1
Crit PF 2
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Ineff
Bank Sta
Encroachment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.065
.07
.04
.065
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862
860
858
856
854
852
850
848
Station (ft)
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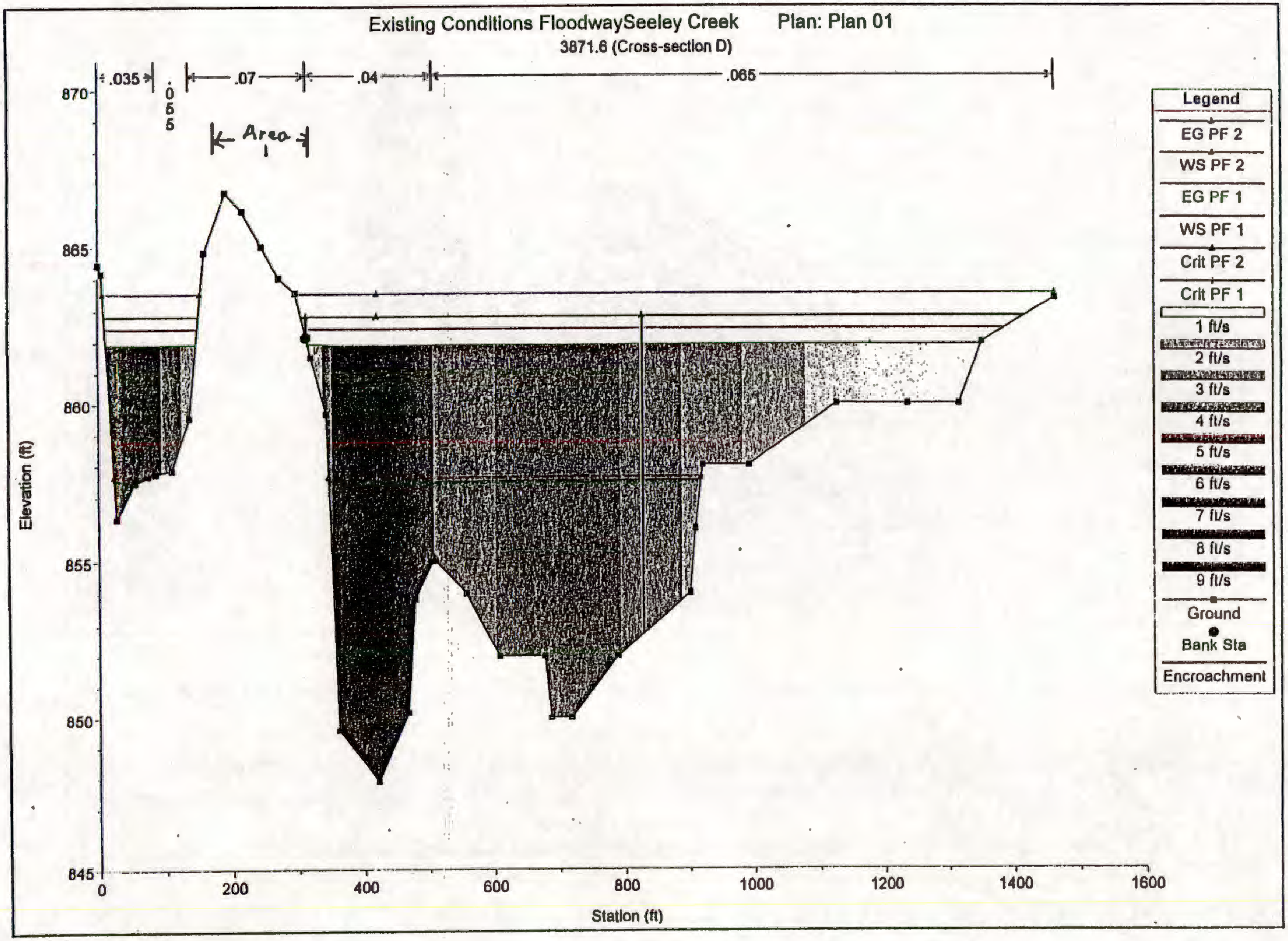
200
400
600
800
1000
1200
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment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.07
.04
.065
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WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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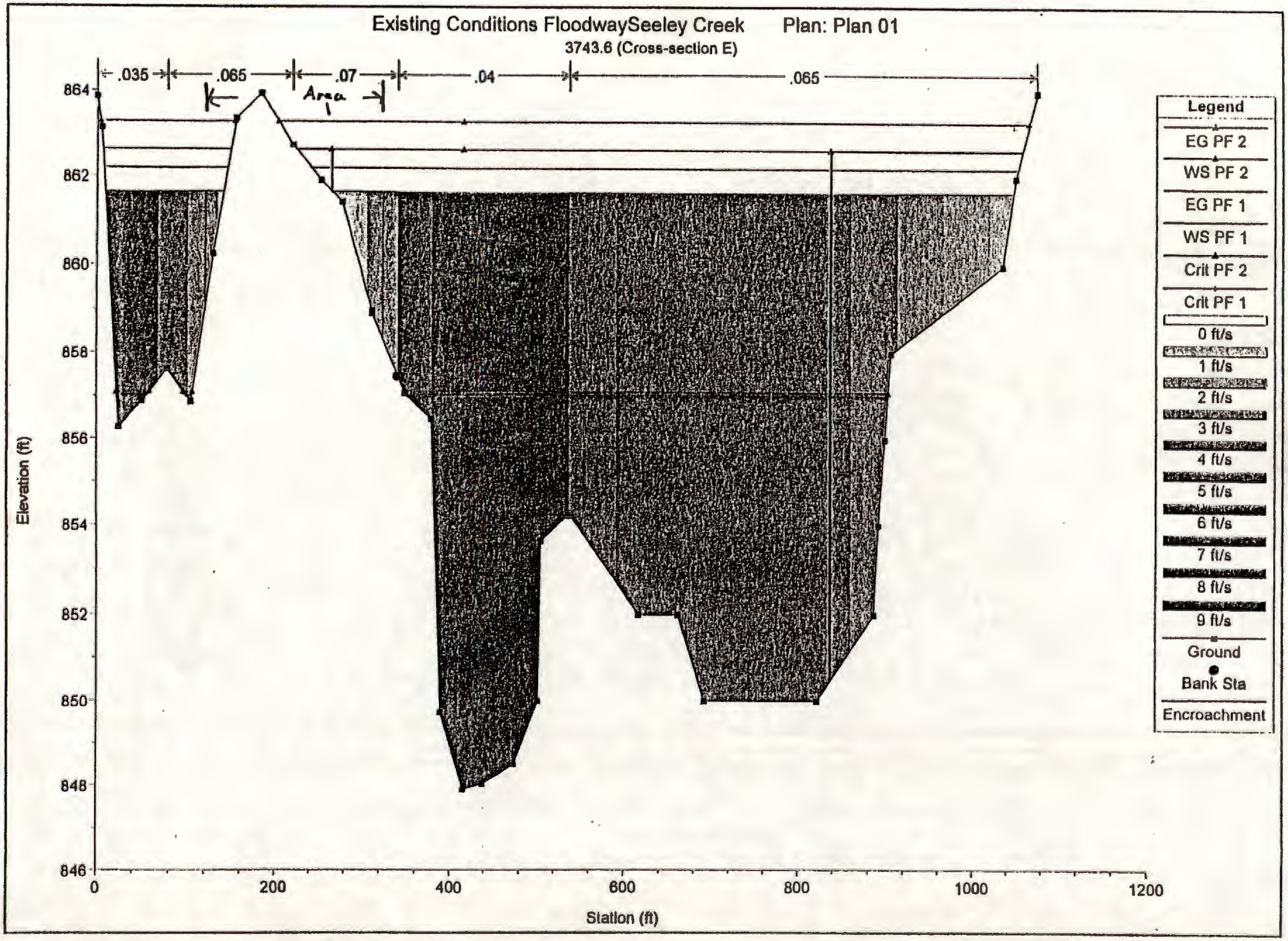
865
860
855
850
845
0
200
400
600
800
1000
1200
1400
1600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.065
.07
.04
.065
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Elevation (ft)
Station (ft)
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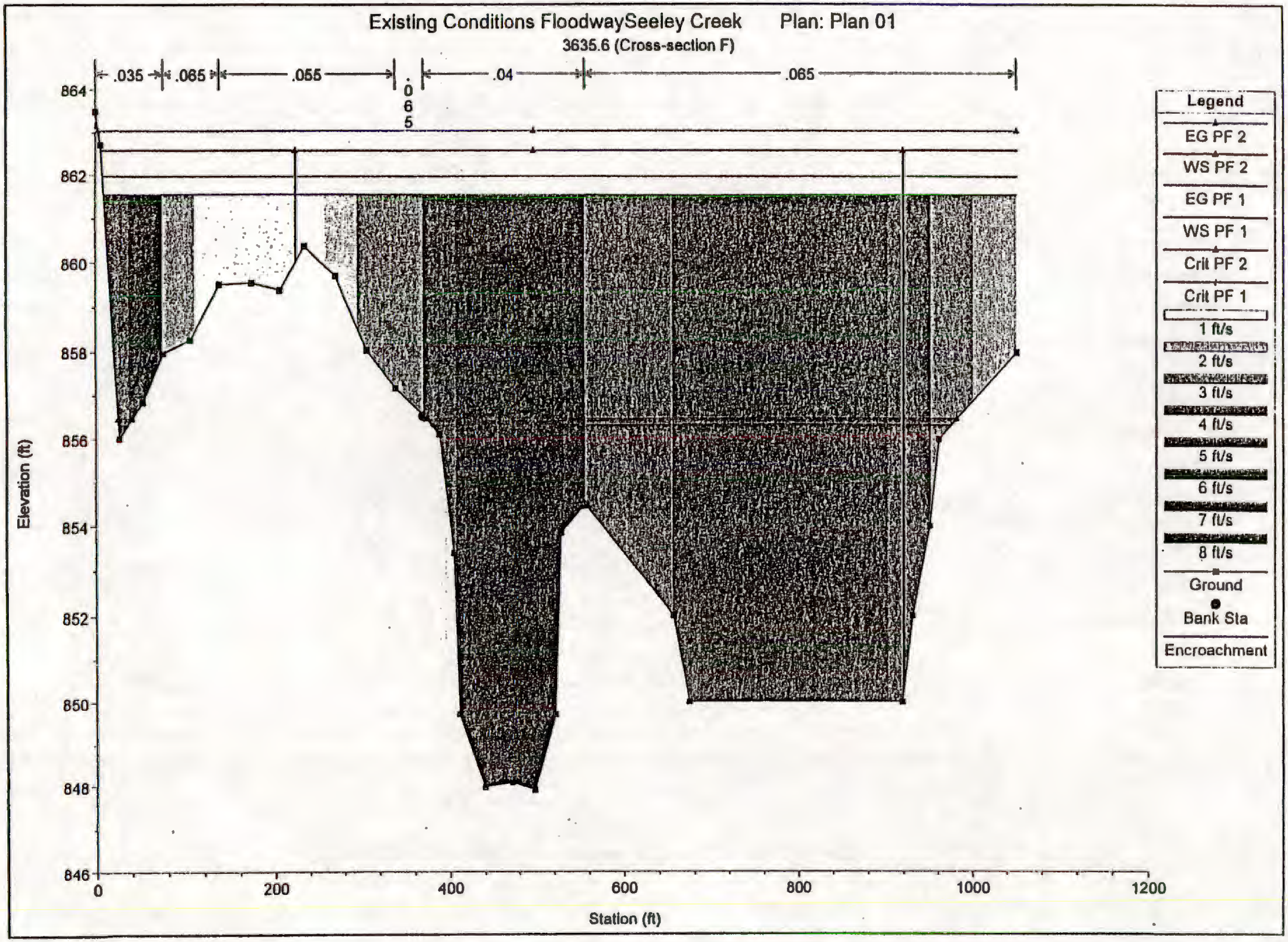
848
850
852
854
856
858
860
862
864
0
200
400
600
800
1000
1200
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment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.065
.055
.065
.04
.065
Legend
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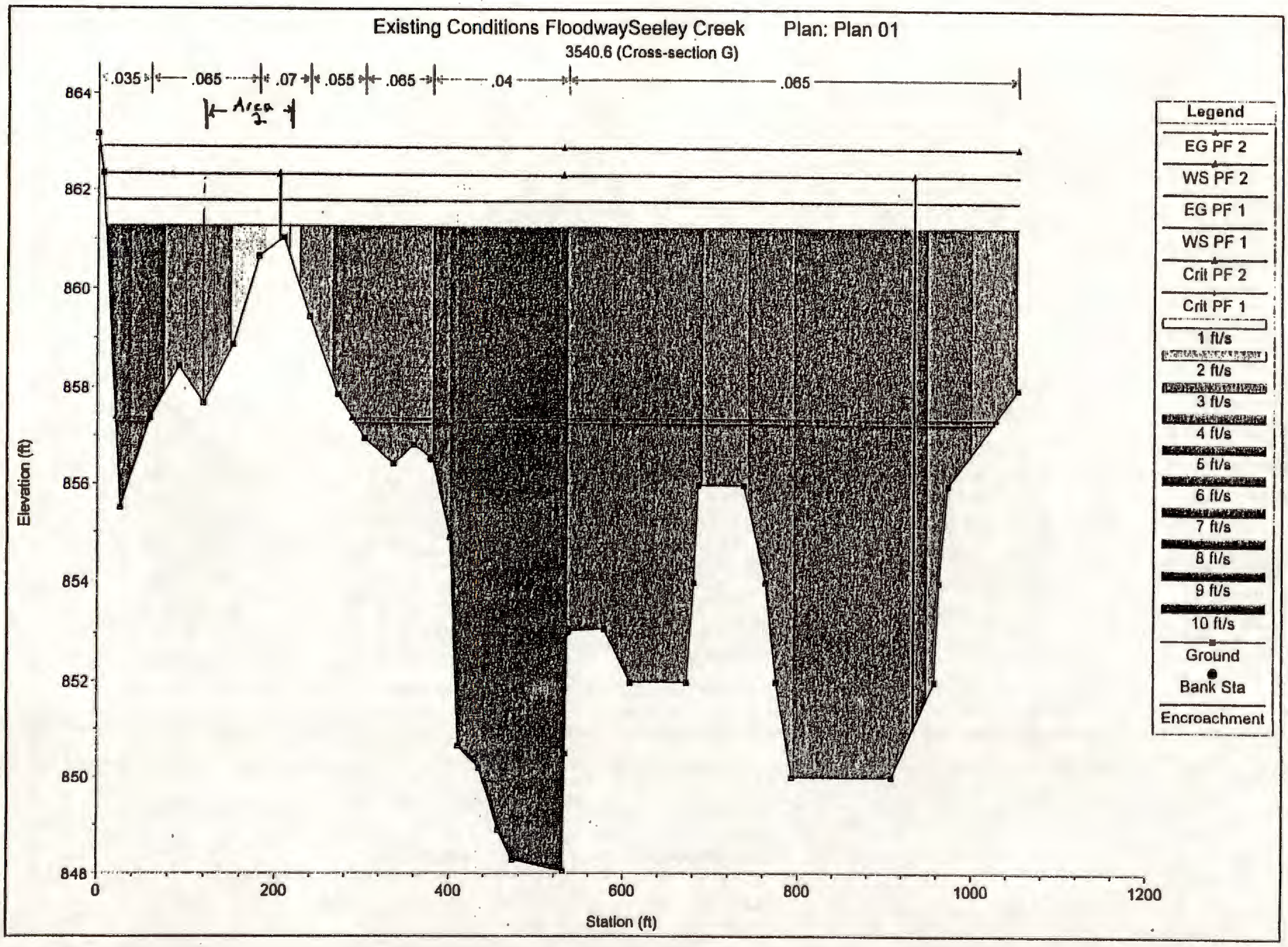
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
864
862
860
858
856
854
852
850
848
846
0
200
400
600
800
1000
1200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.065
.07
.055
.065
.04
.065
Area 2
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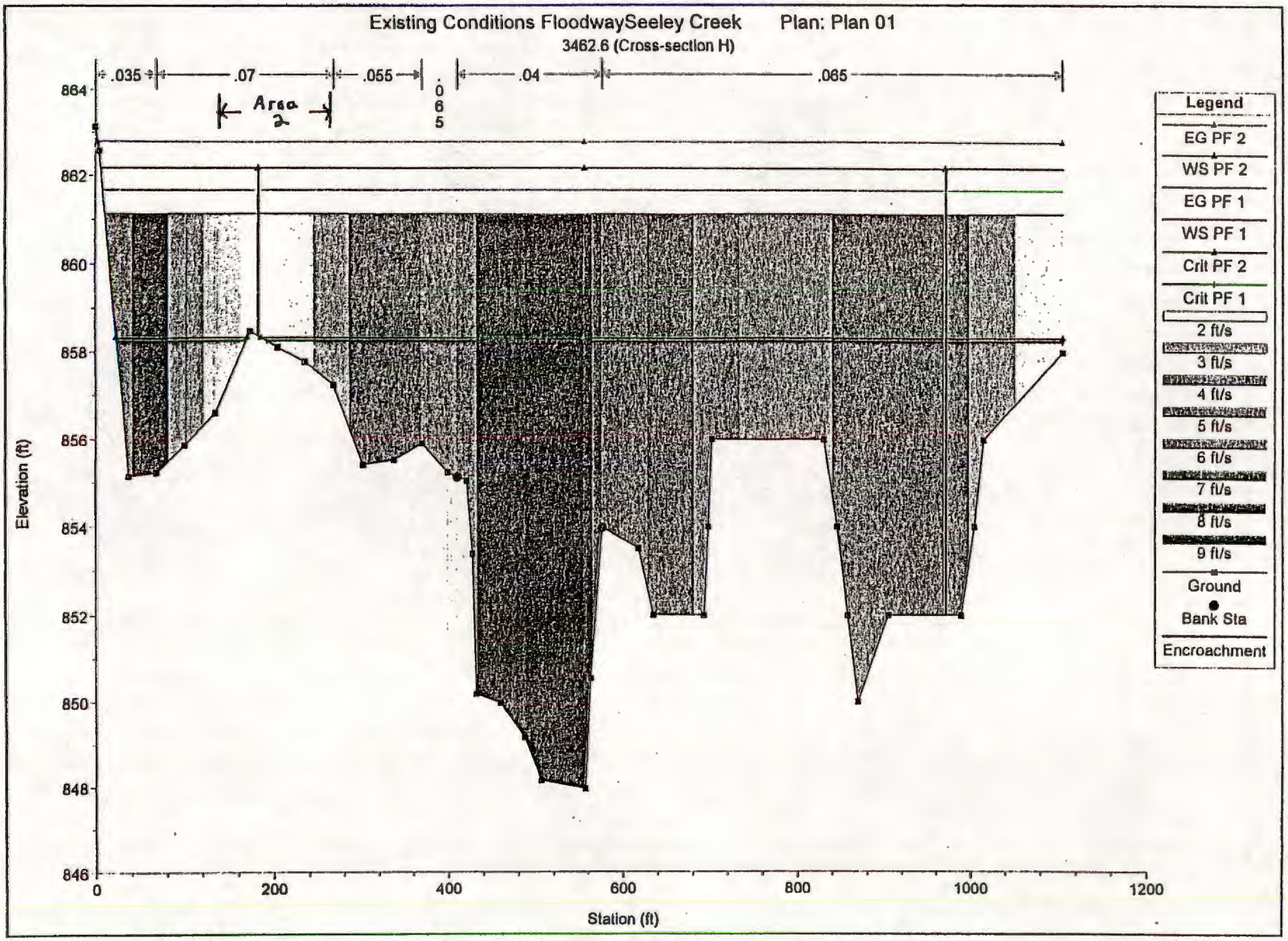
862
860
858
856
854
852
850
848
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment



Existing Conditions FloodwaySeeley Creek Plan: Plan 01
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.07
.055
.065
.04
.065
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Legend
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WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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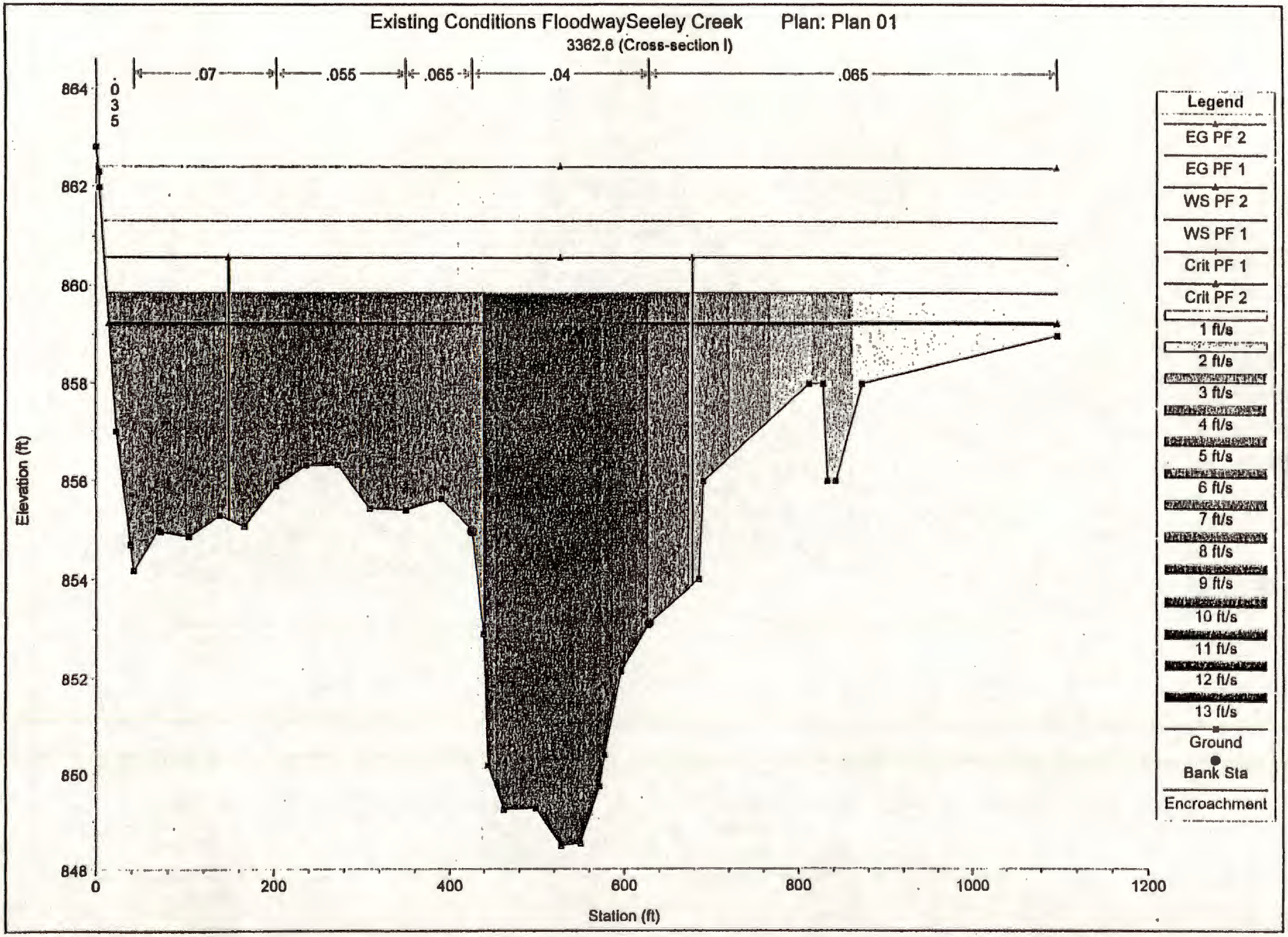
862
860
858
856
854
852
850
848
846
0
200
400
600
800
1000
1200



Existing Conditions FloodwaySeeley Creek Plan: Plan 01
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.07
.055
.065
.04
.065
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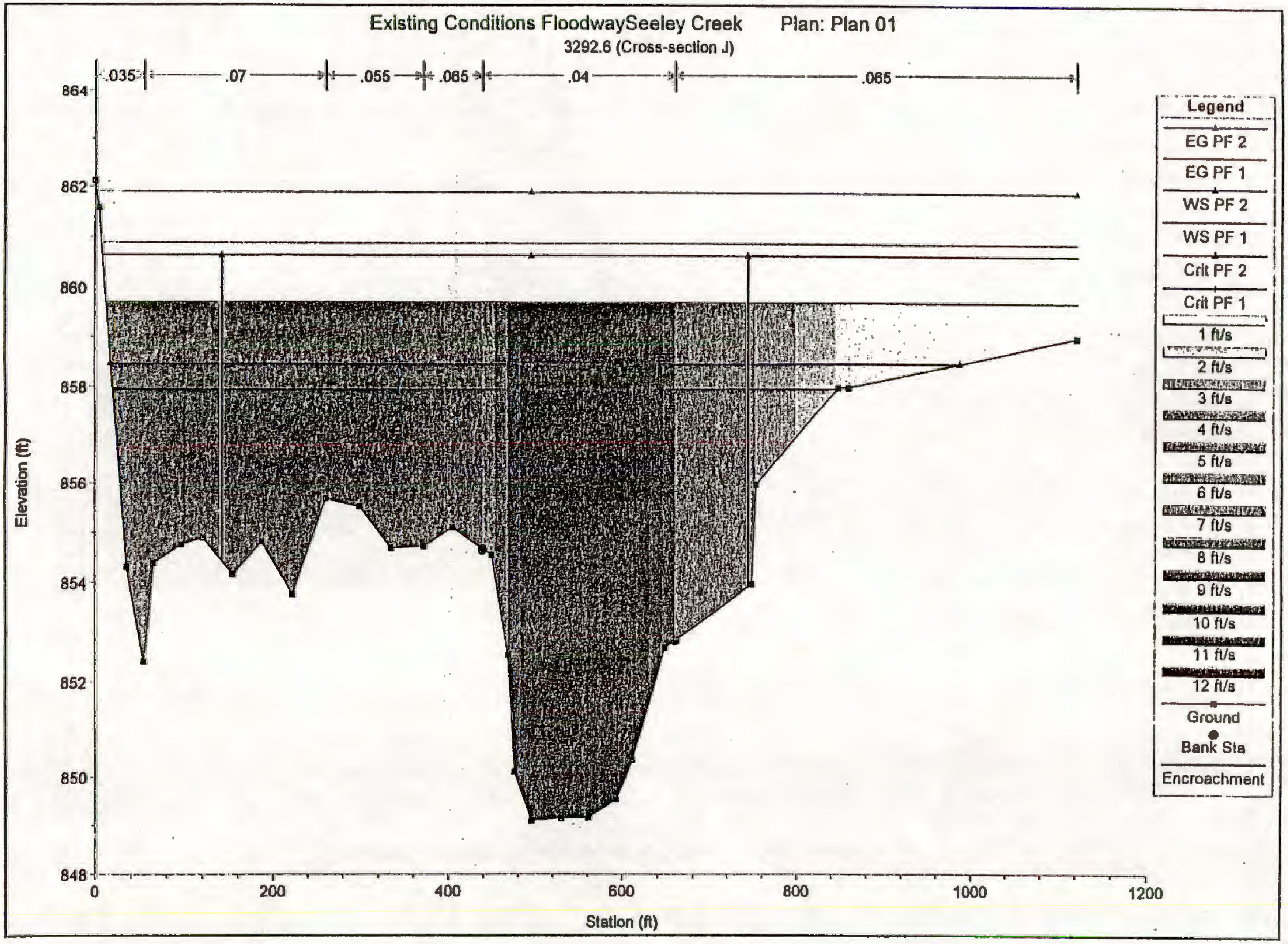
860
858
856
854
852
850
848
Elevation (ft)
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
Ground
Bank Sta
Encroachment



Existing Conditions FloodwaySeeley Creek Plan: Plan 01
3292.6 (Cross-section J)
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.07
.055
.065
.04
.065
Elevation (ft)
Station (ft)
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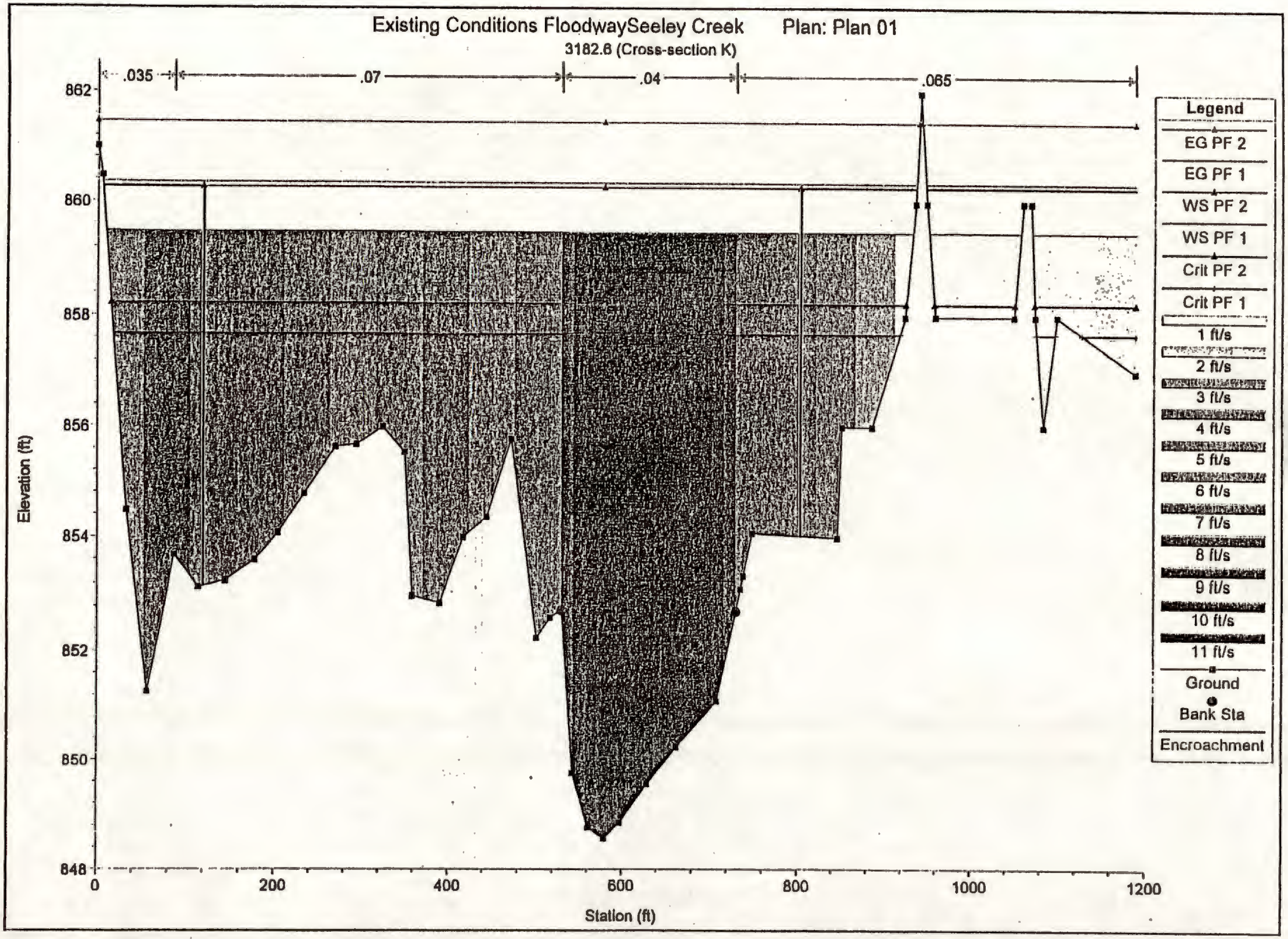
858
856
854
852
850
848
0
200
400
600
800
1000
1200
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 2
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
Ground
Bank Sta
Encroachment



Existing Conditions FloodwaySeeley Creek Plan: Plan 01
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.07
.04
.065
Elevation (ft)
Station (ft)
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860
858
856
854
852
850
848
0
200
400
600
800
1000
1200
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 2
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Bank Sta
Encroachment

# ATTACHMENT B

HEC-RAS Plan: Plan 01 River: Seeley Creek Reach: Seeley Creek

| Reach | River Sta | W.S. Elev (ft) | Prof Delta WS (ft) | E.G. Elev (ft) | Top Wdth Act (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Enc Sta L (ft) | Ch Sta L (ft) | Ch Sta R (ft) | Enc Sta R (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Seeley Creek | 11602.0 | 896.68 | | 898.83 | 368.34 | 314.38 | 22427.12 | 4458.50 | | 250.33 | 417.65 | |
| Seeley Creek | 11602.0 | 896.68 | 0.00 | 898.83 | 368.34 | 314.38 | 22427.12 | 4458.50 | | 250.33 | 417.65 | |
| | | | | | | | | | | | | |
| Seeley Creek | 11473.9 | 896.17 | | 897.79 | 327.23 | 779.23 | 26420.77 | | | 250.98 | 486.55 | |
| Seeley Creek | 11473.9 | 896.17 | 0.00 | 897.79 | 327.23 | 779.23 | 26420.77 | | | 250.98 | 486.55 | |
| | | | | | | | | | | | | |
| Seeley Creek | 11145.8 | 892.77 | | 896.57 | 234.41 | | 26421.77 | 778.23 | | 280.18 | 473.75 | |
| Seeley Creek | 11145.8 | 892.77 | 0.00 | 896.57 | 234.41 | | 26421.77 | 778.23 | | 280.18 | 473.75 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10939.1 | 892.87 | | 894.10 | 282.34 | | 27200.00 | | | 239.17 | 526.90 | |
| Seeley Creek | 10939.1 | 892.87 | 0.00 | 894.10 | 282.34 | | 27200.00 | | | 239.17 | 526.90 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10899.9 BR U | 892.59 | | 894.02 | 268.25 | | 27200.00 | | | 239.17 | 526.90 | |
| Seeley Creek | 10899.9 BR U | 892.59 | 0.00 | 894.02 | 268.25 | | 27200.00 | | | 239.17 | 526.90 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10899.9 BR D | 892.31 | | 893.79 | 262.25 | | 27200.00 | | | 179.79 | 467.19 | |
| Seeley Creek | 10899.9 BR D | 892.31 | 0.00 | 893.79 | 262.25 | | 27200.00 | | | 179.79 | 467.19 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10860.4 | 892.39 | | 893.71 | 275.91 | | 27200.00 | | | 179.79 | 467.19 | |
| Seeley Creek | 10860.4 | 892.39 | 0.00 | 893.71 | 275.91 | | 27200.00 | | | 179.79 | 467.19 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10722.6 | 888.70 | | 892.56 | 258.69 | | 27190.44 | 9.56 | | 260.50 | 487.99 | |
| Seeley Creek | 10722.6 | 888.70 | 0.00 | 892.56 | 258.69 | | 27190.44 | 9.56 | | 260.50 | 487.99 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10709.4 | 887.19 | | 889.82 | 223.26 | | 27200.00 | | | 238.85 | 485.56 | |
| Seeley Creek | 10709.4 | 887.19 | 0.00 | 889.82 | 223.26 | | 27200.00 | | | 238.85 | 485.56 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10371.5 | 886.65 | | 888.28 | 238.87 | | 27200.00 | | | 164.70 | 415.13 | |
| Seeley Creek | 10371.5 | 886.65 | 0.00 | 888.28 | 238.87 | | 27200.00 | | | 164.70 | 415.13 | |
| | | | | | | | | | | | | |
| Seeley Creek | 10043.4 | 884.85 | | 887.35 | 254.15 | | 27199.79 | 0.21 | | 242.13 | 469.82 | |
| Seeley Creek | 10043.4 | 884.85 | 0.00 | 887.35 | 254.15 | | 27199.79 | 0.21 | | 242.13 | 469.82 | |
| | | | | | | | | | | | | |
| Seeley Creek | 9715.3 | 882.99 | | 886.00 | 250.37 | | 27198.22 | 1.77 | | 269.36 | 484.38 | |
| Seeley Creek | 9715.3 | 882.99 | 0.00 | 886.00 | 250.37 | | 27198.22 | 1.77 | | 269.36 | 484.38 | |
| | | | | | | | | | | | | |
| Seeley Creek | 9387.2 | 881.84 | | 884.54 | 204.21 | | 27200.00 | | | 288.39 | 505.02 | |
| Seeley Creek | 9387.2 | 881.84 | 0.00 | 884.54 | 204.21 | | 27200.00 | | | 288.39 | 505.02 | |
| | | | | | | | | | | | | |
| Seeley Creek | 9059.1 | 880.62 | | 883.28 | 205.00 | | 27200.00 | | | 296.92 | 512.50 | |
| Seeley Creek | 9059.1 | 880.62 | 0.00 | 883.28 | 205.00 | | 27200.00 | | | 296.92 | 512.50 | |

| Reach | River Sta | W.S. Elev (ft) | Prof Delta WS (ft) | E.G. Elev (ft) | Top Wdth Act (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Enc Sta L (ft) | Ch Sta L (ft) | Ch Sta R (ft) | Enc Sta R (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Seeley Creek | 8731.0 | 878.67 | | 881.83 | 297.34 | | 27154.00 | 46.00 | | 295.93 | 508.20 | |
| Seeley Creek | 8731.0 | 878.67 | 0.00 | 881.83 | 297.34 | | 27154.00 | 46.00 | | 295.93 | 508.20 | |
| Seeley Creek | 8403.0 | 877.64 | | 880.26 | 291.64 | | 26642.63 | 557.37 | | 286.42 | 494.75 | |
| Seeley Creek | 8403.0 | 877.64 | 0.00 | 880.26 | 291.64 | | 26642.63 | 557.37 | | 286.42 | 494.75 | |
| Seeley Creek | 8074.9 | 876.75 | | 879.04 | 318.65 | | 26026.98 | 1173.02 | | 293.31 | 501.38 | |
| Seeley Creek | 8074.9 | 876.75 | 0.00 | 879.04 | 318.65 | | 26026.98 | 1173.02 | | 293.31 | 501.38 | |
| Seeley Creek | 7746.8 | 874.20 | | 877.62 | 317.03 | | 27129.48 | 70.52 | | 279.53 | 491.57 | |
| Seeley Creek | 7746.8 | 874.20 | 0.00 | 877.62 | 317.10 | | 27129.38 | 70.62 | | 279.53 | 491.57 | |
| Seeley Creek | 7418.7 | 874.03 | | 875.77 | 357.67 | | 25640.53 | 1559.47 | | 271.65 | 534.45 | |
| Seeley Creek | 7418.7 | 874.03 | 0.00 | 875.77 | 357.67 | | 25640.30 | 1559.70 | | 271.65 | 534.45 | |
| Seeley Creek | 7090.6 | 873.92 | | 874.85 | 421.04 | | 25544.68 | 1655.32 | | 218.50 | 547.93 | |
| Seeley Creek | 7090.6 | 873.92 | 0.00 | 874.85 | 421.04 | | 25544.52 | 1655.48 | | 218.50 | 547.93 | |
| Seeley Creek | 6969.2 | 874.03 | | 874.62 | 458.12 | | 23490.40 | 3709.60 | | 171.26 | 481.46 | |
| Seeley Creek | 6969.2 | 874.03 | 0.00 | 874.62 | 458.13 | | 23490.29 | 3709.71 | | 171.26 | 481.46 | |
| Seeley Creek | 6762.5 | 871.13 | | 874.12 | 328.21 | 580.45 | 26619.55 | | | 290.91 | 498.23 | |
| Seeley Creek | 6762.5 | 871.14 | 0.00 | 874.12 | 328.25 | 582.24 | 26617.76 | | | 290.91 | 498.23 | |
| Seeley Creek | 6746.1 | 870.79 | | 874.03 | 310.52 | 481.60 | 26718.40 | | | 290.91 | 498.23 | |
| Seeley Creek | 6746.1 | 870.79 | 0.00 | 874.03 | 310.32 | 481.01 | 26718.99 | | | 290.91 | 498.23 | |
| Seeley Creek | 6431.2 | 869.78 | | 872.38 | 477.41 | 517.69 | 25823.29 | 859.03 | | 278.87 | 496.39 | |
| Seeley Creek | 6431.2 | 869.77 | -0.01 | 872.38 | 476.90 | 514.43 | 25832.71 | 852.86 | | 278.87 | 496.39 | |
| Seeley Creek | 6103.1 | 869.10 | | 870.75 | 566.76 | 1622.62 | 22864.55 | 2712.83 | | 276.58 | 476.05 | |
| Seeley Creek | 6103.1 | 869.07 | -0.02 | 870.74 | 566.69 | 1612.25 | 22883.76 | 2703.99 | | 276.58 | 476.05 | |
| Seeley Creek | 5998.1 | 868.98 | | 870.43 | 569.23 | 1886.13 | 22492.06 | 2821.82 | | 265.42 | 464.57 | |
| Seeley Creek | 5998.1 | 868.96 | -0.02 | 870.42 | 569.23 | 1876.05 | 22511.55 | 2812.40 | | 265.42 | 464.57 | |
| Seeley Creek | 5673.3 | 865.92 | | 869.21 | 404.10 | 427.55 | 26724.43 | 48.02 | | 205.38 | 423.23 | |
| Seeley Creek | 5673.3 | 866.30 | 0.37 | 869.27 | 455.67 | 519.10 | 26595.85 | 85.06 | | 205.38 | 423.23 | |
| Seeley Creek | 5004.0 | 864.13 | | 865.83 | 601.98 | 760.37 | 30259.89 | 2979.74 | | 219.49 | 503.94 | |

| Reach | River Sta | W.S. Elev (ft) | Prof Delta WS (ft) | E.G. Elev (ft) | Top Wdth Act (ft) | Q Left (cfs) | Q Channel (cfs) | Q Right (cfs) | Enc Sta L (ft) | Ch Sta L (ft) | Ch Sta R (ft) | Enc Sta R (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Seeley Creek | 5004.0 | 865.11 | 0.98 | 866.43 | 604.77 | 1225.60 | 29641.47 | 3132.93 | | 219.49 | 503.94 | |
| Seeley Creek | 4596.0 | 864.04 | | 864.64 | 935.97 | 1246.90 | 32348.87 | 404.23 | | 338.00 | 869.00 | |
| Seeley Creek | 4596.0 | 865.13 | 1.09 | 865.58 | 942.34 | 1803.34 | 31614.13 | 582.54 | | 338.00 | 869.00 | |
| Seeley Creek | 4188.6 | 862.89 | | 863.80 | 882.61 | 1839.72 | 16220.72 | 15939.56 | | 257.03 | 439.79 | |
| Seeley Creek | 4188.6 | 863.83 | 0.94 | 864.92 | 526.48 | | 18212.34 | 15787.66 | 257.03 | 257.03 | 439.79 | 813.54 |
| Seeley Creek | 4073.6 | 862.00 | | 863.33 | 829.61 | 1377.71 | 17850.63 | 14771.67 | | 290.34 | 448.04 | |
| Seeley Creek | 4073.6 | 862.82 | 0.82 | 864.44 | 491.46 | | 20099.44 | 13900.56 | 290.34 | 290.34 | 448.04 | 793.14 |
| Seeley Creek | 3961.6 | 862.04 | | 862.72 | 940.93 | 2016.46 | 14737.37 | 17246.17 | | 297.42 | 471.05 | |
| Seeley Creek | 3961.6 | 862.99 | 0.95 | 863.79 | 545.45 | | 16287.22 | 17712.78 | 297.42 | 297.42 | 471.05 | 842.87 |
| Seeley Creek | 3871.6 | 861.92 | | 862.44 | 1168.48 | 2189.62 | 14748.80 | 17061.58 | | 313.94 | 508.07 | |
| Seeley Creek | 3871.6 | 862.82 | 0.90 | 863.54 | 514.49 | | 16823.29 | 17176.71 | 313.94 | 313.94 | 508.07 | 828.43 |
| Seeley Creek | 3743.6 | 861.66 | | 862.19 | 913.17 | 2096.10 | 15426.73 | 16477.17 | | 340.27 | 537.52 | |
| Seeley Creek | 3743.6 | 862.62 | 0.96 | 863.27 | 571.87 | 411.68 | 17356.51 | 16231.81 | 265.00 | 340.27 | 537.52 | 836.87 |
| Seeley Creek | 3635.6 | 861.56 | | 861.97 | 1041.83 | 2700.15 | 13587.05 | 17712.80 | | 370.35 | 556.11 | |
| Seeley Creek | 3635.6 | 862.58 | 1.02 | 863.05 | 695.48 | 1396.76 | 15032.07 | 17571.17 | 225.00 | 370.35 | 556.11 | 920.46 |
| Seeley Creek | 3540.6 | 861.28 | | 861.81 | 1043.67 | 3169.73 | 13676.73 | 17153.53 | | 380.38 | 535.55 | |
| Seeley Creek | 3540.6 | 862.33 | 1.05 | 862.90 | 726.44 | 2148.79 | 14890.68 | 16960.53 | 205.00 | 380.38 | 535.55 | 933.44 |
| Seeley Creek | 3462.6 | 861.14 | | 861.68 | 1093.08 | 5805.42 | 14886.66 | 13307.92 | | 410.72 | 576.43 | |
| Seeley Creek | 3462.6 | 862.17 | 1.03 | 862.76 | 786.94 | 4220.51 | 16560.33 | 13219.16 | 183.93 | 410.72 | 576.43 | 970.87 |
| Seeley Creek | 3362.6 | 859.86 | | 861.32 | 1085.27 | 7991.86 | 22453.97 | 3554.17 | | 425.97 | 628.31 | |
| Seeley Creek | 3362.6 | 860.56 | 0.71 | 862.41 | 528.74 | 6629.08 | 25480.45 | 1890.47 | 149.29 | 425.97 | 628.31 | 678.03 |
| Seeley Creek | 3292.6 | 859.72 | | 860.89 | 1109.35 | 9593.85 | 21176.82 | 3229.32 | | 439.31 | 660.00 | |
| Seeley Creek | 3292.6 | 860.65 | 0.93 | 861.91 | 601.73 | 7850.03 | 23178.08 | 2971.90 | 142.08 | 439.31 | 660.00 | 743.81 |
| Seeley Creek | 3182.6 | 859.48 | | 860.35 | 1146.79 | 11968.47 | 18175.28 | 3856.25 | | 529.91 | 730.00 | |
| Seeley Creek | 3182.6 | 860.28 | 0.80 | 861.47 | 683.16 | 10296.37 | 21621.07 | 2082.56 | 120.00 | 529.91 | 730.00 | 803.16 |
| Seeley Creek | 3071.0 | 858.88 | | 859.93 | 1026.66 | 6094.96 | 26581.75 | 1323.29 | | 368.00 | 763.00 | |
| Seeley Creek | 3071.0 | 859.67 | 0.79 | 861.02 | 533.33 | 2843.45 | 31156.54 | | 229.67 | 368.00 | 763.00 | 763.00 |

℄ Site Cross Sections

| Reach | River Sta | W.S. Elev | Prof Delta WS | E.G. Elev | Top Wdth Act | Q Left | Q Channel | Q Right | Enc Sta L | Ch Sta L | Ch Sta R | Enc Sta R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (cfs) | (ft) | (ft) | (ft) | (ft) |
| Seeley Creek | 2461.0 | 856.43 | | 857.26 | 1166.00 | 5592.28 | 22055.43 | 6352.30 | | 444.00 | 863.00 | |
| Seeley Creek | 2461.0 | 857.23 | 0.81 | 858.32 | 861.29 | 3357.78 | 26670.50 | 3971.72 | 234.86 | 444.00 | 863.00 | 1096.17 |
| | | | | | | | | | | | | |
| Seeley Creek | 1961.0 | 853.63 | | 854.62 | 1348.34 | 7651.85 | 23088.13 | 3260.03 | | 490.00 | 888.00 | |
| Seeley Creek | 1961.0 | 854.46 | 0.83 | 855.76 | 782.43 | 5651.14 | 27804.77 | 544.09 | 152.63 | 490.00 | 888.00 | 935.06 |
| | | | | | | | | | | | | |
| Seeley Creek | 0.0 | 847.11 | | 847.35 | 2376.07 | 20369.57 | 5634.59 | 7995.84 | | 1406.00 | 1508.00 | |
| Seeley Creek | 0.0 | 847.11 | 0.00 | 847.55 | 1320.01 | 21317.45 | 6889.95 | 5792.61 | 489.40 | 1406.00 | 1508.00 | 1809.41 |

Advanced GeoServices Engineering, P.C.

Chadds Ford Business Campus
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Chadds Ford, PA 19317-9676
(610) 558-3300 Fax (610) 558-2620

March 25, 2002 2001-911-04

Mr. Scott Foti
New York State Department of Environmental Conservation
276 Sing Sing Road
Horseheads, NY 14845

RE: Addendum: January 23, 2002 Existing Conditions Hydraulic Model
Seeley Creek
McInerney Farm Site, Town of Southport, New York

Dear Mr. Foti:

On January 23, 2002, Advanced GeoServices Engineering, P.C. (AGE) submitted an Existing Conditions Hydraulic Model for Seeley Creek in the vicinity of the McInerney Farm Site (Site) to the New York State Department of Environmental Conservation (NYSDEC). The existing conditions model was developed using HEC-RAS software as described in our January 23, 2002 submission. The discharge data used in this model for Seeley Creek and South Creek was based on information presented in the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) for the Town of Southport (revised August 1991).

At the request of the NYSDEC, AGE contacted Mr. Richard Kankus, Drainage Officer for the Town of Southport, regarding discharge data (including both summer and winter storm discharge data) that he developed in an independent study of the Seeley Creek drainage basin. Mr. Kankus did not provide AGE with the backup data necessary to review his hydrologic analysis; therefore, we cannot specifically comment on his analysis procedures. However, it is our general opinion that his winter discharge data is very conservative. Nevertheless, AGE ran the HEC-RAS model using the winter discharge data. The purpose of this addendum is to discuss the existing conditions hydraulic model using the winter discharge data developed by Mr. Kankus.

<u>FIS Discharge Data</u>

AGE used the FIS discharge data in the Existing Conditions Hydraulic Model submitted on January 23, 2002. The following information regarding the development of the FIS discharge data was obtained from the August 1991 FEMA FIS study for Southport, New York.



COPY

"Discharges for Seeley and South Creeks were obtained from the regional flood frequency procedures developed by the COE (Reference 5). This method is based on the log-Pearson Type III analysis of a large number of station records in the Susquehanna River Basin, through 1972 (Reference 6). The coefficients for this method were modified in accordance with the analysis made for Newtown Creek and other smaller streams in the vicinity. The discharges for Newtown Creek were obtained from a frequency curve developed by the SCS (Reference 7). The SCS frequency curve compared closely to a frequency curve computed for the USGS stream gage on the Newtown Creek (Reference 3). All flood discharges were determined by the Susquehanna River Basin Commission (SRBC)."

The FIS study included discharge data for the 10, 50, 100 and 500-year, 24-hour storm events.

Kankus Discharge Data

Based on information provided to AGE, Mr. Kankus developed discharge data for Seeley and South Creeks using the Hydraulic Engineering Center's Hydrologic Modeling System (HEC-HMS) software developed by the Army Corps of Engineers. Input parameters for the program are based on current orthographic photographs of the contributing watersheds in both New York State and Pennsylvania. Mr. Kankus used the 100-year, 24-hour storm values presented in the TP-40 model, published by the National Technical Information Service. Mr. Kankus's analysis includes both winter and summer scenarios. The winter scenario assumes that the contributing watershed is 98% impervious (i.e., frozen ground), while the summer scenario assumes that the contributing watershed is 2% impervious.

FIS/Kankus Discharge Data Comparison

The following table presents the FIS and Kankus discharge data for Seeley and South Creeks.

| | **FIS 100-yr (cfs)** | **FIS 500-yr (cfs)** | **Kankus 100-yr Summer (cfs)** | **Kankus 100-yr Winter (cfs)** |
|---|---|---|---|---|
| Seeley Creek | 27,200 | 45,500 | 27,510 | 50,387 |
| South Creek | 6,800 | 10,000 | 11,162 | 22,736 |
| Combined (Site Condition) | 34,000 | 55,500 | 38,672 | 73,123 |

As shown in the table, the discharge data developed by Mr. Kankus for the 100-year summer storm has a strong correlation to the FIS 100-year storm discharge data. The discharge data developed by Mr. Kankus for 100-year winter storm is approximately 30% greater than the FIS 500-year storm and is 100% greater than the FIS 100-year storm.

Hydraulic Analysis Using Kankus Data

With the HEC-RAS model, AGE performed a hydraulic analysis of Seeley Creek in the vicinity of the McInerney Farm Site using the discharge data developed by Mr. Kankus for the 100-year, 24-hour winter storm event. AGE did not run the model using the summer flow data developed by Mr. Kankus because the discharge values are similar to the 100-year FIS discharge data. An output table and cross sectional profiles from the HEC-RAS analysis using the Kankus 100-year, 24-hour winter storm event are included as Attachments to this addendum.

Based on the increased flows associated with the Kankus 100-year, 24-hour winter storm event, the HEC-RAS model predicts that the levee will be over-topped in the vicinity of the McInerney Farm Site. As shown on the cross-sectional profiles, the velocities associated with the Kankus 100-year, 24-hour winter storm event for Areas 1 and 2 are between 1 and 6 feet per second (fps), as compared to the FIS 100-yr storm event velocities of 1 to 5 fps for the same areas.

Conclusions

From a velocity standpoint, the Kankus data does not show a significant increase within Areas 1 and 2, and the range in velocities are well within a range that can be managed using revegetation and/or geosynthetic erosion control products. From a base flood elevation standpoint, his assumption (i.e., 98% frozen ground) used in the determination of the discharge for the 24-hour winter storm results in overtopping the existing levee.

Mr. Kankus did not provide AGE with the backup data necessary to perform a detailed review of his hydrologic analysis; therefore, we cannot specifically comment on his analysis procedures. Furthermore, it is not our intention to dispute the validity of the winter discharge value; however, AGE believes that this value is very conservative and that the probability of its occurrence is much lower than that of the FIS data. The assumption of a 98% impervious condition essentially neglects runoff losses due to interception and storage that will occur even when the ground is frozen. As a result, the winter discharge value is very high. AGE can perform a detailed review of the backup data used in the Kankus analysis, if requested and if the data is made available.

The results of using the Kankus data will not significantly effect the design (i.e., velocity considerations) of a remedy. Although these higher velocities will not significantly effect design, the selection of the appropriate remedy must consider the potential for overtopping the existing levee. The ideal goal of a remedy in terms of floodplain hydraulics is to yield a net zero change in the base flood level. A remedy that minimizes fill placement in the floodplain will minimize the potential for raising the existing base flood elevation.

Please contact us at (888-824-3992) with any questions regarding this matter.

Sincerely,

ADVANCED GEOSERVICES ENGINEERING, P.C.

Stephen W. Kirschner
Project Consultant

for Daniel A. Daily, P.E.
President

SWK:DAD:vm

Enclosures

cc: M. D. Mehta
P. Brookner
T. Trotman

# ATTACHMENTS

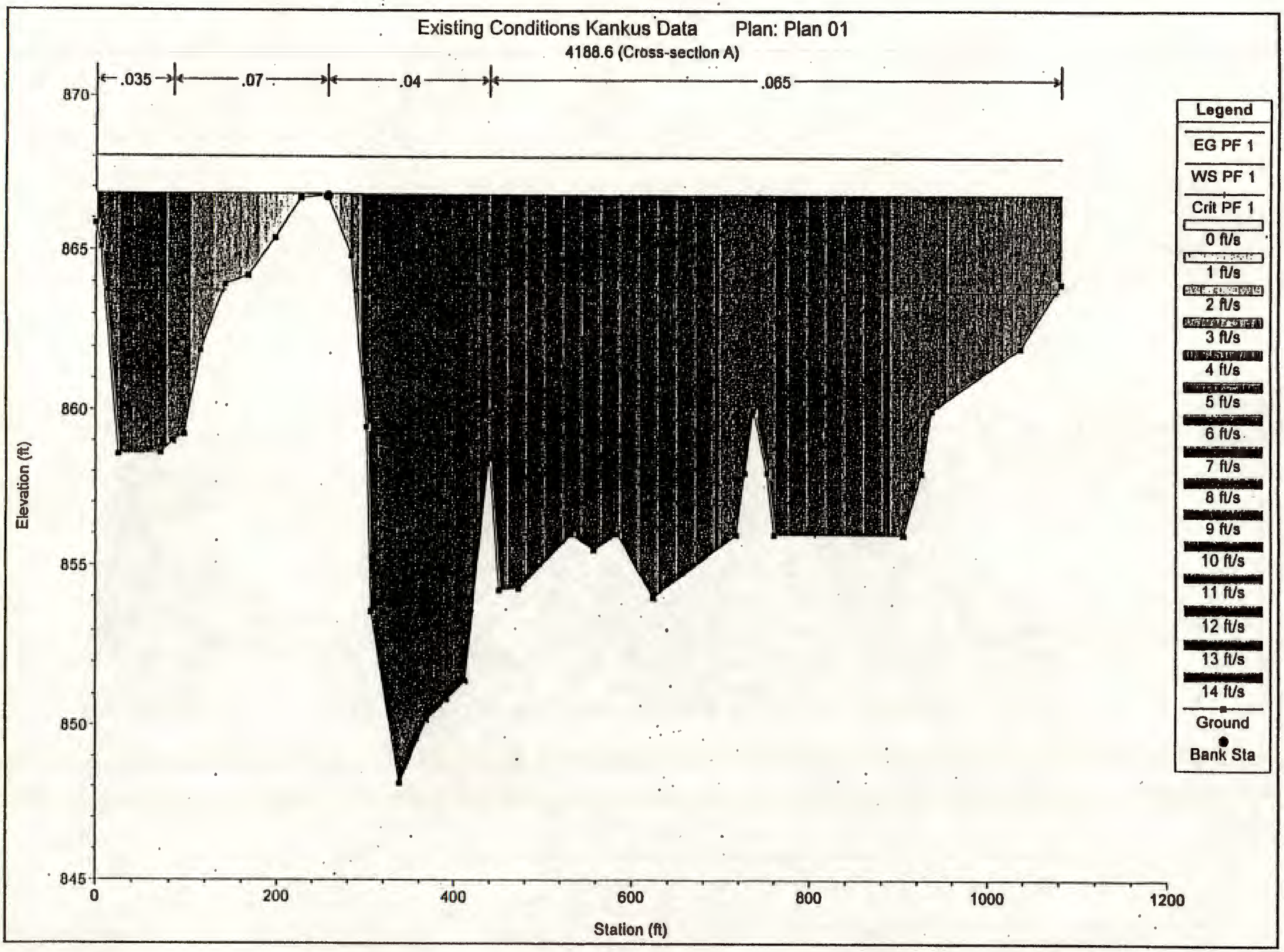
HEC-RAS Plan: Plan 01 River: Seeley Creek Reach: Seeley Creek Profile: PF 1

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Vel Left | Vel Right | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (ft/s) | (ft/s) | |
| Seeley Creek | 11802.0 | 50387.00 | 884.81 | 902.07 | 898.51 | 904.68 | 0.002482 | 14.50 | 3.57 | 5.72 | 0.64 |
| Seeley Creek | 11473.9 | 50387.00 | 880.91 | 901.77 | 896.59 | 903.84 | 0.001648 | 12.01 | 3.57 | 1.51 | 0.52 |
| Seeley Creek | 11145.8 | 50387.00 | 880.58 | 898.71 | 896.49 | 902.88 | 0.003910 | 16.87 | 2.42 | 5.04 | 0.78 |
| Seeley Creek | 10939.1 | 50387.00 | 878.02 | 899.12 | 891.93 | 900.62 | 0.001162 | 9.99 | 1.94 | | 0.43 |
| Seeley Creek | 10899.9 | Bridge | | | | | | | | | |
| Seeley Creek | 10860.4 | 50387.00 | 877.33 | 897.78 | 891.70 | 899.61 | 0.001516 | 10.99 | 1.91 | | 0.49 |
| Seeley Creek | 10722.6 | 50387.00 | 878.02 | 892.71 | 892.71 | 898.18 | 0.006561 | 18.91 | 1.19 | 4.57 | 0.98 |
| Seeley Creek | 10709.4 | 50387.00 | 874.34 | 891.46 | 889.62 | 895.60 | 0.004041 | 16.38 | | 3.07 | 0.79 |
| Seeley Creek | 10371.5 | 50387.00 | 871.23 | 891.20 | 886.65 | 893.76 | 0.002183 | 13.00 | | 2.56 | 0.59 |
| Seeley Creek | 10043.4 | 50387.00 | 871.26 | 889.50 | 887.49 | 892.84 | 0.003171 | 15.07 | 0.08 | 3.49 | 0.70 |
| Seeley Creek | 9715.3 | 50387.00 | 870.14 | 887.20 | 886.40 | 891.53 | 0.004410 | 17.07 | | 3.67 | 0.82 |
| Seeley Creek | 9387.2 | 50387.00 | 868.87 | 885.94 | 884.73 | 890.07 | 0.004072 | 16.60 | | 3.41 | 0.79 |
| Seeley Creek | 9059.1 | 50387.00 | 867.59 | 884.62 | 883.38 | 888.72 | 0.004089 | 16.58 | | 3.62 | 0.79 |
| Seeley Creek | 8731.0 | 50387.00 | 866.24 | 882.80 | 882.18 | 887.25 | 0.004706 | 17.37 | | 4.05 | 0.85 |
| Seeley Creek | 8403.0 | 50387.00 | 864.73 | 881.94 | 880.40 | 885.66 | 0.003666 | 16.04 | | 4.30 | 0.75 |
| Seeley Creek | 8074.9 | 50387.00 | 863.42 | 881.03 | 878.73 | 884.42 | 0.003266 | 15.43 | | 5.05 | 0.72 |
| Seeley Creek | 7746.8 | 50387.00 | 862.21 | 878.55 | 877.97 | 883.04 | 0.004785 | 17.51 | | 4.38 | 0.85 |
| Seeley Creek | 7418.7 | 50387.00 | 860.76 | 878.91 | 875.14 | 881.22 | 0.002294 | 12.75 | | 4.56 | 0.60 |
| Seeley Creek | 7090.6 | 50387.00 | 859.74 | 879.06 | 872.69 | 880.36 | 0.001165 | 9.51 | | 3.62 | 0.43 |
| Seeley Creek | 6969.2 | 50387.00 | 859.06 | 879.20 | 870.74 | 880.12 | 0.000756 | 8.26 | | 3.40 | 0.36 |
| Seeley Creek | 6762.5 | 50387.00 | 858.20 | 875.56 | 874.37 | 879.55 | 0.004053 | 16.72 | 4.62 | | 0.79 |
| Seeley Creek | 6746.1 | 50387.00 | 858.20 | 874.37 | 874.37 | 879.38 | 0.005528 | 18.59 | 4.76 | | 0.92 |
| Seeley Creek | 6431.2 | 50387.00 | 857.71 | 873.09 | 872.53 | 876.74 | 0.004453 | 16.37 | 4.44 | 4.80 | 0.82 |
| Seeley Creek | 6103.1 | 50387.00 | 856.66 | 872.56 | 870.48 | 874.91 | 0.002756 | 13.92 | 4.16 | 4.74 | 0.66 |
| Seeley Creek | 5998.1 | 50387.00 | 856.17 | 872.42 | 869.93 | 874.57 | 0.002442 | 13.37 | 4.19 | 4.52 | 0.63 |
| Seeley Creek | 5673.3 | 50387.00 | 854.63 | 870.79 | 869.40 | 873.61 | 0.003194 | 14.61 | 3.98 | 4.09 | 0.71 |
| Seeley Creek | 5004.0 | 73123.00 | 852.56 | 867.38 | 866.33 | 871.06 | 0.004269 | 16.66 | 4.40 | 6.39 | 0.82 |
| Seeley Creek | 4596.0 | 73123.00 | 851.30 | 867.90 | 863.15 | 869.05 | 0.001902 | 9.10 | 3.19 | 3.33 | 0.44 |
| Seeley Creek | 4188.6 | 73123.00 | 848.12 | 866.83 | 863.77 | 868.04 | 0.003787 | 11.95 | 6.33 | 6.36 | 0.60 |
| Seeley Creek | 4073.6 | 73123.00 | 847.95 | 866.03 | 864.05 | 867.55 | 0.004387 | 13.66 | 5.88 | 6.45 | 0.66 |
| Seeley Creek | 3961.6 | 73123.00 | 848.04 | 865.94 | 862.28 | 867.00 | 0.003032 | 11.44 | 4.96 | 5.84 | 0.55 |
| Seeley Creek | 3871.6 | 73123.00 | 847.91 | 865.90 | 861.73 | 866.66 | 0.002191 | 9.82 | 5.50 | 4.64 | 0.47 |
| Seeley Creek | 3749.6 | 73123.00 | 847.91 | 865.28 | 860.65 | 866.33 | 0.002623 | 10.88 | 4.65 | 5.85 | 0.51 |
| Seeley Creek | 3635.6 | 73123.00 | 847.91 | 865.19 | 859.87 | 866.00 | 0.002009 | 9.76 | 4.59 | 5.60 | 0.45 |
| Seeley Creek | 3540.6 | 73123.00 | 848.07 | 864.79 | 860.55 | 865.77 | 0.002550 | 11.10 | 4.75 | 5.91 | 0.51 |
| Seeley Creek | 3462.6 | 73123.00 | 847.96 | 864.63 | 860.82 | 865.59 | 0.002439 | 10.93 | 5.13 | 5.36 | 0.50 |

-Site Cross Sections-

— Site Cross Sections —

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Vel Left | Vel Right | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (ft/s) | (ft/s) | |
| Seeley Creek | 3362.6 | 73123.00 | 848.48 | 863.33 | 861.93 | 865.18 | 0.004690 | 14.07 | 6.55 | 5.15 | 0.69 |
| Seeley Creek | 3292.6 | 73123.00 | 849.10 | 863.18 | 861.31 | 864.76 | 0.004216 | 13.04 | 6.51 | 4.87 | 0.65 |
| Seeley Creek | 3182.6 | 73123.00 | 848.56 | 862.90 | 860.44 | 864.22 | 0.003647 | 12.33 | 6.18 | 4.58 | 0.60 |
| Seeley Creek | 3071.0 | 73123.00 | 850.10 | 861.89 | 860.17 | 863.70 | 0.004956 | 12.38 | 5.97 | 4.60 | 0.68 |
| Seeley Creek | 2461.0 | 73123.00 | 847.30 | 859.17 | 857.31 | 860.65 | 0.005451 | 11.70 | 5.63 | 6.16 | 0.69 |
| Seeley Creek | 1961.0 | 73123.00 | 839.10 | 856.27 | 854.89 | 857.81 | 0.005924 | 12.10 | 6.03 | 5.03 | 0.72 |
| Seeley Creek | 0.0 | 73123.00 | 837.40 | 850.22 | 846.38 | 850.54 | 0.002001 | 8.10 | 4.02 | 3.16 | 0.43 |



Existing Conditions Kankus Data Plan: Plan 01
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.07
.04
.065
Legend
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WS PF 1
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Bank Sta
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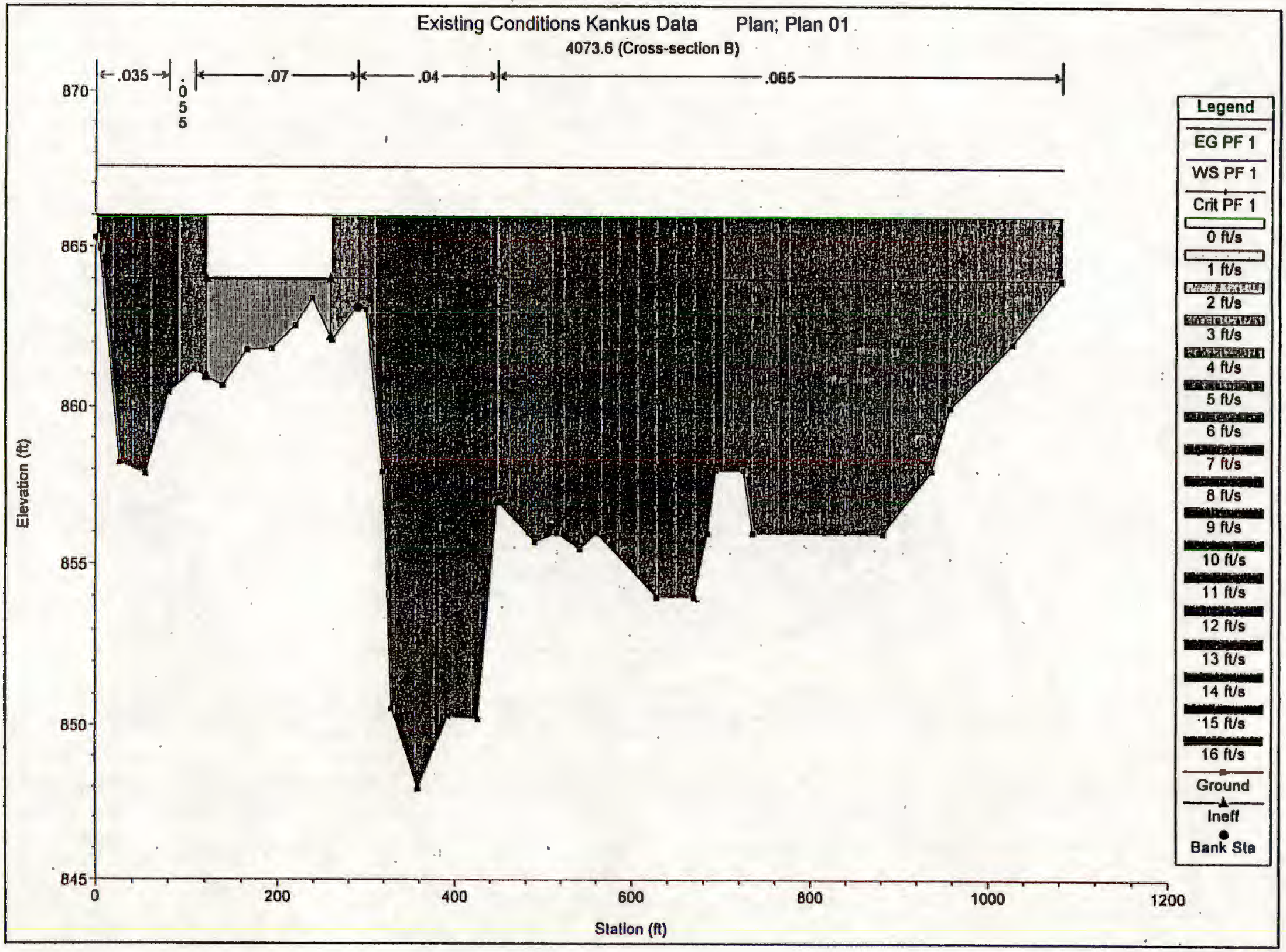
860
855
850
845
0
200
400
600
800
1000
1200
Station (ft)



Existing Conditions Kankus Data Plan; Plan 01
4073.6 (Cross-section B)
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.055
.07
.04
.065
Elevation (ft)
Station (ft)
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Crit PF 1
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2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
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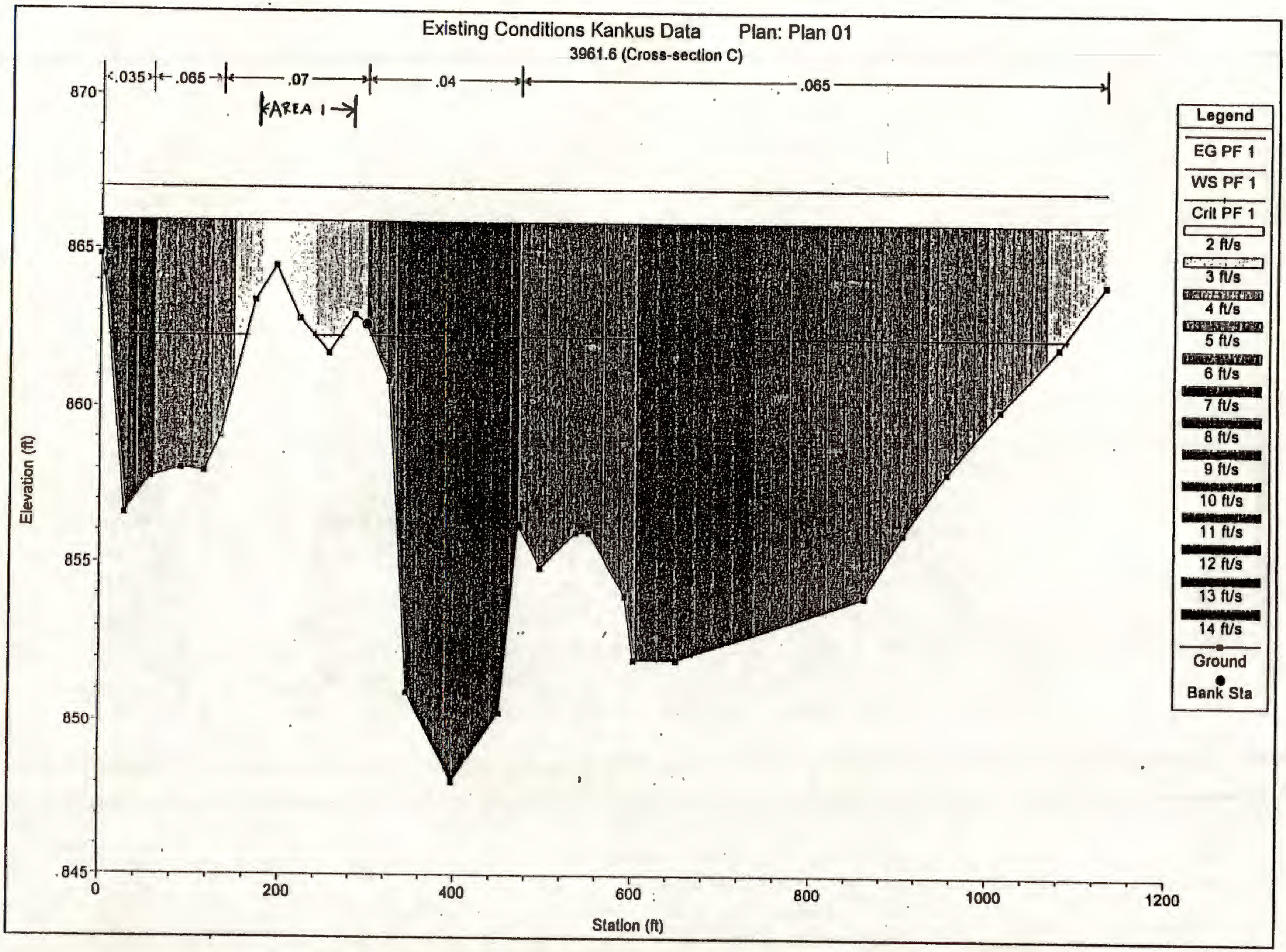
12 ft/s
13 ft/s
14 ft/s
15 ft/s
16 ft/s
Ground
Ineff
Bank Sta



Existing Conditions Kankus Data Plan: Plan 01
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.065
.07
.04
.065
AREA 1
Elevation (ft)
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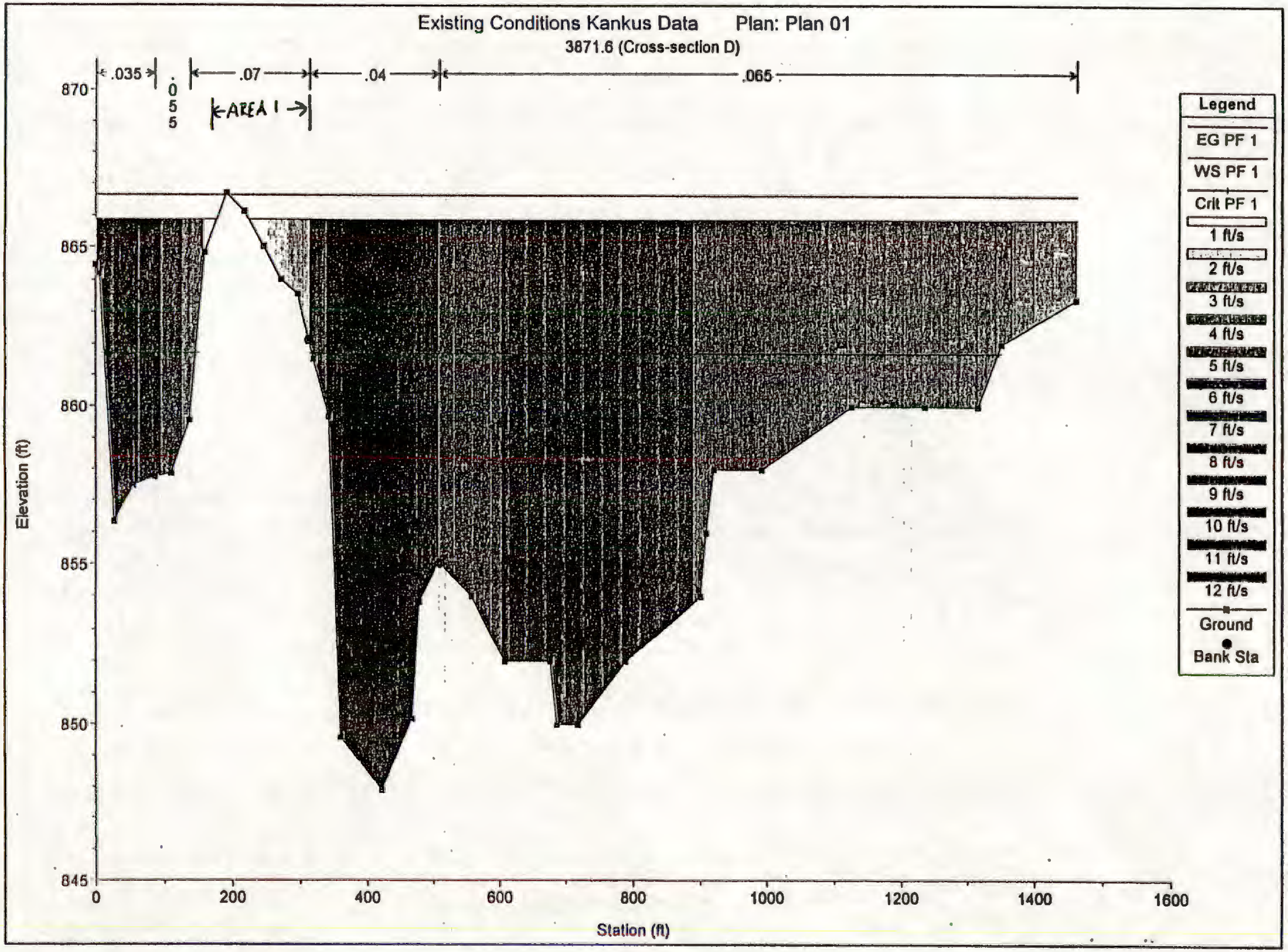
865
860
855
850
845
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Bank Sta


Existing Conditions Kankus Data Plan: Plan 01
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.055
.07
.04
.065
AREA 1
Legend
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WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
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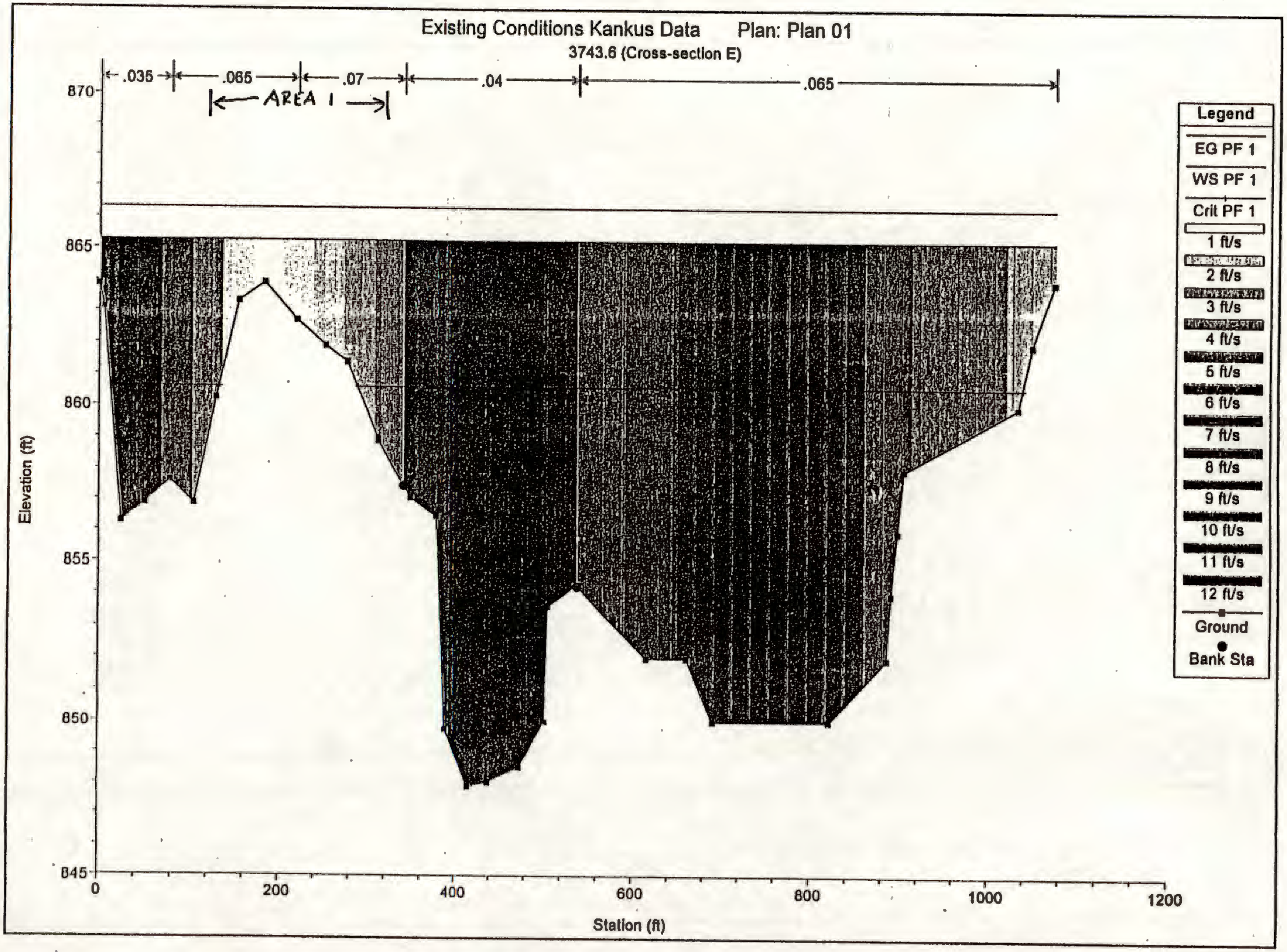
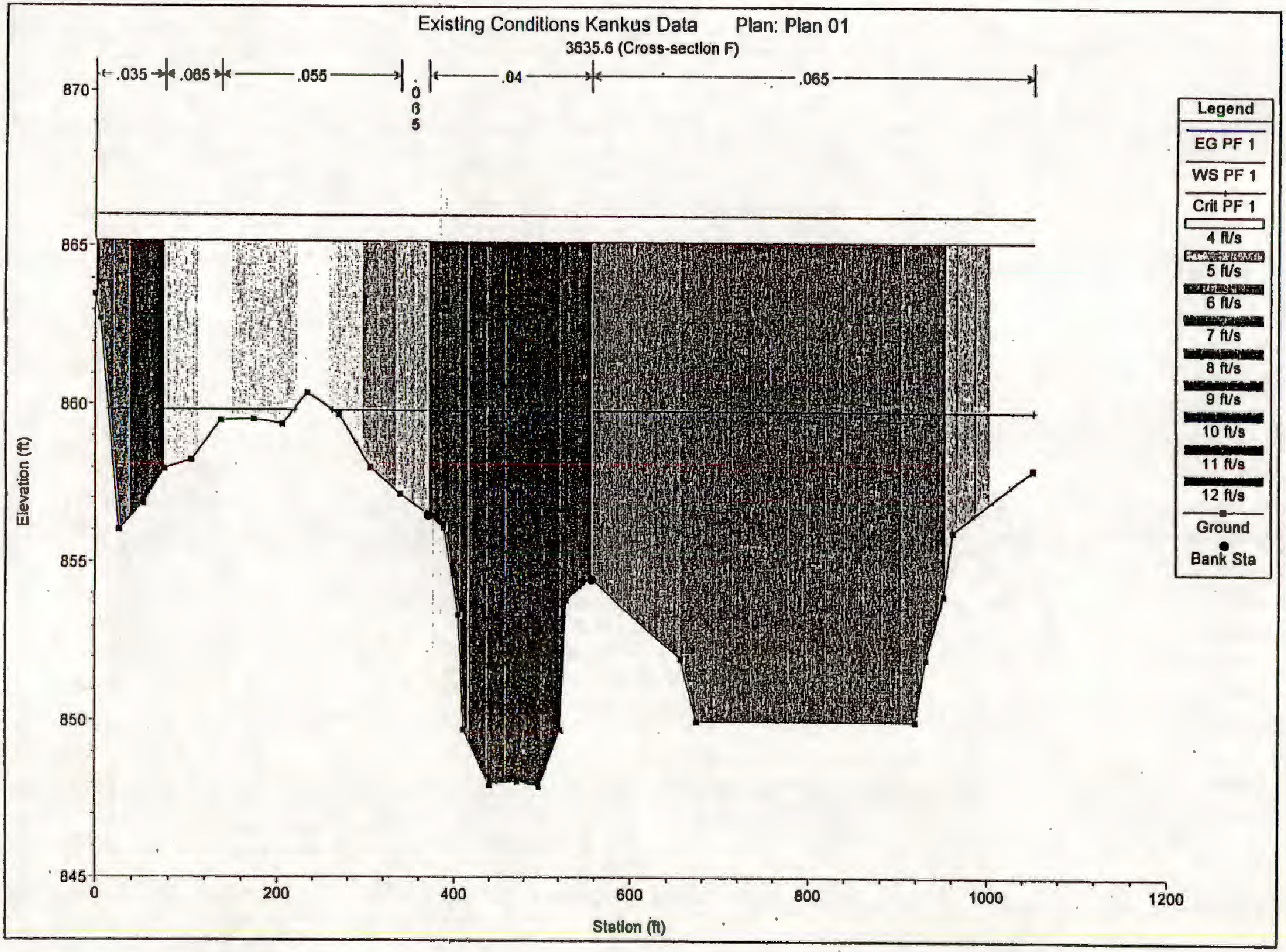
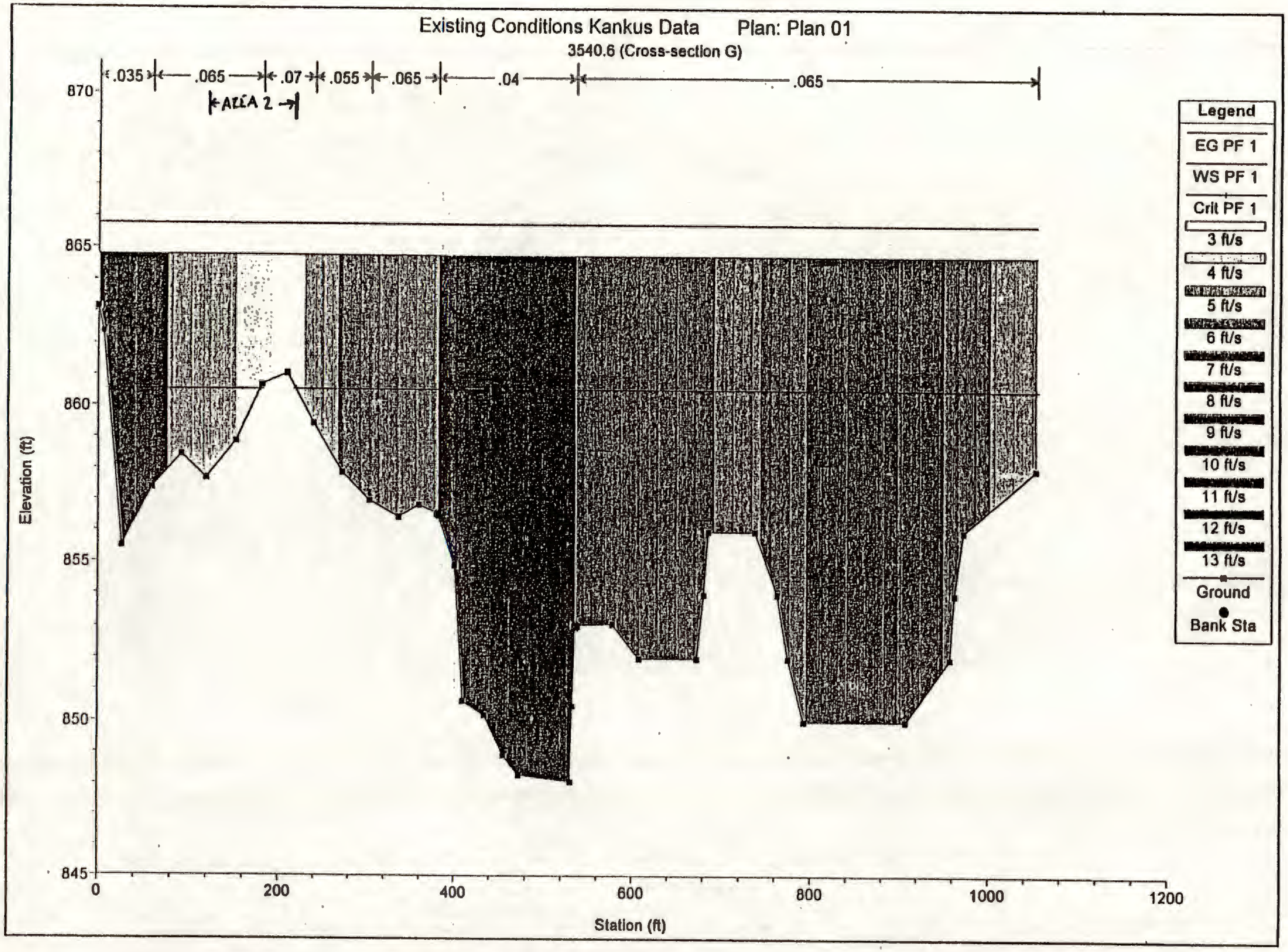


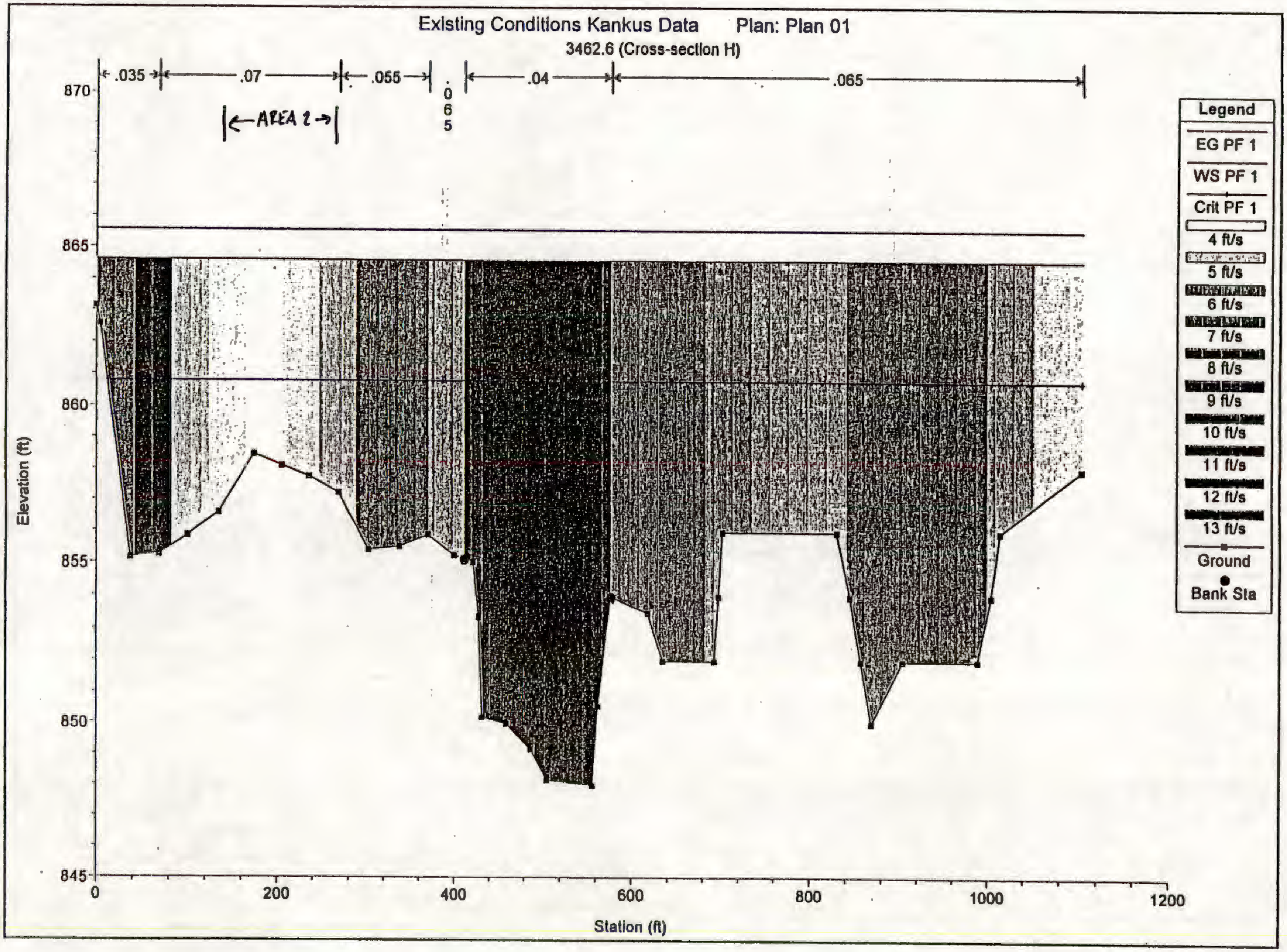
Existing Conditions Kankus Data Plan: Plan 01
3743.6 (Cross-section E)
.035
.065
.07
.04
.065
AREA 1
Elevation (ft)
Station (ft)
845
850
855
860
865
870
0
200
400
600
800
1000
1200
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
Ground
Bank Sta



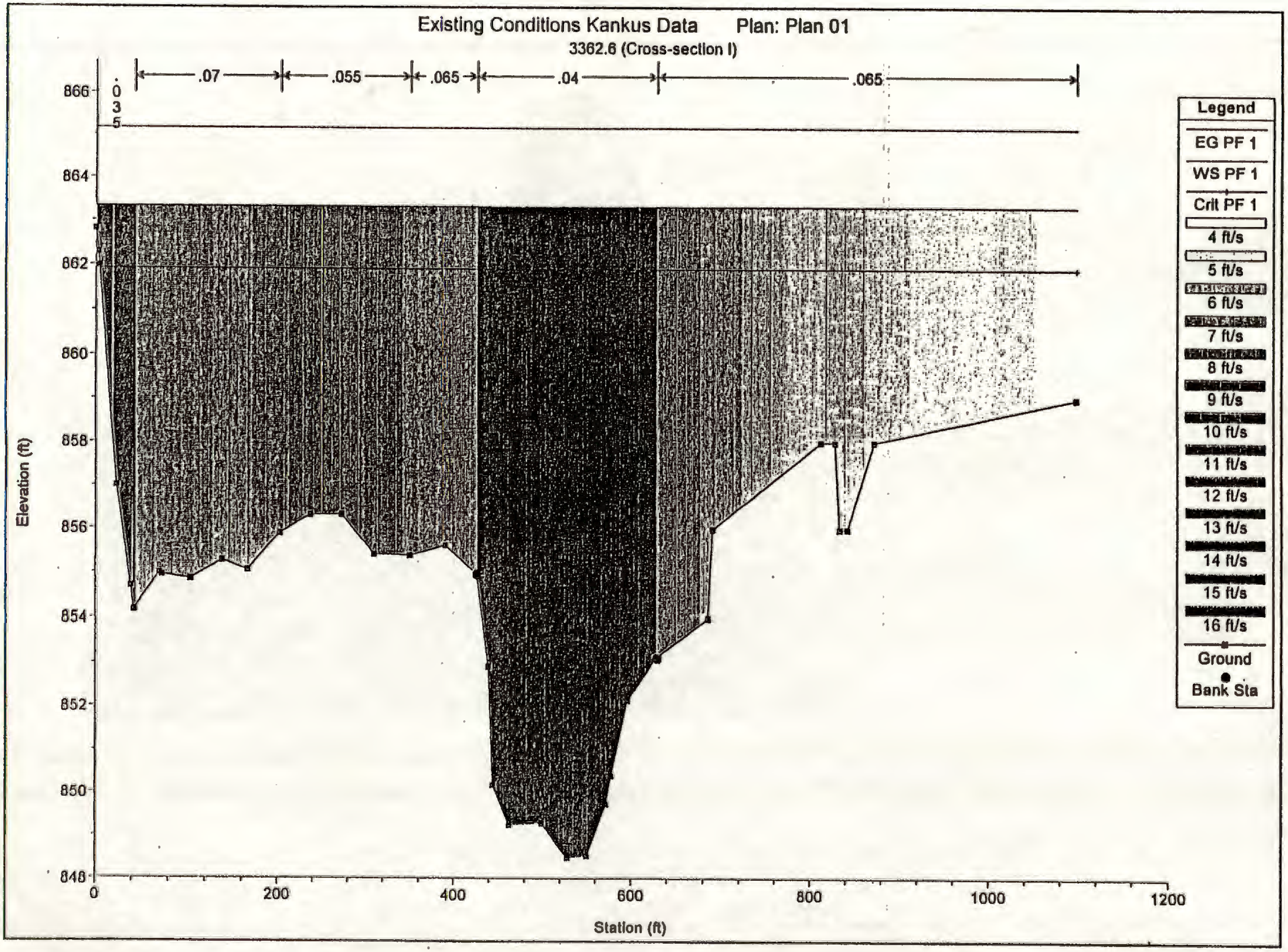
Existing Conditions Kankus Data Plan: Plan 01
3635.6 (Cross-section F)
.035
.065
.055
0
6
5
.04
.065
Legend
EG PF 1
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
Ground
Bank Sta
Elevation (ft)
870
865
860
855
850
845
Station (ft)
0
200
400
600
800
1000
1200



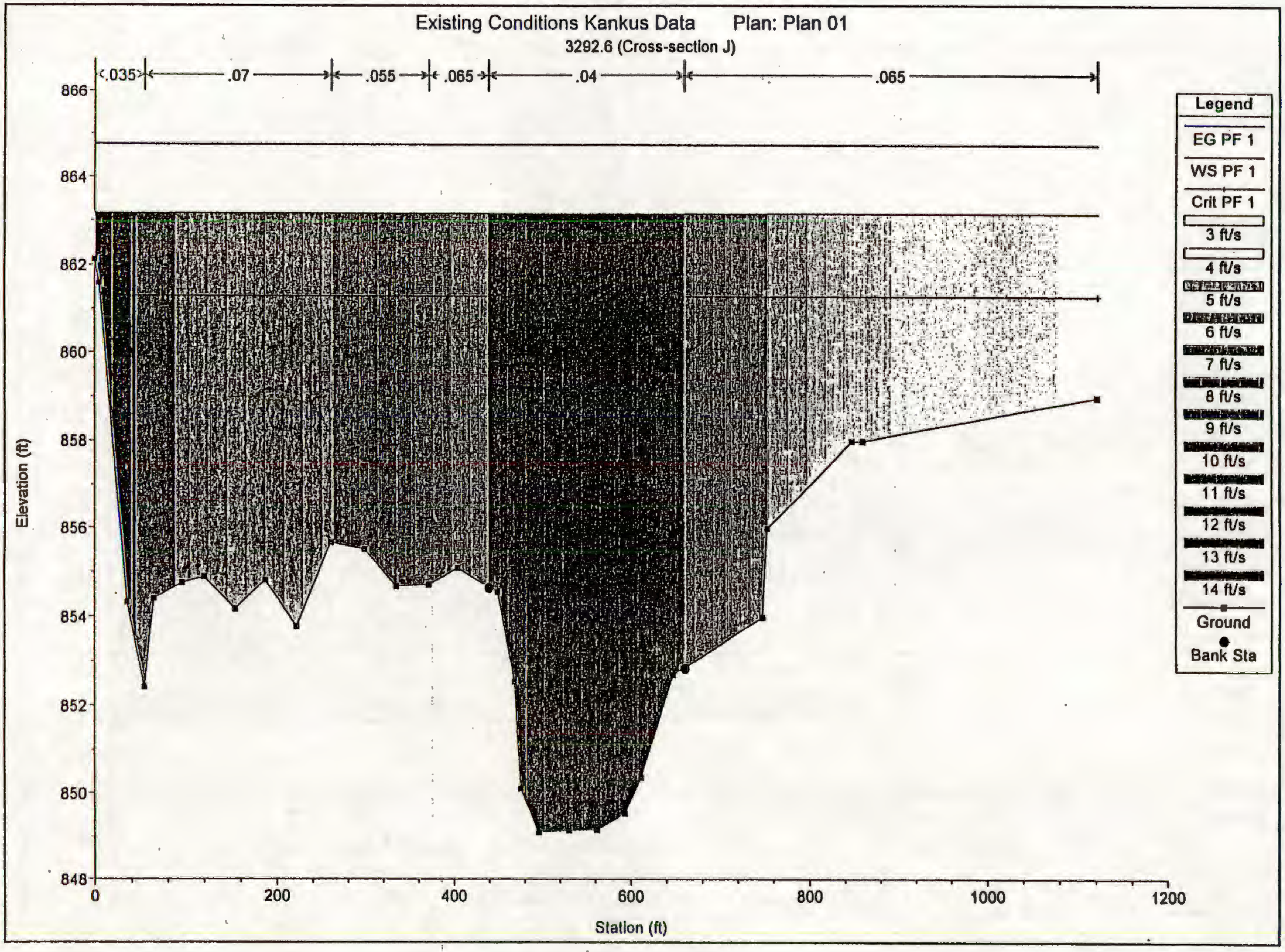
Existing Conditions Kankus Data Plan: Plan 01
3540.6 (Cross-section G)
.035
.065
.07
.055
.065
.04
.065
AREA 2
Elevation (ft)
870
865
860
855
850
845
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
Ground
Bank Sta



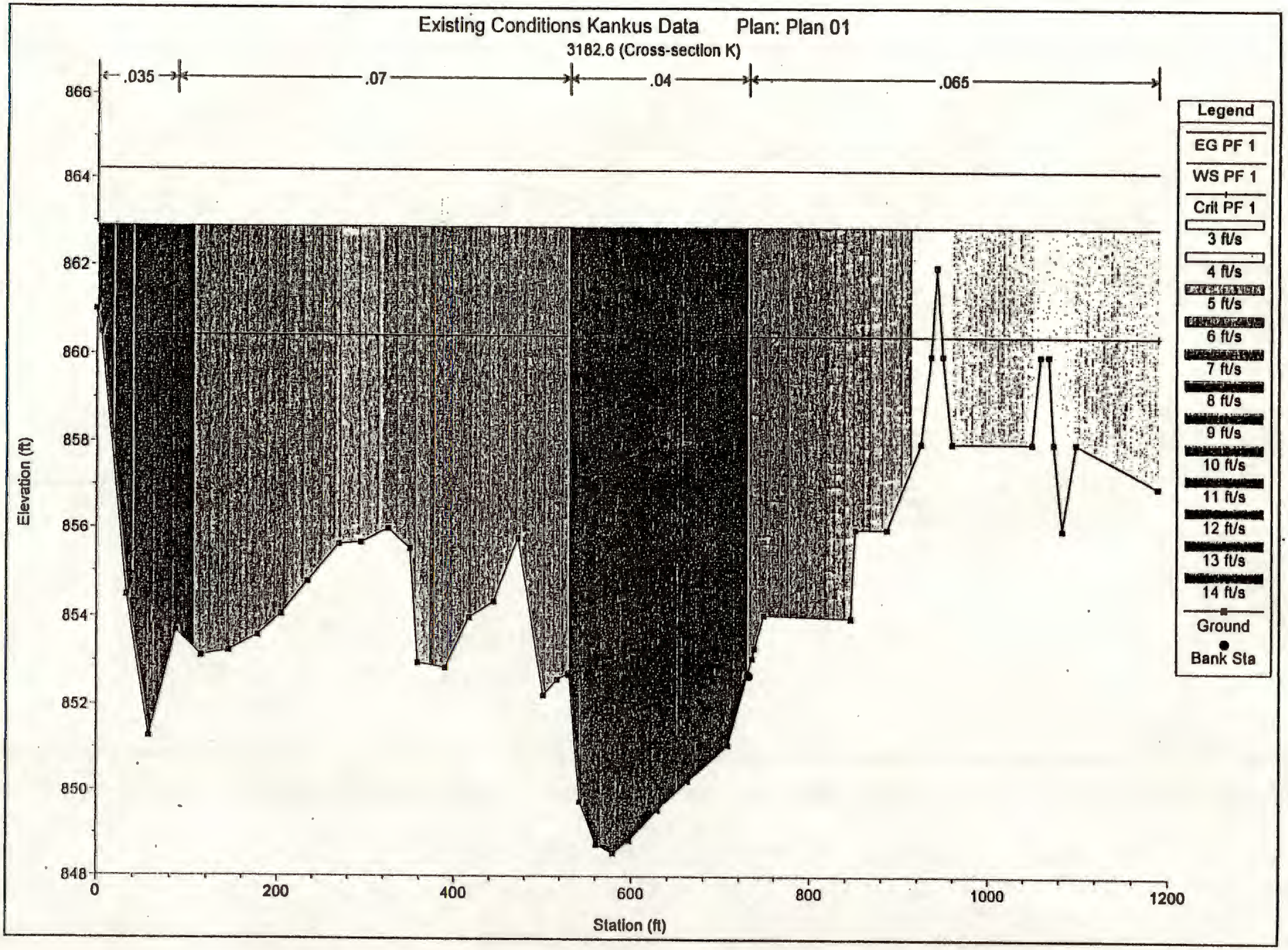
Existing Conditions Kankus Data Plan: Plan 01
3462.6 (Cross-section H)
.035
.07
.055
0
6
5
.04
.065
|← AREA 2 →|
Elevation (ft)
870
865
860
855
850
845
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
Ground
Bank Sta



Existing Conditions Kankus Data Plan: Plan 01
3362.6 (Cross-section I)
.035
.07
.055
.065
.04
.065
Elevation (ft)
866
864
862
860
858
856
854
852
850
848
0
200
400
600
800
1000
1200
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
15 ft/s
16 ft/s
Ground
Bank Sta



Existing Conditions Kankus Data Plan: Plan 01
3292.6 (Cross-section J)
.035
.07
.055
.065
.04
.065
Elevation (ft)
Station (ft)
866
864
862
860
858
856
854
852
850
848
0
200
400
600
800
1000
1200
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Bank Sta



Existing Conditions Kankus Data Plan: Plan 01
3182.6 (Cross-section K)
.035
.07
.04
.065
Elevation (ft)
866
864
862
860
858
856
854
852
850
848
Station (ft)
0
200
400
600
800
1000
1200
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Bank Sta

**APPENDIX D**
**Detailed Alternative Cost Estimates**

Remington Rand (McInerney Farm) Site
Revised Feasibility Study

Alternative 1 - Capital Cost Estimate

Description:
Excavation of soils to Unrestricted Land Use Standards
Backfill and re-vegetation of excavated areas
Installation of Erosion Mat

| Component | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| DIRECT CAPITAL COSTS | | | | |
| Mobilization | LS | $50,000 | 1 | $50,000 |
| Health & Safety | LS | $10,000 | 1 | $10,000 |
| Decontamination | LS | $10,000 | 1 | $10,000 |
| Air monitoring | LS | $10,000 | 1 | $10,000 |
| Surveying | LS | $5,000 | 1 | $5,000 |
| Temporary Erosion Control (silt fence) | LF | $4 | 1250 | $5,000 |
| Temporary Haul Roads | LF | $10 | 1500 | $15,000 |
| Clearing of Trees/brush | ACRE | $4,000 | 1.5 | $6,000 |
| Excavation | CY | $6 | 12280 | $73,680 |
| Stockpiling/Loading | CY | $3 | 14736 | $44,208 |
| TCLP Treatment Type A | TON | $25 | 4421 | $110,525 |
| T&D Type A | TON | $250 | 4421 | $1,105,250 |
| T&D Type B | TON | $250 | 4421 | $1,105,250 |
| T&D Type C | TON | $75 | 5894 | $442,050 |
| Backfill & Compact | CY | $15 | 14736 | $221,040 |
| Proof Roll Subgrade | SY | $0.50 | 7550 | $3,775 |
| Material and Installation of Erosion Mat | SY | $3.00 | 7550 | $22,650 |
| Revegetation | ACRE | $4,000 | 1.5 | $6,000 |
| | | | Direct Capital Costs: | **$3,245,428** |
| INDIRECT CAPITAL COSTS | | | | |
| Pre-Design Investigation | | | | $100,000 |
| Engineering (5% of Direct Capital Costs) | | | | $162,300 |
| Construction Oversight (10% of Direct Capital Costs) | | | | $324,600 |
| Field Screening Test Kit | SAMPLE | $40 | 100 | $4,000 |
| Laboratory Analysis | UNIT | $200 | 50 | $10,000 |
| Contingency (15% of Direct Capital Costs) | | | | $486,900 |
| | | | Indirect Capital Costs: | **$1,087,800** |
| | | | Total Capital Costs | **$4,333,228** |

Notes:
1. Bulking factor of 1.2 applied to stockpiling/loading quantity
2. Volume estimates based on Areas shown on Figure 5. Potential excavated material outside of initial excavation areas was assumed to be 30% Type A, 30% Type B and 40% Type C based on the waste categories encountered during the 1993/1994 removal activities.

Remington Rand (McInerney Farm) Site
Revised Feasibility Study

Alternative 1 - O&M Cost Estimate

Description:
Excavation of soils to Unrestricted Land Use Standards
Backfill and re-vegetation of excavated areas
Installation of Erosion Mat

| Component | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Revegetation | LS | 4,000 | 1.5 | $6,000 |
| Groundwater Monitoring | | | | |
| Sampling and Analysis of 13 wells | WELL | $525 | 13 | $6,825 |
| Regulatory Reporting | LS | $2,000 | 1 | $2,000 |
| Contingency | | 15% | | 2,224 |
| | | | Present Worth Costs = | $35,000 |

Notes:
1) Analytical testing will include total and dissolve Pb, Cd, and Ni and PCBs
2) Three sampling rounds are required over a five year period
3) Revegetation assumes one time event the year following completion of remediation

Remington Rand (McInerney Farm) Site
Revised Feasibility Study

Alternative 2 - Capital Cost Estimate

Description:
Excavation of soils to Restricted Land Use Standards
Backfill and re-vegetation of excavated areas
Installation of Erosion Mat

| Component | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| DIRECT CAPITAL COSTS | | | | |
| Mobilization | LS | $50,000 | 1 | $50,000 |
| Health & Safety | LS | $10,000 | 1 | $10,000 |
| Decontamination | LS | $10,000 | 1 | $10,000 |
| Air monitoring | LS | $10,000 | 1 | $10,000 |
| Surveying | LS | $5,000 | 1 | $5,000 |
| Temporary Erosion Control (silt fence) | LF | $4 | 1250 | $5,000 |
| Temporary Haul Roads | LF | $10 | 1500 | $15,000 |
| Clearing of Trees/brush | ACRE | $4,000 | 1.5 | $6,000 |
| Excavation | CY | $6 | 9630 | $57,780 |
| Stockpiling/Loading | CY | $3 | 11560 | $34,680 |
| TCLP Treatment Type A | TON | $25 | 3468 | $86,700 |
| T&D Type A | TON | $250 | 3468 | $867,000 |
| T&D Type B | TON | $250 | 3468 | $867,000 |
| T&D Type C | TON | $75 | 4624 | $346,800 |
| Backfill & Compact | CY | $15 | 11560 | $173,400 |
| Proof Roll Subgrade | SY | $0.50 | 7550 | $3,775 |
| Material and Installation of Erosion Mat | SY | $3.00 | 7550 | $22,650 |
| Revegetation | ACRE | $4,000 | 1.5 | $6,000 |
| | | | Direct Capital Costs: | **$2,576,785** |
| INDIRECT CAPITAL COSTS | | | | |
| Pre-Design Investigation | | | | $100,000 |
| Engineering (5% of Direct Capital Costs) | | | | $128,900 |
| Construction Oversight (10% of Direct Capital Costs) | | | | $257,700 |
| Field Screening Test Kit | SAMPLE | $40 | 100 | $4,000 |
| Laboratory Analysis | UNIT | $200 | 50 | $10,000 |
| Contingency (15% of Direct Capital Costs) | | | | $386,600 |
| | | | Indirect Capital Costs: | **$887,200** |
| | | | Total Capital Costs | **$3,463,985** |

Notes:
1. Bulking factor of 1.2 applied to stockpiling/loading quantity
2. Volume estimates based on Areas shown on Figure 5. Potential excavated material outside of initial excavation areas was assumed to be 30% Type A, 30% Type B and 40% Type C based on the waste categories encountered during the 1993/1994 removal activities.

Remington Rand (McInerney Farm) Site
Revised Feasibility Study

Alternative 2 - O&M Cost Estimate

Description:
Excavation of soils to Restricted Land Use Standards
Backfill and re-vegetation of excavated areas
Installation of Erosion Mat

| Component | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Revegetation | LS | 4,000 | 1.5 | $6,000 |
| Groundwater Monitoring | | | | |
| Sampling and Analysis of 13 wells | WELL | $525 | 13 | $6,825 |
| Regulatory Reporting | LS | $2,000 | 1 | $2,000 |
| Contingency | | 15% | | 2,224 |
| | | | Present Worth Costs = | $35,000 |

Notes:
1) Analytical testing will include total and dissolve Pb, Cd, and Ni and PCBs
2) Three sampling rounds are required over a five year period
3) Revegetation assumes one time event the year following completion of remediation