US EPA RECORDS CENTER REGION 5
1000711

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAY 0 2002

REPLY TO THE ATTENTION OF:

DE-9J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Russ R. Perry
Manager, Energy & Environmental Engineering
Keystone Steel & Wire Company
7000 S.W. Adams Street
Peoria, Illinois 61641-0002

Re: Environmental Indicator Determination
Keystone Steel & Wire Company
EPA ID No.: ILD 000 714 881

Dear Mr. Perry:

On January 29, 2002, you submitted an Environmental Indicators (EI) Report for the Keystone Steel & Wire (KS&W) Company located in Peoria, Illinois. The EI report was submitted in response to an Administrative Order on Consent issued by the United States Environmental Protection Agency (U.S. EPA) in December 19, 2000. Based on U.S. EPA's evaluation of the data contained in the EI report, KS&W has adequately determined that current human exposures and migration of contaminated groundwater at the facility are under control at this time. By this letter, the U.S. EPA is also notifying you that the conditions outlined in paragraphs 15 and 16 and 17 of the December 2000 Administrative Order on Consent have been adequately addressed.

As described in the EI report, contaminated groundwater continues to an issue at the facility. Also some areas of contaminated soils and sediment above the required PRGs and IEPA's action levels remain at the facility. These hazardous constituents in the soils, sediments and groundwater are above the U.S. EPA's risk based criteria, and may pose risk to human health and the environment. As you know, the EI determination are near-term objectives. Final remedies remain U.S. EPA's long-term objectives of the corrective action program. Therefore, KS&W should now propose to U.S. EPA as required in paragraph 18 of the December 2000 Administrative Order on Consent, a final corrective measures necessary to protect human health and the environment from all current and future unacceptable risks that potentially could result from contaminated soils, sediments and the groundwater at the facility.

Recycled/Recyclable-Printed with Vegetable Oil Based Inks on 100% Recycled Paper (40% Postconsumer)

If you have any questions regarding this matter, please contact Jonathan Adenuga, (312) 886-7954.

Sincerely yours,

Jonathan Adenuga
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division

Enclosure

cc: Jim Moore, IEPA

ENVIRONMENTAL INDICATORS ASSESSMENT PHASE I SAMPLING PLAN

Prepared for

KEYSTONE STEEL & WIRE COMPANY
PEORIA, ILLINOIS

ILD 000 714 881

IN ASSOCIATION WITH THE U.S. EPA AOC EFFECTIVE DECEMBER 20, 2000

August 2001

ENVIRONMENTAL INDICATORS ASSESSMENT PHASE I SAMPLING PLAN

A Sampling and Analysis Plan for Assessing Potential Areas of Concern with regard to the U.S. EPA Environmental Indicators Program and the Administrative Order on Consent between U.S. EPA and Keystone Steel & Wire Company

Prepared for

Keystone Steel & Wire Company
7000 S.W. Adams Street
Peoria, Illinois 61641
ILD 000 714 881

In Association with the U.S. EPA AOC Effective December 20, 2000

August 2001

Prepared By:

RMT, Inc.
8607 Roberts Drive, Suite 100
Atlanta, Georgia 30350

16-70400.07

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APPENDICES

Appendix A: Organic and Inorganic Analytes Lists for the 1987 RFA Samples
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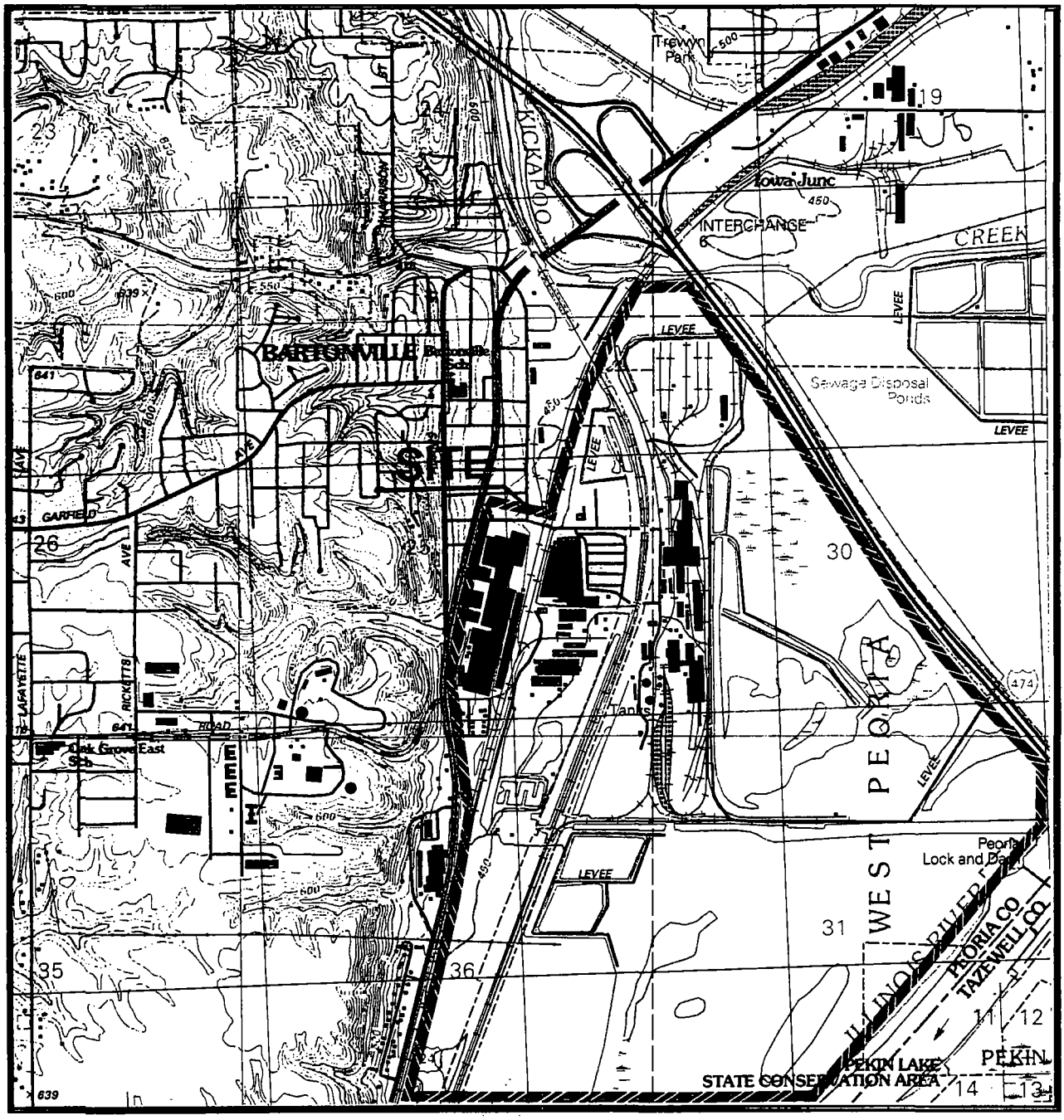
1.0 INTRODUCTION

RMT, Inc. has prepared this Sampling Plan on behalf of Keystone Steel & Wire Company (Keystone). This Plan details the methodology that will be employed to collect and analyze environmental media samples (soil, sediment, groundwater, and surface water) to investigate several potential areas of concern at Keystone's manufacturing facility located just south of Peoria, Illinois (**Figure 1-1**). Keystone has procured the development of this Plan as part of its ongoing effort to comply with the Administrative Order on Consent (AOC) entered into with U.S. Environmental Protection Agency (EPA) Region 5 on December 20, 2001.

There are five areas addressed in this Plan and all five are located in the Steel Works segment of the Peoria Facility. The areas in which investigations are to be performed have been identified as (1) Sheen Pond, (2) F-Pond, (3) Tail Tracks Landfill, (4) East Pond, and (5) Oil Skimmer Basin. The location of these units at the facility is shown on **Figure 1-2**. These five areas were listed in the AOC as requiring investigation to evaluate if any releases of hazardous waste and/or hazardous constituents had impacted them.

Limited sampling in these areas was performed as part of the RCRA Facility Assessment (RFA) conducted by EPA in 1987. The purpose of the Sampling Plan described herein is to collect additional, current data from these areas to determine the nature and/or confirm the presence of constituents detected during the sampling activities of 1987. If any constituents are found to be present at levels that may represent a risk to human health or the environment, the extent of their impact will be evaluated in a second phase of sampling. A Phase II Sampling Plan for the Environmental Indicators Assessment will be prepared and implemented (if necessary) based upon the results of this Phase I effort.



SCALE 1:24000

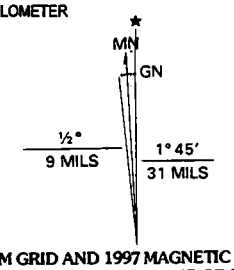
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

QUADRANGLE LOCATION

Contour interval: 10 feet
Source: Peoria West Quadrangle
Illinois, 7.5 Minute Series
U.S.G.S. Topographic Map



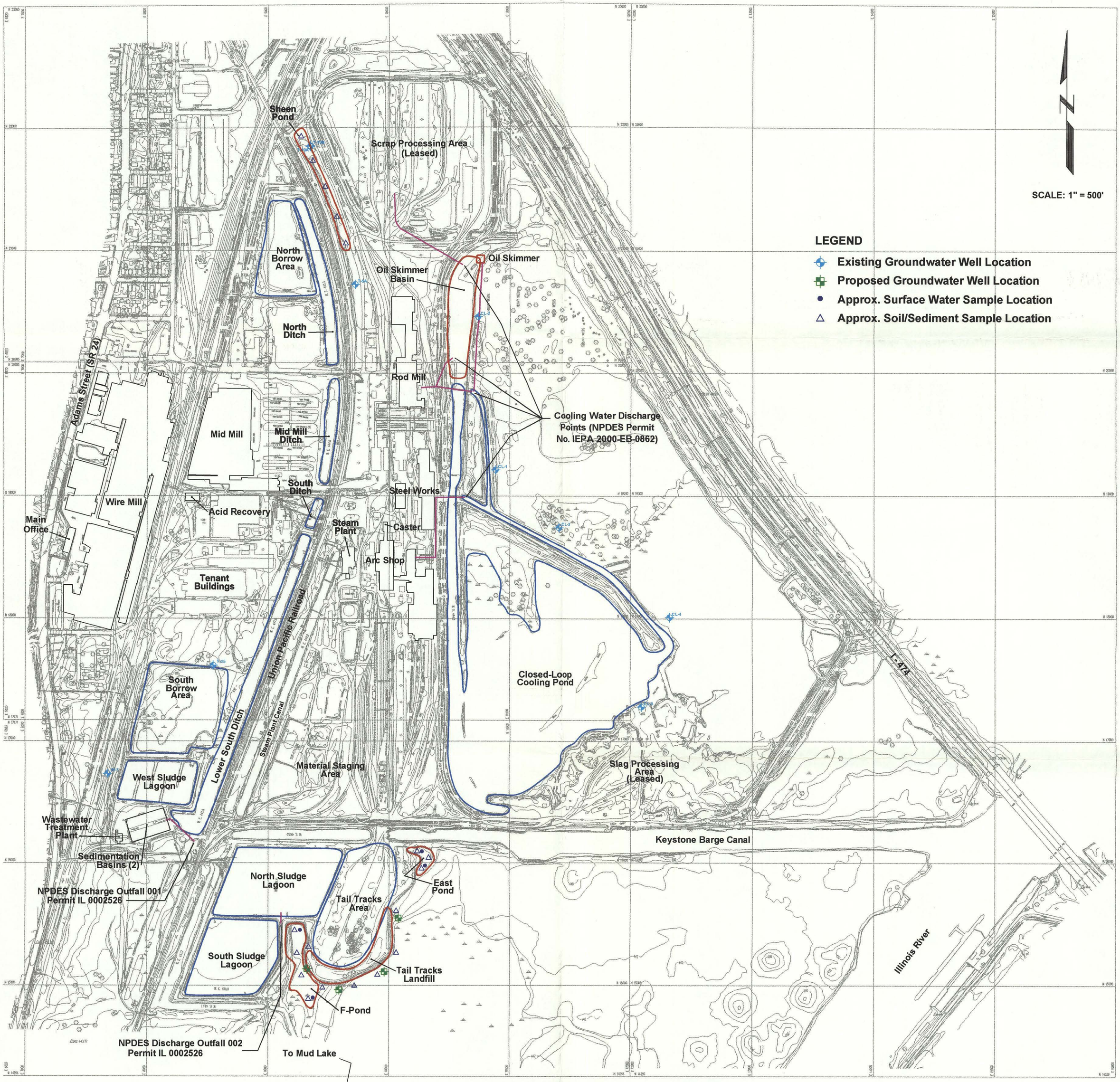
UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

1670-012 1=1 12-21-98 RCW 20010

Keystone Steel & Wire — Peoria, Illinois

SITE MAP

FIGURE 1-1



KEYSTONE STEEL & WIRE COMPANY -- PEORIA, ILLINOIS

Environmental Indicators Assessment Phase 1 Sampling Plan -- August 2001

RMT

FACILITY SITE PLAN

FIGURE 1-2

1670-078.dwg 1=500 08-29-01 MTP 1670.00007

2.0 BACKGROUND AND HISTORY

The units being addressed are located on the property owned by Keystone at 7000 S.W. Adams Street in Peoria, Illinois. Keystone currently operates a steel mini-mill and manufactures steel rod, wire, and wire products at this facility. The five units addressed in this Sampling Plan were identified as areas of potential concern after a site visit by EPA Region 5 representatives in November 1999.

2.1 Unit Descriptions

The Sheen Pond is a designation given in the 1989 RFA report to a borrow area in the northern portion of the Keystone facility that was created during the construction of the Union Pacific railroad levee around 1917. This long slender area is located west of the scrap yard, which is situated to the north of the Steel Works Complex. This area collects surface run-off from the adjacent railroad tracks and plant driveways, but only contains surface water after periods of prolonged or heavy rain. Surface water run-off from the scrap yard does not flow to this unit. It is currently overgrown with trees and brush.

The F-Pond, East Pond, and Tail Tracks Landfill are all located in an area to the south of Keystone's barge canal, which is located at the southern end of the Steel Works Complex. The East Pond and F-Pond are part of a natural depression in Illinois River flood plain that predates Keystone. The F-Pond is bordered by levees of the North and South Sludge Lagoons to the north and west, and a fill area to the east (upon which the railroad spur known as the Tail Tracks was constructed). The East Pond is located just south of the barge canal, adjacent to the northeast corner of the Tail Tracks area.

The Tail Tracks Landfill is located at the southern rim of the Tail Tracks area. Keystone used the area for construction debris, but electric arc furnace dust was also deposited there from 1970 until 1976. The landfill was closed and capped in accordance with U.S. Army Corps of Engineers (ACOE) and Illinois Environmental Protection Agency (IEPA) requirements in 1978. The clay cap over the landfill was approved by ACOE in October 1978, and quarterly groundwater monitoring was performed downstream of the cap through 1981, as required by IEPA.

The Oil Skimmer Basin is part of an NPDES-permitted cooling water recycling system that is used and maintained by Keystone. This basin is located east of the Rod Mill at the northern end of the Steel Works Complex. Contact and non-contact cooling water from the Steel Mill and Rolling Mill is discharged into the Oil Skimmer Basin to allow oil to be removed before the water is discharged into a channel leading to the main body of the Closed-Loop Cooling Pond.

2.2 Current Status of Units

The Sheen Pond, F-Pond, Tail Tracks Landfill, and East Pond are located in dormant portions of Keystone's property. Except for the use of the Tail Tracks Landfill (closed in 1978),

no industrial activities have been or are currently being conducted in any of these areas. The Oil Skimmer Basin is an active, in-process unit, but it is relatively isolated, and the planned sampling procedures will not disrupt or be disrupted by normal plant operations. Therefore, sampling at these five units will not require any special scheduling or plant shutdowns, and will not otherwise interfere with normal manufacturing activities in the Steel Works.

3.0 SAMPLING OBJECTIVES

In accordance with the December 20, 2000 AOC, Keystone is investigating five areas of potential concern. The investigation is designed to evaluate if any hazardous waste or hazardous constituents may have been released to or from any of these locations. In some of the areas, hazardous constituents were detected in soil and/or surface water samples collected in 1987. In all of the areas except the F-Pond, all analytes detected in the historical samples were at concentrations below the U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) for industrial land use (and most also met the residential criteria). One sediment sample from the F-Pond was found to contain lead at a concentration above the industrial PRG.

This Sampling Plan has been designed to collect additional data for the Sheen Pond, F-Pond, Tail Tracks Landfill, East Pond, and Oil Skimmer Basin in order to establish whether any constituents are present at levels that pose a risk to human health or the environment. Several samples will be collected at each unit, with sample types and parameter lists based upon unit-specific conditions, possible exposure risks, and historical sample data. This effort will provide information on the current status of each area based upon representative sampling rather than on the single sample results that are typical of most of the historical data.

This Sampling Plan has not been designed to be exhaustive, nor will it be sufficient to delineate the extent of any potential hazardous constituent impact. However, it will provide some indication of spatial distribution if contaminants are observed, and serve as a basis for more effective decision-making. If the new data indicate or confirm the presence of any constituents of concern (COCs) at levels that may indicate possible risk to human health or the environment, those areas will be targeted for more rigorous sampling in a second phase of investigation. In areas where no COCs are observed, or are observed at levels below the appropriate industrial land use exposure risks, no further sampling will be conducted.

3.1 Analytical Parameters

All field sampling activities, sample handling, laboratory analysis, and data quality control methods shall conform to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846) up to and including all amendments through Update III (most recent update promulgation date: June 13, 1997) and the U.S. EPA Region 5 *RCRA Quality Assurance Project Plan Instructions* (1998).

Soil, sediment, groundwater, and/or surface water samples shall be analyzed for certain metals, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs). COC lists for each unit have been developed based upon the historical data, in order to confirm the presence of any previously detected analytes, and establish their current conditions. The RFA samples collected in 1987 were screened for the Hazardous Site List that included 126 VOAs, SVOAs (acid and base/neutral extractibles), pesticides, and polychlorinated biphenyls (PCBs), and 24 metals. The complete analyte list from Appendix A of the 1989 *RFA Summary Report* has been reproduced and included as **Appendix A** of this Plan.

3.2 Sample Media and Constituents of Concern

The types of samples to be collected from each area and the analytical parameters for which the samples will be tested are detailed below. The COC lists were compiled by reviewing the historical data from each unit and including any chemical detected above background concentrations for which a PRG has been established (i.e., only hazardous or potentially hazardous constituents). For example, although calcium and sodium were detected in all of the 1987 RFA soil samples, there are no remediation goals established for these compounds and they have not been included as COCs for this sampling event. Additional analytes were also included in the COC lists for the Tail Tracks Landfill and Oil Skimmer Basin, as indicated in **Section 3.2.3** and **Section 3.2.5** below.

3.2.1 Sheen Pond

Two soil samples were collected from the Sheen Pond during the 1987 RFA sampling event. No surface water was present in the depression at that time, and no groundwater samples were collected. The following constituents were detected above background in at least one of the soil samples: arsenic, cadmium, chromium, copper, lead, zinc, and Arochlor-1254.

Sampling is planned for mid to late summer, and it is anticipated that there will be no surface water in the area. Therefore, only soil samples will be collected from within this unit. If surface water does happen to be present when the sampling in this area is performed, two water samples will be collected. Otherwise, Keystone currently has several groundwater monitoring wells in the vicinity of the Sheen Pond (two to the north (T19A, T19B) and one south of the pond (T-5A)) that will be sampled for these constituents.

3.2.2 F-Pond

At the time of the 1987 RFA sampling, one sediment and two surface water samples were collected from this area. Organic constituents observed in the sediment and surface water samples were *trans*-1,2-dichloroethene (trans-1,2-DCE), trichloroethene (TCE), and xylene. In addition, 1,1-dichloroethane (1,1-DCA) was observed in one of the surface water samples. Metals observed above background concentrations in the sediment included: aluminum, barium, cadmium, chromium, copper, iron, mercury, lead, manganese, and zinc (all of these constituents were also detected in at least one of the aqueous samples). Both sediment and surface water samples will be collected from the F-Pond during this sampling event.

3.2.3 Tail Tracks Landfill

Two soil samples were collected in this area in 1987 for the RFA. No analytes were detected above background in either of the samples. New samples in this area will be collected as part of this sampling event to determine if any releases of hazardous constituents have since occurred as a result of the presence of the closed landfill. Soil and groundwater samples will be collected at the base of the cap (down gradient), and will be analyzed for the following metals: cadmium, chromium, lead, nickel, and zinc.

3.2.4 East Pond

One sediment sample was collected from this pond during the 1987 RFA. No organic constituents were detected, and only chromium, copper, lead, and zinc were detected at levels above background. For the current effort, samples of both sediment and surface water from the East Pond will be collected and analyzed for these four metals.

3.2.5 Oil Skimmer Basin

It is unclear whether either of the two samples collected in the area referred to as the "Cooling Pond" in the RFA report were collected in the area currently known as the Oil Skimmer Basin (the northernmost segment of Keystone's Closed-Loop Cooling Pond system). Neither of the samples contained any constituents of concern. During the site visit by an EPA representative in November 1999, however, concern was expressed that Keystone needed to confirm that no impact to the environment was occurring as a result of the operation of the NPDES-permitted Oil Skimmer Basin and the downstream cooling pond.

No surface water samples will be collected from the Oil Skimmer Basin. Cooling water discharges to this unit are regulated by Keystone's NPDES permit for this basin and the Closed-Loop Cooling Pond. Since this area is used to separate oil from the cooling water prior to returning it back to the main body of the cooling loop, groundwater down gradient of these areas will be sampled to confirm that the operation is not having any impact on its surroundings.

In order to determine whether any impact from this operation has occurred, Keystone will collect groundwater samples from six existing groundwater monitoring wells currently used for NPDES compliance monitoring. There are five down gradient wells and one up gradient well currently in place in the area. The current NPDES permit only requires quarterly monitoring for the manganese and iron (since other constituents that were previously required were consistently below analytical detection limits).

In order to evaluate whether any potentially hazardous constituents have been released to groundwater, the samples collected from this area will be analyzed for an expanded set of metal analytes including arsenic, aluminum, barium, cadmium, chromium, copper, iron, mercury, manganese, lead, and zinc. In addition, these samples will be tested for the following non-hazardous parameters: oil & grease, total phenols, and total petroleum hydrocarbons (TPH), to check for impact from the oils that are removed from the recycled cooling water as it passes through the Oil Skimmer Basin.

TABLE 3-1
CONSTITUENTS OF CONCERN SUMMARY

Unit	Inorganic Analytes	Organic Analytes
Sheen Pond	As, Cd, Cr, Cu, Pb, & Zn	Arochlor-1254
F-Pond	Al, Ba, Cd, Cr, Cu, Fe, Hg, Pb, Mn, & Zn	*trans*-1,2-DCE, TCE, 1,1-DCA, & xylene (total)
Tail Tracks Landfill	Cd, Cr, Ni, Pb, & Zn , As?	None
East Pond	Cr, Cu, Pb, & Zn	None
Oil Skimmer Basin	As, Al, Ba, Cd, Cr, Cu, Fe, Hg, Mn, & Pb,	Oil & Grease, Total Phenols, & TPH

4.0 SAMPLING AND ANALYSIS PLAN

The following analytical and field protocols shall be utilized to implement this Sampling and Analysis Plan. Sample collection and handling procedures have been coordinated so that they will be appropriate for the SW-846 and/or EPA testing methods to be employed. Sampling shall be conducted by qualified personnel, following the health and safety protocols as outlined in Keystone's 1992 *Revised Phase 2 Closure Plan,* prepared for and approved by IEPA under a Consent Order pertaining to the closure of various hazardous waste and solid waste management units at the facility.

4.1 Analytical Methods and Procedures

The samples collected from the five units will be analyzed for total metals and/or total organics (as per the parameter lists in **Table 3-1**). The SW-846 and EPA methods that will be employed for these analyses are listed in **Table 4-1** and **Table 4-2.** Also shown in these tables are the requisite method sample holding times and detection limits (expressed as practical quantitation limits or PQLs) that must be met by the analytical laboratory.

4.2 Sampling Locations

4.2.1 Soil Sample Locations

A general linear spacing approach has been used to establish a layout for the approximate soil sample locations for each unit. The proposed sample points have been spaced at about 250 feet apart in each unit, with nodes placed down the centerline of the Sheen Pond, F-Pond, and East Pond, and along the base of the Tail Tracks Landfill cap. Since all four of these areas are generally long and narrow (considering the East Pond to be bent in a "V" shape), this spacing will provide suitable spatial coverage for assessing possible impacts.

The approximate soil sample locations are indicated on **Figure 4-1** and **Figure 4-2**. The total number of sample nodes planned for each unit and the ratio of the number of nodes to the area and length of each unit are listed in **Table 4-3**. Actual sample locations will be determined in the field using the spacing guidelines presented herein, with preference given to locations where discoloration, staining, stressed vegetation, or other indications of potential hazardous material release may exist. Samples may be collected from additional sample locations if it is determined in the field that such samples will improve this screening effort. Adjustments to the planned sample locations may also be required along the base of the Tail Tracks Landfill where it is adjacent to the F-Pond in order to collect samples outside the F-Pond, if possible. Additional sampling to delineate the horizontal and vertical extent of any "hot spots" discovered during this sampling event shall be performed as a second phase of investigation.

TABLE 4-1
REQUIRED PARAMETERS FOR TOTAL METALS ANALYSES

Parameter	Sample Preservative	Preserved Sample Hold Time (at 4°C)	Method[1]	PQL[2]
Soil Samples				
aluminum	4°C	6 months	3050B & 6010B	40
arsenic	4°C	6 months	3050B & 6010B	0.3
barium	4°C	6 months	3050B & 6010B	40
cadmium	4°C	6 months	3050B & 6010B	1.0
chromium	4°C	6 months	3050B & 6010B	2.0
copper	4°C	6 months	3050B & 6010B	5.0
iron	4°C	6 months	3050B & 6010B	20
lead	4°C	6 months	3050B & 6010B	0.6
manganese	4°C	6 months	3050B & 6010B	3.0
mercury	4°C	28 days	7471A & 7470A	0.04
zinc	4°C	6 months	3050B & 6010B	4.0
Aqueous Samples				
aluminum	HNO_3 to pH<2	6 months	200.7 / 200.8	200
arsenic	HNO_3 to pH<2	6 months	200.7 / 200.8	1.0
barium	HNO_3 to pH<2	6 months	200.7 / 200.8	200
cadmium	HNO_3 to pH<2	6 months	200.7 / 200.8	5.0
chromium	HNO_3 to pH<2	6 months	200.7 / 200.8	10
copper	HNO_3 to pH<2	6 months	200.7 / 200.8	25
iron	HNO_3 to pH<2	6 months	200.7	100
lead	HNO_3 to pH<2	6 months	200.7 / 200.8	3.0
Manganese	HNO_3 to pH<2	6 months	200.7 / 200.8	15
Mercury	HNO_3 to pH<2	28 days	245.1 / 245.2	0.2
Zinc	HNO_3 to pH<2	6 months	200.7 / 200.8	20

[1] Method numbers for soil samples are SW-846, method numbers for aqueous samples are EPA.
[2] Method Practical Quantitation Limits in mg/kg for soil samples (wet weight basis) and μg/L for aqueous samples. PQLs shown are the lower of the U.S. EPA Region 9 PRG or the State of Illinois requirement for RCRA investigations (35 IAC Part 740), whichever is lower (except for aqueous arsenic, where the PRG (0.045 μg/L) is below the analytical detection limit).

TABLE 4-2
REQUIRED PARAMETERS FOR ORGANIC ANALYSES

Procedure	Sample Preservative	Sample Hold Time[1]	Extract Hold Time[2]	Method[3]	PQL[4]
Soil Samples					
Volatile Organics[5]	Cool to 4°C, (bisulfate or methanol)[7]	48 hours, (14 days)[7]	N/A	5035 / 5032 & 8260B	10 µg/kg
Pesticides / PCBs[6]	Cool to 4°C	14 days	40 days	3540C / 3541 or 3550B & 8270C	160 µg/kg
Aqueous Samples					
Volatile Organics	HCl to pH<2, Cool to 4°C	14 days	N/A	624	*trans*-1,2-DCE .... 10 µg/L TCE.....1.6 µg/L 1,1-DCA..... 10 µg/L total xylene..... 10 µg/L
Pesticides / PCBs[6]	Cool to 4°C	7 days	40 days	608	0.03 µg/L
Oil & Grease	HCl to pH<2, Cool to 4°C	28 days	N/A	413.1 / 413.2	5 mg/L
Total Phenols	H_3PO_4 to pH<2, 1g $CuSO_4$ / L Cool to 4°C	28 days	N/A	420.1 / 420.2	5 mg/L
Total Petroleum Hydrocarbons	HCl to pH<2, Cool to 4°C	28 days	N/A	418.1	1 mg/L

[1] Maximum hold time for preserved sample prior to analysis or extraction.
[2] Maximum hold time for extract at 4°C prior to analysis.
[3] Method numbers for soil samples are SW-846, method numbers for aqueous samples are EPA.
[4] Method Practical Quantitation Limits in for soil samples are wet-weight based. PQLs shown for volatiles and PCBs are the lower of the U.S. EPA Region 9 PRG or the State of Illinois requirement for RCRA investigations (35 IAC Part 740), whichever is lower.
[5] *trans*-1,2-DCE, TCE, 1,1-DCA, and total xylene.
[6] Arochlor-1254.
[7] Samples collected using EnCore™ samplers per Method 5035 must either be analyzed (Method 5032) or preserved with sodium bisulfate solution or methanol (Method 5035) within 48 hours of collection. Preserved samples (Method 5035) must be analyzed within 14 days of collection.

TABLE 4-3
PHASE 1 SOIL SAMPLE LAYOUT SUMMARY

Area	Unit Length (ft)	No. of Nodes	Node Spacing (ft)	Unit Area (acres)	Density (nodes/acre)
Sheen Pond	1060	5	265	1.6	3.1
F-Pond	705	4	235	2.2	1.8
East Pond	350	3	175	0.6	5.0
Tail Tracks Landfill	1300	6	260	2.9	2.1

4.2.2 Surface Water Sample Locations

Surface water samples will be collected at the F-Pond and the East Pond, both of which typically contain standing water (although during dry weather it may only be a few inches deep in much of the F-Pond). Two surface water samples will be taken from widely spaced locations (i.e., approximating the inlet and outlet) at each area. Approximate surface water sample locations for these two units are indicated on **Figure 4-2** and **Figure 4-4**, respectively. Similarly, if the Sheen Pond contains standing water at the time of sampling, surface water samples will also be collected from this unit.

4.2.3 Groundwater Sample Locations

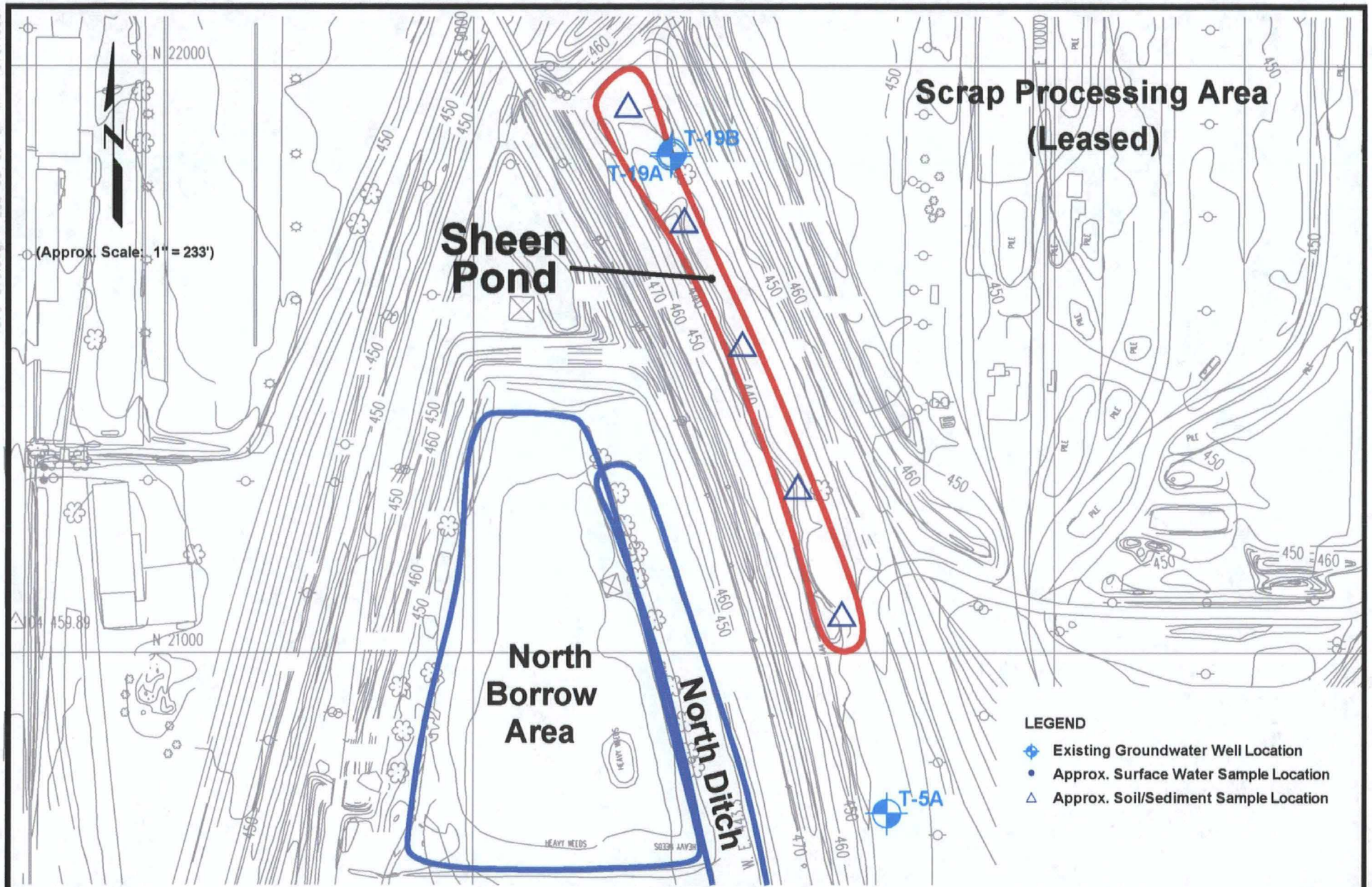
Groundwater samples at the Sheen Pond and the Oil Skimmer Basin will be collected at existing monitoring wells used for IEPA-required groundwater monitoring activities. There are three wells located in the vicinity of the Sheen Pond and five down gradient from the Oil Skimmer Basin / Closed Loop Cooling Pond area. The locations of these groundwater sampling points are shown on **Figure 4-1** and **Figure 4-3**. Specifications for these wells are presented in **Table 4-4**.

The original wells used for down gradient groundwater monitoring below the Tail Tracks Landfill between 1978 and 1981 were abandoned in the early 1980s. New wells will be installed for this sampling event at four locations below the southern edge of the clay cap. These locations are shown on **Figure 4-2**. The groundwater monitoring well installation procedures and methods are presented below in **Section 4.3**.

Two existing background wells (one shallow and one deep) will also be sampled for comparative purposes. These two wells are up gradient from all of the areas to be sampled during this event and are the established and approved background wells for Keystone's Groundwater Management Zone (for which monitoring is conducted under the direction of the Illinois Environmental Protection Agency). The locations of the two background wells are shown on **Figure 1-2**, and specifications for these wells are also included in **Table 4-4**.

TABLE 4-4
EXISTING GROUNDWATER MONITORING WELL INFORMATION

Area	Well Designation	Diameter (in)	Total Depth (ft bgs)	Screen Interval (ft bgs)	Top of Casing (ft MSL)
Shallow Background	W-7	2	14.51	4.23-14.51	459.21
Deep Background	T-15	2	20.25	15.25-20.25	454.70
Sheen Pond	T19A	2	11.84	7.16-11.84	448.74
	T19B	2	39.83	35.16-39.83	449.45
	T-5A	2	33.16	28.16-33.16	448.04
Oil Skimmer Basin	CL-1	2	19.20	15.22-19.20	450.13
	CL-2	2	20.11	16.13-20.11	450.10
	CL-3	2	23.63	19.65-23.63	450.27
	CL-4	2	23.29	19.31-23.29	450.56
	CL-5	2	27.04	17.60-27.04	453.74



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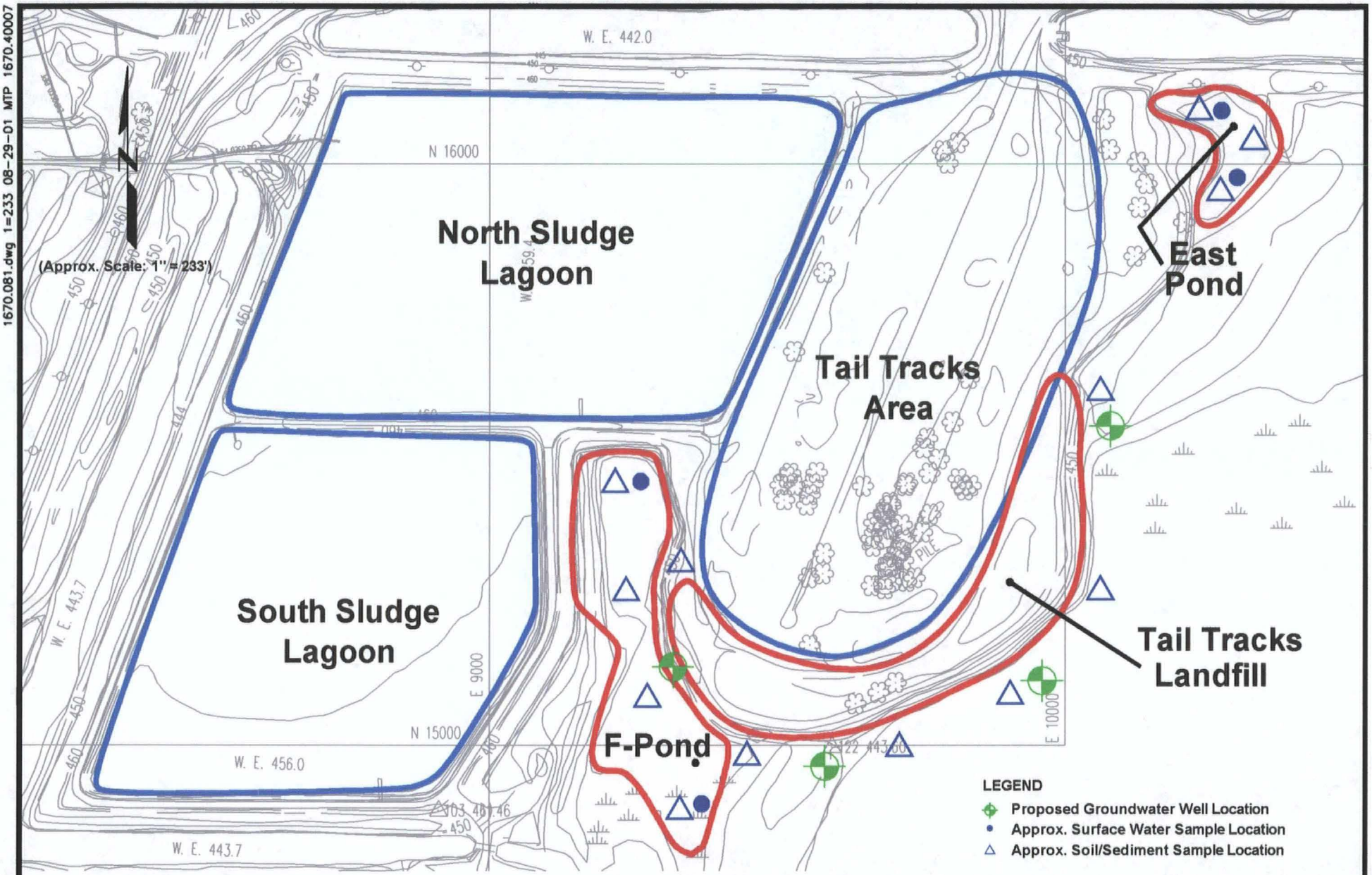
SHEEN POND AREA

FIGURE 4-1

1670.081.dwg 1=233 08-29-01 MTP 1670.40007



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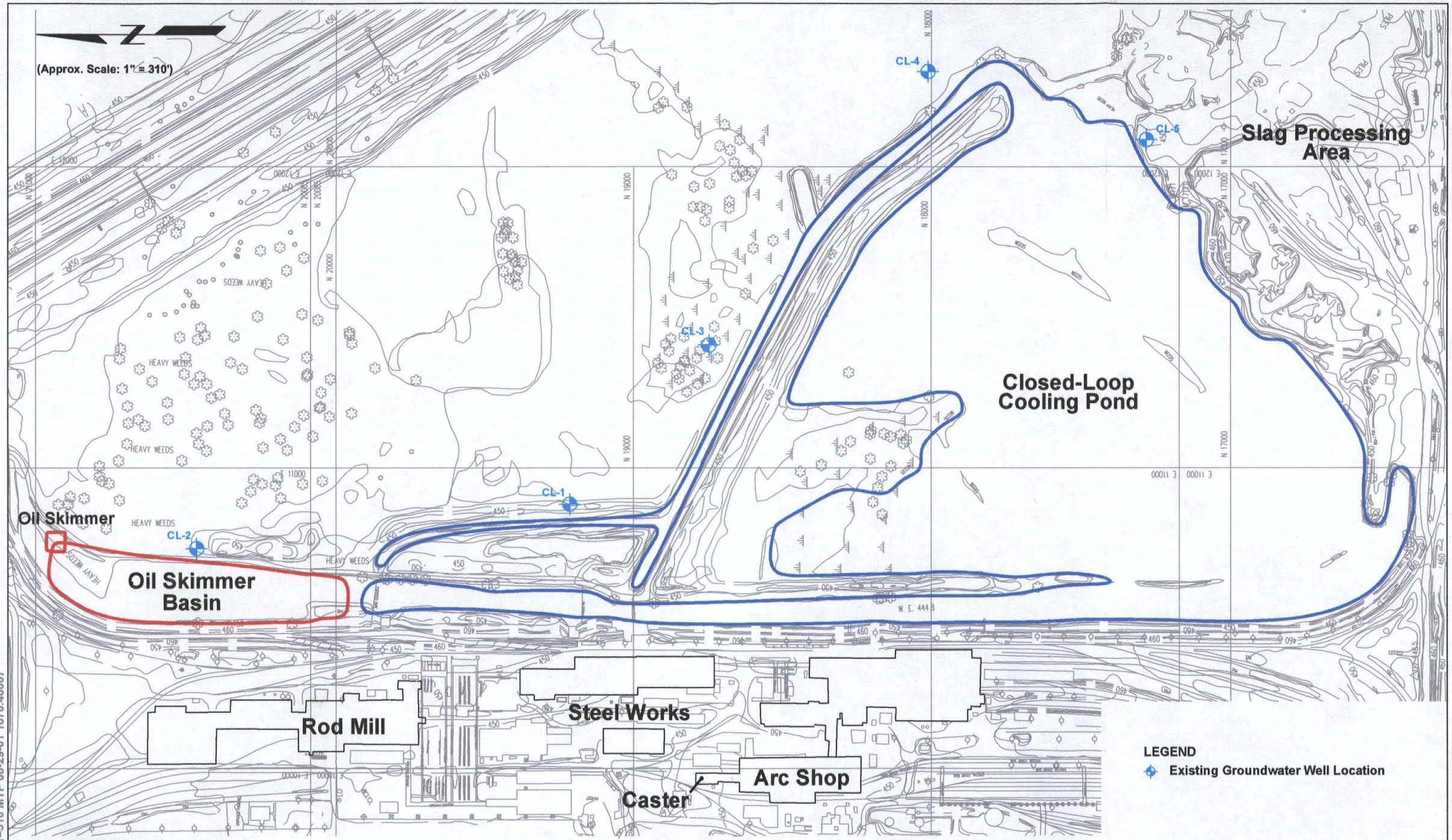
F-POND, TAIL TRACKS LANDFILL, AND EAST POND

FIGURE 4-2



1670-080.dwg 1=310 MTP 08-29-01 1670.40007

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OIL SKIMMER BASIN AND CLOSED-LOOP COOLING POND

FIGURE 4-3

4.3 Groundwater Monitoring Well Installation

Four shallow monitoring wells will be installed at the base of the slope at the south end of Tail Tracks Landfill. Because these wells are located at the edge of a wetlands, it is anticipated that the water table will be encountered within three feet of ground surface. Soil borings will be completed using a 4-inch hand auger and drill cuttings will be logged by a geologist who will complete detailed boring logs. It is anticipated that the borings will extend to about nine feet below ground surface.

Monitoring wells will be constructed of 2-inch nominal OD, flush-joint, schedule 40 polyvinyl chloride (PVC) screens and riser pipes. The screen and casing materials will be purchased from manufacturers in precleaned and wrapped condition. The well screens will be 5-feet long and will have 0.01-inch slots.

Wells will be installed using clean silica sand (No. 4 or 5) filter pack to an elevation of at least one foot above the well screens, and the wells will be sealed with one to two feet of bentonite-based annular seal. Concrete pads will be installed at the surface and locking protective covers will be placed on all wells. Each well will be clearly labeled using lettering on the protective cover or an attached aluminum identification plate.

Wells will be developed by bailing to remove fine-grained formation material from the well screens and casing. All well development purge water will be containerized and disposed of at the Keystone wastewater treatment facility. The elevation of the top of each well casing relative to U.S.G.S. or U.S.C.G.S. bench mark will be determined at all well locations. Horizontal locations (northings and eastings) of all monitoring wells will be established relative to the facility grid.

4.4 Sample Collection and Handling

4.4.1 Sampling Equipment and Methods

Samples will be collected in new and/or properly cleaned and decontaminated equipment and sample containers (the latter shall be provided by the testing laboratory). Only discrete grab samples shall be collected (no compositing will be employed).

Surface water samples shall be collected either by dipping the sample containers into the water being sampled or using a decontaminated stainless steel scoop to draw the water sample and then transfer it into the sample container. Care will be taken in filling of sample containers to prevent displacing preservatives that have been pre-added by the analytical laboratory. Surface water samples will be collected prior to collecting sediment samples in order to prevent cross-contamination of the aqueous samples by resuspended sediment.

Soil samples in the two areas without standing water (i.e., the Tail Tracks Landfill and the Sheen Pond) will be collected using stainless steel hand augers and/or trowels. At each sample location, a shallow hole will be created by digging or augering down through the topsoil to a

depth of six inches. Soil samples will then be collected from the freshly exposed soil at the 6-12 inch depth interval. The soil will be transferred from the trowel or auger into a stainless steel bowl for classification and sample containerization. At the Sheen Pond, organic analyses samples will be containerized first, followed by samples for total metals analysis. Samples collected for analyses other than VOCs will be homogenized prior to containerization to ensure that the laboratory analyzes a representative sample aliquot.

Sediment samples at the East Pond will be collected with a stainless steel sediment sampler (e.g., Ponar® dredge). The water in this area is deep enough to allow the sampler to be lowered from a small boat or barge. At the F-Pond, the water level is generally very shallow, and it will be necessary to collect samples using pole-mounted stainless steel scoops. Samples collected by dredge or scoop will be transferred to a stainless steel bowl for classification and containerization. The sediment samples will be collected from the surface layer (i.e., 0-12 inch depth interval) at these two units. At the F-Pond, En-Core® sample containers for VOA analysis will be filled first, followed by containerization of samples for total metals analysis.

Ground water samples will be collected using clean disposable bailers. Prior to sampling, three well casing volumes of water will be purged from each well. Samples will be carefully poured directly from the bailers into laboratory provided sample containers. All samples will be placed in coolers containing ice and will be handled and shipped to the laboratory under proper Chain of Custody procedures. All purge water will be containerized and disposed of at the Keystone wastewater treatment facility.

Rinsate blank samples will be collected by unwrapping decontaminated soil sampling equipment and rinsing with distilled/deionized water into a decontaminated stainless steel bowl. The rinsate shall then be transferred directly into sample containers provided by the analytical laboratory. Based on the relatively small number of samples, it is expected that only one rinse blank will be necessary at each unit. These samples will be analyzed as per the COC for the unit at which they were collected.

Field Blanks for aqueous samples will be collected by pouring distilled/deionized water into water sampling equipment and then filling the appropriate sample containers. One field blank will be collected during sampling at each unit. Trip blanks will be supplied by the analytical laboratory and enclosed in each cooler to contain aqueous samples.

Excess soil sample material, cuttings generated during hand augering, personal protective equipment, and solid residues generated during equipment cleaning and decontamination shall be collected in 55-gallon steel drums or equivalent containers. These collected wastes shall be transferred to an appropriate waste disposal company for characterization testing and final disposition. Wastewater generated during decontamination procedures, purge water, excess sample, etc. will be collected in 55-gallon steel drums or other suitable containers to be transferred to Keystone's on-site wastewater treatment plant for treatment.

4.4.2 Identification of Samples

Soil sample containers shall be appropriately labeled and identified using a waterproof pen to indicate the project name, sample code (see below), date and time of collection, sampler name, any preservatives added, and requested analyses. Field logs shall contain the names of the samplers, dates, times, sample location information, field classifications of soil strata encountered at each sample location, and general notes (sampling conditions, observations, problems encountered, problem resolutions, etc.).

Each sample collected shall be identified using a unique alphanumeric code that will be entered in field logs, on sample container labels, and chain of custody forms. The codes will identify the unit from which the sample was taken, the location identifier, matrix type, sample number, and the analysis to which it is to be subjected. The following encoding format shall be used:

Ixx - M - nn (a)

where:

- *I* identifies the unit from which the sample was taken:
  - N will be used to designate the samples from the Sheen Pond;
  - F will be used to designate samples from the F-Pond;
  - T will be used to designate samples from the Tail Tracks Landfill Area;
  - A will be used to designate samples from the East Pond; and
  - B will be used to designate samples from the Oil Skimmer Basin Area.
- *xx* is the soil or groundwater monitoring well sample location identifier (see **Figures 4-1** through **4-3**).
- *M* is the sample matrix identifier:
  - S for surface soil;
  - D for surface sediment;
  - W for surface water; and
  - G for groundwater.
- *nn* is the sample number (numbered sequentially for multiple samples collected at a particular location).
- *a* is the laboratory analysis identifier:
  - m will be used to designate metals;
  - v will be used to designate volatile organic compounds;
  - p will be used to designate pesticides/PCBs;
  - x will be used to designate oil & grease, total phenols, and total petroleum hydrocarbons

For example, the sample code:

A02-D-01 (m)

would be used to identify the sample container for the 1st sediment sample taken in the East Pond at location 02, which is to be analyzed for total metals (the specific metal analytes to be included in the analysis will also be referenced on the Chain of Custody form -- see **Section 4.4.4**).

Field duplicate samples shall be assigned a typical sample code and will not be explicitly identified as duplicates on sample labels and Chain of Custody forms. A field duplicate sample collected at the same time as the sample identified by the example code shown above might be labeled "A02-D-02 (m)."

4.4.3 Equipment Decontamination

Reusable sampling equipment shall be decontaminated prior to initial use, between subsequent uses (between sampling nodes), and prior to leaving the site. This will prevent cross-contamination between samples.

The following procedure shall be used to decontaminate sampling equipment with regard to both metal and organic compound residues:

1. Check equipment for damage and proper working order.
2. Rinse equipment with potable water, wash with potable water, a nylon brush, and detergent (Liquinox® or equivalent), and rinse with potable water.
3. Rinse with isopropanol.
4. Rinse with distilled/deionized water and allow to air dry.
5. Wrap equipment in clean aluminum foil (shiny side out) to prevent contamination during storage and transportation in the field (unless equipment will be reused immediately -- in which case, use clean plastic sheeting or aluminum foil to prevent contact of decontaminated equipment with the ground, truck beds, etc.).

4.4.4 Preservation and Shipment of Samples

Samples shall be shipped to the analytical laboratory on the same day on which they are collected, or as soon as possible in order to meet required sample hold time requirements. The samples shall be appropriately packed to protect the sample containers from damage or breakage and to prevent cross-contamination between samples. The samples will be secured and shipped in coolers packed with ice to initiate chilling to 4°C for preservation (see **Tables 4-1** and **4-2**). Both the sample containers and ice shall be packed inside watertight plastic bags (e.g., Ziploc®) to contain meltwater and minimize the collection of condensation on sample containers.

Chain of Custody protocols shall be followed to create an accurate written record in order to trace the possession and handling of samples. A Chain of Custody form will be prepared and shall accompany the samples in each cooler from the time of collection until acceptance by the analytical laboratory. The form will be used to record information pertinent to each sample, such as sampling date and time, matrix sampled, parameters to be analyzed, preservatives used, sampler's names, and type of sample (i.e., grab or composite). An example copy of a typical Chain of Custody form (blank) is shown in **Appendix A**.

A copy of the Chain of Custody form will be retained by the sampling team for their quality control records, and the original (and the other carbonless copies) will be enclosed in a watertight plastic bag and sealed inside the cooler along with the samples. Cooler lids will then be secured with strapping tape, and a Chain of Custody seal will be placed over the seam between the lid and cooler body (perpendicular to the seam) to ensure that the integrity of the samples is not compromised during shipment.

4.5 Data Quality Assurance/Quality Control

Full data reports containing Quality Assurance/Quality Control (QA/QC) data collected during the specified SW-846 analysis procedures (instrument blanks, matrix spikes, matrix spike duplicates, etc.) will be obtained from the testing laboratory. These data will be reviewed by RMT and Keystone to ensure that the analytical data are valid and acceptable.

As part of the sampling protocol, field duplicate samples (soil and water), field blanks (water sampling equipment), and rinsate blanks (soil sampling equipment) shall be submitted to the testing laboratory for analysis. These QA/QC samples are generally collected at a frequency of one for every ten analytical samples, with at least one per day of sampling. Due to the fact that several areas are being investigated (each with less than ten samples) one soil duplicate, one water duplicate, one field blank and one rinsate blank will be collected at each unit. The exception will be that neither a soil field duplicate nor a rinsate blank will be collected at the Oil Skimmer Basin, where no soil sampling is planned.

In addition, to the above QA/QC samples, one matrix spike and matrix spike duplicate (MS/MSD) soil sample (generally collected at a frequency of one for every 20 analytical samples) will be collected from each of the four units where soil sampling is being performed. The total number of samples that are anticipated to be collected and analyzed as part of this sampling effort are listed in **Table 4-5** and **Table 4-6**, for soil and water samples, respectively.

TABLE 4-5
SOIL SAMPLE SUMMARY

Area	Soil Samples[1]			Rinsate Blanks[3]
	Analytical	Duplicate	MS/MSD[2]	
Sheen Pond	5	1	1	1
F-Pond	4	1	1	1
Tail Tracks Landfill	6	1	1	1
East Pond	3	1	1	1
Total:	**18**	**4**	**4**	**4**

[1] Soil Samples analyzed per the COC list for each area – see Table 3-1.
[2] Matrix Spike/Matrix Spike Duplicate Samples
[3] Rinsate Blanks will be analyzed per the area COC list – see Table 3-1

TABLE 4-6
WATER SAMPLE SUMMARY

Area	Water Samples[1]			Field Blanks[3]	Trip Blanks[4]
	Analytical	Duplicate	MS/MSD[2]		
Sheen Pond	3	1	1	1	-
F-Pond	2	1	1	1	1
Tail Tracks Landfill	5	1	1	1	-
East Pond	2	1	1	1	-
Oil Skimmer Basin	6	1	1	1	-
Total:	**18**	**5**	**5**	**5**	**1**

[1] Water Samples analyzed per the COC list for each area – see Table 3-1.
[2] Matrix Spike/Matrix Spike Duplicate Samples.
[3] Field Blanks will be analyzed per the area COC list – see Table 3-1
[4] A trip blank will be analyzed for the VOC COCs at the F-Pond -- see Table 3-1.

5.0 SCHEDULE

Keystone anticipates that this sampling plan will be implemented in middle to late September 2001. Two-week advance written notice prior to the actual start date will be provided to U.S. EPA Region 5, as required by the December 20, 2000 AOC. Barring any unforeseen problems or extremely poor weather conditions, it is estimated that it will take about two weeks to complete this investigation, including the installation of the new groundwater monitoring wells at the Tail Tracks Landfill.

6.0 REFERENCES

Current Conditions Report, February 2001, Keystone Steel & Wire Company.

RCRA Quality Assurance Project Plan Instructions, April 1998, U.S. EPA Region 5.

Revised Phase 2 Closure Plan, June 15, 1992, Keystone Steel & Wire Company.

Soil Screening Guidance: User's Guide, April 1996, U.S. EPA.

Soil Screening Guidance: Technical Background Document, May 1996, U.S. EPA.

SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, May 1996, U.S. EPA.

Title 35 Part 740 of the Illinois Administrative Code: Site Remediation Program, Appendix A: Target Compound Lists and Required Quantitation Limits.

U.S. EPA RCRA Facility Assessment Summary, Keystone Steel & Wire Company, Peoria, IL, September 1989, U.S. EPA Region 5.

U.S. EPA Region 9 Preliminary Remediation Goals, November 2000, U.S. EPA Region 9.

APPDENDIX A

ORGANIC AND INORGANIC ANALYTE LISTS FOR THE 1987 RFA SAMPLES

APPENDIX A

HSL ORGANIC COMPOUNDS

	Organic Compounds	CAS Number	Detection Limit Low Water ug/L	Detection Limit Low Soil Sediment ug/kg
1.	Chloromethane	74-87-3	10	10
2.	Bromomethane	74-83-9	10	10
3.	Vinyl Chloride (1)	75-01-4	10	10
4.	Chloroethane	75-00-3	10	10
5.	Methylene Chloride	75-09-2	5	5
6.	Acetone	67-64-1	10	10
7.	Carbon Disulfide	75-15-0	5	5
8.	1,1-Dichloroethene	75-35-4	5	5
9.	1,1-Dichloroethane	75-35-3	5	5
10.	trans-1,2-Dichloroethene	156-60-5	5	5
11.	Chloroform	67-66-3	5	5
12.	1,2-Dichloroethane	107-06-2	5	5
13.	2-Butanone	78-93-3	10	10
14.	1,1,1-Trichloroethane	71-55-6	5	5
15.	Carbon Tetrachloride	56-23-5	5	5
16.	Vinyl Acetate	109-05-4	10	10
17.	Bromodichloromethane	75-27-4	5	5
18.	1,1,2,2-Tetrachloroethane	79-34-5	5	5
19.	1,2-Dichloropropane	78-87-5	5	5
20.	trans-1,3-Dichloropropene	10061-02-6	5	5
21.	Trichloroethene	79-01-6	5	5
22.	Dibramocloromethane	124-48-1	5	5
23.	1,1,2-Trichloroethane	79-00-5	5	5
24.	Benzene	71-43-2	5	5
25.	cis-1,3-Dichloropropene	10061-01-5	5	5
26.	2-Chloroethyl Vinyl Ether	110-75-8	10	10
27.	Bromoform	75-25-2	5	5
28.	2-Hexanone	591-78-6	10	10
29.	4-Methyl-2-pentanone	108-10-1	10	10
30.	Tetrachloroethene	127-18-4	5	5
31.	Toluene	108-88-3	5	5
32.	Chlorobenzene	108-90-7	5	5
33.	Ethyl Benzene	100-41-4	5	5
34.	Styrene	100-42-5	5	5
35.	Total Xylenes		5	5
36.	Phenol	108-95-2	10	330
37.	bis(2-Chloroethyl)ether	111-44-4	10	330
38.	2-Chlorophenol	95-57-8	10	330
39.	1,3-Dichlorobenzene	541-73-1	10	330
40.	1,4-Dichlorobenzene	106-46-7	10	330
41.	Benzyl Alcohol	100-51-6	10	330

HSL ORGANIC COMPOUNDS (continued)

	Organic Compounds	CAS Number	Detection Limit Low Water ug/L	Detection Limit Low Soil Sediment ug/kg
42.	1,2-Dichlorobenzene	95-50-1	10	330
43.	2-Methylphenol	95-48-7	10	330
44.	bis(2-Chloroisopropyl)ether	39638-32-9	10	330
45.	4-Methylphenol	106-44-5	10	330
46.	N-Nitroso-Dipropylamine	621-64-7	10	330
47.	Hexachloroethane	67-72-1	10	330
48.	Nitrobenzene	98-95-3	10	330
49.	Isophorone	78-59-1	10	330
50.	2-Nitrophenol	88-75-5	10	330
51.	2,4-Dimethlphenol	105-67-9	10	330
52.	Benzoic Acid	65-85-0	50	1600
53.	bis(2-Chloroethyoxy)methane	111-91-1	10	330
54.	2,4-Dichlorophenol	120-83-2	10	330
55.	1,2,4-Trichlorobenzene	120-82-1	10	330
56.	Naphthalene	91-20-3	10	330
57.	4-Chloroaniline	106-47-8	10	330
58.	Hexachlorobutadiene	87-68-3	10	330
59.	4-Chloro-methylphenol (para-chloro-meta-cresol)	59-50-7	10	330
60.	2-Methylnaphthalene	91-57-6	10	330
61.	Hexachlorocyclopentadiene	77-47-4	10	330
62.	2,4,6-Trichlorophenol	88-06-2	10	330
63.	2,4,5-Trichlorophenol	95-95-4	50	1600
64.	2-Chloronaphthalene	91-58-7	10	330
65	2-Nitroaniline	88-74-4	50	1600
66.	Dimethyl Phthalate	131-11-3	10	330
67.	Acenaphthylene	208-96-8	10	330
68.	3-Nitroaniline	99-09-8	10	330
70.	2,4-Dinitrophenol	51-28-5	50	1600
71.	4-Nitrophenol	100-02-7	50	1600
72.	Dibenzofuran	132-64-9	10	330
73.	2,4-Dinitrotoluene	121-14-2	10	330
74.	2,6-Dinitrotoluene	606-20-2	10	330
75.	Diethylphthalate	84-66-2	10	330
76.	4-Chlorophenyl Phenyl Ether	7005-72-3	10	330
77.	Fluorene	86-73-7	10	330
78.	4-Nitroaniline	100-01-6	50	1600
79.	4,6-Dinitro-2-methylphenol	534-52-1	50	1600
80.	N-nitrosodiphenylamine	86-30-6	10	330
81.	4-Bromophenyl Phenyl Ether	101-55-3	10	330
82.	Hexachlorobenzene	118-74-1	10	330
83.	Pentachlorophenol	87-86-5	50	1600
84.	Phenanthrene	85-01-8	10	330
85.	Anthracene	120-12-7	10	330

HSL ORGANIC COMPOUNDS (continued)

Organic Compounds	CAS Number	Detection Limit Low Water ug/L	Detection Limit Low Soil Sediment ug/kg
86. Fluoranthene	206-44-0	10	330
88. Pyrene	129-00-00	10	330
89. Butyl Benzl Phthalate	85-68-7	10	330
90. 3,3'-Dichlorobenzidine	91-94-1	20	660
91. Benzo(a)anthracene	56-55-3	10	330
92. bis(2-ethylhexyl) phthalate	117-81-7	10	330
93. Chrysene	218-01-9	10	330
94. Di-n-octyl Phthalate	117-84-0	10	330
95. Benzo(b)fluoranthene	205-99-2	10	330
96. Benzo(k)fluoranthene	207-08-9	10	330
97. Benzo(a)pyrene	50-32-8	10	330
98. Indeno(1,2,3-cd)pyrene	193-39-5	10	330
99. Dibenz(a,h)anthracene	53-70-3	10	330
100. Benzo(g,h,i)perylene	191-24-2	10	330
101. alpha-BHC	319-84-6	0.05	8.0
102. beta-BHC	319-85-7	0.05	8.0
103. delta-BHC	319-86-8	0.05	8.0
104. gamma-BHC	58-89-9	0.05	8.0
105. Heptachlor	76-44-8	0.05	8.0
106. Aldrin	309-00-2	0.05	8.0
107. Heptachlor Epoxide	1024-57-3	0.05	8.0
108. Endosulfan I	959-98-8	0.05	8.0
109. Dieldrin	60-57-1	0.10	16.0
110. 4,4'-DDE	72-55-9	0.10	16.0
111. Endrin	72-20-8	0.10	16.0
112. Endosulfan II	33213-65-9	0.10	16.0
113. 4,4'-DDD	72-54-8	0.10	16.0
114. Endosulfan Sulfate	1031-07-8	0.10	16.0
115. 4,4'-DDT	50-29-3	0.10	16.0
116. Endrin Ketone	53494-70-5	0.10	16.0
117. Methoxychlor	72-43-5	0.5	80.0
118. Chlordane	57-74-5	0.5	80.0
119. Toxaphene	8001-35-2	1.0	160.0
120. AROCLOR-1016*	12674-11-2	0.5	80.0
121. AROCLOR-1221*	11104-28-2	0.5	80.0
122. AROCLOR-1232*	11141-16-5	0.5	80.0
123. AROCLOR-1242*	53469-21-9	0.5	80.0
124. AROCLOR-1248*	12672-29-6	0.5	80.0
125. AROCLOR-1254*	11097-69-1	1.0	160.0
126. AROCLOR-1260*	11096-82-5	1.0	160.0

* = PCB compounds

HSL INORGANIC COMPOUNDS

Element	Contract Required Detection Level (ug/L)
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Magnesium	5000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5000
Selenium	5
Silver	10
Sodium	5000
Thallium	10
Vanadium	50
Zinc	20
Cyanide	10

APPENDIX B

SAMPLE CHAIN OF CUSTODY FORM

CHAIN OF CUSTODY RECORD

№ 072126

100 Verdae Boulevard, P.O. Box 16778 • Greenville, SC 29606-6778 • Phone (864) 281-0030 • Fax (864) 281-0288

Project No.

Project/Client:

Project Manager/Contact Person:

Filtered (Yes/No)

Preserved (Code)

Analyses Requested

PRESERVED CODES
A - NONE
B - HNO_3
C - H_2SO_4
D - NaOH
E - HCl
F - METHANOL
G - _____

Lab No.	Yr.____ Date	Time	Sample Station ID	Total Number Of Containers	MATRIX									Comments:

SPECIAL INSTRUCTIONS

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time

HAZARDS ASSOCIATED WITH SAMPLES
- ☐ Flammable
- ☐ Corrosive
- ☐ Highly Toxic
- ☐ Other (list) _____

Turn Around (circle one) Normal Rush

Report Due_____

(For Lab Use Only)

Receipt Temp:

Temp Blank Y N

Receipt pH (Wet/Metals)

Custody Seal: Present/Absent Intact/Not Intact Seal #'s

F-268 (R10/99)

WHITE - LABORATORY COPY YELLOW - REPORT APPENDIX PINK - SAMPLER/SUBMITTER

East Pond Surface Water Analysis

	Node	A5	A5	A6	Field Blank	Rinse Blank [a]
	Sample No.	1	2 (dup)	1	1	1
	Lab ID	01092804-1	01092804-2	01092804-3	01092804-5	01092804-4
	Sample ID	A-05-W-01	A-05-W-02	A-06-W-01	ARB-W-01	ARB-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	11:00	11:15	11:45	10:10	10:10
Parameter:	**PRG [b]**					
Chromium (mg/l)	0.1 [c]	0.018	0.018	0.02	0.00028 J	0.00038 J
Copper (mg/l)	1.4	0.0022 J	0.0017 J	0.0023 J	0.00036 J	0.025 U
Lead (mg/l)	0.015 [c]	**0.017**	**0.016**	**0.05**	0.003 U	0.003 U
Zinc (mg/l)	11	0.0091 J	0.0088 J	0.012 J	0.0017 J	0.0023 J

[a] Equipment rinse blank for East Pond sediment sampling equipment.
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

East Pond Sediment Analysis

	Node ID	A1	A1	A2	A3	A4
	Sample No.	1	2 (dup)	1	1	1
	Lab ID	01092803-1	01092803-2	01092803-3	01092803-4	01092803-5
	Sample ID	A-01-D-01	A-01-D-02	A-02-D-01	A-03-D-01	A-04-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	11:15	11:20	12:05	11:45	11:30
Parameter:	**PRG** [a]					
Moisture (%)		54	45	59	56	60
Chromium (mg/kg Dry)	450	70	62	83	59	58
Copper (mg/kg Dry)	76,000	7.4 J	6.4 J	13	21	16
Lead (mg/kg Dry)	750	67	64	93	110	60
Zinc (mg/kg Dry)	100,000	120	100	160	320	150

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note: all values are also below the respective Residential PRGs)

Data Flags:

U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
C = Result qualified due to batch control sample failing to meet the required acceptance critera.
F = Result qualified due to internal standard result outside the required acceptance criteria.

Tail Tracks Area Surface Water Analysis

	Node ID	TO1	TO2	TO4
	Sample No.	1	1	1
	Lab ID	01121541-3	01121541-2	01121541-1
	Sample ID	TO-1	TO-2	TO-4
	Date	12/06/01	12/06/01	12/06/01
	Time	15:30	15:15	15:00
Parameter:	**PRG** [a]			
Cadmium (mg/l)	0.018	0.002 U	0.002 U	0.002 U
Chromium (mg/l)	0.1 [b]	0.004 U	0.05	0.011
Nickel (mg/l)	0.73	0.027	0.005 U	0.005 U
Lead (mg/l)	0.015 [b]	0.09	0.05	0.01 U
Zinc (mg/l)	11	0.45	0.027	0.15

[a] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[b] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
C = Result qualified due to batch control sample failing to meet the required acceptance critera.
F = Result qualified due to internal standard result outside the required acceptance criteria.