M/35/002

FINAL REPORT

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FOR

KENNECOTT WORK ACTIVITIES

RELATED TO THE

ADMINISTRATIVE ORDER ON CONSENT FOR REMOVAL ACTION

SITE NO. 3B

SOUTH JORDAN EVAPORATION PONDS

Vol. 4
Post-Removal Sampling and Earthwork QC

KENNECOTT UTAH COPPER
MAY, 1996

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SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION PLAN

POST-REMOVAL SOIL SAMPLING AND ANALYSIS REPORT

1.0 INTRODUCTION

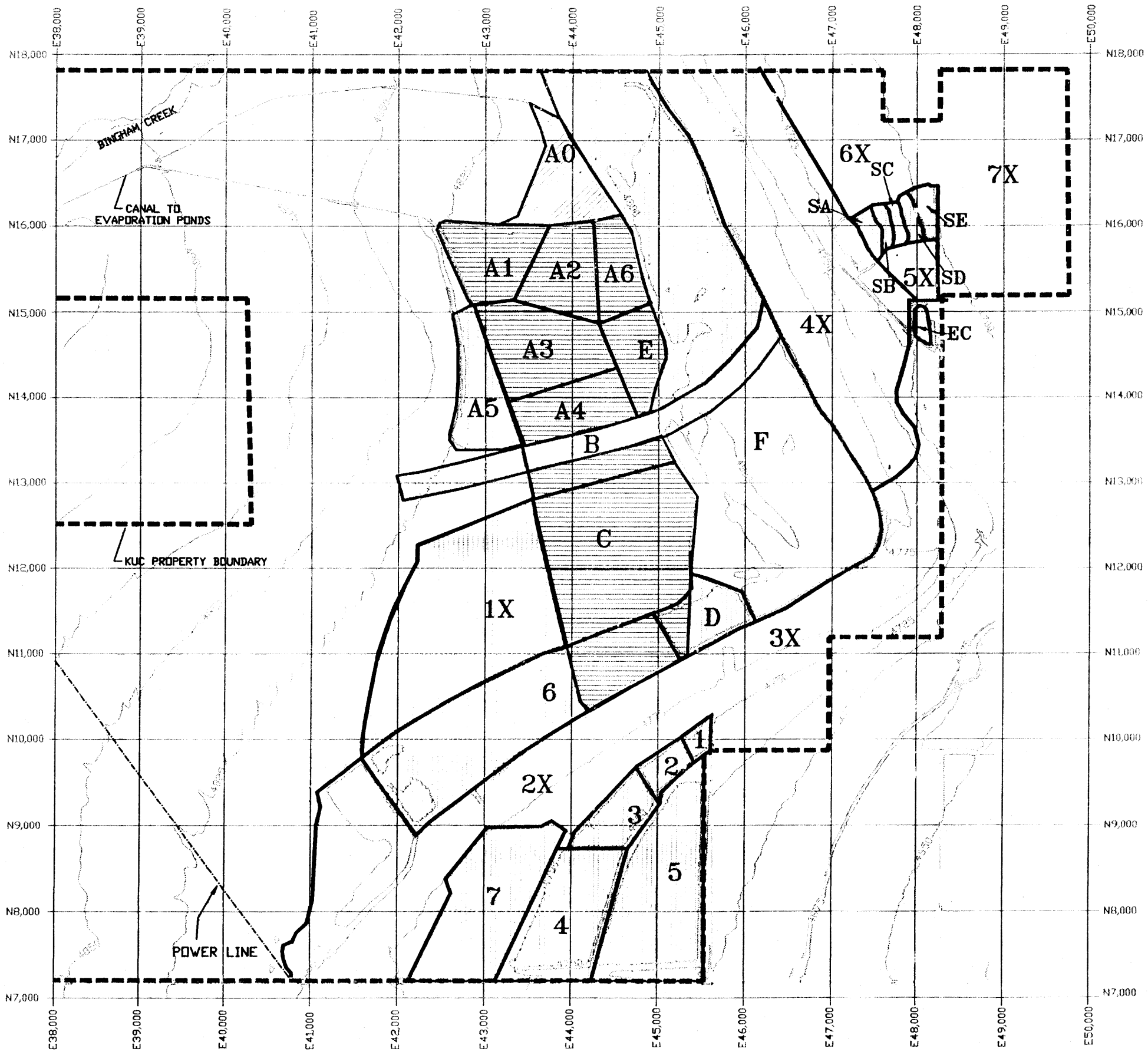
Following removal activities as part of the South Jordan Evaporation Ponds Consolidation Action Plan, soils samples were collected and analyzed to document concentrations of the constituent of concern (lead). Additional analyses were performed on the constituents of internal concern (arsenic, leachable sulfate and pH). Soils were collected as composite samples and quantitatively analyzed. The following sections outline the sampling procedures and protocol established and maintained throughout the removal and reclamation activities. Sample results have been included along with a summary of results for each of the removal area. Quality assurance and quality control procedures (QA/QC) were implemented with the calculated relative percent difference values being reported. Drawing 451-T-3541 displays the boundaries for each of the individual removal areas and corresponding area designators. The number of post-removal and post-reclamation samples collected has also been noted for each of the removal areas. Field notes, analytical laboratory sheets, chain of custody form and site photographs have been included in the appendices.

The sampling program for quantitative analysis was designed to fulfill the data requirements of the consolidation action which included:

- The samples collected were representative of the materials sampled
- Sample integrity was maintained and documented
- Proper measurements and information were recorded
- Sample volumes were sufficient for the required analytical procedures
- Analytical results adequately characterized soil
- The sampling protocol was efficient and relatively uncomplicated

2.0 POST-REMOVAL SAMPLING PROCEDURE

The following sections outline the standard operating procedures (SOP) which were followed in conducting sampling for quantitative analysis. The site-specific Health and Safety Plan was complied with at all times during sampling.



AREA	ACRES	POST REMOVAL SAMPLES	POST RECLAMATION SAMPLES
POND 1	2	1	1
POND 2	4.5	1	1
POND 3	10.9	2	1
POND 4	38.4	4	1
POND 5	46.6	4	1
POND 6	55.6	4	1
POND 7	38.2	6	1
POND A5	14.9	2	1
POND D	10.1	2	1
POND F	121.8	8	1
POND 1X	79.5	7	2
SEEPAGE PONDS (SA,SB,SC,SD,SE,EC)	10.7	4	1
10400 SOUTH RIGHT OF WAY	10.6	8	1
CONSOLIDATED AREA	210.6	15	4

REMOVAL AREA

CONSOLIDATION AREA

10400 SOUTH RIGHT OF WAY REMOVAL AREA

POND A0 (INCLUDED IN BINGHAM FLATS/ EVAPORATION PONDS CANAL REMOVAL PROJECT)

KUC PROPERTY BOUNDARY

KUC EVAPORATION PONDS BOUNDARY

N

NOTE

CONTOUR INTERVAL = 25'

TOPOGRAPHY DERIVED FROM 1990 PHOTOGRAPHY

PLANT PROJECTS GROUP			KENNECOTT UTAH COPPER
SCALE:			SOUTH JORDAN EVAPORATION PONDS REMOVAL AND CONSOLIDATION AREA MAP
DESIGNED BY	JB	1/95	
DRAWN BY	JB	1/95	
CHECKED BY			
PROJECT ENGINEER			
PROJECT MANAGER			
Job No.			Dwg. No. 451-T-3541 REV

2.1 Generation of Composite

Post-removal and post-reclamation samples for all areas, except for the borrow area, were collected as composite subsite samples. The majority of the post-removal composite samples were collected as 5-point composite samples. The subsite sample locations were arranged in a grid which consisted of 400 foot square cells. Each cell had subsites located at each of the corners and one located at the center point of the square. Due to the various shapes of removal areas, alterations to the 5-point composite cell were introduced to ensure adequate coverage of the post-removal area. The number of subsites within the irregular shaped areas ranged from 2-point to 6-point, dependent upon the shape of the area of concern. Figures 1-15 depict sample location sites for each of the removal areas.

Post-reclamation samples were collected and analyzed to adequately characterize the materials used to back-fill and serve as a planting base with regard to the reseeding process. Composite samples were collected to represent a much larger area than that of the post-removal samples. Composite samples subsites ranged from 7-point to 21-point. Subsite were also arranged on a grid, with subsite located on 500 foot centers. Figure 17 depicts sample subsite locations for each of the post reclamation samples.

Eight trenches were excavated within the borrow area located to the west of the consolidated area. The trenches were excavated to characterize the soils being considered for capping and other reclamation work. Each of the trenches were excavated to a depth of fifteen feet with a backhoe. Samples were collected as composite samples from each of the lithologic units, not to exceed three feet in thickness. Samples were scraped from the trench wall to a depth of five feet. From five to fifteen feet, samples were collected from the bucket of the backhoe. Borrow area samples were analyzed for the same constituents of concern as were the post-removal samples. See Figure 16 for borrow area trench location sites.

2.2 Sampling Sequence

The following sequence of events was followed for all collected soil samples:

1. Logbook header was filled out prior to beginning of each sampling event.

2. Initial information concerning individual samples and conditions, including a map and/or diagram was documented.

3. Sample containers were labeled with the sample number, date, time, sampler's full name, and any pertinent comments.

4. The sample was collected. As a precautionary measure, twice the required sample volume was collected.
5. The site was photographed, including a close up of sample material.
6. A sample description was recorded in field logbook
7. A chain-of-custody form was prepared.
8. Samples were packaged and delivered, including chain-of-custody, to the laboratory for analysis.

Each event is described in detail in the following sections.

2.2.1 Logbook Header

An up-to-date sampling field notebook was maintained by on-site personnel during all sampling activities. The general information recorded for each sampling event included:

- Date
- Name of overall sampling event and area designator
- Sampling personnel

2.2.2 Logbook Sample Entries

Following the outlined QA/QC procedures for soil sampling, the following entries were made for each sampling event:

- Sampling event summary
- Sample number
- Location
- Time
- Sampling method
- Field observations
- Map or diagram

Any significant deviations from the above sampling protocol were formally noted on the field log, along with visiting personnel and unusual circumstances which might have affected the sampling. Field notes have been included in Appendix C.

2.2.3 Container Label

To prevent misidentification of samples, each sample container was labeled prior to sample collection. Labels were written with indelible ink which was sufficiently durable to remain on the container. The following information was recorded on each sample container:

- Sample identification code
- Date and time of collection
- Full name of sampling personnel
- Location and other pertinent comments

2.2.3.1 Sample Identification Code

Samples were assigned alphanumeric identification codes to describe the type of sample and the general location from which the sample was collected. All post-removal sample identification codes included the following:

- Area designator (EP - Evaporation Ponds)
- Identification number, 3-digit, sequential (001)
- Sample type designator (X-Initial Post-removal, XA-Post-removal resample, XB-2nd resample, etc., XR-Post Reclamation)

Sample type designators were introduced to identify sample locations which were resampled following additional removal efforts. For areas which did not meet the target clean-up concentrations, the following steps were taken:

- Additional material was removed
- Sample subsites were relocated
- Post-removal sample subsites were resampled

Borrow area trench samples were given an identical identification code (EP-000X) with the exception of a "-1", "-2", etc. added to the end of the code to denote the depth of the sample. Suffix increases as depth of sample increases.

2.2.4 Sample Collection

Post-removal soil samples were collected using disposable plastic tools. A hole at each subsite was dug to at least six inches below surface. A disposable plastic cup was placed four inches below the surface and a clean disposable plastic spoon was used to scrape sample material from the side of the hole and into the cup. The contents of the cup was

poured into a labeled sample bag. An equal amount of material was collected from each subset. Following sample collection, the material was homogenized within the sample bag by shaking, stirring and chopping. If the sample could not be adequately homogenized in the field due to moisture and/or hardness, laboratory personnel were instructed to repeat the homogenization process following the drying of the sample and prior to splitting the sample.

2.2.5 Sample and Site Photographs

All post-removal, post-reclamation and borrow sample sites were photographed. One or more close up photographs were taken of the sample material being collected. Photographs were taken to adequately document the materials found within each of the removal areas. One or more photographs were also taken of the overall site to document the removal areas prior to backfilling and reseeding. Sample and site photographs have been included in Appendix D.

2.2.6 Decontamination

All samples were collected using disposable sampling tools. Tools were stored within sample containers prior to and following sample collection. The tools were discarded by laboratory personnel when samples were split and dried. Decontamination procedures usually required with reusable sampling tools were not necessary.

2.2.7 Chain-of-Custody

A chain of custody record was filled out and accompanied samples to establish the documentation necessary to trace sample possession from the time of collection. The record included the following:

- List of sample numbers
- Signature of sample collector
- Date of collection
- Sample types
- Number of containers
- Parameters requested for analysis for each sample
- Signature of personnel involved in chain of possession
- Inclusive dates of possession

Chain of custody forms for all post-removal, post-reclamation and borrow area samples are included in Appendix B.

2.2.8 Sample Packaging and Shipping

Sample preparation and packaging was conducted in clean areas remote from potential contaminant sources [KUC/PPG complex/KUC Lark Storage Facility]. The soil sample containers were cleaned and secured in shipping containers. Packing material were also provided to stabilize the shipping container when necessary.

Samples were delivered to the laboratory on the day of collection. In cases where samples left the immediate control of project personnel, a seal was affixed to the sample container to ensure the samples had not be disturbed during storage or transportation. The integrity of the seal was observed and documented by laboratory personnel upon arrival.

3.0 SAMPLE PREPARATION AND ANALYSIS

Post-removal and post-reclamation soil samples were analyzed for the constituent of concern (lead) and the internal constituents of concern (arsenic, leachable sulfate, and pH) according to EPA methods. Target clean up levels were set as follows:

- Lead - 2,000 ppm
- Arsenic - 100 ppm
- $Sulfate_{(L)}$ - 10,000 ppm
- pH - not applicable

All post-removal, post-reclamation and QA/QC samples [4.1] were analyzed at a Certified Environmental Laboratory [Ford Analytical Laboratory] in Salt Lake City, Utah. Prior to analysis, all samples were dried at 105°C by laboratory personnel. The samples were then stirred and chopped to homogenize the material. The samples were then split, with one part being used for analysis, with the remainder being archived by KUC/PPG at the KUC Lark storage facility. All analytical procedures were consistent with federal guidelines [US EPA 1986]. The analytical methods used are listed in Table 1.

TABLE 1 - ANALYTICAL METHODS

Analyte	Method	Description
Lead	EPA 6010	Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP) Detection Limit 0.5 mg/Kg
Arsenic	EPA 6010	Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP) Detection Limit 0.5 mg/Kg
Sulfate (Leachable)	SM 4500	Gravimetric Method with Drying of Residue Detection Limit 100 mg/Kg
pH	EPA 9045	Electrometric procedure for calcareous and noncalcareous soils.

4.0 ANALYTICAL RESULTS

The results of the post-removal and post-reclamation sample analysis are reported in Table 2. All data are reported in appropriate units. All raw data has been reviewed and validated against calibration records to ensure the data are reliable, and that the data are in compliance with QA/QC objective. Signed laboratory analytical sheets have been included in Appendix A.

TABLE 2
POST-REMOVAL SAMPLES - ANALYTICAL RESULTS

SAMPLE	DATE	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	$SULFATE_{(L)}$ (ppm)
EP-001X	POND D	14-Jun-94	28.1	71.0	8.23	5,940
EP-002X	POND D	14-Jun-94	29.9	39.6	8.43	10,800
EP-003X	POND 7	22-Jun-94	80.9	49.8	6.54	10,800
EP-003XA	POND 7	11-Jul-94	13.8	26.6	6.84	9,820
EP-004X	POND 7	22-Jun-94	48.5	52.6	6.65	11,100
EP-004XA	POND 7	11-Jul-94	16.4	45.2	7.26	12,000
EP-004XB	POND 7	5-Aug-94	13.3	43.0	7.12	7,160
EP-005X	POND 7	22-Jun-94	56.1	37.1	6.58	12,300
EP-005XA	POND 7	11-Jul-94	13.8	31.4	6.76	9,780
EP-006X	POND 7	22-Jun-94	53.9	53.4	6.73	11,500
EP-006XA	POND 7	11-Jul-94	20.4	48.1	6.73	8,480
EP-007X	POND 7	22-Jun-94	43.3	51.2	7.35	9,360
EP-007XA	POND 7	11-Jul-94	11.9	52.9	7.38	8,440
EP-008X	POND 7	22-Jun-94	35.6	50.2	7.65	8,430
EP-008XA	POND 7	11-Jul-94	16.4	51.7	7.52	3,550
EP-009X	POND 4	6-Jul-94	14.0	53.6	7.43	13,300
EP-009XA	POND 4	14-Jul-94	12.1	44.4	8.16	3,120
EP-010X	POND 4	6-Jul-94	15.0	54.2	7.44	10,100
EP-010XA	POND 4	14-Jul-94	13.7	48.0	7.91	7,450
EP-011X	POND 4	6-Jul-94	20.5	66.7	7.40	9,320
EP-012X	POND 4	6-Jul-94	13.7	55.5	7.42	10,700
EP-012XA	POND 4	14-Jul-94	18.2	57.9	7.89	5,970
EP-013X	POND 3	6-Jul-94	24.3	73.1	7.38	10,600
EP-013XA	POND 3	14-Jul-94	14.3	55.6	7.98	6,340
EP-014X	POND 3	6-Jul-94	22.4	68.1	7.51	8,290
EP-015X	POND 2	11-Jul-94	17.6	53.9	7.42	6,170
EP-016X	POND 1	14-Jul-94	20.0	81.6	7.40	15,100
EP-016XA	POND 1	20-Jul-94	16.8	62.8	7.12	8,730
EP-017X	POND A5	11-Jul-94	12.5	54.7	7.84	6,840
EP-018X	POND A5	11-Jul-94	25.1	108.0	7.68	9,620
EP-019X	POND 1X	14-Jul-94	11.6	53.0	7.21	8,280
EP-020X	POND 1X	14-Jul-94	11.5	32.1	8.07	19,300
EP-020XA	POND 1X	22-Jul-94	12.9	64.9	7.45	14,600
EP-020XB	POND 1X	3-Aug-94	7.9	29.9		6,700
EP-021X	POND 1X	14-Jul-94	11.5	55.0	7.99	17,300
EP-021XA	POND 1X	22-Jul-94	8.1	32.4	7.87	1,370

TABLE 2
POST-REMOVAL SAMPLES - ANALYTICAL RESULTS
(cont.)

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	$SULFATE_{(L)}$ (ppm)
EP-022X	POND 1X	14-Jul-94	7.9	24.3	7.92	18,300
EP-022XA	POND 1X	22-Jul-94	11.8	62.3	7.94	11,500
EP-022XB	POND 1X	3-Aug-94	10.8	40.6		9,030
EP-023X	POND 1X	14-Jul-94	11.5	38.3	8.03	15,600
EP-023XA	POND 1X	22-Jul-94	11.7	53.1	8.07	13,900
EP-023XB	POND 1X	3-Aug-94	8.4	32.2		7,440
EP-024X	POND 1X	14-Jul-94	9.9	53.6	7.69	5,920
EP-025X	POND 1X	14-Jul-94	11.5	61.4	8.31	16,700
EP-025XA	POND 1X	22-Jul-94	11.7	51.8	7.99	6,130
EP-026X	POND 5	26-Jul-94	16.4	58.9	7.94	3,150
EP-027X	POND 5	26-Jul-94	15.2	68.8	7.95	1,150
EP-028X	POND 5	26-Jul-94	20.4	66.6	8.07	5,030
EP-029X	POND 5	26-Jul-94	20.6	60.5	7.97	3,040
EP-030X	POND EC	2-Aug-94	6.4	57.8	6.02	6,770
EP-031X	POND SA	2-Aug-94	15.8	59.7	4.78	7,550
EP-032X	PONDS: SA, SB, SC	2-Aug-94	9.2	73.5	5.94	10,600
EP-032XA	PONDS: SA, SB, SC	5-Aug-94	8.4	58.3	7.14	5,230
EP-033X	PONDS: SD, SE	2-Aug-94	11.9	42.8	7.47	4,280
EP-034X	POND F	8-Aug-94	53.1	198.0	5.84	181
EP-035X	POND F	8-Aug-94	66.7	285.0	5.42	1,060
EP-036X	POND F	8-Aug-94	84.9	365.0	6.98	255
EP-037X	POND F	8-Aug-94	36.1	139.0	7.22	1,650
EP-038X	POND F	8-Aug-94	21.0	234.0	4.89	1,910
EP-039X	POND F	8-Aug-94	23.6	122.0	7.28	1,330
EP-040X	POND F	8-Aug-94	13.7	95.3	7.48	115
EP-041X-1	BORROW AREA	9-Aug-94	8.2	38.9	7.99	ND
EP-041X-2	BORROW AREA	9-Aug-94	5.5	34.6	8.14	1,070
EP-041X-3	BORROW AREA	9-Aug-94	18.9	54.7	8.11	864
EP-041X-4	BORROW AREA	9-Aug-94	6.6	19.1	9.82	ND
EP-041X-5	BORROW AREA	9-Aug-94	4.3	72.4	9.85	329
EP-042X-1	BORROW AREA	9-Aug-94	9.0	46.7	7.70	165
EP-042X-2	BORROW AREA	9-Aug-94	12.5	49.3	8.08	1,320
EP-042X-3	BORROW AREA	9-Aug-94	13.2	47.6	7.93	1,820
EP-042X-4	BORROW AREA	9-Aug-94	6.3	31.6	7.84	1,690
EP-042X-5	BORROW AREA	9-Aug-94	6.2	48.5	7.87	2,210
EP-043X-1	BORROW AREA	9-Aug-94	8.2	47.1	7.83	ND
EP-043X-2	BORROW AREA	9-Aug-94	8.7	35.5	8.12	1,100
EP-043X-3	BORROW AREA	9-Aug-94	11.8	40.3	8.13	296
EP-043X-4	BORROW AREA	9-Aug-94	11.8	42.1	8.13	288
EP-043X-5	BORROW AREA	9-Aug-94	13.0	45.9	8.17	399
EP-043X-6	BORROW AREA	9-Aug-94	11.3	43.7	8.17	728
EP-044X-1	BORROW AREA	9-Aug-94	8.2	46.7	8.43	296
EP-044X-2	BORROW AREA	9-Aug-94	12.6	35.9	8.06	1,430

TABLE 2
POST-REMOVAL SAMPLES - ANALYTICAL RESULTS
(cont.)

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE$_{(L)}$ (ppm)
EP-044X-3	BORROW AREA	9-Aug-94	10.8	37.3	8.02	1,450
EP-044X-4	BORROW AREA	9-Aug-94	11.2	35.9	8.02	741
EP-044X-5	BORROW AREA	9-Aug-94	10.7	39.0	7.96	ND
EP-044X-6	BORROW AREA	9-Aug-94	7.9	32.6	7.92	518
EP-045X-1	BORROW AREA	9-Aug-94	11.0	44.2	7.72	ND
EP-045X-2	BORROW AREA	9-Aug-94	19.6	46.8	7.99	ND
EP-045X-3	BORROW AREA	9-Aug-94	14.8	43.5	8.04	ND
EP-045X-4	BORROW AREA	9-Aug-94	12.0	42.5	8.08	128
EP-045X-5	BORROW AREA	9-Aug-94	11.9	47.3	8.07	1,250
EP-045X-6	BORROW AREA	9-Aug-94	16.4	55.3	8.17	ND
EP-046X-1	BORROW AREA	9-Aug-94	8.4	43.6	7.72	ND
EP-046X-2	BORROW AREA	9-Aug-94	17.2	49.9	7.97	ND
EP-046X-3	BORROW AREA	9-Aug-94	15.9	42.8	8.03	2,050
EP-046X-4	BORROW AREA	9-Aug-94	18.8	46.0	8.13	2,720
EP-046X-5	BORROW AREA	9-Aug-94	17.7	59.8	8.19	1,690
EP-046X-6	BORROW AREA	9-Aug-94	23.3	58.0	8.09	2,260
EP-047X-1	BORROW AREA	9-Aug-94	7.7	36.5	7.97	103
EP-047X-2	BORROW AREA	9-Aug-94	16.3	19.3	7.96	ND
EP-047X-3	BORROW AREA	9-Aug-94	21.9	67.3	7.89	280
EP-047X-4	BORROW AREA	9-Aug-94	9.4	42.8	7.97	ND
EP-047X-5	BORROW AREA	9-Aug-94	10.5	39.5	8.04	ND
EP-048X-1	BORROW AREA	9-Aug-94	8.9	50.5	8.07	185
EP-048X-2	BORROW AREA	9-Aug-94	16.4	59.2	8.08	ND
EP-048X-3	BORROW AREA	9-Aug-94	12.7	50.7	8.65	712
EP-048X-4	BORROW AREA	9-Aug-94	11.9	54.0	8.70	ND
EP-048X-5	BORROW AREA	9-Aug-94	8.1	52.8	8.14	123
EP-049X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	14.2	61.8	8.24	13,200
EP-050X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	8.9	63.9	7.93	12,500
EP-051X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	13.4	45.2	7.73	13,200
EP-052X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	12.8	52.4	7.90	13,100
EP-053X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	14.4	48.1	7.79	13,000
EP-053XS	QA SAMPLE	28-Sep-94	15.2	53.1	7.91	11,600
EP-054X	CONSOLIDATED AREA (NORTH)	21-Sep-94	19.2	93.1	4.44	5,400
EP-055X	CONSOLIDATED AREA (NORTH)	21-Sep-94	36.1	91.4	5.93	9,650
EP-056X	CONSOLIDATED AREA (NORTH)	16-Sep-94	88.7	115.0	6.56	10,300

TABLE 2
POST-REMOVAL SAMPLES - ANALYTICAL RESULTS
(cont.)

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	$SULFATE_{(L)}$ (ppm)
EP-057X	CONSOLIDATED AREA (NORTH)	16-Sep-94	16.2	43.4	7.86	16,400
EP-058X	CONSOLIDATED AREA (NORTH)	26-Aug-94	13.1	72.4	8.06	10,100
EP-059X	CONSOLIDATED AREA (NORTH)	16-Sep-94	10.4	54.6	7.56	14,800
EP-060X	CONSOLIDATED AREA (NORTH)	16-Sep-94	12.6	88.8	7.82	16,500
EP-061X	CONSOLIDATED AREA (NORTH)	26-Aug-94	14.8	71.2	8.11	10,400
EP-062X	CONSOLIDATED AREA (NORTH)	1-Sep-94	11.8	63.2	7.59	12,700
EP-063X	CONSOLIDATED AREA (NORTH)	1-Sep-94	22.6	75.6	7.70	12,900
EP-064X	POND F	26-Aug-94	17.6	95.2	5.82	1,020
EP-065X	POND 6	30-Aug-94	10.2	77.5	7.71	1,930
EP-066X	POND 6	30-Aug-94	10.7	64.2	7.92	5,960
EP-067X	POND 6	30-Aug-94	10.6	49.7	7.98	10,200
EP-067XA	POND 6	7-Sep-94	4.8	56.9	7.74	12,100
EP-067XB	POND 6	14-Sep-94	4.8	56.3	7.91	4,040
EP-068X	POND 6	7-Sep-94	7.4	80.8	7.68	8,590
EP-069X	10400 SOUTH RIGHT OF WAY	15-Sep-94	93.9	43.2	7.40	5,490
EP-070X	10400 SOUTH RIGHT OF WAY	15-Sep-94	21.2	77.4	4.22	7,460
EP-071X	10400 SOUTH RIGHT OF WAY	16-Sep-94	29.2	144.0	4.69	12,300
EP-071XA	10400 SOUTH RIGHT OF WAY	21-Sep-94	18.1	77.9	4.80	4,830
EP-072X	10400 SOUTH RIGHT OF WAY	16-Sep-94	14.4	78.4	6.43	10,500
EP-072XA	10400 SOUTH RIGHT OF WAY	21-Sep-94	16.0	63.8	5.39	1,650
EP-073X	10400 SOUTH RIGHT OF WAY	21-Sep-94	11.2	77.4	7.63	ND
EP-074X	10400 SOUTH RIGHT OF WAY	21-Sep-94	21.4	86.6	7.91	ND
EP-075X	10400 SOUTH RIGHT OF WAY	21-Sep-94	14.3	85.9	8.06	ND
EP-076X	10400 SOUTH RIGHT OF WAY	21-Sep-94	8.8	51.8	7.90	ND
EP-077X	10400 SOUTH RIGHT OF WAY	21-Sep-94	16.9	103.0	7.91	ND
EP-078XR	PONDS: 1, 2, 3, 5	11-Jan-95	12.7	58.8	7.53	374

TABLE 2
POST-REMOVAL SAMPLES - ANALYTICAL RESULTS
(cont.)

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	$SULFATE_{(L)}$ (ppm)
EP-079XR	PONDS: 4, 7	11-Jan-95	13.2	57.1	7.65	979
EP-080XR	PONDS: 6, 1X	12-Jan-95	9.6	50.9	7.82	ND
EP-081XR	PONDS: 1X, A5	12-Jan-95	14.2	59.7	7.71	292
EP-082XR	CONSOLIDATED AREA (SOUTH)	18-Jan-95	12.5	53.3	7.78	ND
EP-083XR	CONSOLIDATED AREA (SOUTH)	18-Jan-95	13.6	53.4	7.80	181
EP-084XR	CONSOLIDATED AREA (NORTH)	18-Jan-95	14.7	68.2	7.60	1,470
EP-085XR	CONSOLIDATED AREA (NORTH)	18-Jan-95	16.1	92.2	7.32	ND
EP-086XR	POND F	18-Jan-95	17.8	92.8	6.86	115
EP-087XR	PONDS: SA, SB, SC, SD, SE, EC	19-Jan-95	14.8	86.5	7.61	416
EP-088XR	10400 SOUTH RIGHT OF WAY	27-Jan-95	16.4	97.1	7.44	1,060

5.0 QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

The purpose of data quality assessment was to assure that data generated under the QA program are accurate and consistent with the consolidation action objectives stated in section 2.1 of the Work Plan. The quality of the data was accessed based on precision, accuracy, completeness, representativeness, and compatibility.

Precision:	±20% RPD, ±20% RSD (field duplicated; lab duplicates; check standards);
Accuracy:	Blanks, matrix spikes, post-digestion spikes;
Representativeness:	Ensure samples are representative for area; appropriate and acceptable analytical procedures are used; problems in investigation are properly documented;
Completeness:	Ensure all samples defined in plan are analyzed

The project data objectives for precision, accuracy, completeness, representativeness, and compatibility are consistent with guidelines established by the EPA.

5.1 QA\QC Samples

Internal QA/QC comparisons were conducted by Kennecott to ensure accurate and reproducible results were ascertained from the laboratory. Kennecott submitted splits of 10% of all post- removal and post-reclamation samples to Ford Analytical Laboratory. The split sample were given identical sample identification numbers as the original post-removal samples with the exception of an "S" being added to the end of the identification number. A relative percent difference (RPD) calculation has performed on the analysis of the constituent of concern (lead) between the original sample and the submitted split sample. If the RPD was found to be greater than 20%, a second split of the original sample was submitted and the RPD calculated. The second split of the original sample was given an identical identification number with the exception of a "S2" being added to the end of the identification number. For cases in which a second split was submitted for analysis, a second RPD calculation was made between the first and second split samples.

A total of 144 post-removal and post reclamation samples were collected and submitted, which includes 44 samples collected within the borrow area. Of the 144 samples, 15 splits were submitted as QA/QC duplicate samples. Twelve of the initial 15 RPD calculations were found to be less than 20%. With three samples exceeding the 20% RPD, a second split sample was submitted from each of the three original samples. Two of the three split were still found to exceed the 20% limit. With the two samples which fell outside the 20% cutoff, a RPD was calculated between the first and second submitted duplicated. In both cases, the RPD was less then 20%. The original and duplicate split analyses and calculated RPD are shown in Table 3.0.

TABLE 3 - QA/QC SAMPLE RESULTS
Relative Percent Difference

SAMPLE	LEAD (ppm)	RPD (Original : Split)	RPD (Split 1 : Split 2)
EP-001X	71.0		
EP-001XS	45.9	42.94%	
EP-001XS2	41.4	52.67%	10.31%
EP-006XA	48.1		
EP-006XAS	50.6	-5.07%	
EP-012X	55.5		
EP-012XS	57.7	-3.89%	
EP-019X	53.0		
EP-019XS	61.3	-14.52%	
EP-023X	38.3		
EP-023XS	42.4	-10.16%	
EP-031X	59.7		
EP-031XS	57.1	4.45%	

TABLE 3 - QA/QC SAMPLE RESULTS
Relative Percent Difference
(cont.)

SAMPLE	LEAD (ppm)	RPD (Original : Split)	RPD (Split 1 : Split 2)
EP-040X	95.3		
EP-040XS	92.6	2.87%	
EP-042X-5	48.5		
EP-042X-5S	53.1	-9.06%	
EP-044X-4	35.9		
EP-044X-4S	35.1	2.25%	
EP-046X-2	49.9		
EP-046X-2S	59.2	-17.05%	
EP-048X-1	50.5		
EP-048X-1S	68.7	-30.54%	
EP-048X-1S2	55.6	-9.61%	
EP-053X	48.1		
EP-053XS	53.1	-9.88%	
EP-061X	71.2		
EP-061XS	68.5	3.87%	
EP-063X	75.6		
EP-063XS	139.0	-59.09%	
EP-063XS2	122.0	-46.96%	13.03%
EP-067X	49.7		
EP-067XS	69.9	-33.78%	
EP-067XS2	69.9	-33.78%	0.00%

6.0 DISCUSSION

The removal and consolidation activities undertaken throughout the South Jordan Evaporation Ponds Consolidation Action were assessed individually by area. Initial removal depths were based on the analytical results gathered as part of the South Jordan Evaporation Ponds Site Characterization Study. Following the initial removal, areas were visually inspected and sampled. Samples were then analyzed by Ford Analytical Laboratory, with results being returned with 48 hours. For areas in which the clean-up target levels were not met, additional material was removed. Areas were then resampled with the previously described procedures being continued until the target clean-up levels were achieved.

The results gathered as part of the post-removal and post-reclamation sampling are tabulated in Table 2. Table 4 presents average constituent values for each of the areas along with removal depths and the thickness of fill and capping material placed within

each area. Characterization, post-removal and post-reclamation average sample results have also been included to document the chemical characteristics of the materials found within each area prior to and following the reclamation process.

Upon completion of the post-removal activities, all areas were cleaned in compliance with the South Jordan Evaporation Ponds Administrative Order of Consent. An area by area post-removal sample summary has also been included in the following pages. The summary documents total acreage, number of samples collected, average and maximum constituent concentrations, along with all sample analysis for each removal area. Summaries have also been included for the borrow area, the consolidation area and the post-reclamation samples collected throughout the removal areas. Sample subsites survey locations for each of the collected samples have been on Figures 1 - 17.

TABLE 4
POST REMOVAL SAMPLE RESULTS
SUMMARY TABLE

	CHARACTERIZATION SAMPLING					POST REMOVAL SAMPLING					POST RECLAMATION SAMPLING				
AREA	ACRES	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	REMOVAL DEPTH (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF FILL MATERIAL/TOP SOIL (feet/inches)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)
POND 1	2	41.1	118.2	7.69	13,100	1.0	16.8	62.8	7.12	8,730	1'/10"	12.7	58.8	7.53	374
POND 2	4.5	30.5	78.1	7.61	12,550	1.5	17.6	53.9	7.42	6,170	1'/10"	12.7	58.8	7.53	374
POND 3	10.9	17.3	56.0	7.81	9,182	3.0	18.4	61.9	7.75	7,315	1'/10"	12.7	58.8	7.53	374
POND 4	38.4	23.8	69.6	7.45	7,650	1.0	16.1	54.3	7.84	6,465	1'/10"	13.2	57.1	7.65	979
POND 5	46.6	23.5	61.4	7.78	2,975	1.0	18.2	63.7	7.98	3,093	1'/10"	12.7	58.8	7.53	374
POND 6	55.6	66.0	77.0	6.28	26,200	7.0	8.3	69.7	7.81	5,130	5'/10"	9.6	50.9	7.82	ND
POND 7	38.2	25.8	52.1	5.53	5,443	1.0	14.9	42.3	7.06	7,872	1'/10"	13.2	57.1	7.65	979
POND A5	14.9	17.2	57.9	7.35	26,626	4.0	18.8	81.4	7.76	8,230	5'/10"	14.2	59.7	7.71	292
POND D	10.1	3.2	0.5	8.67	13,200	4.0	28.1	55.3	8.33	8,370	3'/10"	17.8	92.8	6.86	115
POND F	121.8	32.5	120.0	4.21	14,000	1.0	39.6	191.7	6.37	940	0'/10"	17.8	92.8	6.86	115
POND 1X	79.5	11.2	3.7	8.55	19,300	3.5	9.8	41.9	7.75	6,410	1.5'/10"	11.9	55.3	7.77	292
SEEPAGE PONDS	10.7	16.2	66.8	5.69	3,764	3.0	10.6	54.7	6.35	5,958	3'/10"	14.8	86.5	7.61	416
TOTAL REMOVAL AREAS (average)	433.2	25.7	63.4	7.05	12,832	2.6	18.9	79.2	7.33	5,443	1.6'/10"	13.6	65.6	7.50	426

	CHARACTERIZATION SAMPLING					POST REMOVAL SAMPLING					POST RECLAMATION SAMPLING				
AREA	ACRES	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	REMOVAL DEPTH (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF FILL MATERIAL (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)
10400 SOUTH RIGHT OF WAY ROAD CUT	10.6	66.5	142.4	5.47	8,661	13.0	14.6	72.6	6.66	2,479	13'	16.4	97.1	7.44	1,060

	CHARACTERIZATION SAMPLING					POST CONSOLIDATION SAMPLING					POST RECLAMATION SAMPLING				
AREA	ACRES	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF CONSOLIDATED SEDIMENTS (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF FILL MATERIAL/TOP SOIL (feet/inches)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)
CONSOLIDATED AREA	210.6	16.6	17.7	7.93	33,680	4.0	20.6	69.3	7.41	12,277	3'/12"	14.2	66.8	7.63	463

TABLE 4
POST REMOVAL SAMPLE RESULTS
SUMMARY TABLE

	CHARACTERIZATION SAMPLING						POST REMOVAL SAMPLING					POST RECLAMATION SAMPLING			
AREA	ACRES	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	REMOVAL DEPTH (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF FILL MATERIAL/TOP SOIL (feet/inches)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)
POND 1	2	41.1	118.2	7.69	13,100	1.0	16.8	62.8	7.12	8,730	1'/10"	12.7	58.8	7.53	374
POND 2	4.5	30.5	78.1	7.61	12,550	1.5	17.6	53.9	7.42	6,170	1'/10"	12.7	58.8	7.53	374
POND 3	10.9	17.3	56.0	7.81	9,182	3.0	18.4	61.9	7.75	7,315	1'/10"	12.7	58.8	7.53	374
POND 4	38.4	23.8	69.6	7.45	7,650	1.0	16.1	54.3	7.84	6,465	1'/10"	13.2	57.1	7.65	979
POND 5	46.6	23.5	61.4	7.78	2,975	1.0	18.2	63.7	7.98	3,093	1'/10"	12.7	58.8	7.53	374
POND 6	55.6	66.0	77.0	6.28	26,200	7.0	8.3	69.7	7.81	5,130	5'/10"	9.6	50.9	7.82	ND
POND 7	38.2	25.8	52.1	5.53	5,443	1.0	14.9	42.3	7.06	7,872	1'/10"	13.2	57.1	7.65	979
POND A5	14.9	17.2	57.9	7.35	26,626	4.0	18.8	81.4	7.76	8,230	5'/10"	14.2	59.7	7.71	292
POND D	10.1	3.2	0.5	8.67	13,200	4.0	28.1	55.3	8.33	8,370	3'/10"	17.8	92.8	6.86	115
POND F	121.8	32.5	120.0	4.21	14,000	1.0	39.6	191.7	6.37	940	0'/10"	17.8	92.8	6.86	115
POND 1X	79.5	11.2	3.7	8.55	19,300	3.5	9.8	41.9	7.75	6,410	1.5'/10"	11.9	55.3	7.77	292
SEEPAGE PONDS	10.7	16.2	66.8	5.69	3,764	3.0	10.6	54.7	6.35	5,958	3'/10"	14.8	86.5	7.61	416
TOTAL REMOVAL AREAS (average)	433.2	25.7	63.4	7.05	12,832	2.6	18.9	79.2	7.33	5,443	1.6'/10"	13.6	65.6	7.50	426

	CHARACTERIZATION SAMPLING						POST REMOVAL SAMPLING					POST RECLAMATION SAMPLING			
AREA	ACRES	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	REMOVAL DEPTH (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF FILL MATERIAL (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)
10400 SOUTH RIGHT OF WAY ROAD CUT	10.6	66.5	142.4	5.47	8,661	13.0	14.6	72.6	6.66	2,479	13'	16.4	97.1	7.44	1,060

	CHARACTERIZATION SAMPLING						POST CONSOLIDATION SAMPLING					POST RECLAMATION SAMPLING			
AREA	ACRES	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF CONSOLIDATED SEDIMENTS (feet)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)	THICKNESS OF FILL MATERIAL/TOP SOIL (feet/inches)	ARSENIC ppm (average)	LEAD ppm (average)	pH (average)	SULFATE ppm (average)
CONSOLIDATED AREA	210.6	16.6	17.7	7.93	33,680	4.0	20.6	69.3	7.41	12,277	3'/12"	14.2	66.8	7.63	463

7.0 REMOVAL AREA SUMMARIES

POND 1:

Total acres: 2.0
Total Post Removal Samples Collected: 1 (5-point composite)

Average Arsenic Concentration: 16.8 ppm
Average Lead Concentration: 62.8 ppm
Average pH: 7.12
Average Sulfate: 8,730 ppm

Maximum Arsenic Concentration: 16.8 ppm
Maximum Lead Concentration: 62.8 ppm
Minimum pH: 7.12
Maximum Sulfate: 8,730 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-016X	POND 1	14-Jul-94	20.0	81.6	7.40	15,100
EP-016XA*	POND 1	20-Jul-94	16.8	62.8	7.12	8,730

POND 2:

Total acres: 4.5
Total Post Removal Samples Collected: 1 (5-point composite)

Average Arsenic Concentration: 17.6 ppm
Average Lead Concentration: 53.9 ppm
Average pH: 7.42
Average Sulfate: 6,170 ppm

Maximum Arsenic Concentration: 17.6 ppm
Maximum Lead Concentration: 53.9 ppm
Minimum pH: 7.42
Maximum Sulfate: 6,170 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-015X	POND 2	11-Jul-94	17.6	53.9	7.42	6,170

POND 3:

Total acres: 10.9
Total Post Removal Samples Collected: 2 (1,4-point composite; 1,3-point composite)

Average Arsenic Concentration: 18.4 ppm
Average Lead Concentration: 61.9 ppm
Average pH: 7.75
Average Sulfate: 7,315 ppm

Maximum Arsenic Concentration: 22.4 ppm
Maximum Lead Concentration: 68.1 ppm
Minimum pH: 7.51
Maximum Sulfate: 8,290 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-013X	POND 3	6-Jul-94	24.3	73.1	7.38	10,600
EP-013XA*	POND 3	14-Jul-94	14.3	55.6	7.98	6,340
EP-014X	POND 3	6-Jul-94	22.4	68.1	7.51	8,290

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

POND 4:

Total acres: 38.4
Total Post Removal Samples Collected: 4 (2,5-point composite; 1,6-point composite; 1,3-point composite)

Average Arsenic Concentration: 16.1 ppm
Average Lead Concentration: 54.3 ppm
Average pH: 7.84
Average Sulfate: 6,465 ppm

Maximum Arsenic Concentration: 20.5 ppm
Maximum Lead Concentration: 66.7 ppm
Minimum pH: 7.40
Maximum Sulfate: 9,320 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-009X	POND 4	6-Jul-94	14.0	53.6	7.43	13,300
EP-009XA*	POND 4	14-Jul-94	12.1	44.4	8.16	3,120
EP-010X	POND 4	6-Jul-94	15.0	54.2	7.44	10,100
EP-010XA*	POND 4	14-Jul-94	13.7	48.0	7.91	7,450
EP-011X	POND 4	6-Jul-94	20.5	66.7	7.40	9,320
EP-012X	POND 4	6-Jul-94	13.7	55.5	7.42	10,700
EP-012XA*	POND 4	14-Jul-94	18.2	57.9	7.89	5,970

POND 5:

Total acres: 46.6
Total Post Removal Samples Collected: 4 (3,5-point composite; 1,4-point composite)

Average Arsenic Concentration: 18.2 ppm
Average Lead Concentration: 63.7 ppm
Average pH: 7.98
Average Sulfate: 3,093 ppm

Maximum Arsenic Concentration: 20.6 ppm
Maximum Lead Concentration: 68.8 ppm
Minimum pH: 7.94
Maximum Sulfate: 5,030 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-026X	POND 5	26-Jul-94	16.4	58.9	7.94	3,150
EP-027X	POND 5	26-Jul-94	15.2	68.8	7.95	1,150
EP-028X	POND 5	26-Jul-94	20.4	66.6	8.07	5,030
EP-029X	POND 5	26-Jul-94	20.6	60.5	7.97	3,040

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

POND 6:

Total acres: 55.6
Total Post Removal Samples Collected: 4 (2,5-point composite; 2,4-point composite)

Average Arsenic Concentration: 8.3 ppm
Average Lead Concentration: 69.7 ppm
Average pH: 7.81
Average Sulfate: 5,130 ppm

Maximum Arsenic Concentration: 10.7 ppm
Maximum Lead Concentration: 80.8 ppm
Minimum pH: 7.68
Maximum Sulfate: 8,590 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-065X	POND 6	30-Aug-94	10.2	77.5	7.71	1,930
EP-066X	POND 6	30-Aug-94	10.7	64.2	7.92	5,960
EP-067X	POND 6	30-Aug-94	10.6	49.7	7.98	10,200
EP-067XA*	POND 6	7-Sep-94	4.8	56.9	7.74	12,100
EP-067XB**	POND 6	14-Sep-94	4.8	56.3	7.91	4,040
EP-068X	POND 6	7-Sep-94	7.4	80.8	7.68	8,590

POND 7:

Total acres: 38.2
Total Post Removal Samples Collected: 6 (1,5-point composite; 2,4-point composite; 2,3-point composite; 1,2-point composite)

Average Arsenic Concentration: 14.9 ppm
Average Lead Concentration: 42.3 ppm
Average pH: 7.06
Average Sulfate: 7,872 ppm

Maximum Arsenic Concentration: 20.4 ppm
Maximum Lead Concentration: 52.9 ppm
Minimum pH: 6.73
Maximum Sulfate: 9,820 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-003X	POND 7	22-Jun-94	80.9	49.8	6.54	10,800
EP-003XA*	POND 7	11-Jul-94	13.8	26.6	6.84	9,820
EP-004X	POND 7	22-Jun-94	48.5	52.6	6.65	11,100
EP-004XA*	POND 7	11-Jul-94	16.4	45.2	7.26	12,000
EP-004XB**	POND 7	5-Aug-94	13.3	43.0	7.12	7,160
EP-005X	POND 7	22-Jun-94	56.1	37.1	6.58	12,300
EP-005XA*	POND 7	11-Jul-94	13.8	31.4	6.76	9,780
EP-006X	POND 7	22-Jun-94	53.9	53.4	6.73	11,500
EP-006XA*	POND 7	11-Jul-94	20.4	48.1	6.73	8,480
EP-007X	POND 7	22-Jun-94	43.3	51.2	7.35	9,360
EP-007XA*	POND 7	11-Jul-94	11.9	52.9	7.38	8,440
EP-008X	POND 7	22-Jun-94	35.6	50.2	7.65	8,430
EP-008XA*	POND 7	11-Jul-94	16.4	51.7	7.52	3,550

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

POND A5:

Total acres: 14.9
Total Post Removal Samples Collected: 2 (1,5-point composite; 1,6-point composite)

Average Arsenic Concentration: 18.8 ppm
Average Lead Concentration: 81.4 ppm
Average pH: 7.76
Average Sulfate: 8,230 ppm

Maximum Arsenic Concentration: 25.1 ppm
Maximum Lead Concentration: 108.0 ppm
Minimum pH: 7.68
Maximum Sulfate: 9,620 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-017X	POND A5	11-Jul-94	12.5	54.7	7.84	6,840
EP-018X	POND A5	11-Jul-94	25.1	108.0	7.68	9,620

POND D:

Total acres: 10.1
Total Post Removal Samples Collected: 2 (1,5-point composite; 1,4-point composite)

Average Arsenic Concentration: 28.1 ppm
Average Lead Concentration: 55.3 ppm
Average pH: 8.33
Average Sulfate: 8,370 ppm

Maximum Arsenic Concentration: 29.9 ppm
Maximum Lead Concentration: 71.0 ppm
Minimum pH: 8.23
Maximum Sulfate: 10,800 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-001X	POND D	14-Jun-94	28.1	71.0	8.23	5,940
EP-002X	POND D	14-Jun-94	29.9	39.6	8.43	10,800

POND F:

Total acres: 121.8
Total Post Removal Samples Collected: 8 (4,5-point composite; 3,4-point composite)
1,3-point composite)

Average Arsenic Concentration: 39.6 ppm
Average Lead Concentration: 191.7 ppm
Average pH: 6.37
Average Sulfate: 940 ppm

Maximum Arsenic Concentration: 84.9 ppm
Maximum Lead Concentration: 365.0 ppm
Minimum pH: 4.89
Maximum Sulfate: 1910 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-034X	POND F	8-Aug-94	53.1	198.0	5.84	181
EP-035X	POND F	8-Aug-94	66.7	285.0	5.42	1,060
EP-036X	POND F	8-Aug-94	84.9	365.0	6.98	255
EP-037X	POND F	8-Aug-94	36.1	139.0	7.22	1,650
EP-038X	POND F	8-Aug-94	21.0	234.0	4.89	1,910
EP-039X	POND F	8-Aug-94	23.6	122.0	7.28	1,330
EP-040X	POND F	8-Aug-94	13.7	95.3	7.48	115
EP-064X	POND F	26-Aug-94	17.6	95.2	5.82	1,020

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

POND 1X:

Total acres: 79.5
Total Post Removal Samples Collected: 7 (4,5-point composite; 2,4-point composite) 1,3-point composite)

Average Arsenic Concentration: 9.8 ppm
Average Lead Concentration: 41.9 ppm
Average pH: 7.75
Average Sulfate: 6,410 ppm

Maximum Arsenic Concentration: 11.7 ppm
Maximum Lead Concentration: 53.6 ppm
Minimum pH: 7.21
Maximum Sulfate: 9,030 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-019X	POND 1X	14-Jul-94	11.6	53.0	7.21	8,280
EP-020X	POND 1X	14-Jul-94	11.5	32.1	8.07	19,300
EP-020XA*	POND 1X	22-Jul-94	12.9	64.9	7.45	14,600
EP-020XB**	POND 1X	3-Aug-94	7.9	29.9		6,700
EP-021X	POND 1X	14-Jul-94	11.5	55.0	7.99	17,300
EP-021XA*	POND 1X	22-Jul-94	8.1	32.4	7.87	1,370
EP-022X	POND 1X	14-Jul-94	7.9	24.3	7.92	18,300
EP-022XA*	POND 1X	22-Jul-94	11.8	62.3	7.94	11,500
EP-022XB**	POND 1X	3-Aug-94	10.8	40.6		9,030
EP-023X	POND 1X	14-Jul-94	11.5	38.3	8.03	15,600
EP-023XA*	POND 1X	22-Jul-94	11.7	53.1	8.07	13,900
EP-023XB**	POND 1X	3-Aug-94	8.4	32.2		7,440
EP-024X	POND 1X	14-Jul-94	9.9	53.6	7.69	5,920
EP-025X	POND 1X	14-Jul-94	11.5	61.4	8.31	16,700
EP-025XA*	POND 1X	22-Jul-94	11.7	51.8	7.99	6,130

SEEPAGE PONDS: (Ponds SA, SB, SC, SD, SE, EC)

Total acres: 10.7
Total Post Removal Samples Collected: 4 (4,5-point composite)

Average Arsenic Concentration: 10.6 ppm
Average Lead Concentration: 54.7 ppm
Average pH: 6.35
Average Sulfate: 5,958 ppm

Maximum Arsenic Concentration: 15.8 ppm
Maximum Lead Concentration: 59.7 ppm
Minimum pH: 4.78
Maximum Sulfate: 7,550 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-030X	SEEPAGE PONDS	2-Aug-94	6.4	57.8	6.02	6,770
EP-031X	SEEPAGE PONDS	2-Aug-94	15.8	59.7	4.78	7,550
EP-032X	SEEPAGE PONDS	2-Aug-94	9.2	73.5	5.94	10,600
EP-032XA*	SEEPAGE PONDS	5-Aug-94	8.4	58.3	7.14	5,230
EP-033X	SEEPAGE PONDS	2-Aug-94	11.9	42.8	7.47	4,280

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

10400 SOUTH RIGHT OF WAY:

Total acres: 10.6
Total Post Removal Samples Collected: 9 (9,5-point composite)

Average Arsenic Concentration: 14.6 ppm
Average Lead Concentration: 72.6 ppm
Average pH: 6.66
Average Sulfate: 2,479 ppm

Maximum Arsenic Concentration: 21.2 ppm
Maximum Lead Concentration: 103.0 ppm
Minimum pH: 4.22
Maximum Sulfate: 7,460 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-069X	10400 SOUTH RIGHT OF WAY	15-Sep-94	9.9	43.2	7.40	5,490
EP-070X	10400 SOUTH RIGHT OF WAY	15-Sep-94	21.2	77.4	4.22	7,460
EP-071X	10400 SOUTH RIGHT OF WAY	16-Sep-94	29.2	144.0	4.69	12,300
EP-071XA*	10400 SOUTH RIGHT OF WAY	21-Sep-94	18.1	77.9	4.80	4,830
EP-072X	10400 SOUTH RIGHT OF WAY	16-Sep-94	14.4	78.4	6.43	10,500
EP-072XA*	10400 SOUTH RIGHT OF WAY	21-Sep-94	16.0	63.8	5.39	1,650
EP-073X	10400 SOUTH RIGHT OF WAY	19-Oct-94	11.2	77.4	7.63	ND (<100)
EP-074X	10400 SOUTH RIGHT OF WAY	19-Oct-94	21.4	86.6	7.91	ND (<100)
EP-075X	10400 SOUTH RIGHT OF WAY	19-Oct-94	14.3	85.9	8.06	ND (<100)
EP-076X	10400 SOUTH RIGHT OF WAY	19-Oct-94	8.8	51.8	7.90	ND (<100)
EP-077X	10400 SOUTH RIGHT OF WAY	19-Oct-94	16.9	103.0	7.91	ND (<100)

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

CONSOLIDATED AREA:

Total acres: 210.6

Total Post Removal Samples Collected: 15 (13,5-point composite; 1,4-point composite; 1,3-point composite)

Average Arsenic Concentration: 20.6 ppm
Average Lead Concentration: 69.3 ppm
Average pH: 7.41
Average Sulfate: 12,277 ppm

Maximum Arsenic Concentration: 88.7 ppm
Maximum Lead Concentration: 115.0 ppm
Minimum pH: 4.44
Maximum Sulfate: 16,500 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-049X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	14.2	61.8	8.24	13,200
EP-050X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	8.9	63.9	7.93	12,500
EP-051X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	13.4	45.2	7.73	13,200
EP-052X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	12.8	52.4	7.90	13,100
EP-053X	CONSOLIDATED AREA (SOUTH)	17-Aug-94	14.4	48.1	7.79	13,000
EP-054X	CONSOLIDATED AREA (NORTH)	21-Sep-94	19.2	93.1	4.44	5,400
EP-055X	CONSOLIDATED AREA (NORTH)	21-Sep-94	36.1	91.4	5.93	9,650
EP-056X	CONSOLIDATED AREA (NORTH)	16-Sep-94	88.7	115.0	6.56	10,300
EP-057X	CONSOLIDATED AREA (NORTH)	16-Sep-94	16.2	43.4	7.86	16,400
EP-058X	CONSOLIDATED AREA (NORTH)	26-Aug-94	13.1	72.4	8.06	10,100
EP-059X	CONSOLIDATED AREA (NORTH)	16-Sep-94	10.4	54.6	7.59	14,800
EP-060X	CONSOLIDATED AREA (NORTH)	16-Sep-94	12.6	88.8	7.82	16,500
EP-061X	CONSOLIDATED AREA (NORTH)	26-Aug-94	14.8	71.2	8.11	10,400
EP-062X	CONSOLIDATED AREA (NORTH)	1-Sep-94	11.8	63.2	7.59	12,700
EP-063X	CONSOLIDATED AREA (NORTH)	1-Sep-94	22.6	75.6	7.70	12,900

*Post removal resample, collected following the removal of additional material.

** 2nd post removal resample, collected following the removal of additional material.

BORROW AREA:

Total Samples Collected: 44 (Samples collected from trench excavations within the borrow a prior to movement of material)

Average Arsenic Concentration: 12.0 ppm
Average Lead Concentration: 44.9 ppm
Average pH: 8.14
Average Sulfate: 675 ppm

Maximum Arsenic Concentration: 23.3 ppm
Maximum Lead Concentration: 72.4 ppm
Minimum pH: 7.70
Maximum Sulfate: 2,720 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-041X-1	BORROW AREA	9-Aug-94	8.2	38.9	7.99	ND (<100)
EP-041X-2	BORROW AREA	9-Aug-94	5.5	34.6	8.14	1,070
EP-041X-3	BORROW AREA	9-Aug-94	18.9	54.7	8.11	864
EP-041X-4	BORROW AREA	9-Aug-94	6.6	19.1	9.82	ND (<100)
EP-041X-5	BORROW AREA	9-Aug-94	4.3	72.4	9.85	329
EP-042X-1	BORROW AREA	9-Aug-94	9.0	46.7	7.70	165
EP-042X-2	BORROW AREA	9-Aug-94	12.5	49.3	8.08	1,320
EP-042X-3	BORROW AREA	9-Aug-94	13.2	47.6	7.93	1,820
EP-042X-4	BORROW AREA	9-Aug-94	6.3	31.6	7.84	1,690
EP-042X-5	BORROW AREA	9-Aug-94	6.2	48.5	7.87	2,210
EP-043X-1	BORROW AREA	9-Aug-94	8.2	47.1	7.83	ND (<100)
EP-043X-2	BORROW AREA	9-Aug-94	8.7	35.5	8.12	1,100
EP-043X-3	BORROW AREA	9-Aug-94	11.8	40.3	8.13	296
EP-043X-4	BORROW AREA	9-Aug-94	11.8	42.1	8.13	288
EP-043X-5	BORROW AREA	9-Aug-94	13.0	45.9	8.17	399
EP-043X-6	BORROW AREA	9-Aug-94	11.3	43.7	8.17	728
EP-044X-1	BORROW AREA	9-Aug-94	8.2	46.7	8.43	296
EP-044X-2	BORROW AREA	9-Aug-94	12.6	35.9	8.06	1,430
EP-044X-3	BORROW AREA	9-Aug-94	10.8	37.3	8.02	1,450
EP-044X-4	BORROW AREA	9-Aug-94	11.2	35.9	8.02	741
EP-044X-5	BORROW AREA	9-Aug-94	10.7	39.0	7.96	ND (<100)
EP-044X-6	BORROW AREA	9-Aug-94	7.9	32.6	7.92	518
EP-045X-1	BORROW AREA	9-Aug-94	11.0	44.2	7.72	ND (<100)
EP-045X-2	BORROW AREA	9-Aug-94	19.6	46.8	7.99	ND (<100)
EP-045X-3	BORROW AREA	9-Aug-94	14.8	43.5	8.04	ND (<100)
EP-045X-4	BORROW AREA	9-Aug-94	12.0	42.5	8.08	128
EP-045X-5	BORROW AREA	9-Aug-94	11.9	47.3	8.07	1,250
EP-045X-6	BORROW AREA	9-Aug-94	16.4	55.3	8.17	ND (<100)
EP-046X-1	BORROW AREA	9-Aug-94	8.4	43.6	7.72	ND (<100)
EP-046X-2	BORROW AREA	9-Aug-94	17.2	49.9	7.97	ND (<100)
EP-046X-3	BORROW AREA	9-Aug-94	15.9	42.8	8.03	2,050
EP-046X-4	BORROW AREA	9-Aug-94	18.8	46.0	8.13	2,720
EP-046X-5	BORROW AREA	9-Aug-94	17.7	59.8	8.19	1,690
EP-046X-6	BORROW AREA	9-Aug-94	23.3	58.0	8.09	2,260
EP-047X-1	BORROW AREA	9-Aug-94	7.7	36.5	7.97	103
EP-047X-2	BORROW AREA	9-Aug-94	16.3	19.3	7.96	ND (<100)
EP-047X-3	BORROW AREA	9-Aug-94	21.9	67.3	7.89	280
EP-047X-4	BORROW AREA	9-Aug-94	9.4	42.8	7.97	ND (<100)

*Post removal resample, collected following the removal of additional material.
** 2nd post removal resample, collected following the removal of additional material.

BORROW AREA: (cont.)

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-047X-5	BORROW AREA	9-Aug-94	10.5	39.5	8.04	ND (<100)
EP-048X-1	BORROW AREA	9-Aug-94	8.9	50.5	8.07	185
EP-048X-2	BORROW AREA	9-Aug-94	16.4	59.2	8.08	ND (<100)
EP-048X-3	BORROW AREA	9-Aug-94	12.7	50.7	8.65	712
EP-048X-4	BORROW AREA	9-Aug-94	11.9	54.0	8.70	ND (<100)
EP-048X-5	BORROW AREA	9-Aug-94	8.1	52.8	8.14	123

POST RECLAMATION SAMPLING

Total acres: 654.4

Total Post Removal Samples Collected: 11 (2,7-point composite; 1,8-point composite; 1,9-p
1,10-point composite1,13-point composite; 1,15-point
1,16-point composite; 1,20-point composite; 1,21-poin

Average Arsenic Concentration: 41.4 ppm
Average Lead Concentration: 70.0 ppm
Average pH: 7.56
Average Sulfate: 472 ppm

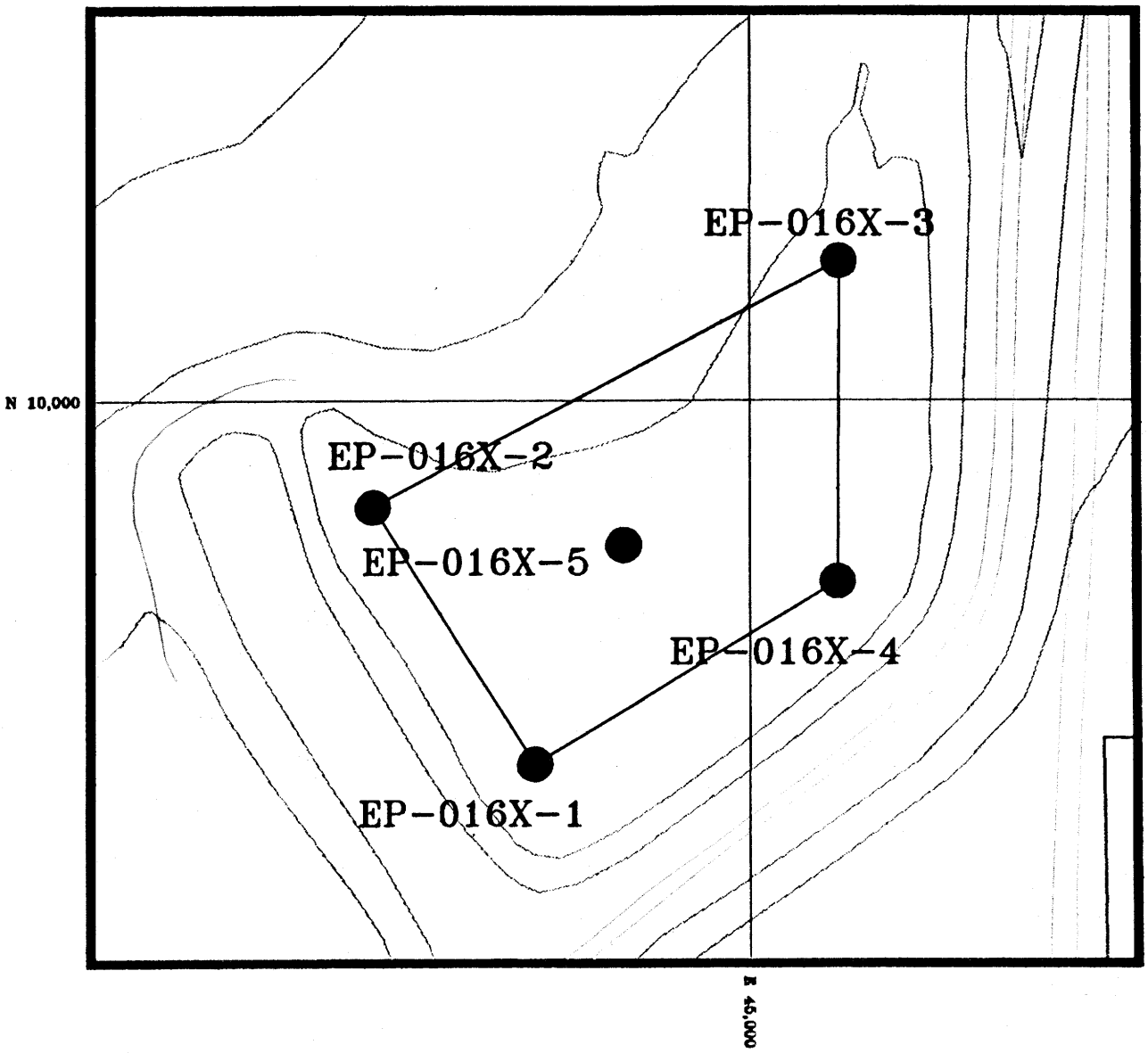
Maximum Arsenic Concentration: 17.8 ppm
Maximum Lead Concentration: 97.1 ppm
Minimum pH: 6.86
Maximum Sulfate: 1,470 ppm

SAMPLE	AREA	SAMPLE DATE	ARSENIC (ppm)	LEAD (ppm)	pH	SULFATE (ppm)
EP-078XR	PONDS 1, 2, 3, 5	11-Jan-95	12.7	58.8	7.53	374
EP-079XR	PONDS 4, 7	11-Jan-95	13.2	57.1	7.65	979
EP-080XR	PONDS 6, 1X	12-Jan-95	9.6	50.9	7.82	ND (<100)
EP-081XR	PONDS 1X, A5	12-Jan-95	14.2	59.7	7.71	292
EP-082XR	CONSOLIDATED AREA (SOUTH)	18-Jan-95	12.5	53.3	7.78	ND (<100)
EP-083XR	CONSOLIDATED AREA (SOUTH)	18-Jan-95	13.6	53.4	7.80	181
EP-084XR	CONSOLIDATED AREA (NORTH)	18-Jan-95	14.7	68.2	7.60	1,470
EP-085XR	CONSOLIDATED AREA (NORTH)	18-Jan-95	16.1	92.2	7.32	ND (<100)
EP-086XR	POND F	18-Jan-95	17.8	92.8	6.86	115
EP-087XR	SEEPAGE PONDS	19-Jan-95	14.8	86.5	7.61	416
EP-088XR	10400 SOUTH RIGHT OF WAY	27-Jan-95	16.4	97.1	7.44	1,060

*Post removal resample, collected following the removal of additional material.

** 2nd post removal resample, collected following the removal of additional material.

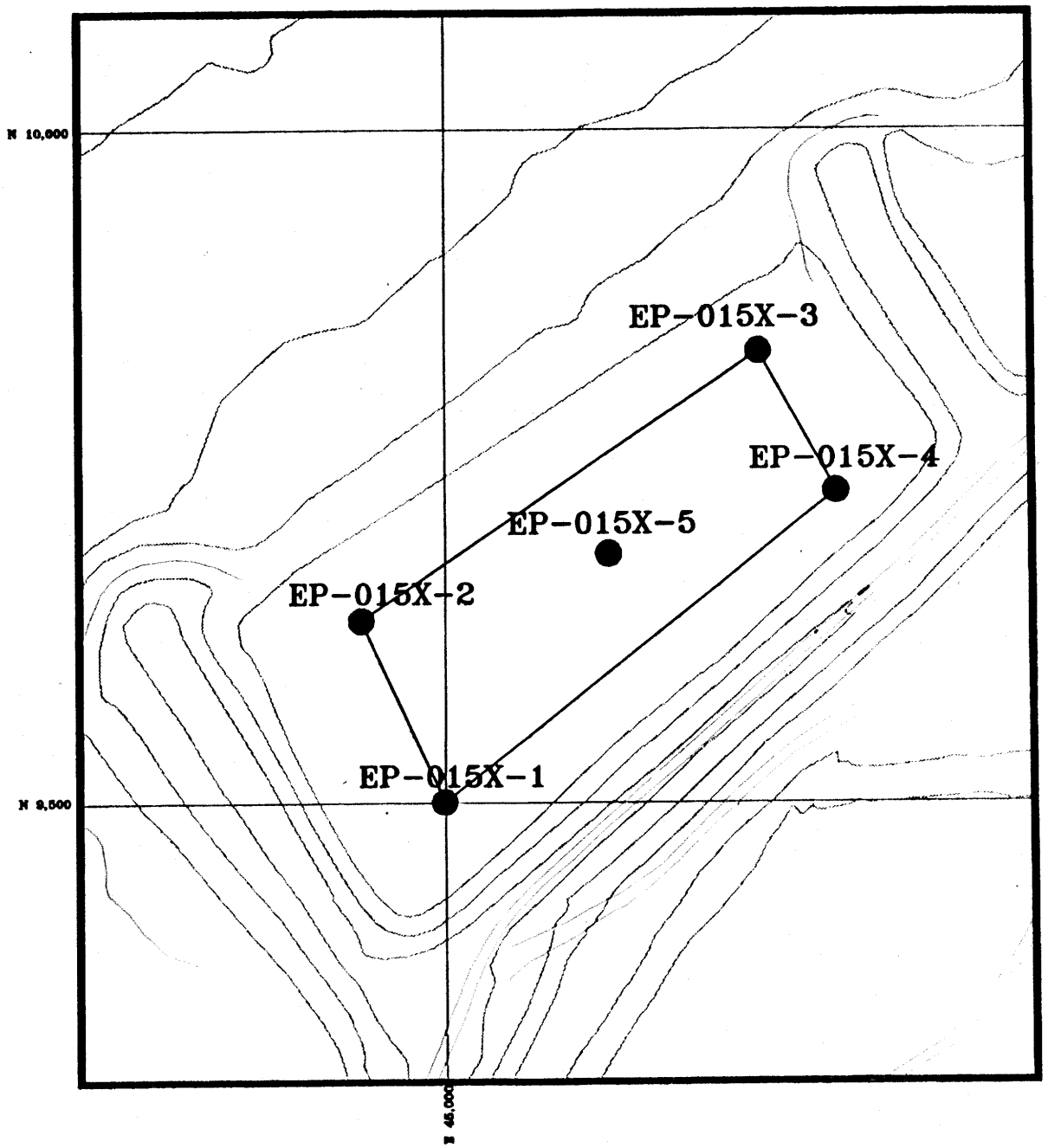
FIGURE 1
POND 1 - POST REMOVAL SAMPLE LOCATIONS



POND 1 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SUBSITE	NORTHING	EASTING
EP-016X-1	9850	45415
EP-016X-2	9955	45350
EP-016X-3	10055	45535
EP-016X-4	9925	45535
EP-016X-5	9940	45450

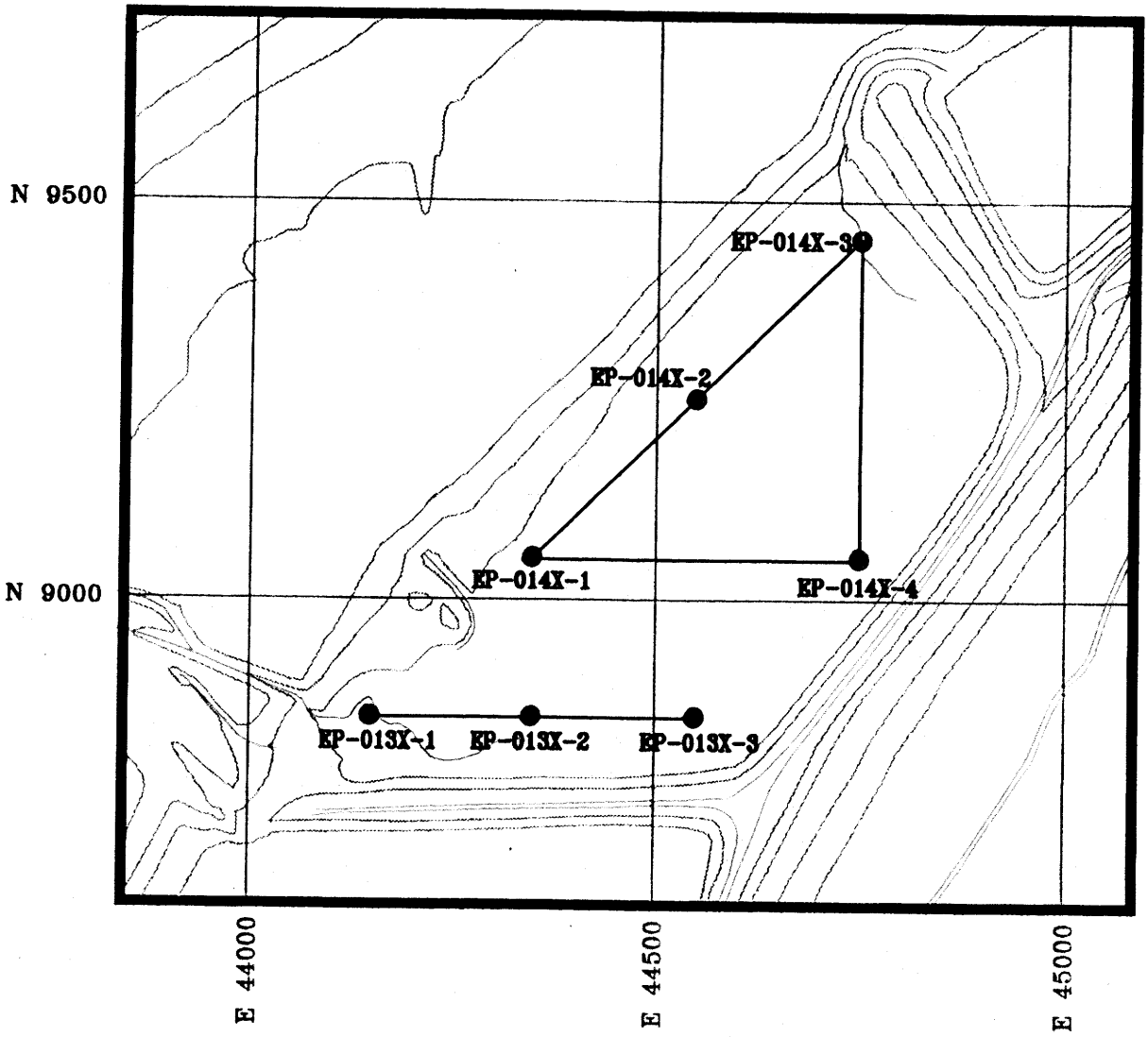
FIGURE 2
POND 2 - POST REMOVAL SAMPLE LOCATIONS



POND 2 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SUBSITE	NORTHING	EASTING
EP-015X-1	9500	45000
EP-015X-2	9635	44940
EP-015X-3	9835	45230
EP-015X-4	9730	45285
EP-015X-5	9685	45120

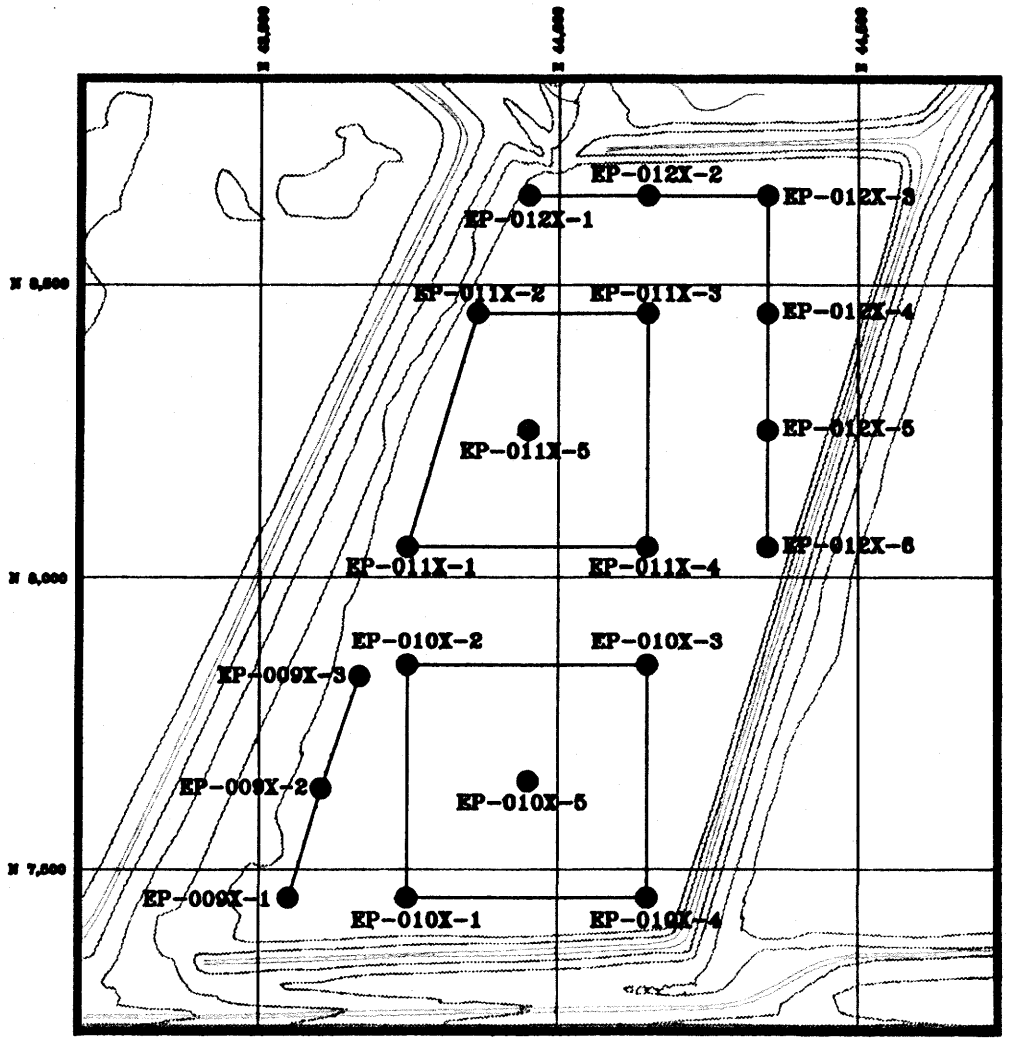
FIGURE 3
POND 3 - POST REMOVAL SAMPLE LOCATIONS



POND 3 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SUBSITE	NORTHING	EASTING
EP-013X-1	8850	44150
EP-013X-2	8850	44350
EP-013X-3	8850	44550
EP-014X-1	9050	44350
EP-014X-2	9250	44550
EP-014X-3	9450	44750
EP-014X-4	9050	44750

FIGURE 4
POND 4 - POST REMOVAL SAMPLE LOCATIONS

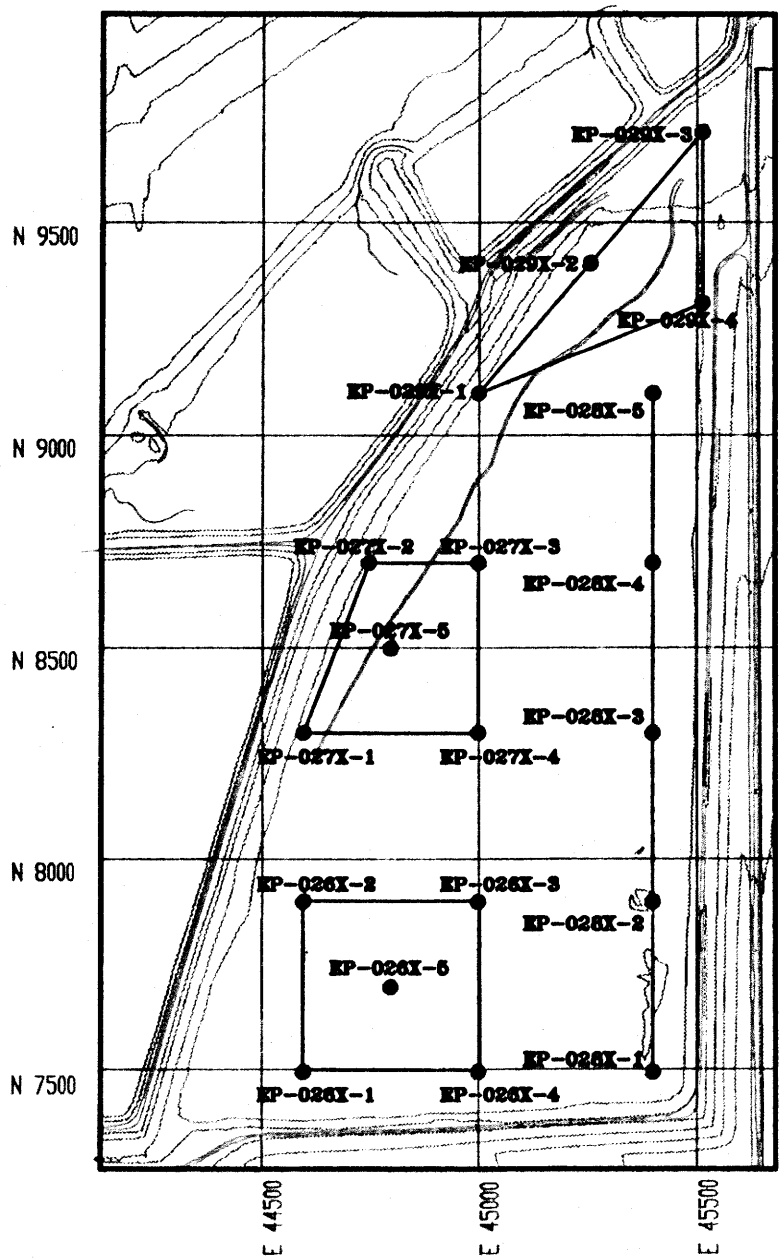


POND 4 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE SUBSITE	NORTHING	EASTING
EP-009X-1	7450	43550
EP-009X-2	7638	43605
EP-009X-3	7830	43670
EP-010X-1	7450	43750
EP-010X-2	7850	43750
EP-010X-3	7850	43750
EP-010X-4	7450	44150
EP-010X-5	7350	43950

SAMPLE SUBSITE	NORTHING	EASTING
EP-011X-1	8050	43750
EP-011X-2	8450	43865
EP-011X-3	8450	44150
EP-011X-4	8050	44150
EP-011X-5	8250	43950
EP-012X-1	8650	43950
EP-012X-2	8650	44150
EP-012X-3	8650	44350
EP-012X-4	8450	44350
EP-012X-5	8250	44350
EP-012X-5	8050	44350

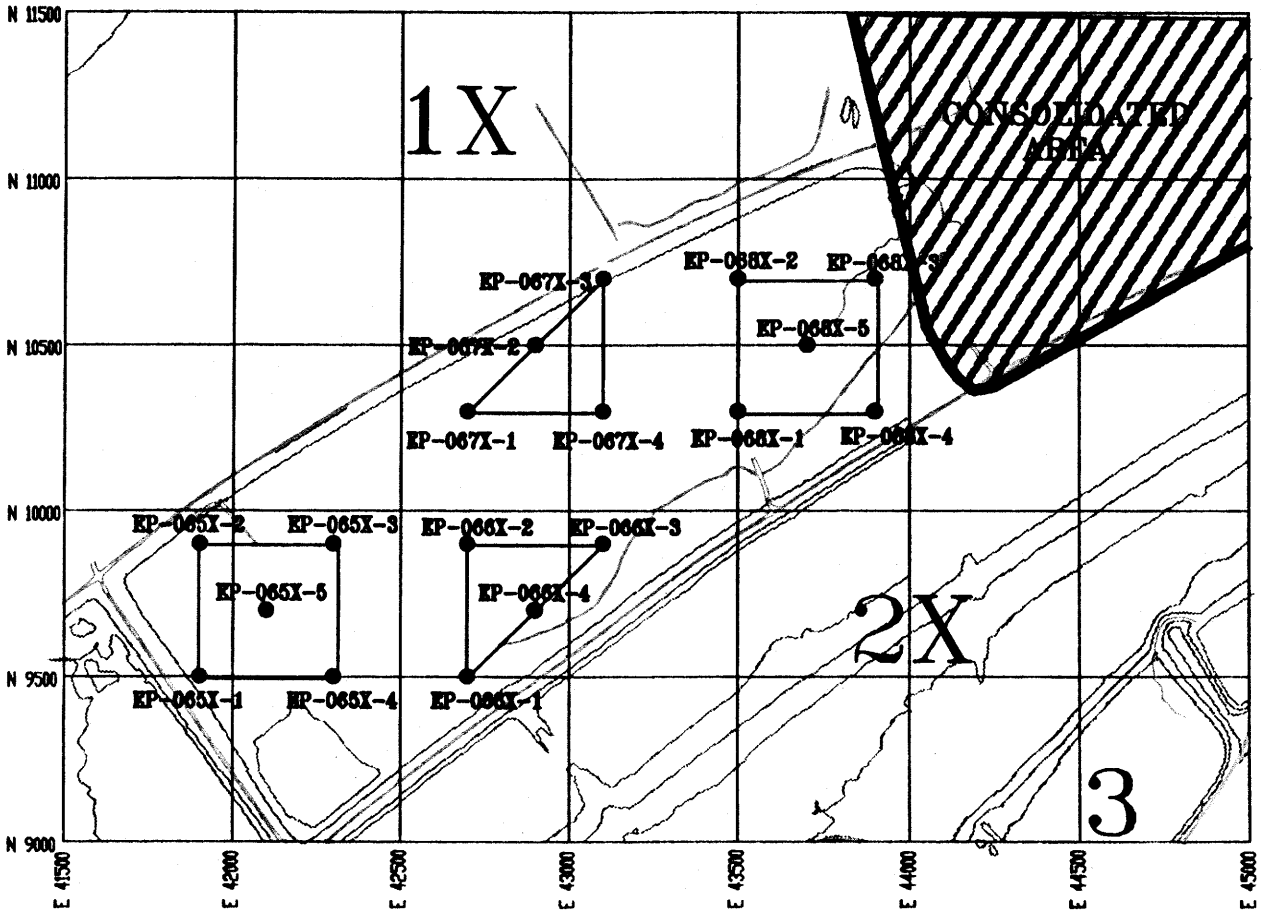
FIGURE 5
POND 5 - POST REMOVAL SAMPLE LOCATIONS



POND 5 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE ID	NORTHING	EASTING	SAMPLE ID	NORTHING	EASTING
EP-026X-1	7500	44600	EP-028X-1	7500	45400
EP-026X-2	7900	44600	EP-028X-2	7900	45400
EP-026X-3	7900	45000	EP-028X-3	8300	45400
EP-026X-4	7500	45000	EP-028X-4	8700	45400
EP-026X-5	7700	44800	EP-028X-5	9100	45400
EP-027X-1	8300	44600	EP-029X-1	9100	45000
EP-027X-2	8700	44750	EP-029X-2	9406	45257
EP-027X-3	8700	45000	EP-029X-3	9712	45514
EP-027X-4	8300	45000	EP-029X-4	9312	45514
EP-027X-5	8500	44800			

FIGURE 6
POND 6 - POST REMOVAL SAMPLE LOCATIONS

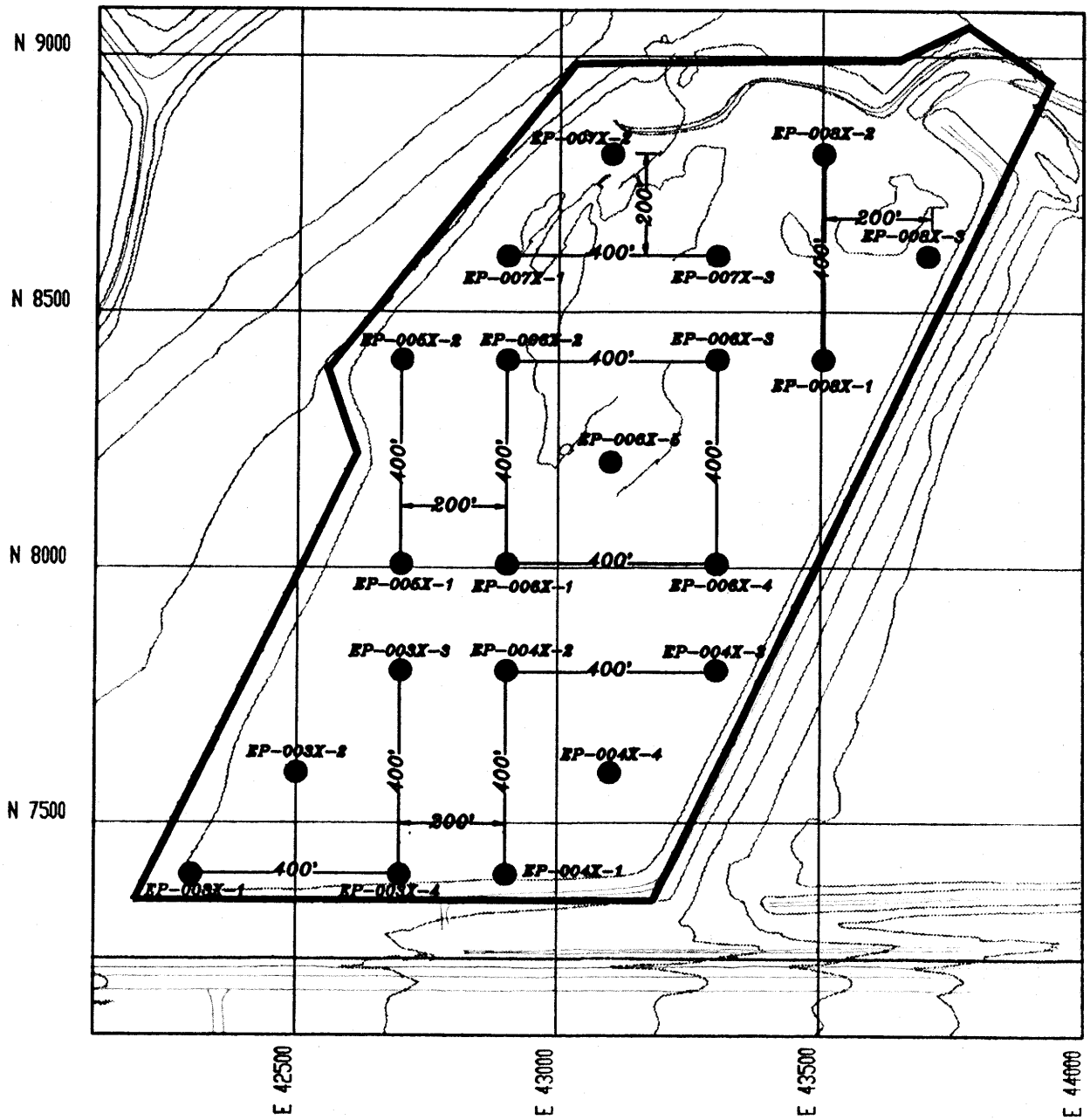


POND 6 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE SUBSITE	NORTHING	EASTING
EP-065X-1	9500	41900
EP-065X-2	9900	41900
EP-065X-3	9900	42300
EP-065X-4	9500	42300
EP-065X-5	9700	42100
EP-066X-1	9500	42700
EP-066X-2	9900	42700
EP-066X-3	9900	43100
EP-066X-4	9700	42900

SAMPLE SUBSITE	NORTHING	EASTING
EP-067X-1	10300	42700
EP-067X-2	10500	42900
EP-067X-3	10700	43100
EP-067X-4	10300	43100
EP-068X-1	10300	43500
EP-068X-2	10700	43500
EP-068X-3	10700	43900
EP-068X-4	10300	43900
EP-068X-5	10500	43700

FIGURE 7
POND 7 - POST REMOVAL SAMPLE LOCATIONS

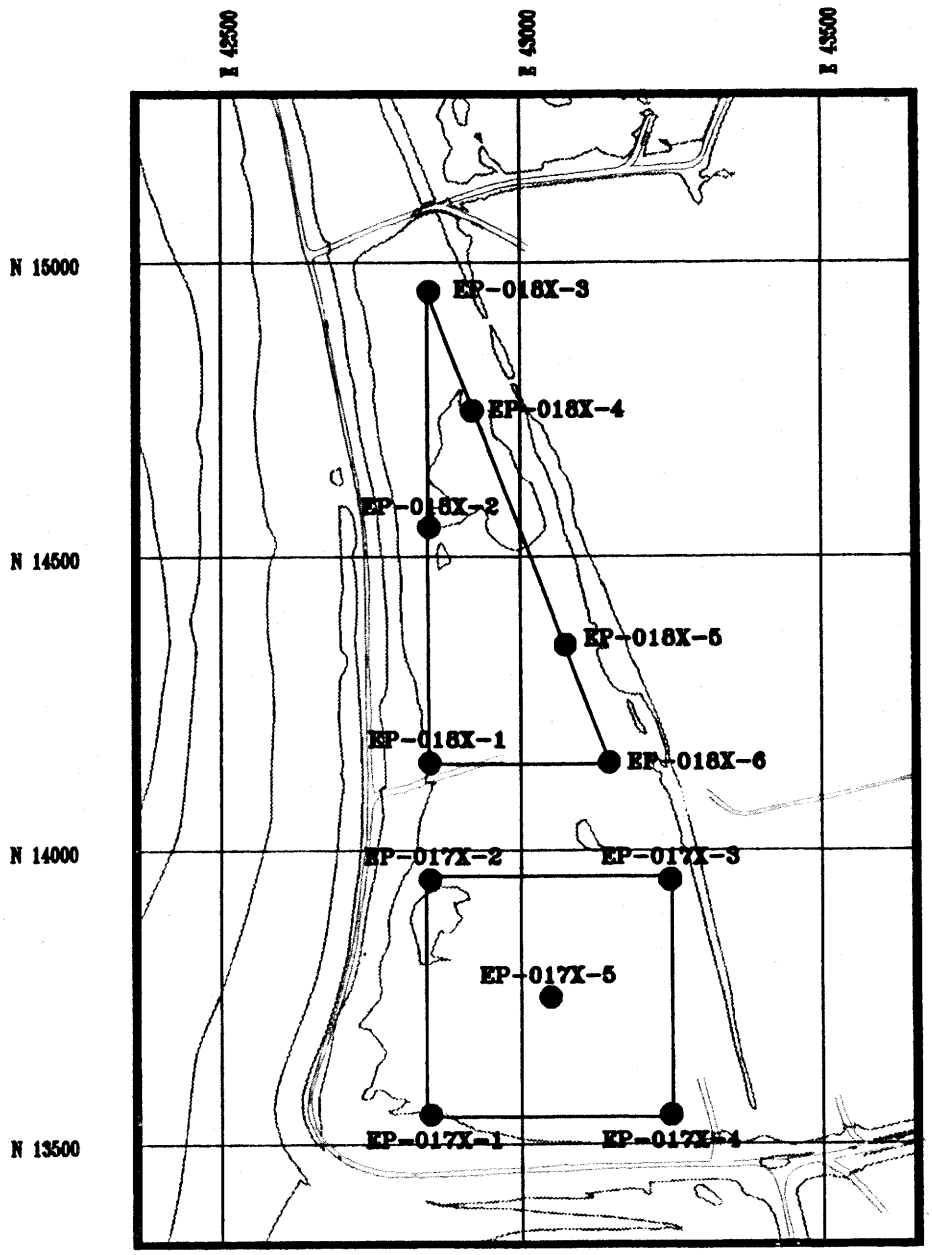


POST REMOVAL SAMPLE SUBSITE LOCATIONS

SUBSITE	NORTHING	EASTING
EP-003X-1	7400	42300
EP-003X-2	7600	42500
EP-003X-3	7800	42700
EP-003X-4	7400	42700
EP-004X-1	7400	42900
EP-004X-2	7800	42900
EP-004X-3	7800	43300
EP-004X-4	7600	43100
EP-005X-1	8000	42700
EP-005X-2	8400	42700

SUBSITE	NORTHING	EASTING
EP-006X-1	8000	42900
EP-006X-2	8400	42900
EP-006X-3	8400	43300
EP-006X-4	8000	43300
EP-006X-5	8200	43100
EP-007X-1	8600	42900
EP-007X-2	8800	43100
EP-007X-3	8600	43300
EP-008X-1	8400	43500
EP-008X-2	8800	43500
EP-008X-3	8600	43700

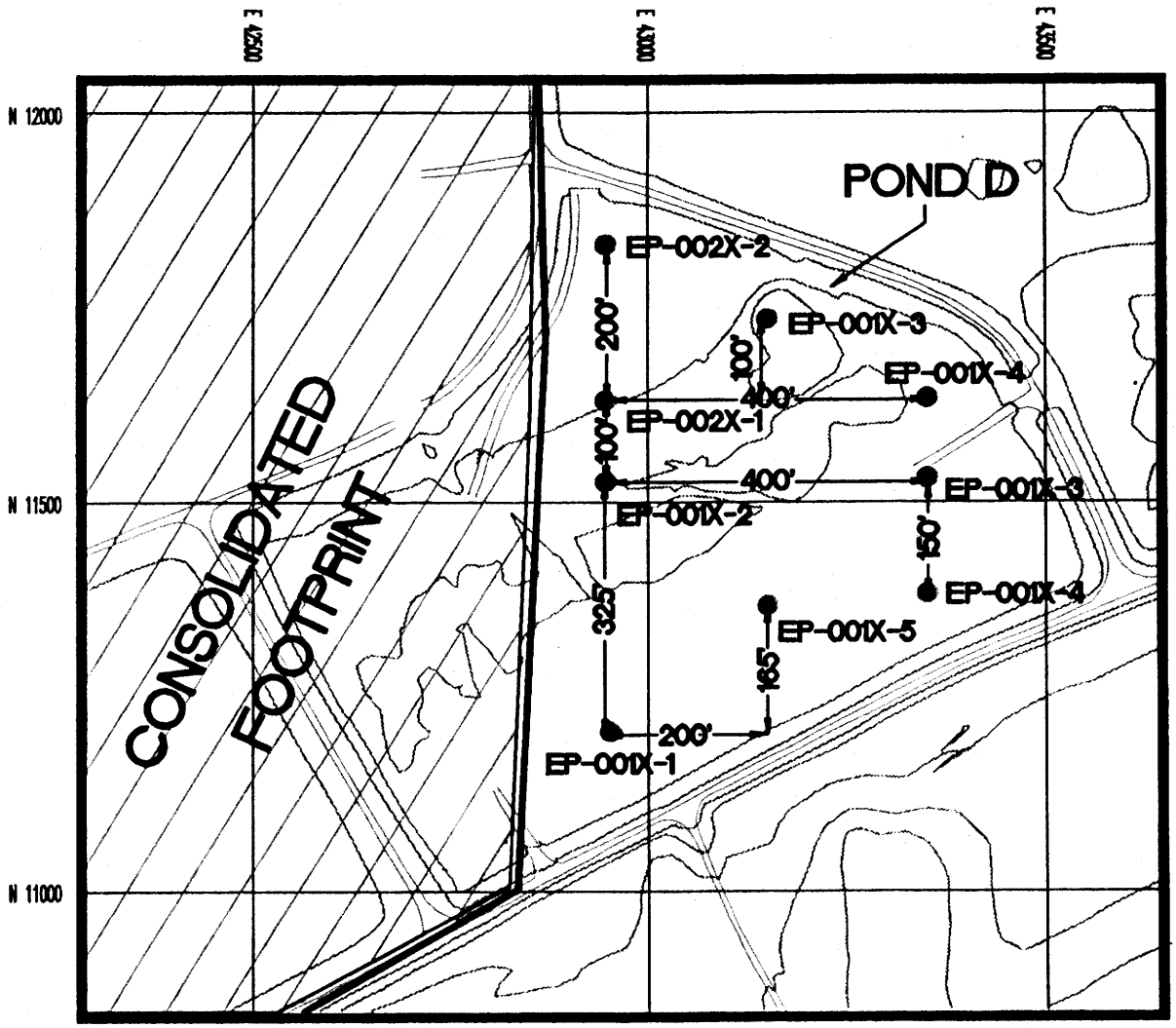
FIGURE 8
POND A5 - POST REMOVAL SAMPLE LOCATIONS



POND A5 - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE SUBSITE	NORTHING	EASTING
EP-017X-1	13550	42850
EP-017X-2	13950	42850
EP-017X-3	13950	43250
EP-017X-4	13550	43250
EP-017X-5	13750	43050
EP-018X-1	14150	42850
EP-018X-2	14550	42850
EP-018X-3	14950	42850
EP-018X-4	14750	42925
EP-018X-5	14350	43075
EP-018X-6	14150	43150

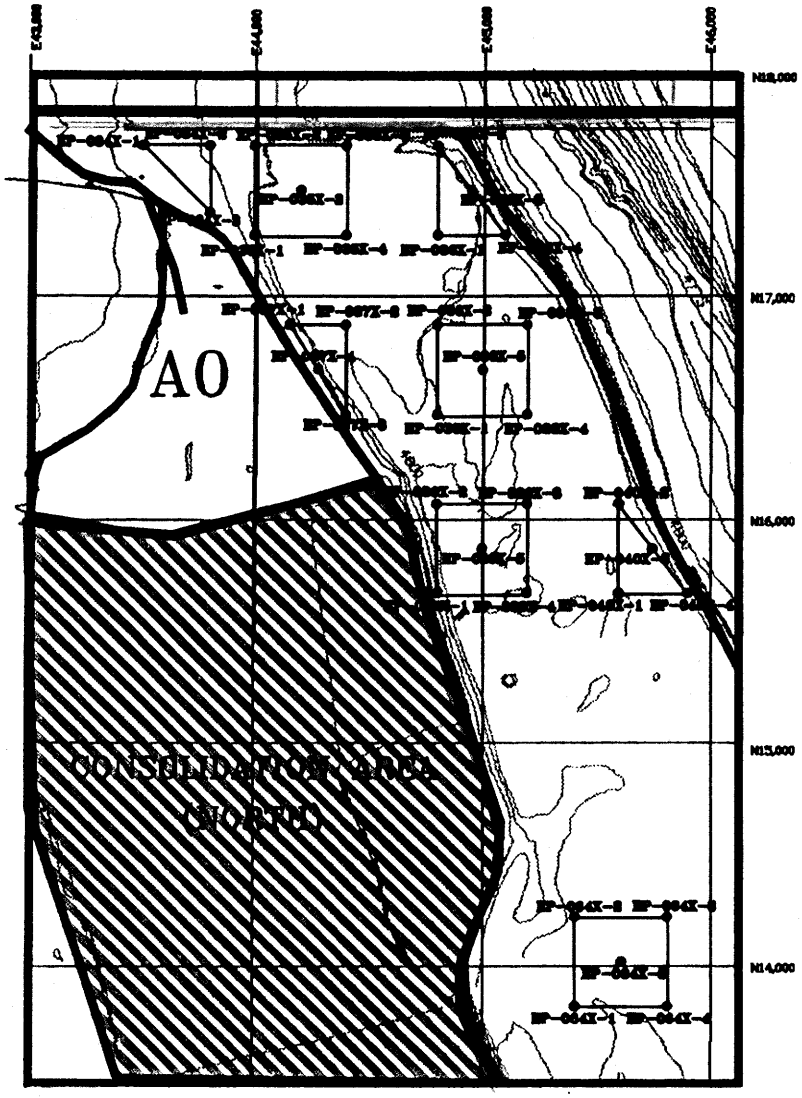
FIGURE 9
POND D - POST REMOVAL SAMPLE LOCATIONS



POND D - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SUBSITE	NORTHING	EASTING
EP-001X-1	11200	45450
EP-001X-2	11525	45450
EP-001X-3	11525	45850
EP-001X-4	11375	45850
EP-001X-5	11365	45650
EP-002X-1	11625	45450
EP-002X-2	11825	45450
EP-002X-3	11725	45650
EP-002X-4	11625	45850

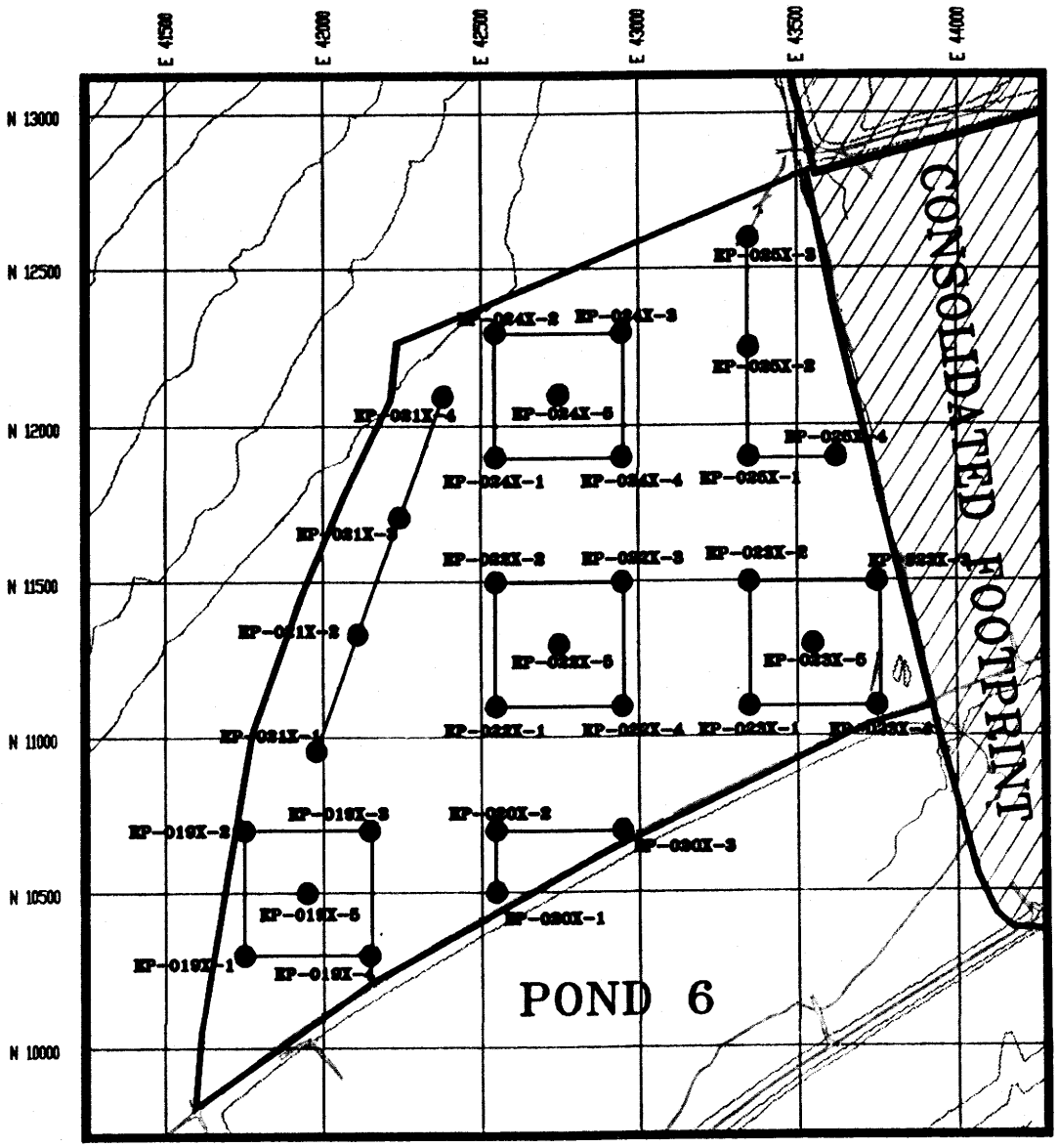
FIGURE 10
POND F - POST REMOVAL SAMPLE LOCATIONS



POND F - POST REMOVAL SAMPLE LOCATIONS

SAMPLE SUBSITE	NORTHING	EASTING
EP-034X-1	17675	43500
EP-034X-2	17675	43800
EP-034X-3	17375	43800
EP-035X-1	17275	44000
EP-035X-2	17675	44000
EP-035X-3	17675	44400
EP-035X-4	17275	44400
EP-035X-5	17475	44200
EP-036X-1	17275	44800
EP-036X-2	17675	44800
EP-036X-3	17470	44945
EP-036X-4	17275	45100
EP-037X-1	16875	44150
EP-037X-2	16875	44400
EP-037X-3	16475	44400
EP-037X-4	16675	44275
EP-038X-1	16475	44800
EP-038X-2	16875	44800
EP-038X-3	16875	45200
EP-038X-4	16475	45200
EP-038X-5	16675	45000
EP-039X-1	15675	44800
EP-039X-2	16025	44800
EP-039X-3	16025	45200
EP-039X-4	15675	45200
EP-039X-5	15875	45000
EP-040X-1	15675	45600
EP-040X-2	16025	45600
EP-040X-3	15875	45740
EP-040X-4	15675	45900
EP-064X-1	45408	13819
EP-064X-2	45408	14219
EP-064X-3	45808	14219
EP-064X-4	45808	13819
EP-064X-5	45608	14019

FIGURE 11
POND 1X - POST REMOVAL SAMPLE LOCATIONS

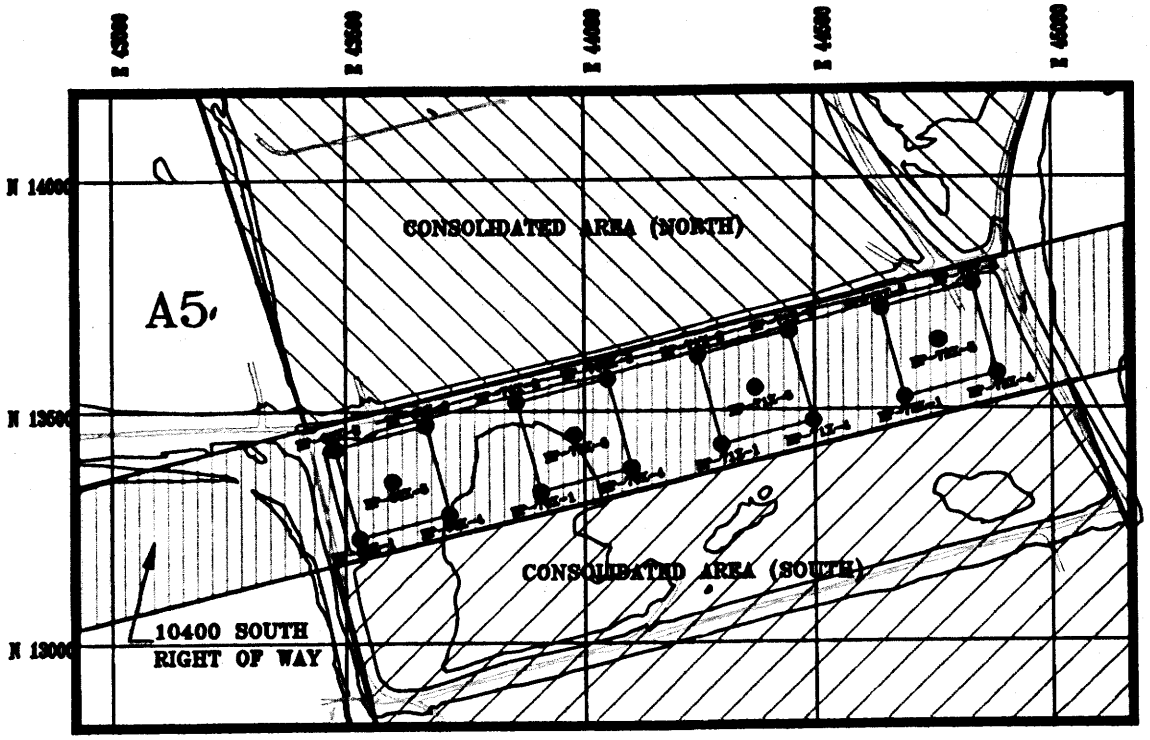


POND 1X - POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE SUBSITE	NORTHING	EASTING
EP-019X-1	10300	41750
EP-019X-2	10700	41750
EP-019X-3	10700	42150
EP-019X-4	10300	42150
EP-019X-5	10500	41950
EP-020X-1	10500	42550
EP-020X-2	10700	42550
EP-020X-3	10700	42950
EP-021X-1	10950	41980
EP-021X-2	11330	42110
EP-021X-3	11710	42250
EP-021X-4	12100	42385
EP-022X-1	11100	42500
EP-022X-2	11500	42500
EP-022X-3	11500	42900
EP-022X-4	11100	42900
EP-022X-5	11300	42700

SAMPLE SUBSITE	NORTHING	EASTING
EP-023X-1	11100	43350
EP-023X-2	11500	43350
EP-023X-3	11500	43750
EP-023X-4	11100	43750
EP-023X-5	11300	43550
EP-024X-1	11900	42550
EP-024X-2	12300	42550
EP-024X-3	12300	42950
EP-024X-4	11900	42950
EP-024X-5	12100	42750
EP-025X-1	11900	43350
EP-025X-2	12250	43350
EP-025X-3	12600	43350
EP-025X-4	11900	43625

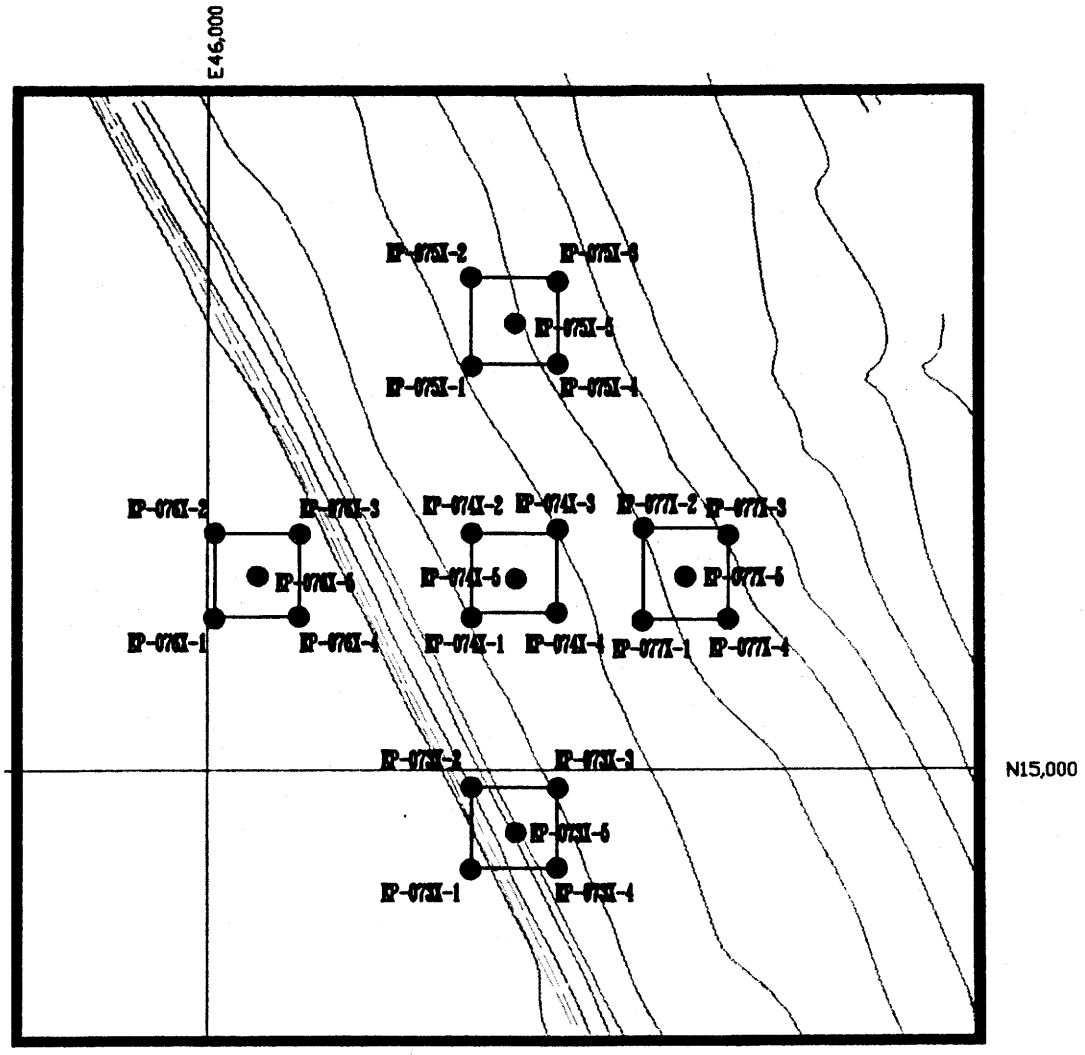
FIGURE 13
10400 SOUTH - RIGHT OF WAY
POST REMOVAL SAMPLE LOCATIONS



POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE	NORTHING	EASTING
EP-069X-1	13225	43530
EP-069X-2	13418	13478
EP-069X-3	13469	43671
EP-069X-4	13276	43723
EP-069X-5	13347	43600
EP-070X-1	13324	43917
EP-070X-2	13517	43865
EP-070X-3	13569	44059
EP-070X-4	13376	44110
EP-070X-5	13447	43988
EP-071X-1	13425	44304
EP-071X-2	13617	44252
EP-071X-3	13669	44446
EP-071X-4	13476	44497
EP-071X-5	13547	44375
EP-072X-1	13524	44691
EP-072X-2	13718	44640
EP-072X-3	13769	44833
EP-072X-4	13575	44884
EP-072X-5	13647	44762

FIGURE 14
10400 SOUTH - RIGHT OF WAY EXTENSION
POST REMOVAL SAMPLE LOCATIONS

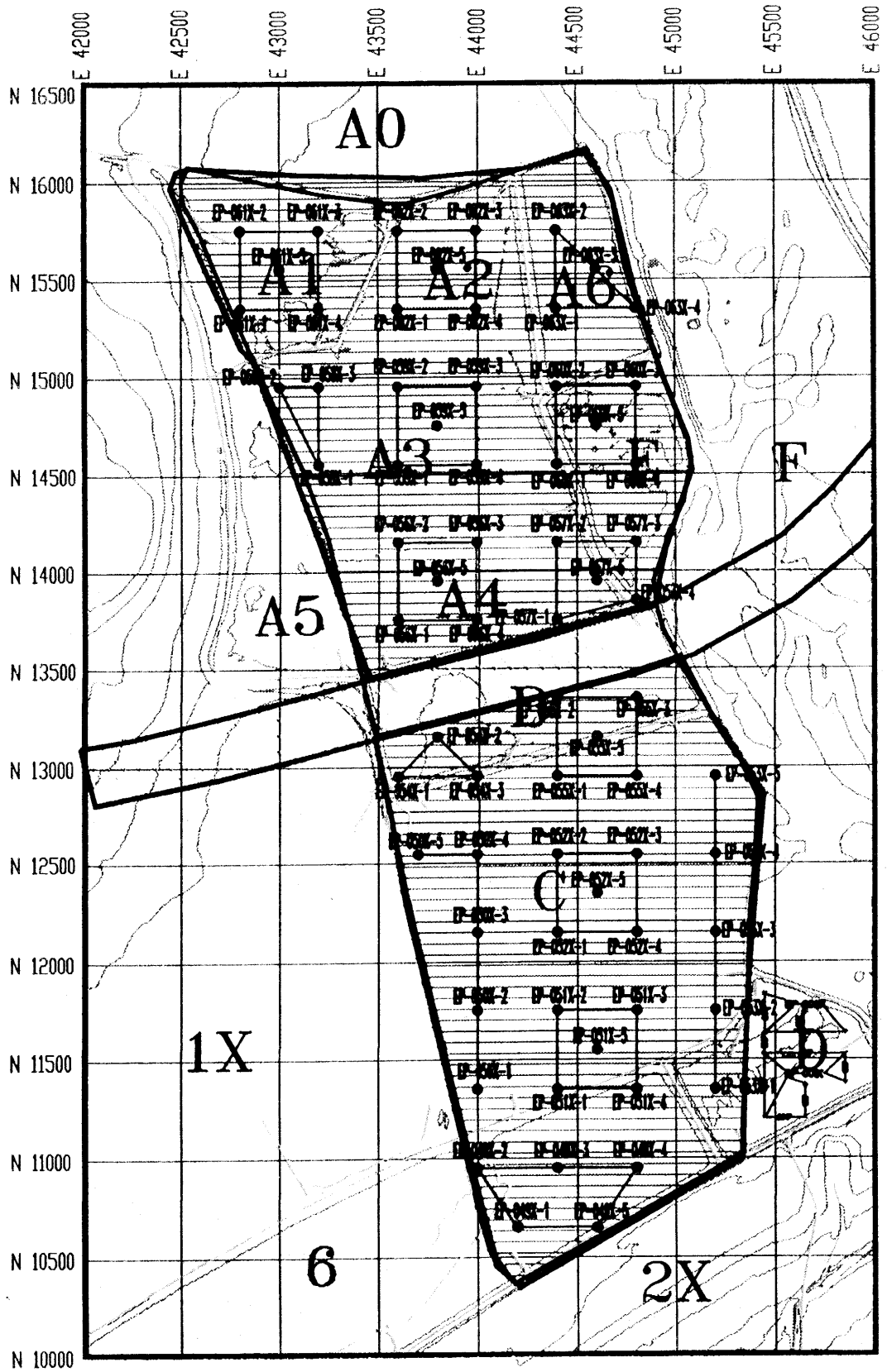


POST REMOVAL SAMPLE SUBSITE LOCATIONS

SAMPLE	NORTHING	EASTING
EP-073X-1	14880	46307
EP-073X-2	14980	46307
EP-073X-3	14980	46407
EP-073X-4	14880	46407
EP-073X-5	14930	46357
EP-074X-1	15180	46308
EP-074X-2	15280	46408
EP-074X-3	15280	46408
EP-074X-4	15180	46308
EP-074X-5	15230	46358
EP-075X-1	15480	46308
EP-075X-2	15580	46308
EP-075X-3	15580	46408
EP-075X-4	15480	46408
EP-075X-5	15430	46358

SAMPLE	NORTHING	EASTING
EP-076X-1	15182	46008
EP-076X-2	15282	46008
EP-076X-3	15282	46108
EP-076X-4	15182	46108
EP-076X-5	15232	46058
EP-077X-1	15178	46508
EP-077X-2	15288	46508
EP-077X-3	15279	46608
EP-077X-4	15180	46608
EP-077X-5	15230	46558

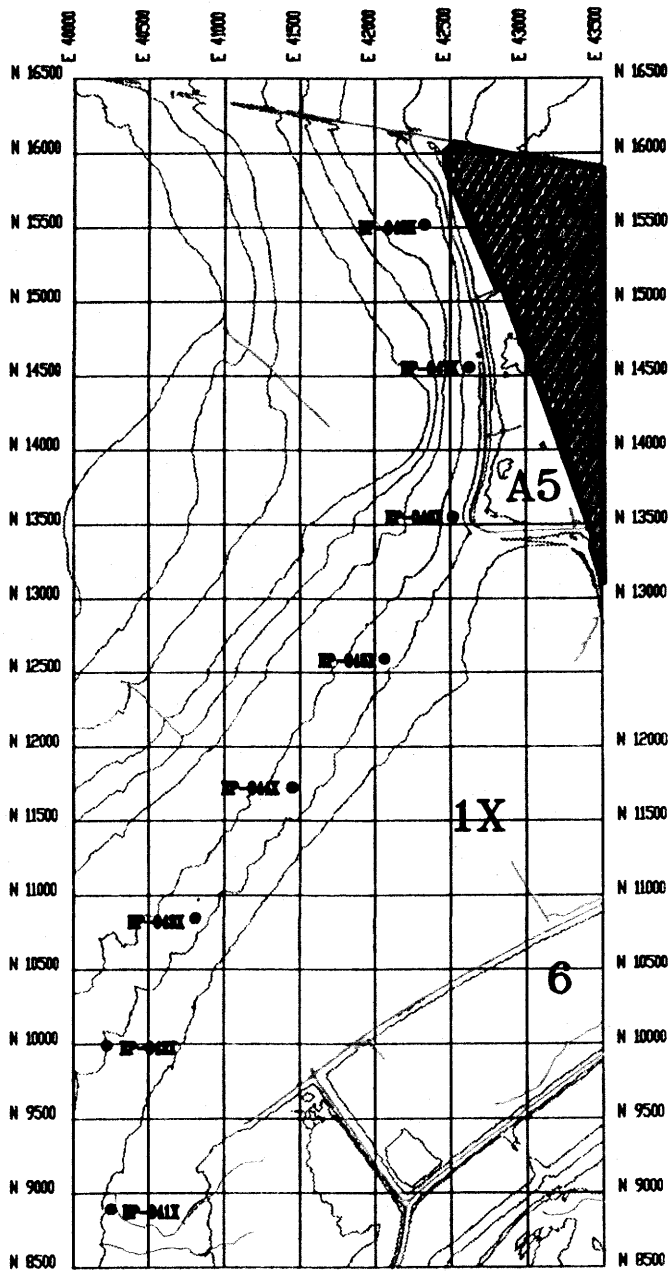
FIGURE 15
CONSOLIDATED FOOTPRINT SAMPLE LOCATIONS



SAMPLE SUBSITE	NORTHING	EASTING
EP-049X-1	10650	44200
EP-049X-2	10950	44000
EP-049X-3	10950	44400
EP-049X-4	10950	44800
EP-049X-5	10650	44600
EP-050X-1	11350	44000
EP-050X-2	11750	44000
EP-050X-3	12150	44000
EP-050X-4	12550	44000
EP-050X-5	12550	43700
EP-051X-1	11350	44400
EP-051X-2	11750	44400
EP-051X-3	11750	44800
EP-051X-4	11350	44800
EP-051X-5	11550	44600
EP-052X-1	12150	44400
EP-052X-2	12550	44400
EP-052X-3	12550	44800
EP-052X-4	12150	44800
EP-052X-5	12350	44600
EP-053X-1	11350	45200
EP-053X-2	11750	45200
EP-053X-3	12150	45200
EP-053X-4	12550	45200
EP-053X-5	12950	45200
EP-054X-1	12950	43600
EP-054X-2	12950	44000
EP-054X-3	13150	43800
EP-055X-1	12950	44400
EP-055X-2	13350	44400
EP-055X-3	13350	44800
EP-055X-4	12950	44800
EP-055X-5	13150	44600

SAMPLE SUBSITE	NORTHING	EASTING
EP-056X-1	13750	43600
EP-056X-2	14150	43600
EP-056X-3	14150	44000
EP-056X-4	13750	44000
EP-056X-5	13950	43800
EP-057X-1	13750	44400
EP-057X-2	14150	44400
EP-057X-3	14150	44800
EP-057X-4	13849	44800
EP-057X-5	13950	44600
EP-058X-1	14550	43200
EP-058X-2	14950	43000
EP-058X-3	14950	43200
EP-059X-1	14550	43600
EP-059X-2	14950	43600
EP-059X-3	14950	44000
EP-059X-4	14550	44000
EP-059X-5	14750	43800
EP-060X-1	14550	44400
EP-060X-2	14950	44400
EP-060X-3	14950	44800
EP-060X-4	14550	44800
EP-060X-5	14750	44600
EP-061X-1	15350	42800
EP-061X-2	15750	42800
EP-061X-3	15750	43200
EP-061X-4	15350	43200
EP-061X-5	15550	43000
EP-062X-1	15350	43600
EP-062X-2	15750	43600
EP-062X-3	15750	44000
EP-062X-4	15350	44000
EP-062X-5	15550	43800
EP-063X-1	15350	44400
EP-063X-2	15750	44400
EP-063X-3	15550	44600
EP-063X-4	15350	44800

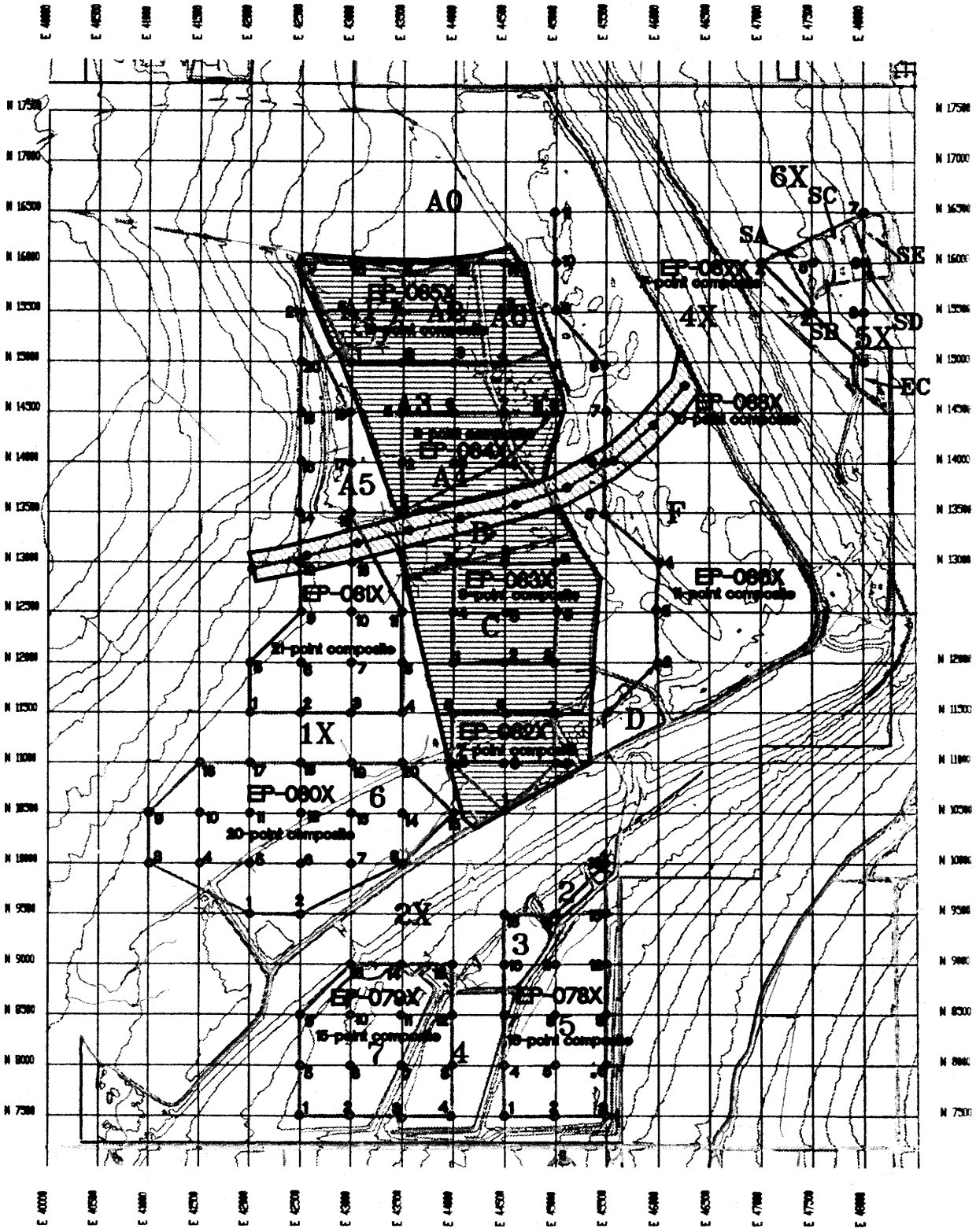
FIGURE 16
BORROW AREA TRENCH LOCATIONS



BORROW AREA - TRENCH LOCATIONS

SAMPLE	NORTHING	EASTING
EP-041X	8993	40254
EP-042X	9991	40224
EP-043X	10846	40811
EP-044X	11724	41449
EP-045X	12598	42064
EP-046X	13550	42521
EP-047X	14556	42632
EP-048X	15519	42327

FIGURE 17
POST RECLAMATION SAMPLE LOCATIONS



4 – CONSOLIDATED AREA POST RECLAMATION SAMPLES
7 – REMOVAL AREA POST RECLAMATION SAMPLES

APPENDIX A

POST REMOVAL AND POST-RECLAMATION SAMPLE

ANALYTICAL SHEETS

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-04-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received August 3, 1994 for analysis.

SAMPLE #: EP-023XB

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.4
Lead, Pb (T)	EPA 6010	1.0	32.2
pH Units	EPA 9045		8.24
Leachable Sulfate, SO_4	SM 4500	5.0	7,440

Approved By: Joel Wostman

NOTE: All analyses performed by ChemTech, Inc.
(012446)

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○ FORD • 50 West Louise Avenue • Salt Lake City, Utah 84115 • (801) 466-8761 • Fax (801) 466-8763

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-024X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.86
Lead, Pb (T)	EPA 6010	1.0	53.6
pH Units	EPA 150.1		7.69
Water Leachable Sulfate	SM4500	5.0	5,920

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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FORD ANALYTICAL LABORATORIES

CHEMICAL AND BACTERIOLOGICAL ANALYSIS

KENNECOTT PLANT PROJECT GROUP
%ASIM MUKHERJEE
P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 6/16/94

SAMPLE: BINGHAM FLATS
Soil Samples received Jun 14, 94 for analysis.
As Is - No Dry

Sample #: EP-001X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	28.1
Lead, Pb	6010	1.0	71.0
pH	9045		8.23
Sulfate SO4(L)	SM4500	100	5,940

Approved By: _____

NOTE: All Analyses performed by ChemTech, Inc.

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FORD ANALYTICAL LABORATORIES

CHEMICAL AND BACTERIOLOGICAL ANALYSIS

KENNECOTT PLANT PROJECT GROUP
%ASIM MUKHERJEE
P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 6/16/94

SAMPLE: BINGHAM FLATS
Soil Samples received Jun 14, 94 for analysis.
As Is - No Dry

Sample #: EP-002X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	29.9
Lead, Pb	6010	1.0	39.6
pH	9045		8.43
Sulfate SO4(L)	SM4500	100	10,800

Approved By: _____

NOTE: All Analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

Date: 6-23-94

KENNECOTT PLANT PROJECT GROUP
% ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Sample received June 22, 94 for analysis.
As Is- No Dry

Sample #: EP-003X

Total, mg/Kg	Method	MDL	Result
pH Units	9045	--	6.54
Sulfate as SO_4 (L)	SM4500	5.0	10,800
Arsenic as As	6010	0.5	80.9
Lead as Pb	6010	1.0	49.8

Approved By:

Lab# 009579

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FORD • 50 West Louise Avenue • Salt Lake City, Utah 84115 • (801) 466-8761 • Fax (801) 466-8763

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-003XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		6.84
Water Leach Sulfate, SO_4	SM4500	5.0	9,820
Arsenic, As (T)	EPA 6010	0.5	13.8
Lead, Pb (T)	EPA 6010	1.0	26.6

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

Date: 6-23-94

KENNECOTT PLANT PROJECT GROUP
% ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Sample received June 22, 94 for analysis.
As Is- No Dry

Sample #: EP-004X

Total, mg/Kg	Method	MDL	Result
pH Units	9045	--	6.65
Sulfate as SO_4 (L)	SM4500	5.0	11,100
Arsenic as As	6010	0.5	48.5
Lead as Pb	6010	1.0	52.6

Approved By:

Lab# 009580

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-10-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 5, 1994 for analysis.

SAMPLE #: EP-004XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.12
Leachable Sulfate, SO_4	SM4500	5.0	7,160
Arsenic, As (T)	EPA 6010	0.5	13.3
Lead, Pb (T)	EPA 6010	1.0	43.0

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(12611)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-10-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 5, 1994 for analysis.

SAMPLE #: EP-004X8

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.12
Leachable Sulfate, SO_4	SM4500	5.0	7,160
Arsenic, As (T)	EPA 6010	0.5	13.3
Lead, Pb (T)	EPA 6010	1.0	43.0

Approved By: Joel Wiskum

NOTE: All analyses performed by ChemTech, Inc.
(12611)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

Date: 6-23-94

KENNECOTT PLANT PROJECT GROUP
% ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Sample received June 22, 94 for analysis.
As Is- No Dry

Sample #: EP-005X

Total, mg/Kg	Method	MDL	Result
pH Units	9045	--	6.58
sulfate as SO_4 (L)	SM4500	5.0	12,300
Arsenic as As	6010	0.5	56.1
Lead as Pb	6010	1.0	37.1

Approved By:

Lab# 009581

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-005XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		6.76
Water Leach Sulfate, SO_4	SM4500	5.0	9,780
Arsenic, As (T)	EPA 6010	0.5	13.8
Lead, Pb (T)	EPA 6010	1.0	31.4

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

Date: 6-23-94

KENNECOTT PLANT PROJECT GROUP
% ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Sample received June 22, 94 for analysis.
As Is- No Dry

Sample #: EP-006X

Total, mg/Kg	Method	MDL	Result
pH Units	9045	--	6.73
Sulfate as SO_4 (L)	SM4500	5.0	11,500
Arsenic as As	6010	0.5	53.9
Lead as Pb	6010	1.0	53.4

Approved By:

Lab# 009582

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-006XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		6.73
Water Leach Sulfate, SO_4	SM4500	5.0	8,480
Arsenic, As (T)	EPA 6010	0.5	20.4
Lead, Pb (T)	EPA 6010	1.0	48.1

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

Date: 6-23-94

KENNECOTT PLANT PROJECT GROUP
% ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Sample received June 22, 94 for analysis.
As Is- No Dry

Sample #: EP-007X

Total, mg/Kg	Method	MDL	Result
pH Units	9045	--	7.35
Sulfate as SO_4 (L)	SM4500	5.0	9,360
Arsenic as As	6010	0.5	43.3
Lead as Pb	6010	1.0	51.2

Approved By:

Lab# 009583

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-007XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.38
Water Leach Sulfate, SO_4	SM4500	5.0	8,440
Arsenic, As (T)	EPA 6010	0.5	11.9
Lead, Pb (T)	EPA 6010	1.0	52.9

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-008XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.52
Water Leach Sulfate, SO_4	SM4500	5.0	3,550
Arsenic, As (T)	EPA 6010	0.5	16.4
Lead, Pb (T)	EPA 6010	1.0	51.7

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

Date: 6-23-94

KENNECOTT PLANT PROJECT GROUP
% ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Sample received June 22, 94 for analysis.
As Is- No Dry

Sample #: EP-008X

Total, mg/Kg	Method	MDL	Result
pH Units	9045	--	7.65
Sulfate as SO_4 (L)	SM4500	5.0	8,430
Arsenic as As	6010	0.5	35.6
Lead as Pb	6010	1.0	50.2

Approved By:

Lab# 009584

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ANALYTICAL LABORATORIES

KENNECOTT PLANT PROJECT GROUP
%ASIM MUKHERJEE
P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 7/8/94

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received Jul 6, 94 for analysis.
As Is - No Dry

Sample #: EP-009X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	14
Lead, Pb	6010	1.0	53.6
pH	9045		7.43
Sulfate SO4(L)	SM4500	100	13,300

Approved By: Joel Wyskrum

Lab#: U010631

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-009XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.1
Lead, Pb (T)	EPA 6010	1.0	44.4
pH Units	EPA 150.1		8.16
Water Leachable Sulfate	SM4500	5.0	3,120

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 7/8/94

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received Jul 6, 94 for analysis.
As Is - No Dry

Sample #: EP-010X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	15
Lead, Pb	6010	1.0	54.2
pH	9045		7.44
Sulfate SO4(L)	SM4500	100	10,100

Approved By: Joe Workman

Lab#: U010632

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-010XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	13.7
Lead, Pb (T)	EPA 6010	1.0	48.0
pH Units	EPA 150.1		7.91
Water Leachable Sulfate	SM4500	5.0	7,450

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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%ASIM MUKHERJEE
P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 7/8/94

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received Jul 6, 94 for analysis.
As Is - No Dry

Sample #: EP-011X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	20.5
Lead, Pb	6010	1.0	66.7
pH	9045		7.4
Sulfate SO4(L)	SM4500	100	9,320

Approved By: Joel Watkins

Lab#: U010633

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P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 7/8/94

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received Jul 6, 94 for analysis.
As Is - No Dry

Sample #: EP-012X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	13.7
Lead, Pb	6010	1.0	55.5
pH	9045		7.42
Sulfate SO4(L)	SM4500	100	10,700

Approved By: Joe Workman

Lab#: U010634

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CHEMTECH/FORD
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DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-012XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	18.2
Lead, Pb (T)	EPA 6010	1.0	57.9
pH Units	EPA 150.1		7.89
Water Leachable Sulfate	SM4500	5.0	5,970

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 7/8/94

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received Jul 6, 94 for analysis.
As Is - No Dry

Sample #: EP-013X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	24.3
Lead, Pb	6010	1.0	73.1
pH	9045		7.38
Sulfate SO4(L)	SM4500	100	10,600

Approved By: Joel Wiskman

Lab#: U010635

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CHEMTECH/FORD
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DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-013XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.3
Lead, Pb (T)	EPA 6010	1.0	55.6
pH Units	EPA 150.1		7.98
Water Leachable Sulfate	SM4500	5.0	6,340

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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P.O. BOX 112
BINGHAM CANYON, UT 84006

Date: 7/8/94

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received Jul 6, 94 for analysis.
As Is - No Dry

Sample #: EP-014X

Total, mg/Kg	Method	MDL	Result
Arsenic, As	6010	0.5	22.4
Lead, Pb	6010	1.0	68.1
pH	9045		7.51
Sulfate SO4(L)	SM4500	100	8,290

Approved By: Joel Workman

Lab#: U010636

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CHEMTECH/FORD
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DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-015X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.42
Water Leach Sulfate, SO_4	SM4500	5.0	6,170
Arsenic, As (T)	EPA 6010	0.5	17.6
Lead, Pb (T)	EPA 6010	1.0	53.9

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-016X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	20.0
Lead, Pb (T)	EPA 6010	1.0	81.6
pH Units	EPA 150.1		7.40
Water Leachable Sulfate	SM4500	5.0	15,100

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-21-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAP. PONDS
Soil Samples received July 20, 1994 for analysis.

SAMPLE #: EP-016XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.8
Lead, Pb (T)	EPA 6010	1.0	62.8
pH Units	9045		7.12
Sulfate, SO_4	SM4500	5.0	8,730

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-017X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.84
Water Leach Sulfate, SO_4	SM4500	5.0	6,840
Arsenic, As (T)	EPA 6010	0.5	12.5
Lead, Pb (T)	EPA 6010	1.0	54.7

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-13-94

TO: KENNECOTT PLANT PROJECT GROUP
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BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received July 11, 1994 for analysis.

SAMPLE #: EP-018X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.68
Water Leach Sulfate, SO_4	SM4500	5.0	9,620
Arsenic, As (T)	EPA 6010	0.5	25.1
Lead, Pb (T)	EPA 6010	1.0	108

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-019X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.6
Lead, Pb (T)	EPA 6010	1.0	53.0
pH Units	EPA 150.1		7.21
Water Leachable Sulfate	SM4500	5.0	8,280

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-020X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.5
Lead, Pb (T)	EPA 6010	1.0	32.1
pH Units	EPA 150.1		8.07
Water Leachable Sulfate	SM4500	5.0	19,300

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-26-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 22, 1994 for analysis.

SAMPLE #: EP-020XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.9
Lead, Pb (T)	EPA 6010	1.0	64.9
pH Units	EPA 9045		7.45
Leachable Sulfate, SO_4	SM 4500	5.0	14,600

Approved By: Joel Wasserman

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-04-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received August 3, 1994 for analysis.

SAMPLE #: EP-020XB

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.9
Lead, Pb (T)	EPA 6010	1.0	29.9
pH Units	EPA 9045		8.19
Leachable Sulfate, SO_4	SM 4500	5.0	6,700

Approved By: Joe Workman

NOTE: All analyses performed by ChemTech, Inc.
(012444)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-021X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.5
Lead, Pb (T)	EPA 6010	1.0	55.0
pH Units	EPA 150.1		7.99
Water Leachable Sulfate	SM4500	5.0	17,300

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-26-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 22, 1994 for analysis.

SAMPLE #: EP-021XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.13
Lead, Pb (T)	EPA 6010	1.0	32.4
pH Units	EPA 9045		7.87
Leachable Sulfate, SO_4	SM 4500	5.0	1,370

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-022X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.91
Lead, Pb (T)	EPA 6010	1.0	24.3
pH Units	EPA 150.1		7.92
Water Leachable Sulfate	SM4500	5.0	18,300

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-26-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 22, 1994 for analysis.

SAMPLE #: EP-022XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.8
Lead, Pb (T)	EPA 6010	1.0	62.3
pH Units	EPA 9045		7.94
Leachable Sulfate, SO_4	SM4500	5.0	11,500

Approved By: Joel Wosfman

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-04-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received August 3, 1994 for analysis.

SAMPLE #: EP-022XB

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.8
Lead, Pb (T)	EPA 6010	1.0	40.6
pH Units	EPA 9045		7.99
Leachable Sulfate, SO_4	SM 4500	5.0	9,030

Approved By: Joel Hoffman

NOTE: All analyses performed by ChemTech, Inc.
(012445)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-023X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.5
Lead, Pb (T)	EPA 6010	1.0	38.3
pH Units	EPA 150.1		8.03
Water Leachable Sulfate	SM4500	5.0	15,600

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-26-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 22, 1994 for analysis.

SAMPLE #: EP-023XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.7
Lead, Pb (T)	EPA 6010	1.0	53.1
pH Units	EPA 9045		8.07
Leachable Sulfate, SO_4	SM 4500	5.0	13,900

Approved By: Joel Wofford

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 8-04-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received August 3, 1994 for analysis.

SAMPLE #: EP-023XB

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.4
Lead, Pb (T)	EPA 6010	1.0	32.2
pH Units	EPA 9045		8.24
Leachable Sulfate, SO_4	SM 4500	5.0	7,440

Approved By: Joel Wostman

NOTE: All analyses performed by ChemTech, Inc.
(012446)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-18-94

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%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-024X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.86
Lead, Pb (T)	EPA 6010	1.0	53.6
pH Units	EPA 150.1		7.69
Water Leachable Sulfate	SM4500	5.0	5,920

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: So. Jordan Evap. Ponds
Soil Samples received July 14, 1994 for analysis.

SAMPLE #: EP-025X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.5
Lead, Pb (T)	EPA 6010	1.0	61.4
pH Units	EPA 150.1		8.31
Water Leachable Sulfate	SM4500	5.0	16,700

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 22, 1994 for analysis.

SAMPLE #: EP-025XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.7
Lead, Pb (T)	EPA 6010	1.0	51.8
pH Units	EPA 9045		7.99
Leachable Sulfate, SO_4	SM 4500	5.0	6,130

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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DATE: 7-28-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 26, 1994 for analysis.

SAMPLE #: EP-026X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.4
Lead, Pb (T)	EPA 6010	1.0	58.9
pH Units	EPA 9045		7.94
Leachable Sulfate, SO_4	SM4500	5.0	3,150

Approved By: Joe Wilkinson

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 7-28-94

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 26, 1994 for analysis.

SAMPLE #: EP-027X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	15.2
Lead, Pb (T)	EPA 6010	1.0	68.8
pH Units	EPA 9045		7.95
Leachable Sulfate, SO_4	SM4500	5.0	1,150

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 26, 1994 for analysis.

SAMPLE #: EP-028X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	20.4
Lead, Pb (T)	EPA 6010	1.0	66.6
pH Units	EPA 9045		8.07
Leachable Sulfate, SO_4	SM4500	5.0	5,030

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received July 26, 1994 for analysis.

SAMPLE #: EP-029X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	20.6
Lead, Pb (T)	EPA 6010	1.0	60.5
pH Units	EPA 9045		7.97
Leachable Sulfate, SO_4	SM4500	5.0	3,040

Approved By: Joel Wolfman

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD
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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received August 2, 1994 for analysis.

SAMPLE #: EP-030X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	6.39
Lead, Pb (T)	EPA 6010	1.0	57.8
pH Units	EPA 9045		6.02
Leachable Sulfate, SO_4	SM 4500	5.0	6,770

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 8-04-94

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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received August 2, 1994 for analysis.

SAMPLE #: EP-031X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	15.8
Lead, Pb (T)	EPA 6010	1.0	59.7
pH Units	EPA 9045		4.78
Leachable Sulfate, SO_4	SM 4500	5.0	7,550

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received August 2, 1994 for analysis.

SAMPLE #: EP-032X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.18
Lead, Pb (T)	EPA 6010	1.0	73.5
pH Units	EPA 9045		5.94
Leachable Sulfate, SO_4	SM 4500	5.0	10,600

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 8-10-94

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BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 5, 1994 for analysis.

SAMPLE #: EP-032XA

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.14
Leachable Sulfate, SO_4	SM4500	5.0	5,230
Arsenic, As (T)	EPA 6010	0.5	8.4
Lead, Pb (T)	EPA 6010	1.0	58.3

Approved By: Joel Westman

NOTE: All analyses performed by ChemTech, Inc.
(12610)

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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received August 2, 1994 for analysis.

SAMPLE #: EP-033X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.9
Lead, Pb (T)	EPA 6010	1.0	42.8
pH Units	EPA 9045		7.47
Leachable Sulfate, SO_4	SM 4500	5.0	4,280

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 8-10-94

TO: KENNECOTT PLANT PROJECT GROUP
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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-034X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		5.84
Leachable Sulfate, SO_4	SM4500	5.0	181
Arsenic, As (T)	EPA 6010	0.5	53.1
Lead, Pb (T)	EPA 6010	1.0	198

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(12668)

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DATE: 8-10-94

TO: KENNECOTT PLANT PROJECT GROUP
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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-035X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		5.42
Leachable Sulfate, SO_4	SM4500	5.0	1,060
Arsenic, As (T)	EPA 6010	0.5	66.7
Lead, Pb (T)	EPA 6010	1.0	285

Approved By: Joel Woskman

NOTE: All analyses performed by ChemTech, Inc.
(12669)

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TO: KENNECOTT PLANT PROJECT GROUP
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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-036X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		6.98
Leachable Sulfate, SO_4	SM4500	5.0	255
Arsenic, As (T)	EPA 6010	0.5	84.9
Lead, Pb (T)	EPA 6010	1.0	365

Approved By: Joce Wostman

NOTE: All analyses performed by ChemTech, Inc.
(12670)

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-037X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.22
Leachable Sulfate, SO_4	SM4500	5.0	1,650
Arsenic, As (T)	EPA 6010	0.5	36.1
Lead, Pb (T)	EPA 6010	1.0	139

Approved By: Joe Washburn

NOTE: All analyses performed by ChemTech, Inc.
(12671)

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-038X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		4.89
Leachable Sulfate, SO_4	SM4500	5.0	1,910
Arsenic, As (T)	EPA 6010	0.5	21.0
Lead, Pb (T)	EPA 6010	1.0	234

Approved By: Joel Wayman

NOTE: All analyses performed by ChemTech, Inc.
(12672)

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DATE: 8-10-94

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-039X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.28
Leachable Sulfate, SO_4	SM4500	5.0	1,330
Arsenic, As (T)	EPA 6010	0.5	23.6
Lead, Pb (T)	EPA 6010	1.0	122

Approved By: Joel Wasserman

NOTE: All analyses performed by ChemTech, Inc.
(12673)

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SAMPLE: S.J. EVAPORATION PONDS
Soil Samples received August 8, 1994 for analysis.

SAMPLE #: EP-040X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.48
Leachable Sulfate, SO_4	SM4500	5.0	115
Arsenic, As (T)	EPA 6010	0.5	13.7
Lead, Pb (T)	EPA 6010	1.0	95.3

Approved By: Joel Watson

NOTE: All analyses performed by ChemTech, Inc.
(12674)

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DATE: 8-12-94

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-041X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.20
Lead, Pb (T)	EPA 6010	1.0	38.9
pH Units	EPA 9045		7.99
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012716)

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-041X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	5.51
Lead, Pb (T)	EPA 6010	1.0	34.6
pH Units	EPA 9045		8.14
Leachable Sulfate, SO_4	SM 4500	100	1,070

Approved By: Joel Wiskman

NOTE: All analyses performed by ChemTech, Inc.
(012717)

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-041X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	18.9
Lead, Pb (T)	EPA 6010	1.0	54.7
pH Units	EPA 9045		8.11
Leachable Sulfate, SO_4	SM 4500	100	864

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012718)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-041X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	6.55
Lead, Pb (T)	EPA 6010	1.0	19.1
pH Units	EPA 9045		9.82
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012719)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-041X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	4.29
Lead, Pb (T)	EPA 6010	1.0	72.4
pH Units	EPA 9045		9.85
Leachable Sulfate, SO_4	SM 4500	100	329

Approved By: Joel Wayman

NOTE: All analyses performed by ChemTech, Inc.
(012720)

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DATE: 8-12-94

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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-042X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.00
Lead, Pb (T)	EPA 6010	1.0	46.7
pH Units	EPA 9045		7.70
Leachable Sulfate, SO_4	SM 4500	100	165

Approved By: Joe Westerman

NOTE: All analyses performed by ChemTech, Inc.
(012721)

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ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-042X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.5
Lead, Pb (T)	EPA 6010	1.0	49.3
pH Units	EPA 9045		8.08
Leachable Sulfate, SO_4	SM 4500	100	1,320

Approved By: Joel Wistman

NOTE: All analyses performed by ChemTech, Inc.
(012722)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-042X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	13.2
Lead, Pb (T)	EPA 6010	1.0	47.6
pH Units	EPA 9045		7.93
Leachable Sulfate, SO_4	SM 4500	100	1,820

Approved By: Joel Westmann

NOTE: All analyses performed by ChemTech, Inc.
(012723)

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-042X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	6.31
Lead, Pb (T)	EPA 6010	1.0	31.6
pH Units	EPA 9045		7.84
Leachable Sulfate, SO_4	SM 4500	100	1,690

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012724)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-042X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	6.16
Lead, Pb (T)	EPA 6010	1.0	48.5
pH Units	EPA 9045		7.87
Leachable Sulfate, SO_4	SM 4500	100	2,210

Approved By: Joe Wortman

NOTE: All analyses performed by ChemTech, Inc.
(012725)

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DATE: 8-12-94

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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-043X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.17
Lead, Pb (T)	EPA 6010	1.0	47.1
pH Units	EPA 9045		7.83
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joe Hoffman

NOTE: All analyses performed by ChemTech, Inc.
(012726)

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DATE: 8-12-94

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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-043X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.70
Lead, Pb (T)	EPA 6010	1.0	35.5
pH Units	EPA 9045		8.12
Leachable Sulfate, SO_4	SM 4500	100	1,100

Approved By: Joe Workman

NOTE: All analyses performed by ChemTech, Inc.
(012727)

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-043X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.8
Lead, Pb (T)	EPA 6010	1.0	40.3
pH Units	EPA 9045		8.13
Leachable Sulfate, SO_4	SM 4500	100	296

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.
(012728)

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DATE: 8-12-94

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-043X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.8
Lead, Pb (T)	EPA 6010	1.0	42.1
pH Units	EPA 9045		8.13
Leachable Sulfate, SO_4	SM 4500	100	288

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.
(012729)

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-043X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	13.0
Lead, Pb (T)	EPA 6010	1.0	45.9
pH Units	EPA 9045		8.17
Leachable Sulfate, SO_4	SM 4500	100	399

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012730)

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DATE: 8-12-94

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-043X-6

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.3
Lead, Pb (T)	EPA 6010	1.0	43.7
pH Units	EPA 9045		8.17
Leachable Sulfate, SO_4	SM 4500	100	728

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012731)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-044X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.23
Lead, Pb (T)	EPA 6010	1.0	46.7
pH Units	EPA 9045		8.43
Leachable Sulfate, SO_4	SM 4500	100	296

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012732)

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-044X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.6
Lead, Pb (T)	EPA 6010	1.0	35.9
pH Units	EPA 9045		8.06
Leachable Sulfate, SO_4	SM 4500	100	1,430

Approved By: Joee Wostman

NOTE: All analyses performed by ChemTech, Inc.
(012733)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-044X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.8
Lead, Pb (T)	EPA 6010	1.0	37.3
pH Units	EPA 9045		8.02
Leachable Sulfate, SO_4	SM 4500	100	1,450

Approved By: Joel Wankman

NOTE: All analyses performed by ChemTech, Inc.
(012734)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-044X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.2
Lead, Pb (T)	EPA 6010	1.0	35.9
pH Units	EPA 9045		8.02
Leachable Sulfate, SO_4	SM 4500	100	741

Approved By: Joe Woskinson

NOTE: All analyses performed by ChemTech, Inc.
(012735)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-044X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.7
Lead, Pb (T)	EPA 6010	1.0	39.0
pH Units	EPA 9045		7.96
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012736)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-044X-6

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.94
Lead, Pb (T)	EPA 6010	1.0	32.6
pH Units	EPA 9045		7.92
Leachable Sulfate, SO_4	SM 4500	100	518

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012737)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-045X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.0
Lead, Pb (T)	EPA 6010	1.0	44.2
pH Units	EPA 9045		7.72
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joe Workman

NOTE: All analyses performed by ChemTech, Inc.
(012738)

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-045X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	19.6
Lead, Pb (T)	EPA 6010	1.0	46.8
pH Units	EPA 9045		7.99
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Woskman

NOTE: All analyses performed by ChemTech, Inc.
(012739)

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-045X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.8
Lead, Pb (T)	EPA 6010	1.0	43.5
pH Units	EPA 9045		8.04
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012740)

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-045X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.0
Lead, Pb (T)	EPA 6010	1.0	42.5
pH Units	EPA 9045		8.08
Leachable Sulfate, SO_4	SM 4500	100	128

Approved By: Joel Wykman

NOTE: All analyses performed by ChemTech, Inc.
(012741)

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DATE: 8-12-94

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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-045X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.9
Lead, Pb (T)	EPA 6010	1.0	47.3
pH Units	EPA 9045		8.07
Leachable Sulfate, SO_4	SM 4500	100	1,250

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012742)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-045X-6

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.4
Lead, Pb (T)	EPA 6010	1.0	55.3
pH Units	EPA 9045		8.17
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012743)

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SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-046X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.43
Lead, Pb (T)	EPA 6010	1.0	43.6
pH Units	EPA 9045		7.72
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joe Workman

NOTE: All analyses performed by ChemTech, Inc.
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TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-046X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	17.2
Lead, Pb (T)	EPA 6010	1.0	49.9
pH Units	EPA 9045		7.97
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Weyhrauch

NOTE: All analyses performed by ChemTech, Inc.
(012745)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-046X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	15.9
Lead, Pb (T)	EPA 6010	1.0	42.8
pH Units	EPA 9045		8.03
Leachable Sulfate, SO_4	SM 4500	100	2,050

Approved By: Joel Wyckman

NOTE: All analyses performed by ChemTech, Inc.
(012746)

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ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-046X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	18.8
Lead, Pb (T)	EPA 6010	1.0	46.0
pH Units	EPA 9045		8.13
Leachable Sulfate, SO_4	SM 4500	100	2,720

Approved By: Joel Wakkum

NOTE: All analyses performed by ChemTech, Inc.
(012747)

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ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-046X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	17.7
Lead, Pb (T)	EPA 6010	1.0	59.8
pH Units	EPA 9045		8.19
Leachable Sulfate, SO_4	SM 4500	100	1,690

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012748)

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ANALYTICAL LABORATORIES

DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-046X-6

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	23.3
Lead, Pb (T)	EPA 6010	1.0	58.0
pH Units	EPA 9045		8.09
Leachable Sulfate, SO_4	SM 4500	100	2,260

Approved By: Joe Woskman

NOTE: All analyses performed by ChemTech, Inc.
(012749)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-047X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.70
Lead, Pb (T)	EPA 6010	1.0	36.5
pH Units	EPA 9045		7.97
Leachable Sulfate, SO_4	SM 4500	100	103

Approved By: Joel Wickman

NOTE: All analyses performed by ChemTech, Inc.
(012750)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-047X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.3
Lead, Pb (T)	EPA 6010	1.0	91.3
pH Units	EPA 9045		7.96
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joe Wolfram

NOTE: All analyses performed by ChemTech, Inc.
(012751)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-047X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	21.9
Lead, Pb (T)	EPA 6010	1.0	67.3
pH Units	EPA 9045		7.89
Leachable Sulfate, SO_4	SM 4500	100	280

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012752)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-047X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.42
Lead, Pb (T)	EPA 6010	1.0	42.8
pH Units	EPA 9045		7.97
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012753)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-047X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.5
Lead, Pb (T)	EPA 6010	1.0	39.5
pH Units	EPA 9045		8.04
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012754)

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BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-048X-1

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.87
Lead, Pb (T)	EPA 6010	1.0	50.5
pH Units	EPA 9045		8.07
Leachable Sulfate, SO_4	SM 4500	100	185

Approved By: Joe Workman

NOTE: All analyses performed by ChemTech, Inc.
(012755)

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DATE: 8-12-94

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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-048X-2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.4
Lead, Pb (T)	EPA 6010	1.0	59.2
pH Units	EPA 9045		8.08
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012756)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-048X-3

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.7
Lead, Pb (T)	EPA 6010	1.0	50.7
pH Units	EPA 9045		8.65
Leachable Sulfate, SO_4	SM 4500	100	712

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012757)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-048X-4

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.9
Lead, Pb (T)	EPA 6010	1.0	54.0
pH Units	EPA 9045		8.70
Leachable Sulfate, SO_4	SM 4500	100	ND

Approved By: Joe Workman

NOTE: All analyses performed by ChemTech, Inc.
(012758)

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DATE: 8-12-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received August 9, 1994 for analysis.

SAMPLE #: EP-048X-5

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.10
Lead, Pb (T)	EPA 6010	1.0	52.8
pH Units	EPA 9045		8.14
Leachable Sulfate, SO_4	SM 4500	100	123

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.
(012759)

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DATE: 8-19-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 17, 1994 for analysis.

SAMPLE #: EP-049X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.24
Leachable Sulfate, SO_4	SM 4500	5.0	13,200
Arsenic, As (T)	EPA 6010	0.5	14.2
Lead, Pb (T)	EPA 6010	1.0	61.8

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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TO: KENNECOTT PLANT PROJECT GROUP
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BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 17, 1994 for analysis.

SAMPLE #: EP-050X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.93
Leachable Sulfate, SO_4	SM 4500	5.0	12,500
Arsenic, As (T)	EPA 6010	0.5	8.9
Lead, Pb (T)	EPA 6010	1.0	63.9

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 17, 1994 for analysis.

SAMPLE #: EP-051X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.73
Leachable Sulfate, SO_4	SM 4500	5.0	13,200
Arsenic, As (T)	EPA 6010	0.5	13.4
Lead, Pb (T)	EPA 6010	1.0	45.2

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.

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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 17, 1994 for analysis.

SAMPLE #: EP-052X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.90
Leachable Sulfate, SO_4	SM 4500	5.0	13,100
Arsenic, As (T)	EPA 6010	0.5	12.8
Lead, Pb (T)	EPA 6010	1.0	52.4

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 8-19-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 17, 1994 for analysis.

SAMPLE #: EP-053X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.79
Leachable Sulfate, SO_4	SM 4500	5.0	13,000
Arsenic, As (T)	EPA 6010	0.5	14.4
Lead, Pb (T)	EPA 6010	1.0	48.1

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 9-23-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAP. FLATS
Soil Samples received September 21, 1994 for analysis.

SAMPLE #: EP-054X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	19.2
Lead, Pb (T)	EPA 6010	1.0	93.1
pH Units	EPA 9045		4.44
Leachable Sulfate, SO_4	SM4500		5,400

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015235)

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DATE: 9-23-94

TO: KENNECOTT PLANT PROJECT GROUP
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BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAP. FLATS
Soil Samples received September 21, 1994 for analysis.

SAMPLE #: EP-055X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	36.1
Lead, Pb (T)	EPA 6010	1.0	91.4
pH Units	EPA 9045		5.93
Leachable Sulfate, SO_4	SM4500		9,650

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015236)

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ANALYTICAL LABORATORIES

DATE: 9-29-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-056X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	88.7
Lead, Pb (T)	EPA 6010	1.0	115
Leachable Sulfate, SO_4	SM 4500	100	10,300
pH Units	EPA 9045		6.56

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015008-Reprint)

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ANALYTICAL LABORATORIES

DATE: 9-20-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-057X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.2
Lead, Pb (T)	EPA 6010	1.0	43.4
Leachable Sulfate, SO_4	SM 4500	100	16,400
pH Units	EPA 9045		7.86

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.
(015009)

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-30-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION POND
Soil Samples received August 26, 1994 for analysis.

SAMPLE #: EP-058X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.06
Leachable Sulfate, SO_4	SM4500	5.0	10,100
Arsenic, As (T)	EPA 6010	0.5	13.1
Lead, Pb (T)	EPA 6010	1.0	72.4

Approved By: Joel Woodman

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 9-20-94

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SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-059X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.4
Lead, Pb (T)	EPA 6010	1.0	54.6
Leachable Sulfate, SO_4	SM 4500	100	14,800
pH Units	EPA 9045		7.59

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.
(015010)

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DATE: 9-20-94

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BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-060X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.6
Lead, Pb (T)	EPA 6010	1.0	88.8
Leachable Sulfate, SO_4	SM 4500	100	16,500
pH Units	EPA 9045		7.82

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015011)

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ANALYTICAL LABORATORIES

DATE: 8-30-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION POND
Soil Samples received August 26, 1994 for analysis.

SAMPLE #: EP-061X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.11
Leachable Sulfate, SO_4	SM4500	5.0	10,400
Arsenic, As (T)	EPA 6010	0.5	14.8
Lead, Pb (T)	EPA 6010	1.0	71.2

Approved By: Joel Wagstaff

NOTE: All analyses performed by ChemTech, Inc.

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O CHEMTECH • 6100 South Stratler • Murray, Utah 84107 • (801) 262-7299 • Fax (801) 262-7378

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 9-06-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received September 01, 1994 for analysis.

SAMPLE #: EP-062X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.8
Lead, Pb (T)	EPA 6010	1.0	63.2
pH Units	EPA 9045		7.59
Leachable Sulfate, SO_4	SM4500	100	12,700

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(014031)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-06-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received September 01, 1994 for analysis.

SAMPLE #: EP-063X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	22.6
Lead, Pb (T)	EPA 6010	1.0	75.6
pH Units	EPA 9045		7.70
Leachable Sulfate, SO_4	SM4500	100	12,900

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(014032)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-30-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAPORATION POND
Soil Samples received August 26, 1994 for analysis.

SAMPLE #: EP-064X

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		5.82
Leachable Sulfate, SO_4	SM4500	5.0	1,020
Arsenic, As (T)	EPA 6010	0.5	17.6
Lead, Pb (T)	EPA 6010	1.0	95.2

Approved By: Joel Workman

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-02-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP PONDS
Soil Samples received August 30, 1994 for analysis.

SAMPLE #: EP-065X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.2
Lead, Pb (T)	EPA 6010	1.0	77.5
Leachable Sulfate, SO_4	SM4500	100	1,930
pH Units	EPA 9045		7.71

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(013855)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 9-02-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP PONDS
Soil Samples received August 30, 1994 for analysis.

SAMPLE #: EP-066X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.7
Lead, Pb (T)	EPA 6010	1.0	64.2
Leachable Sulfate, SO_4	SM4500	100	5,960
pH Units	EPA 9045		7.92

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(013856)

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 9-02-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP PONDS
Soil Samples received August 30, 1994 for analysis.

SAMPLE #: EP-067X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.6
Lead, Pb (T)	EPA 6010	1.0	49.7
Leachable Sulfate, SO_4	SM4500	100	10,200
pH Units	EPA 9045		7.98

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(013857)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 9-09-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAPORATION PONDS
Soil Samples received September 7, 1994 for analysis.

SAMPLE #: EP-067XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	4.8
Lead, Pb (T)	EPA 6010	1.0	56.9
pH Units	EPA 150.1		7.74
Leachable Sulfate, SO_4	SM4500	100	12,100

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.
(U014358)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-15-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 14, 1994 for analysis.

SAMPLE #: EP-067 XB

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	4.8
Lead, Pb (T)	EPA 6010	1.0	56.3
Leachable Sulfate, SO_4	SM4500	100	4,040
pH Units	EPA 9045		7.91

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(014830)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-09-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAPORATION PONDS
Soil Samples received September 7, 1994 for analysis.

SAMPLE #: EP-068X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.4
Lead, Pb (T)	EPA 6010	1.0	80.8
pH Units	EPA 150.1		7.68
Leachable Sulfate, SO_4	SM4500	100	8,590

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(U014359)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-16-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAP. PONDS
Soil Samples received September 15, 1994 for analysis.

SAMPLE #: EP-069X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.9
Lead, Pb (T)	EPA 6010	1.0	43.2
Leachable Sulfate, SO_4	SM4500	100	5,490
pH Units	EPA 9045		7.40

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.
(014913)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-16-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAP. PONDS
Soil Samples received September 15, 1994 for analysis.

SAMPLE #: EP-070X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	21.2
Lead, Pb (T)	EPA 6010	1.0	77.4
Leachable Sulfate, SO_4	SM4500	100	7,460
pH Units	EPA 9045		4.22

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(014914)

CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-20-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-071X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	29.2
Lead, Pb (T)	EPA 6010	1.0	144
Leachable Sulfate, SO_4	SM 4500	100	12,300
pH Units	EPA 9045		4.69

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015012)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 9-23-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAP. FLATS
Soil Samples received September 21, 1994 for analysis.

SAMPLE #: EP-071XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	18.1
Lead, Pb (T)	EPA 6010	1.0	77.9
pH Units	EPA 9045		4.80
Leachable Sulfate, SO_4	SM4500		4,830

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015237)

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ANALYTICAL LABORATORIES

DATE: 9-20-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-072X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.4
Lead, Pb (T)	EPA 6010	1.0	78.4
Leachable Sulfate, SO_4	SM 4500	100	10,500
pH Units	EPA 9045		6.43

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015013)

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 9-23-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAP. FLATS
Soil Samples received September 21, 1994 for analysis.

SAMPLE #: EP-072XA

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.0
Lead, Pb (T)	EPA 6010	1.0	63.8
pH Units	EPA 9045		5.39
Leachable Sulfate, SO_4	SM4500		1,650

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.
(015238)

CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 10-21-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 19, 1994 for analysis.

SAMPLE #: EP-073X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.2
Lead, Pb (T)	EPA 6010	1.0	77.4
pH Units	EPA 9045		7.63
Leachable Sulfate, SO_4	SM4500	100	ND

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(016839)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 10-21-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 19, 1994 for analysis.

SAMPLE #: EP-074X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	21.4
Lead, Pb (T)	EPA 6010	1.0	86.6
pH Units	EPA 9045		7.91
Leachable Sulfate, SO_4	SM4500	100	ND

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(016840)

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 10-21-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 19, 1994 for analysis.

SAMPLE #: EP-075X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.3
Lead, Pb (T)	EPA 6010	1.0	85.9
pH Units	EPA 9045		8.06
Leachable Sulfate, SO_4	SM4500	100	ND

Approved By: _____

NOTE: All analyses performed by ChemTech, Inc.
(016841)

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CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 10-21-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 19, 1994 for analysis.

SAMPLE #: EP-076X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	8.8
Lead, Pb (T)	EPA 6010	1.0	51.8
pH Units	EPA 9045		7.90
Leachable Sulfate, SO_4	SM4500	100	ND

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(016842)

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ANALYTICAL LABORATORIES

DATE: 10-21-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 19, 1994 for analysis.

SAMPLE #: EP-077X

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.9
Lead, Pb (T)	EPA 6010	1.0	103
pH Units	EPA 9045		7.91
Leachable Sulfate, SO_4	SM4500	100	ND

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.
(016843)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 078XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.7
Lead, Pb (T)	EPA 6010	1.0	58.8
pH Units	EPA 9045		7.53
Water Leachable SO_4	SM 4500	100	374

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021126)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 079XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	13.2
Lead, Pb (T)	EPA 6010	1.0	57.1
pH Units	EPA 9045		7.65
Water Leachable SO_4	SM 4500	100	979

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021127)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 080XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	9.6
Lead, Pb (T)	EPA 6010	1.0	50.9
pH Units	EPA 9045		7.82
Water Leachable SO_4	SM 4500	100	<100

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021128)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 081XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.2
Lead, Pb (T)	EPA 6010	1.0	59.7
pH Units	EPA 9045		7.71
Water Leachable SO_4	SM 4500	100	292

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021129)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 082XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.5
Lead, Pb (T)	EPA 6010	1.0	53.3
pH Units	EPA 9045		7.78
Water Leachable SO_4	SM 4500	100	<100

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021130)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 083XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	13.6
Lead, Pb (T)	EPA 6010	1.0	53.4
pH Units	EPA 9045		7.80
Water Leachable SO_4	SM 4500	100	181

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021131)

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Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 084XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.7
Lead, Pb (T)	EPA 6010	1.0	68.2
pH Units	EPA 9045		7.60
Water Leachable SO_4	SM 4500	100	1,470

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021132)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 085XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	16.1
Lead, Pb (T)	EPA 6010	1.0	92.2
pH Units	EPA 9045		7.32
Water Leachable SO_4	SM 4500	100	<100

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021133)

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Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 086XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	17.8
Lead, Pb (T)	EPA 6010	1.0	92.8
pH Units	EPA 9045		6.86
Water Leachable SO_4	SM 4500	100	115

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021134)

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ANALYTICAL LABORATORIES

Chemical and Bacteriological Testing

DATE: 1-30-95

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received January 19, 1995 for analysis.

SAMPLE #: EP 087XR

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.8
Lead, Pb (T)	EPA 6010	1.0	86.5
pH Units	EPA 9045		7.61
Water Leachable SO_4	SM 4500	100	416

NOTE: Dry weight basis

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021135)

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Chemical and Bacteriological Testing

DATE: 1-31-95

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SO. JORDAN EVAP. PONDS
Soil Samples received January 27, 1995 for analysis.

SAMPLE #: EP-088XR

Total, mg/Kg	Method	Result
Arsenic, As (T)	EPA 6010	16.4
Lead, Pb (T)	EPA 6010	97.1
pH Units	EPA 9045	7.44
Leachable Sulfate, SO_4	SM 4500	1,060

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(021464)

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QA/QC SAMPLE

ANALYTICAL SHEETS

CHEMTECH/FORD
ANALYTICAL LABORATORIES

DATE: 8-29-94

TO: KENNECOTT PLANT PROJECT GROUP
%ASIM MUKERJEE
P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-001XS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.22
Leachable Sulfate, SO_4	SM17 4500	5.0	8,810
Arsenic, As (T)	EPA 6010	0.5	4.87
Lead, Pb (T)	EPA 6010	1.0	45.9

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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CHEMTECH/FORD

ANALYTICAL LABORATORIES

DATE: 9-20-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-001XS2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.7
Lead, Pb (T)	EPA 6010	1.0	41.4
Leachable Sulfate, SO_4	SM 4500	100	11,800
pH Units	EPA 9045		8.16

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015014)

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DATE: 8-29-94

TO: KENNECOTT PLANT PROJECT GROUP
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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-006XAS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.16
Leachable Sulfate, SO_4	SM17 4500	5.0	7,460
Arsenic, As (T)	EPA 6010	0.5	19.9
Lead, Pb (T)	EPA 6010	1.0	50.6

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-012XS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.79
Leachable Sulfate, SO_4	SM17 4500	5.0	5,050
Arsenic, As (T)	EPA 6010	0.5	16.2
Lead, Pb (T)	EPA 6010	1.0	57.7

Approved By: [signature]

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-012XS2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	12.8
Lead, Pb (T)	EPA 6010	1.0	48.6
Leachable Sulfate, SO_4	SM 4500	100	4,120
pH Units	EPA 9045		7.78

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015015)

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-019XS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.25
Leachable Sulfate, SO_4	SM17 4500	5.0	5,550
Arsenic, As (T)	EPA 6010	0.5	8.59
Lead, Pb (T)	EPA 6010	1.0	61.3

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-019XS2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.6
Lead, Pb (T)	EPA 6010	1.0	55.9
Leachable Sulfate, SO_4	SM 4500	100	6,160
pH Units	EPA 9045		6.95

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015016)

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-023XS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.06
Leachable Sulfate, SO_4	SM17 4500	5.0	13,300
Arsenic, As (T)	EPA 6010	0.5	10.9
Lead, Pb (T)	EPA 6010	1.0	42.4

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-031XS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		4.79
Leachable Sulfate, SO_4	SM17 4500	5.0	5,430
Arsenic, As (T)	EPA 6010	0.5	15.3
Lead, Pb (T)	EPA 6010	1.0	57.1

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-031XS2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	14.4
Lead, Pb (T)	EPA 6010	1.0	56.6
Leachable Sulfate, SO_4	SM 4500	100	8,820
pH Units	EPA 9045		5.14

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015017)

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-040XS

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.08
Leachable Sulfate, SO_4	SM17 4500	5.0	<100
Arsenic, As (T)	EPA 6010	0.5	13.1
Lead, Pb (T)	EPA 6010	1.0	92.6

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-042X-5S

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.23
Leachable Sulfate, SO_4	SM17 4500	5.0	1,800
Arsenic, As (T)	EPA 6010	0.5	5.0
Lead, Pb (T)	EPA 6010	1.0	53.1

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-042X-5S2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	7.3
Lead, Pb (T)	EPA 6010	1.0	56.1
Leachable Sulfate, SO_4	SM 4500	100	2,870
pH Units	EPA 9045		8.14

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015018)

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-044X-4S

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.02
Leachable Sulfate, SO_4	SM17 4500	5.0	613
Arsenic, As (T)	EPA 6010	0.5	11.2
Lead, Pb (T)	EPA 6010	1.0	35.1

Approved By:

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-046X-2S

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		8.04
Leachable Sulfate, SO_4	SM17 4500	5.0	<100
Arsenic, As (T)	EPA 6010	0.5	17.8
Lead, Pb (T)	EPA 6010	1.0	59.2

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 8-29-94

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SAMPLE: S.J. EVAP. PONDS
Soil Samples received August 25, 1994 for analysis.

SAMPLE #: EP-048X-1S

Total, mg/Kg	Method	MDL	Result
pH Units	EPA 9045		7.98
Leachable Sulfate, SO_4	SM17 4500	5.0	<100
Arsenic, As (T)	EPA 6010	0.5	14.1
Lead, Pb (T)	EPA 6010	1.0	68.7

Approved By:

NOTE: All analyses performed by ChemTech, Inc.

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DATE: 9-20-94

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BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION PONDS
Soil Samples received September 16, 1994 for analysis.

SAMPLE #: EP-048X-1S2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	10.9
Lead, Pb (T)	EPA 6010	1.0	55.6
Leachable Sulfate, SO_4	SM 4500	100	263
pH Units	EPA 9045		7.78

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(015019)

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DATE: 9-30-94

TO: KENNECOTT PLANT PROJECT GROUP
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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received September 28, 1994 for analysis.

SAMPLE #: EP-053XS

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	15.2
Lead, Pb (T)	EPA 6010	1.0	53.1
pH Units	EPA 9045		7.91
Leachable Sulfate, SO_4	SM 4500	100	11,600

Approved By: Joel Westman

NOTE: All analyses performed by ChemTech, Inc.
(015609)

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DATE: 10-13-94

TO: KENNECOTT PLANT PROJECT GROUP
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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 11, 1994 for analysis.

SAMPLE #: EP-061XS

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	13.1
Lead, Pb (T)	EPA 6010	1.0	68.5
pH Units	EPA 9045		7.72
Leachable Sulfate, SO_4	SM4500	100	9,920

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(016299)

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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received September 28, 1994 for analysis.

SAMPLE #: EP-063XS

	Method	MDL	Result
Total, mg/Kg			
Arsenic, As (T)	EPA 6010	0.5	40.0
Lead, Pb (T)	EPA 6010	1.0	139
pH Units	EPA 9045		7.74
Leachable Sulfate, SO_4	SM 4500	100	13,600

Approved By: Joel Westman

NOTE: All analyses performed by ChemTech, Inc.
(015610)

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DATE: 11-01-94

TO: KENNECOTT PLANT PROJECT GROUP
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P.O. BOX 112
BINGHAM CANYON, UTAH 84006

SAMPLE: SJ EVAPORATION POND
Soil Samples received October 28, 1994 for analysis.

SAMPLE #: EP-063XS2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	43.7
Lead, Pb (T)	EPA 6010	1.0	122
pH Units	EPA 9045		7.62
Leachable Sulfate, SO_4	SM4500	100	13,300

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(017422)

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DATE: 10-13-94

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SAMPLE: SOUTH JORDAN EVAPORATION PONDS
Soil Samples received October 11, 1994 for analysis.

SAMPLE #: EP-067XS

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.6
Lead, Pb (T)	EPA 6010	1.0	69.9
pH Units	EPA 9045		7.92
Leachable Sulfate, SO_4	SM4500	100	17,100

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(016300)

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SAMPLE: SJ EVAPORATION POND
Soil Samples received October 28, 1994 for analysis.

SAMPLE #: EP-067XS2

Total, mg/Kg	Method	MDL	Result
Arsenic, As (T)	EPA 6010	0.5	11.0
Lead, Pb (T)	EPA 6010	1.0	69.9
pH Units	EPA 9045		7.85
Leachable Sulfate, SO_4	SM4500	100	13,400

Approved By:

NOTE: All analyses performed by ChemTech, Inc.
(017423)

○ FORD • 40 West Louise Avenue • Salt Lake City, Utah 84115 • (801) 466-8761 • Fax (801) 466-8763
○ CHEMTECH • 6100 South Stratler • Murray, Utah 84107 • (801) 262-7299 • Fax (801) 262-7378

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0151

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: Ag	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-001X	6-14-94	✓			1	X	X	X	X			A.S.A.P.
EP-002X	6-14-94	✓			1	X	X	X	X			~48 HRS.

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	6-14-94	16:00	FORD [signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0152

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-003X	6-22-94	✓			1	X	X	X	X			48 HR TURN-AROUND
EP-004X	6-22-94	✓			1	X	X	X	X			ON ALL SAMPLES
EP-005X	6-22-94	✓			1	X	X	X	X			
EP-006X	6-22-94	✓			1	X	X	X	X			
EP-007X	6-22-94	✓			1	X	X	X	X			
EP-008X	6-22-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	6-22-94	12:15	Larry Elkins	Larry Elkin	6-22-94	15:50	[signature]
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: JB

PPG 0265

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}			REMARKS
EP-009X	7-6-94	✓			1	X	X	X	X			
EP-010X	7-6-94	✓			1	X	X	X	X			48 HOUR TURNAROUND
EP-011X	7-6-94	✓			1	X	X	X	X			
EP-012X	7-6-94	✓			1	X	X	X	X			
EP-013X	7-6-94	✓			1	X	X	X	X			
EP-014X	7-6-94	✓			1	X	X	X	X			
EP-007A	7-6-94	✓			1	X	X	X	X			
EP-008A	7-6-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
	7-6-94	16:40					
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0155

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: Ag	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-003XA	7-11-94	✓			1	X	X	X	X			48 HOUR RETURN
EP-004XA	7-11-94	✓			1	X	X	X	X			
EP-005XA	7-11-94	✓			1	X	X	X	X			
EP-006XA	7-11-94	✓			1	X	X	X	X			
EP-007XA	7-11-94	✓			1	X	X	X	X			
EP-008XA	7-11-94	✓			1	X	X	X	X			
EP-015X	7-11-94	✓			1	X	X	X	X			
EP-017X	7-11-94	✓			1	X	X	X	X			
EP-018X	7-11-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	7-11-94	15:55	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

FAX RESULTS TO ASIM

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0156

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
												48 HR. TURNAROUND
EP-009XA	7-14-94	X			1	X	X	X	X			
EP-010XA	7-14-94	X			1	X	X	X	X			
EP-012XA	7-14-94	X			1	X	X	X	X			
EP-013XA	7-14-94	X			1	X	X	X	X			
EP-016X	7-14-94	X			1	X	X	X	X			
EP-019X	7-14-94	X			1	X	X	X	X			
EP-020X	7-14-94	X			1	X	X	X	X			
EP-021X	7-14-94	X			1	X	X	X	X			
EP-022X	7-14-94	X			1	X	X	X	X			
EP-023X	7-14-94	X			1	X	X	X	X			
EP-024X	7-14-94	X			1	X	X	X	X			
EP-025X	7-14-94	X			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	7-14-94	14:55	Thomas Nannini				
Thomas Nannini	7-14-94	4:00 pm	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0159

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (1)			REMARKS
EP-020XA	7-22-94	✓			1	X	X	X	X			24-48 HOUR TURNAROUND
EP-021XA	7-22-94	✓			1	X	X	X	X			
EP-022XA	7-22-94	✓			1	X	X	X	X			
EP-023XA	7-22-94	✓			1	X	X	X	X			
EP-025XA	7-22-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	7-27-94	16:00	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0160

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-026X	7-26-94	✓			1	X	X	X	X			24-48 HOUR TURNAROUND
EP-027X	7-26-94	✓			1	X	X	X	X			
EP-028X	7-26-94	✓			1	X	X	X	X			
EP-029X	7-26-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	7-26-94	13:05	Thomas Nannini	Thomas Nannini	7/26/94	4:05 pm	[signature]
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:	DATE:	TIME:

REMARKS:

FAX RESULTS TO ASJM

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0161

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (t)			REMARKS
EP-030X	8-2-94	✓			1	X	X	X	X			24-48 TURNAROUND
EP-031X	8-2-94	✓			1	X	X	X	X			
EP-032X	8-2-94	✓			1	X	X	X	X			
EP-033X	8-2-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-2-94	16:00	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0162

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	WATER	OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-020XB	8-3-94	X			1	X	X	X	X			24-48 HR TURNAROUND
EP-022XB	8-3-94	X			1	X	X	X	X			
EP-023XB	8-3-94	X			1	X	X	X	X			
EP-013A	8-3-94	X			1				X			
EP-014A	8-3-94	X			1				X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-3-94	13:45	Thomas Tannin	Tom Tannin		2:46 PM	S Petersen
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION

CHAIN OF CUSTODY RECORD

PLANT PROJECTS GROUP

PROJECT NAME/LOCATION: South Jordan Evap. Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0163

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: Pb	As	pH	SO_4^{2-} (L)			REMARKS
EP-032XA	8-5-94	✓			1	✓	✓	✓	✓			~~24 HOUR RUSH on Pb, As~~
EP-004XA	8-5-94	✓			1	✓	✓	✓	✓			24 TO 48 HR TURNAROUND

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-5-94	15:00 pm	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS: Fax results to JSim

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0164

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-034X	8-8-94	✓			1	X	X	X	X			24-48 HOUR TURNAROUND
EP-035X	8-8-94	✓			1	X	X	X	X			
EP-036X	8-8-94	✓			1	X	X	X	X			
EP-037X	8-8-94	✓			1	X	X	X	X			
EP-038X	8-8-94	✓			1	X	X	X	X			
EP-039X	8-8-94	✓			1	X	X	X	X			
EP-040X	8-8-94	✓			1	X	X	X	X			

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[signature]	8-8-94	16:15	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

FAX RESULTS TO ASTM

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0165

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}(L)			REMARKS
EP-041X-1	8-9-94	✓			1							
EP-041X-2												
EP-041X-3												
EP-041X-4												
EP-041X-5												
EP-042X-1												
EP-042X-2												
EP-042X-3												
EP-042X-4												
EP-042X-5												
EP-043X-1												
EP-043X-2												
EP-043X-3												
EP-043X-4												
EP-043X-5												

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-9-94	15:50	Thomas Nannin	Thomas Nannin	8/9/94	16:29	S Peterson
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

Fax results to Tsim

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0166

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}(e)			REMARKS
EP-043X-6	8-9-94	✓			1							
EP-044X-1												
EP-044X-2												
EP-044X-3												
EP-044X-4												
EP-044X-5												
EP-044X-6												
EP-045X-1												
EP-045X-2												
EP-045X-3												
EP-045X-4												
EP-045X-5												
EP-045X-6												
EP-046X-1												
EP-046X-2												

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8.9.94	15:50	Thomas Nanni	Thomas Nanni	8/9/94	16:37	S Peterson
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS: Fax results to Jim

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0167

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	WATER	OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-046X-3	8-9-94	✓			1	X	X	X	X			
EP-046X-4	8-9-94	✓			1	X	X	X	X			
EP-046X-5	8-9-94	✓			1	X	X	X	X			
EP-046X-6	8-9-94	✓			1	X	X	X	X			
EP-047X-1	8-9-94	✓			1	X	X	X	X			
EP-047X-2	8-9-94	✓			1	X	X	X	X			
EP-047X-3	8-9-94	✓			1	X	X	X	X			
EP-047X-4	8-9-94	✓			1	X	X	X	X			
EP-047X-5	8-9-94	✓			1	X	X	X	X			
EP-048X-1	8-9-94	✓			1	X	X	X	X			
EP-048X-2	8-9-94	✓			1	X	X	X	X			
EP-048X-3	8-9-94	✓			1	X	X	X	X			
EP-048X-4	8-9-94	✓			1	X	X	X	X			
EP-048X-5	8-9-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-9-94	15:50	Thomas Nannen	Thomas Nannen	8/9/94	11:29	S Pelcase
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

Fax results to Asm

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0168

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (1)			REMARKS
												48 HOUR TURNAROUND
EP-049X	8-17-94	✓			1	X	X	X	X			
EP-050X	8-17-94	✓			1	X	X	X	X			
EP-051X	8-17-94	✓			1	X	X	X	X			
EP-052X	8-17-94	✓			1	X	X	X	X			
EP-053X	8-17-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-17-94	15:45	[signature]				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:	DATE:	TIME:

REMARKS:

FAX RESULTS TO ASW

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0169

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}			REMARKS
												48 HOUR TURNAROUND
EP-001XS	8-25-94	✓			1	X	X	X	X			
EP-006XAS	8-25-94	✓			1	X	X	X	X			
EP-012XS	8-25-94	✓			1	X	X	X	X			
EP-019XS	8-25-94	✓			1	X	X	X	X			
EP-023XS	8-25-94	✓			1	X	X	X	X			
EP-031XS	8-25-94	✓			1	X	X	X	X			
EP-040XS	8-25-94	✓			1	X	X	X	X			
EP-042X-5S	8-25-94	✓			1	X	X	X	X			
EP-044X-4S	8-25-94	✓			1	X	X	X	X			
EP-046X-2S	8-25-94	✓			1	X	X	X	X			
EP-048X-1S	8-25-94	✓			1	X	X	X	X			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8-25-94	12:10	Larry Elkin	Larry Elkin	8-25-94	16:02	FORD [signature]
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
		16	LLD				
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0170

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
												48 HOUR TURNAROUND
EP-058X	8-26-93	X			1	X	X	X	X			
EP-061X	8-26-93	X			1	X	X	X	X			
EP-064X	8-26-93	X			1	X	X	X	X			

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[signature]	8-26-94	14:35	[signature]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0171

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}			REMARKS
EP-065X	8-30-94	X			1	X	X	X	X			
EP-066X	8-30-94	X			1	X	X	X	X			
EP-067X	8-30-94	X			1	X	X	X	X			

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[signature]	8-30-94	15:40	[signature]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE

PPG 0173

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO4 (L)			REMARKS: 48 HR. TURNAROUND
EP-062X	9-1-94	X			1	X	X	X	X			
EP-063X	9-1-94	X			1	X	X	X	X			

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[illegible]	9-1-94	13:00	Thomas Nannini	Thomas Nannini	9-1-94	4:15	[illegible]
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0175

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	WATER	OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
												24 hour Rush
EP-067XA	9-7-94	X			1	X	X	X	X			
EP-068X	9-7-94	X			1	X	X	X	X			

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[signature]	9-7-94	14:15	Thomas Nannini	Thomas Nannini		4:40pm	Bryan Lunt
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:
Fax results to ASIM

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0179

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-06TXB	9-14-94	X			1	X	X	X	X			24 HOUR PUSH ON As, Pb & SO_4^{2-} (L)

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[signature]	9-14-94	15:30	[signature]	[signature]	9/14/94	4:20 pm	[signature]
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0180

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
												24 HOUR PUSH ON As, Pb, SO_4^{2-}
EP-069X	9-15-94	X			1	X	X	X	X			
EP-070X	9-15-94	X			1	X	X	X	X			

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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

FAX RESULTS TO ASTM

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0181

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
												24 HOUR PUSH ON
EP-056X	9-16-94	X			1	X	X	X	X			As, Pb AND SO_4^{2-} (L)
EP-057X	9-16-94	X			1	X	X	X	X			
EP-059X	9-16-94	X			1	X	X	X	X			
EP-060X	9-16-94	X			1	X	X	X	X			
EP-071X	9-16-94	X			1	X	X	X	X			
EP-072X	9-16-94	X			1	X	X	X	X			

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[signature]	9-16-94	15:50	[signature]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS: FAX RESULTS TO ASTM

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE:

PPG 0182

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-} (L)			REMARKS
												48 HOUR RUSH ON
EP-001XS2	9-16-94	X			1	X	X	X	X			As, Pb, SO_4^{2-}(L) & pH
EP-012XS2	9-16-94	X			1	X	X	X	X			
EP-019XS2	9-16-94	X			1	X	X	X	X			
EP-031XS2	9-16-94	X			1	X	X	X	X			
EP-042X-5S2	9-16-94	X			1	X	X	X	X			
EP-048X-1S2	9-16-94	X			1	X	X	X	X			

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	9-16-94	15:50					
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

FAX RESULTS TO ASTM

KENNECOTT UTAH COPPER CORPORATION — **CHAIN OF CUSTODY RECORD** — **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evap. Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0183

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	WATER	OTHER	NO. OF CONTAINERS	As	Pb	pH	SO_4^{2-} (L)			REMARKS
EP-054X	9-21-94	✓			1	X	X	X	X			24 HOUR TURNAROUND ON As, Pb & SO_4^{2-} (L)
EP-055X	9-21-94	✓			1	X	X	X	X			
EP-071XA	9-21-94	✓			1	X	X	X	X			
EP-072XA	9-21-94	✓			1	X	X	X	X			

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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

FAX RESULTS TO ASEM

KENNECOTT UTAH COPPER CORPORATION | **CHAIN OF CUSTODY RECORD** | **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0184

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}			REMARKS
												48 HOUR TURNAROUND
EP-053XS	9-28-94	X			1	X	X	X	X			
EP-063XS	9-28-94	X			1	X	X	X	X			

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[signature]	9-28-94	15:50	[signature]				
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REMARKS:

FAX RESULTS TO ASIM.

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: South Jordan Evaporation Ponds

SAMPLER'S SIGNATURE: [signature]

PPG 0185

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO_4^{2-}			REMARKS
EP-06 1XS	10-11-94	X			1	X	X	X	X			48 HR. TURNAROUND
EP-06 7XS	10-11-94	X			1	X	X	X	X			

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[signature]	10-11-94	16:30	[signature]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

FAX TO ASIM

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [signature]

PPG 0188

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	WATER	OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	SO4			REMARKS
												1 SHOUR TURNAROUND
EP-073X	10-19-94	X			1	X	X	X	X			
EP-074X	10-19-94	X			1	X	X	X	X			
EP-075X	10-19-94	X			1	X	X	X	X			
EP-076X	10-19-94	X			1	X	X	X	X			
EP-077X	10-19-94	X			1	X	X	X	X			

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[signature]	10.19.94	16:30	[signature]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [illegible]

PPG 0191

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	Cd	Cu			REMARKS
EP-078XR	1-11-95	X			1	X	X	X	X			DRY AND HOMOGENIZE
EP-079XR	1-11-95	X			1	X	X	X	X			
EP-080XR	1-12-95	X			1	X	X	X	X			SAMPLES THOROUGHLY
EP-081XR	1-12-95	X			1	X	X	X	X			
EP-082XR	1-18-95	X			1	X	X	X	X			PRIOR TO SPLITTING
EP-083XR	1-18-95	X			1	X	X	X	X			
EP-084XR	1-18-95	X			1	X	X	X	X			SAMPLE
EP-085XR	1-18-95	X			1	X	X	X	X			
EP-086XR	1-18-95	X			1	X	X	X	X			
EP-087XR	1-19-95	X			1	X	X	X	X			

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[illegible]	1-19-95	12:30	[illegible]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

KENNECOTT UTAH COPPER CORPORATION **CHAIN OF CUSTODY RECORD** **PLANT PROJECTS GROUP**

PROJECT NAME/LOCATION: SOUTH JORDAN EVAPORATION PONDS

SAMPLER'S SIGNATURE: [illegible]

PPG 0192

SAMPLE I.D. NO.	DATE COLLECTED	SAMPLE TYPE: SOIL	SAMPLE TYPE: WATER	SAMPLE TYPE: OTHER	NO. OF CONTAINERS	ANALYSIS REQUESTED: As	Pb	pH	Cu	Z-(L)		REMARKS
EP-088XR	1-27-15	X			1	X	X	X	X			DRY AND HOMOGENIZE
												SAMPLE THOROUGHLY
												PRIOR TO SPLITTING
												SAMPLE
												HOLDING TIME 14 DAYS

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[illegible]	1-21-14	11:45	[illegible]				
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RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	SPLIT SAMPLES RECEIVED BY:		DATE:	TIME:

REMARKS:

APPENDIX C

FIELD NOTES

Name JOHN BIRKINSHAW (NAE)
PLANT & PROJECTS GROUP
Address 8400 WEST 10200 SOUTH
BINGHAM CANYON, UT. 84006
Phone 801-569-7029

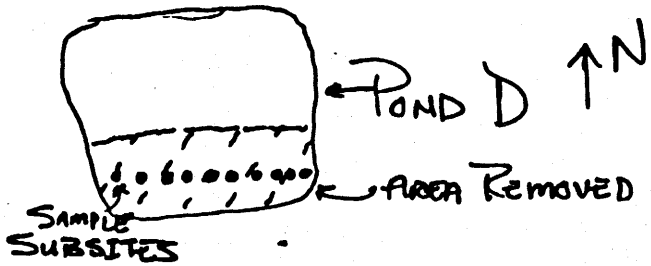
Project SOUTH JORDAN EVAPORATION PONDS

① 6-8-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND D

14:00 SAMPLING SUMMARY:

THE REMOVAL OF POND D BEGAN 6-6-94. TO THIS POINT, APPROXIMATELY 2 - 2½' HAVE BEEN REMOVED FROM THE SOUTHERN ONE THIRD OF THE POND. TWO CHECK SAMPLES WILL BE COLLECTED ON A EAST/WEST TREND THROUGH THE CENTER OF THE AREA REMOVED. EACH CHECK SAMPLE WILL BE A 5-POINT COMPOSITE ON 50' CENTERS. SEDIMENTS WILL BE SAMPLED FROM 0-4".



14:20 CHECK SAMPLE EP-001A COLLECTED
- TAN TO BROWN SANDY GRAVEL

14:25 CHECK SAMPLE EP-002A COLLECTED
- DARK BROWN, POSSIBLE DIKE MATERIAL
MINOR CLUMPS OF TREATED SUDP[illegible]

6-14-94 JOHN BIRKINSHAW ②

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND D

SAMPLING SUMMARY:

THE REMOVAL OF POND D OUTSIDE THE CONSOLIDATED AREA HAS BEEN COMPLETED. APPROXIMATELY THREE FEET OF NATIVE SOILS HAVE BEEN REMOVED. THE AREA WILL BE SAMPLED FOLLOWING THE PROTOCOL ESTABLISHED IN THE EVAPORATION PONDS WORK PLAN FOR POST REMOVAL SAMPLE. SAMPLE CELLS WILL CONSIST OF 5 POINT COMPOSITE SITES WHICH WILL BE ON 400' CENTERS. DUE TO THE IRREGULAR SHAPE OF POND D, TWO POST REMOVAL SAMPLES WILL BE COLLECTED, ONE 5-POINT AND ONE 4-POINT COMPOSITE. SAMPLE SUBSITES WILL BE DUG TO A DEPTH OF 6" WITH A SHARP SHOOTER SHOVEL WITH THE SIDES OF THE HOLE BEING SCRAPED TO CLEAN LOOSE DEBRIS

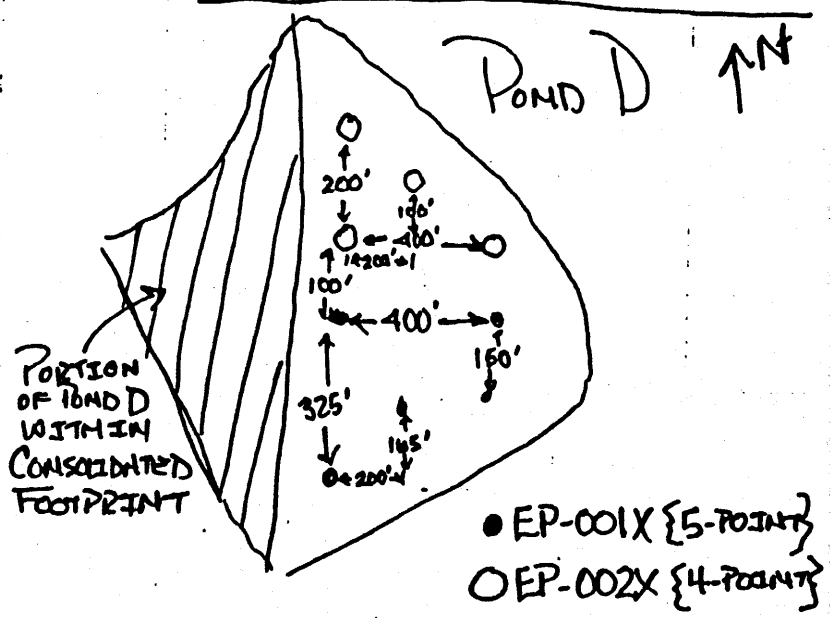
(3) 6-14-94 JOHN BIRKINSHAW

POND D: POST REMOVAL SAMPLING SUMMARY: CONT.

SAMPLE MATERIAL WILL BE COLLECTED FROM 0-4" FROM EACH SUBSITE USING A PLASTIC DISPOSABLE SPOON AND PLASTIC CUP.

EACH SUBSITE WILL BE SURVEYED IN BY PPG SURVEYERS PRIOR TO SAMPLE COLLECTION

SAMPLE SUBSITE LOCATION MAP



6-14-94 JOHN BIRKINSHAW (4)

POND D: POST REMOVAL SAMPLING

13:15 BEGIN SURVEYING POST REMOVAL SUB-SAMPLE SITES.

13:40 BEGIN COLLECTING POST REMOVAL SAMPLE EP-001X-POND D

EP-001X: 5-POINT COMP. 0-4"

SAMPLE DESCRIPTION:
SANDY GRAVEL: LT. BROWN TO BROWN, FINE TO MEDIUM GRAIN SAND. MINOR IRON STAINING. GRAVELS FROM 1/2-2", MOD. TO ABUNDANT GYPSUM PPT.

14:00 BEGIN COLLECTING POST REMOVAL SAMPLE EP-002X, POND D.

EP-002X:

SAMPLE DESCRIPTION:
BROWN, FINE TO MEDIUM GRAIN SAND. MINOR TO MODERATE IRON STAINING. ISOLATED POCKETS OF CLAYEY SILT, MODERATE IRON STAINING. GRAVELS FROM 1/2"-2". MODERATE TO ABUNDANT GYPSUM PPT.

(5) 6-22-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 7

POST REMOVAL SAMPLING SUMMARY:

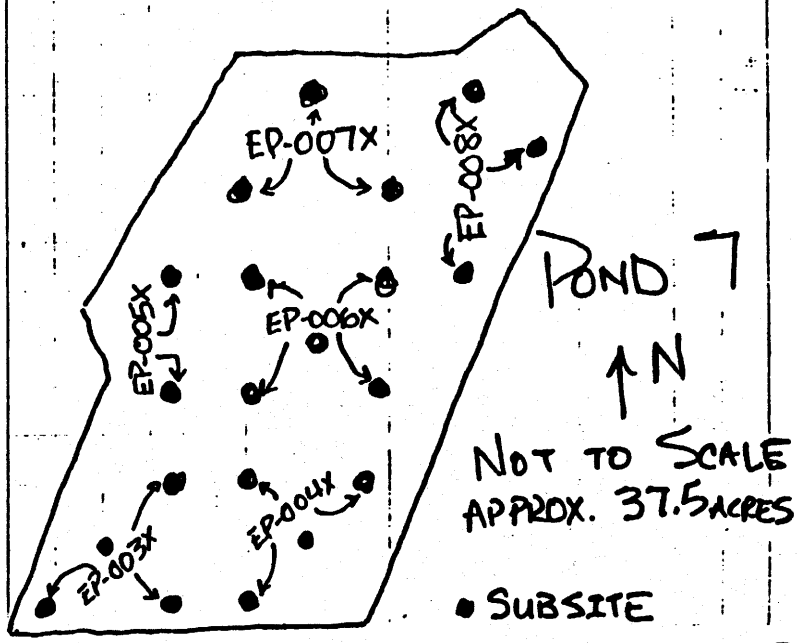
POND 7, APPROX. 37.5 ACRES, WILL BE SAMPLED USING THE PROTOCOL DESCRIBED WITHIN THE "SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN". COMPOSITE SAMPLE CELLS WILL CONSIST OF 5-POINTS WHERE THE CONFIGURATION OF THE POND PERMITS. SPACING BETWEEN CELLS WILL BE 200' RATHER THAN 400' DESCRIBED IN THE WORK PLAN TO BETTER CHARACTERIZE THE SEDIMENTS WITHIN THE POND. A TOTAL OF 6 SAMPLES WILL BE COLLECTED, EP-003X → EP-008X. ALL SAMPLE SUBSITE WILL BE SURVEYED PRIOR TO SAMPLE COLLECTION. DUE TO THE CONSTRAINTS OF THE POND PERIMETER SAMPLES WILL

6-22-94 JOHN BIRKINSHAW (6)
POND 7 · POST REMOVAL

CONSIST OF THE FOLLOWING NUMBER OF SAMPLE SUBSITES.

EP-003X: 4 SUBSITES
EP-004X: 4 SUBSITES
EP-005X: 2 SUBSITES
EP-006X: 5 SUBSITES
EP-007X: 3 SUBSITES
EP-008X: 3 SUBSITES

ALL SAMPLES WILL BE COLLECTED WITH DISPOSABLE SAMPLING TOOLS



(7) 6-22-94 JOHN BIRKINSHAW

8:00 PPG SURVEYERS BEGIN SURVEYING IN SAMPLE SUBSITE LOCATIONS FOR POND 7 POST REMOVAL SAMPLES.

9:35 BEGIN COLLECTING EP-003X

SAMPLE DESCRIPTION:

FINE SAND AND SILT, TAN TO LIGHT BROWN. ISOLATED POCKETS OF LIGHT BROWN TO BROWN SILTY CLAY.

9:50 BEGIN COLLECTING EP-004X

SAMPLE DESCRIPTION:

BROWN FINE TO MEDIUM SAND AND LIGHT BROWN FINE SAND AND SILT. MODERATE ORGANIC MATERIAL ISOLATED WHITE SPECS, POSSIBLE GYPSUM ppt.

6-22-94 JOHN BIRKINSHAW (8)

POND 7 - POST REMOVAL

10:00 BEGIN COLLECTING EP-005X

SAMPLE DESCRIPTION:

LIGHT BROWN TO BROWN, CLAYEY SILTY SAND. FINE GRAIN. LOW PLASTICITY.

10:10 BEGIN COLLECTING EP-006X

SAMPLE DESCRIPTION:

LIGHT BROWN TO BROWN FINE GRAIN SAND AND SILT AND TAN TO LIGHT BROWN FINE GRAIN SAND.

10:30 BEGIN COLLECTING EP-007X

SAMPLE DESCRIPTION:

LIGHT BROWN TO BROWN FINE TO MEDIUM SAND. ISOLATED CALICHE STREAKS. MINOR ORGANICS.

(9) 6-22-94 JOHN BIRKINSHAW
POND 7 - POST REMOVAL

10:45 BEGIN COLLECTING EP-008X

SAMPLE DESCRIPTION:

LIGHT BROWN WITH MINOR ORANGE TINT, FINE GRAIN SAND. MINOR ORGANICS.

6-27-94 JOHN BIRKINSHAW (10)

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 7.

SAMPLING SUMMARY

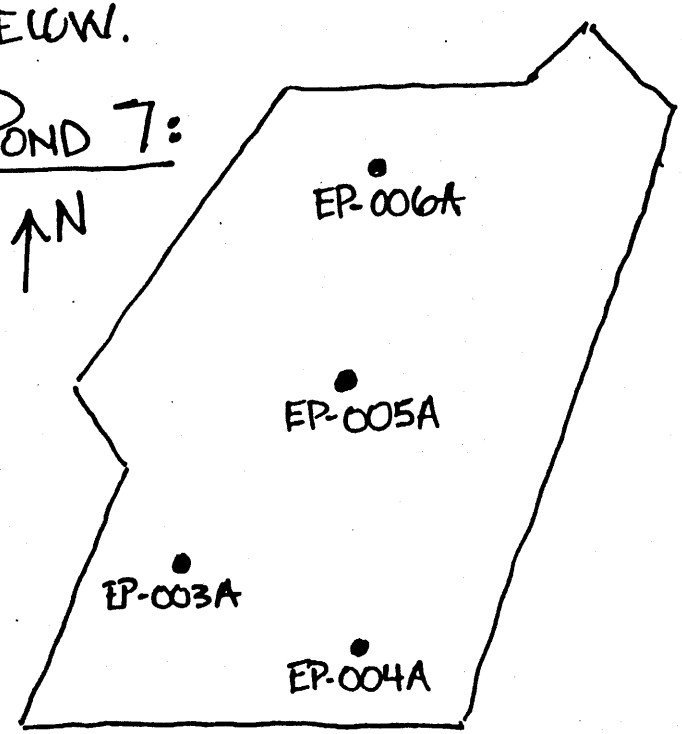
FOUR TRENCHES WILL BE EXCAVATED TO A DEPTH OF SIX FEET WITHIN POND 7. THE TRENCHING IS BEING CONDUCTED TO FURTHER EVALUATE THE SO_4^{2-} CONCENTRATIONS AT DEPTH. THE AREA, POND 7, HAS BEEN CLEANED, BUT SO_4^{2-} CONCENTRATIONS EXCEEDED 10,000 PPM IN 4 OF THE 6 SAMPLES. TRENCHES WILL BE SAMPLED ON 1' INTERVAL AND ANALIZED FOR As, Pb, PH AND SO_4^{2-}(L). FOLLOWING THE COMPLETION OF THE ANALYSIS, AN EVALUATION OF WHETHER FURTHER REMOVAL OF THE AREA WILL BE CONDUCTED. ALL TRENCHES WILL BE SURVEYED

(11) 6-27-94 JOHN BIRKINSHAW

POND 7 CHARACTERIZATION: CONT.

FOLLOWING THE SAMPLING. PRELIMARY LOCATIONS ARE SHOWN IN THE PLAN MAP BELOW.

POND 7:



• TRENCH LOCATION

SAMPLES TO BE COLLECTED FROM 0-6', ON 1' INTERVALS.

6-27-94 LELKIN/J. Birkinshaw (12)

Sample Descriptions/logs

TRENCH EP-003A

0-0.5' silty sand. light br.

0.5'-6' light gray-brown sandy clay. (Fine sand) weak to locally mod. Fe-ox. moist to wet below 8". Appears to be natural ground.

EP-003A-1 0'-1'

EP-003A-2 1'-2'

EP-003A-3 2'-3'

EP-003A-4 3'-4'

EP-003A-5 4'-5'

EP-003A-6 5'-6'

1' 2' 3' 4' 5' 6'

@ 3' more gray and some black (MnO?) in fractures

6-27-94 L. Elkin/J. Birkinshaw

Sample Descriptions (Continued)

trench EP-004A

EP-004A-1 0'-1'	0	0'-0.5' light brown-gray silty sand. dry.
		0.5'-6' Light brown silty sand. well sorted
	1'	Appears to be naturally occurring lacustrine sediments.
EP-004A-2 1'-2'		
	2'	Roots to 2.0'
		- locally gray and red brown (Fe-ox) streaks.
EP-004A-3 2'-3'	3'	
EP-004A-4 3'-4'	4'	
EP-004A-5 4'-5'	5'	
EP-004A-6 5'-6'	6'	

6-27-94 L. Elkin/J. Birkinshaw

Sample Descriptions (continued)

trench EP-005A

EP-005A-1 0'-1'	0	0'-5.0' light brown-gray, silty sand.
	1'	Weak pervasive Fe-ox. Dry.
EP-005A-2 1'-2'	2'	Appears to be naturally occurring lacustrine sediments.
EP-005A-3 2'-3'	3'	
EP-005A-4 3'-4'	4'	4'-5' - gypsum crystals locally.
EP-005A-5 4'-5'	5'	- med gray sandy clay — clayey sand. moist. Possibly MnO in fractures.
EP-005A-6 5'-6'	6'	

(15) 6-27-94 L. Elkin/J. Birkinshaw

Sample Descriptions (continued)

Trench EP-006A

EP-006A-1 0'-1'	0'	0'-6' light brown, silty sand. well sorted. Dry.
	1'	- locally weak-mod Fe-ox streaks and blebs.
EP-006A-2 1'-2'	2'	
EP-006A-3 2'-3'	3'	Appears to be naturally occuring lacustrine sediments.
EP-006A-4 3'-4'	4'	
EP-006A-5 4'-5'	5'	
EP-006A-6 5'-6'	6'	

6-27-94 L ELKIN/J. Birkinshaw (16)

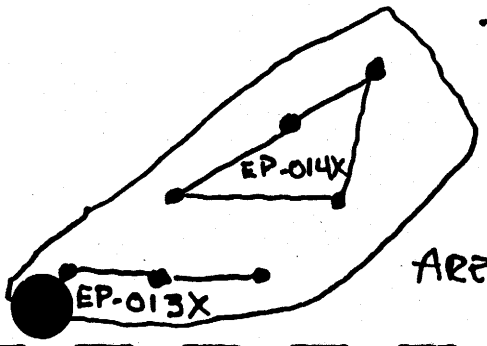
- Samples will be delivered to Ford Lab today.

- Chain of Custody Forms 0153 and 0154.

(17) 7-6-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 3:

SAMPLING SUMMARY:
THE REMOVAL WITHIN POND 3 HAS BEEN COMPLETED. POST REMOVAL SAMPLING WILL BE CONDUCTED FOLLOWING THE PROTOCOL DESCRIBED WITH THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. THE POND ENCOMPASSES APPROXIMATELY 9.9 ACRES. TWO SAMPLES WILL BE COLLECTED. ONE 3-POINT COMPOSITE AND ONE 4-POINT COMPOSITE. SAMPLE SUBSITES WILL BE SURVEYED PRIOR TO SAMPLE COLLECTION. ALL SAMPLE SUBSITES WILL BE COLLECTED FROM 0-4".



POND 3

↑N

AREA: 9.9 ACRES

7-6-94 JOHN BIRKINSHAW (18)

AREA: POND 3 CONT.

13:00 BEGIN COLLECTING EP-013X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN, FINE TO MEDIUM SAND. MINOR SILT. NO IRON STAINING ISOLATED CLAYEY SILT, MINOR TO MODERATE IRON STAINING

13:15 BEGIN COLLECTING EP-014X

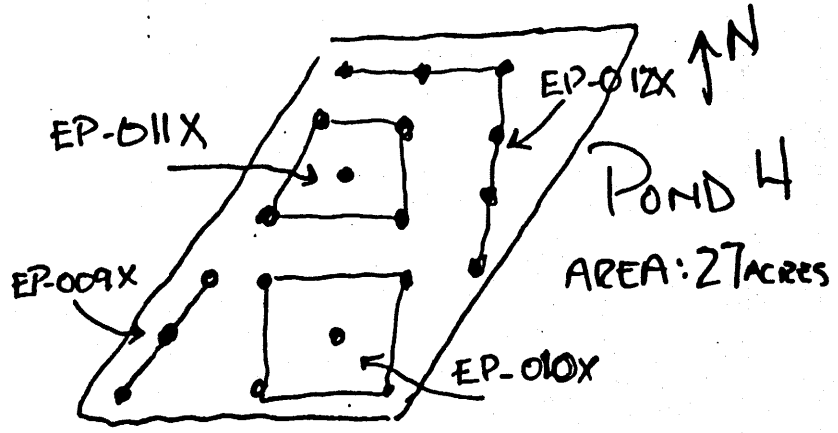
SAMPLE DESCRIPION:

TAN TO LIGHT BROWN, FINE GRAIN SAND, LOOSE.

(19) 7-6-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 4

SAMPLING SUMMARY:
THE REMOVAL OF POND 4 HAS BEEN COMPLETED. POST REMOVAL SAMPLES WILL BE COLLECTED USING THE PROTOCOL DESCRIBED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. FOUR POST REMOVAL SAMPLES WILL BE COLLECTED WITHIN POND 4 WHICH ENCOMPASSES APPROXIMATELY 27 ACRES. POST REMOVAL SAMPLES WILL BE COLLECTED AS COMPOSITE SAMPLES. SAMPLE SUBSITES WILL BE ~~COLLE~~ SAMPLED FROM 0-4".



7-6-94 JOHN BIRKINSHAW (20)

AREA: POND 4 CONT.

14:20 BEGIN COLLECTING EP-009X
SAMPLE DESCRIPTION:

LOOSE, TAN TO LIGHT BROWN SAND WITH SAND. NO IRON STAINING.

14:45 BEGIN COLLECTING EP-010X
SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SAND. NO IRON STAINING.

15:00 BEGIN COLLECTING EP-011X
SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SAND, MINOR SILT. FINE GRAIN SAND.

(21) 7-6-94 JOHN BIRKINSHAW

AREA: POND 4 CONT.

15:20 BEGIN COLLECTING EP-012X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SAND, FINE TO MEDIUM GRAIN. NO IRON STAINING.

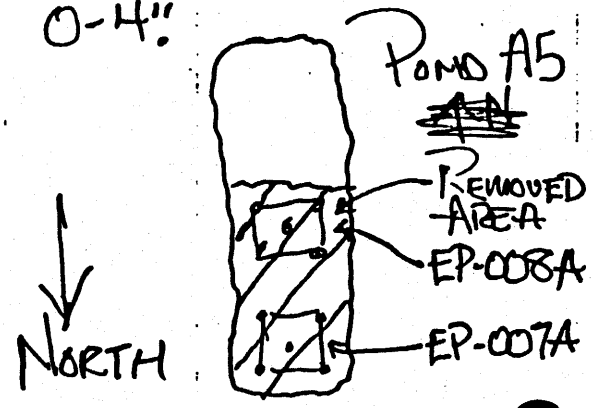
7-6-94 JOHN BIRKINSHAW (22)

PROJECT: SOUTH JORDAN EVAPORATION PONDS

AREA: POND A5

SAMPLING SUMMARY:

APPROXIMATELY 1/2 OF POND A5 HAS BEEN REMOVED AND CONSOLIDATED INTO THE NORTHERN PORTION OF THE CONSOLIDATED FOOTPRINT. TWO CHECK SAMPLES WILL BE COLLECTED IN THE NORTHERN HALF OF POND A5. BOTH SAMPLES WILL BE COLLECTED AS 5-POINT COMPOSITE SAMPLES. AT EACH SAMPLE SUBSITE, APPROXIMATELY EIGHT OZ. WILL BE COLLECTED FROM 0-4".



(23) 7-6-94 JOHN BIRKINSHAW

AREA: POND A5 CONT.

BEGIN COLLECTING EP-007A

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SAND, MINOR ORGANICS; DARK BROWN, MODERATELY DENSE; MODERATELY TO STRONGLY IRON STAINED, FINE TO MEDIUM GRAIN SAND.

BEGIN COLLECTING EP-008A

SAMPLE DESCRIPTION:

DARK BROWN TO BLACK DENSE CLAY; SANDY GRAVEL, LIGHT BROWN WITH MODERATE IRON STAINED FINE TO MEDIUM GRAIN SAND. MINOR TO MODERATE YELLOW TO REDDISH YELLOW CLAYEY SILT {SLUDGE}

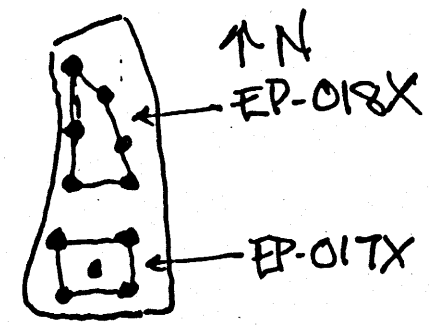
7-11-94 JOHN BIRKINSHAW (24)

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND A5

SAMPLING SUMMARY:

THE REMOVAL WITHIN POND A5 HAS BEEN COMPLETED. POST REMOVAL SAMPLES WILL BE COLLECTED FOLLOWING THE PROTOCOL DESCRIBED IN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. TWO COMPOSITE SAMPLES, ONE 5-POINT AND ONE 6-POINT, WILL BE COLLECTED WITHIN THE REMOVAL AREA. SAMPLE SUBSITES WILL BE SURVEYED PRIOR TO SAMPLE COLLECTION. SAMPLE SUBSITES WILL BE COLLECTED FROM 0-4".

POND A5:



(25) 7-6-94 JOHN BIRKINSHAW

AREA: POND A5

11:10 BEGIN SAMPLING EP-017X

SAMPLE DESCRIPTION:

LIGHT BROWN SANDY GRAVEL, FINE TO MEDIUM GRAIN SAND. DARK BROWN CLAYEY SAND. ISOLATED GYPSUM PPT. ON GRAVELS.

11:30 BEGIN SAMPLING EP-018X

SAMPLE DESCRIPTION:

LIGHT BROWN SANDY GRAVEL. TAN TO LIGHT BROWN SILTY SAND. ISOLATED IRON STAINED SANDS AND GYPSUM PPT. ON GRAVELS.

7-6-94 JOHN BIRKINSHAW (26)

PROJECT: SOUTH JORDAN EVAPORATION PONDS

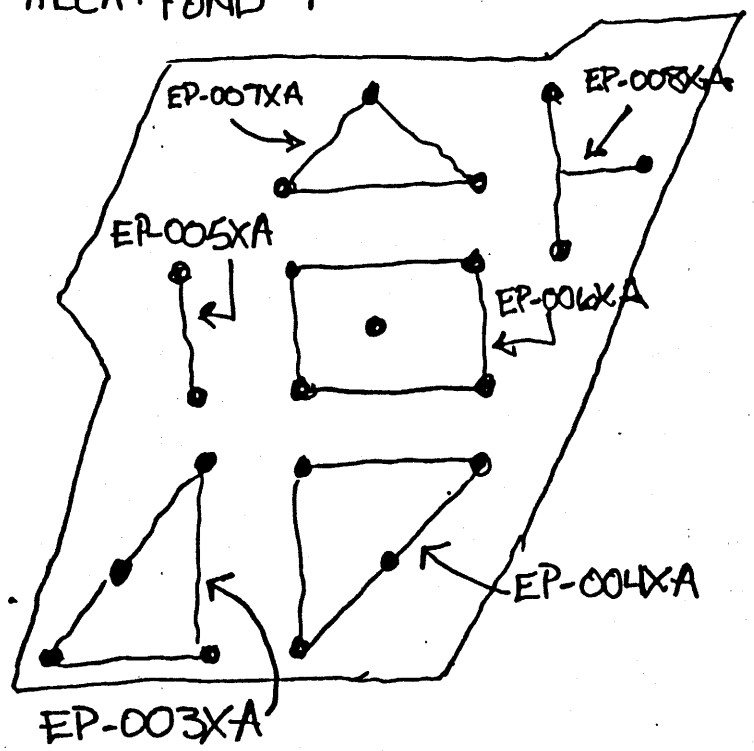
AREA: POND 7

SAMPLING SUMMARY:

REMOVAL OF MATERIALS IN POND 7 HAS BEEN COMPLETED. AN ADDITIONAL 4-6" HAS BEEN EXCAVATED FOLLOWING THE ORIGINAL POST REMOVAL SAMPLING EVENT. THE POND WILL BE RE-SAMPLED AT THE PREVIOUS LOCATIONS TO DETERMINE WHETHER THE REMOVAL HAS MET THE PREDETERMINED REMOVAL DETECTION LIMITS. SAMPLE ID'S WILL BE IDENTICAL TO THE PREVIOUS SAMPLE ID'S WITH THE ADDITION OF AN "A" FOLLOWING THE ID TO INDICATE A SECOND POST REMOVAL SAMPLE. SAMPLING WILL BE CONSISTANT WITH THE PROTOCOL DESCRIBED IN THE CONSOLIDATION ACTION WORK PLAN. ALL SAMPLE SITES WILL BE SURVEYED PRIOR TO SAMPLE COLLECTION. SAMPLES WILL BE COLLECTED FROM 0-4" AT ALL SAMPLE SUBSITES.

(27) 7-11-94 JOHN BIRKINSHAW

AREA: POND 7



12:10 BEGIN COLLECTING EP-003XA

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SILTY SAND. BROWN CHAYEY SILT, MODERATELY PLASTIC.

7-11-94 JOHN BIRKINSHAW (28)

AREA: POND 7 CONT.

12:20 BEGIN COLLECTING EP-004XA

SAMPLE DESCRIPTION:
LIGHT BROWN SILTY SAND, BROWN SILTY CLAY.

12:30 BEGIN COLLECTING EP-005XA

SAMPLE DESCRIPTION:
BROWN TO DARK BROWN, CHAYEY SILT, GREASY, DENSE.

12:40 BEGIN COLLECTING EP-006XA

TAN TO LIGHT BROWN SILTY SAND

12:50 BEGIN COLLECTING EP-007XA

TAN TO LIGHT BROWN. SAND, GRAYISH BROWN CHAYEY SAND

13:00 BEGIN COLLECTING EP-008XA.

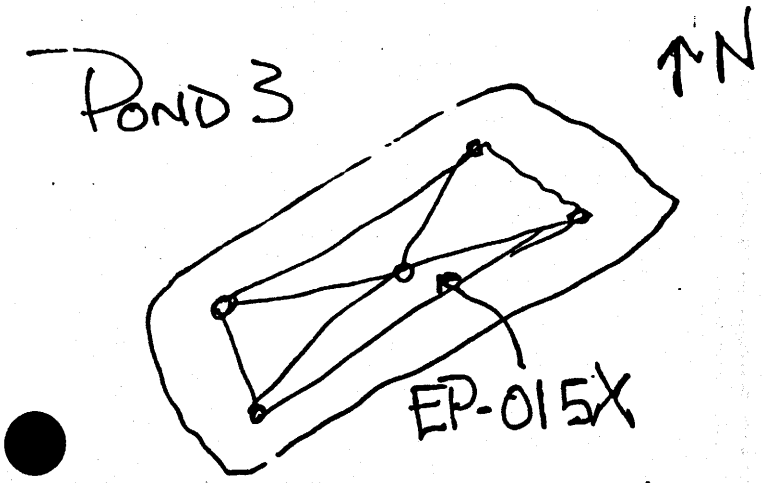
TAN TO LIGHT BROWN, FINE GRAIN SAND.

(29) 7-11-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 2

SAMPLING SUMMARY:

THE REMOVAL WITHIN POND 2 HAS BEEN COMPLETED. THE POND WILL BE SAMPLED FOLLOWING THE PROTOCOL DESCRIBED IN CONSOLIDATION ACTION WORK PLAN. ONE 5-POINT COMPOSITE SAMPLE WILL BE COLLECTED FROM THE POND. EACH SUBSITE WILL BE SURVEYED PRIOR TO SAMPLE COLLECTION. EACH SUBSITE WILL BE COLLECTED FROM 0-4".



7-11-94 JOHN BIRKINSHAW (30)

AREA: POND 2 CONT.

14:20 BEGIN COLLECTED EP-015X.

SAMPLE DESCRIPTION:

TAN TO BROWN SILTY SAND WITH ISOLATED BROWN CLAYEY SILT.

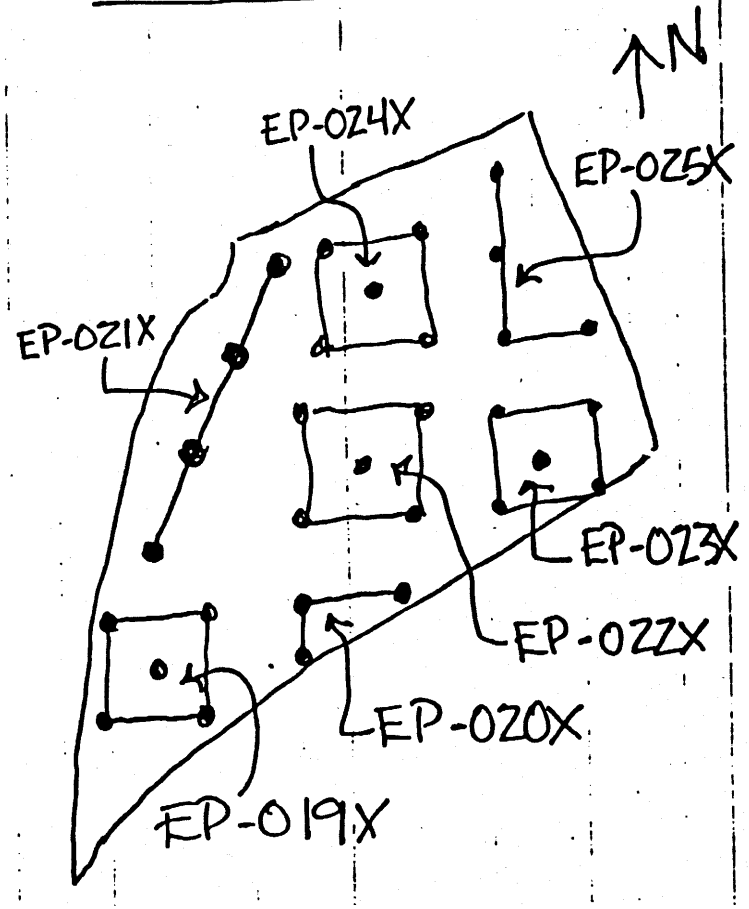
(31) 7-14-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 1X

SAMPLING SUMMARY:
THE REMOVAL WITHIN POND 1X HAS BEEN COMPLETED. THE AREA OF REMOVAL WITHIN POND 1X ENCOMPASSES APPROXIMATELY 84 ACRES. POND 1X WILL BE SAMPLED USING THE POST REMOVAL SAMPLING PROTOCOL DESCRIBED IN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. A TOTAL OF SEVEN POST REMOVAL SAMPLES WILL BE COLLECTED WITHIN THE REMOVAL AREA. EACH SAMPLE WILL BE COLLECTED AS A COMPOSITE WITH SUBSITES RANGING FROM THREE TO FIVE POINTS. ALL SUBSITES WILL BE SURVEYED BY THE PPG SURVEY CREW PRIOR TO SAMPLE COLLECTION. ALL SUBSITES WILL BE SAMPLED FROM ZERO TO FOUR INCHES. POST REMOVAL SAMPLES WILL BE TRANSPORTED TO FORD ANALYTICAL S.L.C., UTAH AND RELEASED USING KUC CHAIN OF CUSTODY PROCEDURES. SAMPLES WILL BE ANALYZED FOR

7-14-94 JOHN BIRKINSHAW (32)

POND 1X:



(33) 7-14-94 JOHN BIRKINSHAW

AREA: POND IX

8:30 BEGIN COLLECTING EP-019X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN WITH MINOR BROWN, FINE TO MED GRAIN SAND. GRAVELS FROM 1/4"-2", ABUNDANT.

8:50 BEGIN COLLECTING EP-020X

SAMPLE DESCRIPTION:

LIGHT BROWN TO BROWN, FINE TO MEDIUM GRAIN SAND. GRAVELS FROM 1/2" - 2", MINOR TO MOD. WHITE ppt. ON GRAVELS.

9:10 BEGIN COLLECTING EP-021X

SAMPLE DESCRIPTION:

TAN TO YELLOWISH BROWN SILTY SAND, MODERATE YELLOW CLAYEY SAND MATERIAL BROWN, FINE TO MEDIUM GRAIN SAND AND GRAVEL

7-14-94 JOHN BIRKINSHAW (34)

AREA: POND IX:

9:30 BEGIN COLLECTING EP-022X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN AND BROWN FINE TO MEDIUM GRAIN SAND MATRIX. ABUNDANT GRAVELS FROM 1/2" - 2" MINOR TO MOD. WHITE ppt.

9:50 BEGIN COLLECTING EP-023X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN AND BROWN TO DARK BROWN SILTY SAND. GRAVELS FROM 1/2" - 2". NUMEROUS, MINOR TO MOD. WHITE ppt.

10:10 BEGIN COLLECTING EP-024X

SAMPLE DESCRIPTION:

SILTY SAND: TAN TO LIGHT BROWN, FINE TO MEDIUM GRAIN.

SILTY SAND: BROWN TO DARK BROWN, FINE TO MEDIUM, MINOR CLAY.

(35) 7-14-94 JOHN BIRKINSHAW

AREA: POND IX

10:25 BEGIN COLLECTING EP-025X

SAMPLE DESCRIPTION:

SANDY GRAVEL, TAN FINE TO MEDIUM GRAIN, GRAVELS FROM 1/4" TO 1"

SANDY GRAVEL: BROWN, FINE TO MEDIUM GRAIN, SOME CLAYEY SILT. GRAVELS FROM 1/2" - 2"

ABUNDANT WHITE ppt. ON GRAVELS

7-14-94 JOHN BIRKINSHAW (36)

PROJECT: SOUTH JORDAN EVAPORATION PONDS

AREA: POND 1

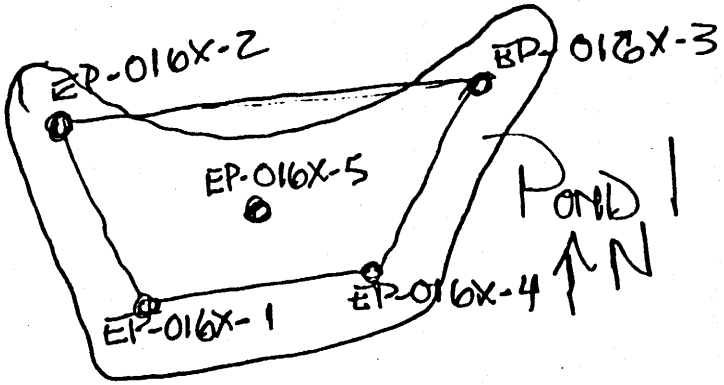
SAMPLING SUMMARY:

THE REMOVAL WITHIN POND 1 HAS BEEN COMPLETED. POND 1 WILL BE SAMPLED USING THE PROTOCOL DESCRIBED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. ONE 5-POINT COMPOSITE SAMPLE WILL BE COLLECTED WITHIN THE POND 1 REMOVAL AREA. PRIOR TO SAMPLE COLLECTION, THE SAMPLE SUBSITES WILL BE SURVEYED BY PPG SURVEYORS. ALL SUBSITES WILL BE SAMPLED FROM 0-4" USING DISPOSABLE SAMPLING TOOLS. THE COLLECTED SAMPLE WILL BE TRANSPORTED AND RELEASED TO TORD ANALYTICAL USING K.U.C. CHAIN OF CUSTODY PROTOCOL. THE SAMPLE WILL BE ANALYZED FOR As, Pb, pH AND SO_4^{2-}(L).

SEE SAMPLE LOCATION MAP ON

(37) 7-14-94 JOHN BIRKINSHAW

AREA: POND 1



10:55 BEGIN COLLECTING EP-016X
-5 POINT COMPOSITE.

SAMPLE DESCRIPTIONS:

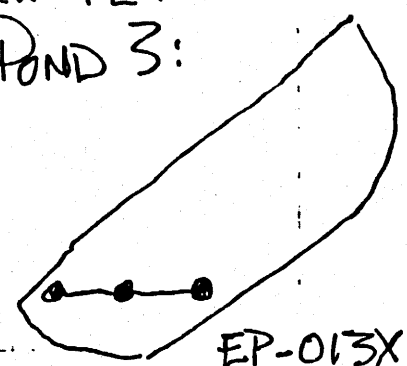
TAN TO LIGHT BROWN, LOOSE SILTY SAND. FINE GRAIN.

7-14-94 JOHN BIRKINSHAW (38)

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 3

SAMPLING SUMMARY:
THE SOUTHERN EDGE OF POND 3 WAS FOUND TO BE SLIGHTLY ELEVATED IN SO_4^{2-} FROM THE INITIAL POST REMOVAL SAMPLES. AN ADDITIONAL 1' HAS BEEN EXCAVATED FROM THE AREA. POST REMOVAL SAMPLE EP-0013X SUBSITES WILL BE RELOCATED AND SAMPLED FOLLOWING THE PROTOCOL ESTABLISHED WITH THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN.

POND 3:



EP-013XA
2ND POST REMOVAL SAMPLE

(39) 7-14-94 JOHN BIRKINSHAW

AREA: POND 3 (CONT.)

11:30 BEGIN SAMPLING EP-013XA

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN, FINE GRAIN SAND & SILT. NO VISIBLE GYPSUM CRYSTALS. LOOSE TO MODERATELY COMPACTED

7-14-94 JOHN BIRKINSHAW (40)

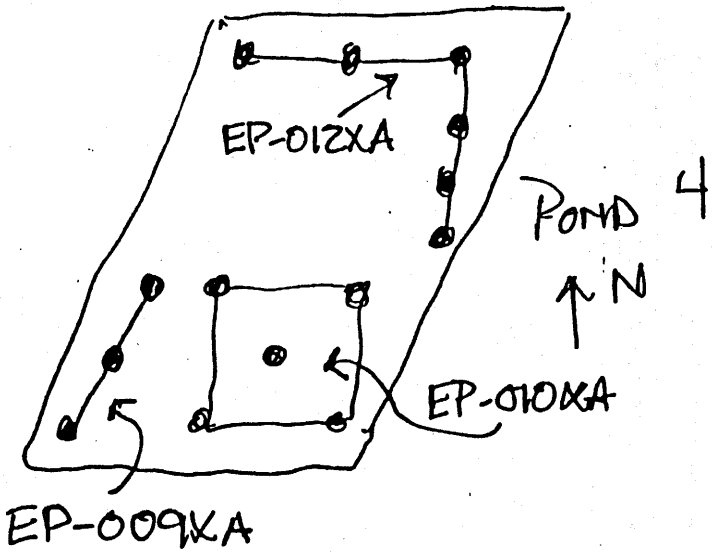
PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 4:

SAMPLING SUMMARY:

THE POST REMOVAL SAMPLES, EP-009X, EP-010X AND EP-012X, WERE FOUND TO BE SLIGHTLY ELEVATED WITH REGARDS TO SO_4^{2-}. AN ADDITION 1' OF MATERIAL HAS BEEN REMOVED FROM THESE AREAS WITHIN POND 4. THESE SAMPLE SUBSITES WILL BE RE-LOCATED AND SAMPLED FOLLOWING THE SAMPLING PROTOCOL DISCUSSED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. THE SAMPLES WILL BE SUBMITTED TO FORD ANALYTICAL, S.L.C, WITH AN IDENTICAL SAMPLE ID AS THE PREVIOUSLY SUBMITTED POST REMOVAL SAMPLES WITH THE EXCEPTION OF ADDING AN "A" TO THE END OF THE ID TO DENOTE A RESAMPLING EVENT. SEE SAMPLE LOCATION MAP ON THE FOLLOWING PAGE.

(41) 7-14-94 JOHN BIRKINSHAW

AREA: POND 4



13:15 BEGIN COLLECTING EP-009XA

SAMPLE DESCRIPTION:

TAN TO BROWN, FINE TO MEDIUM GRAIN SAND AND SILT.

7-14-94 JOHN BIRKINSHAW (42)

AREA: POND 4 (CONT.)

13:30 BEGIN COLLECTING EP-010XA

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN, FINE TO MEDIUM GRAIN, SAND AND SILT.

13:50 BEGIN COLLECTING EP-012XA

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN, FINE TO MEDIUM GRAIN SAND AND SILT.

(43) 7-19-94 JOHN BIRKINSHAW

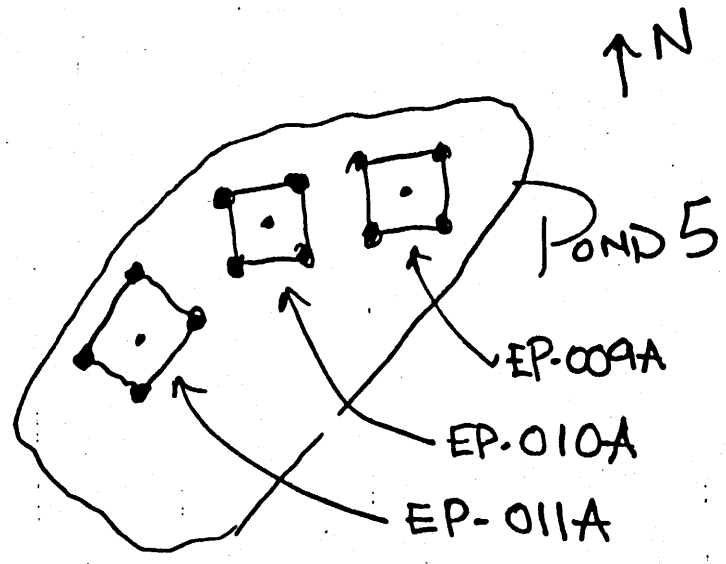
PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 5

SAMPLING SUMMARY:

THE REMOVAL WITHIN POND 5 HAS BEGUN. APPROXIMATELY 1 FOOT OF MATERIAL HAS BEEN REMOVED FROM THE NORTH-WESTERN HALF OF THE POND. THREE CHECK SAMPLES WILL BE COLLECTED TO DETERMINE IF ADDITIONAL MATERIAL WILL NEED TO BE REMOVED. EACH CHECK SAMPLE WILL BE COLLECTED AS A 5-POINT COMPOSITE. SAMPLE SUBSITES WILL BE ARRANGED ON THE CORNERS OF A 400'x 400' SQUARE WITH THE FIFTH SUBSITES BEING LOCATED AT THE CENTER OF THE SQUARE. SUBSITES WILL BE SAMPLED FROM 0-4", SUBSITES WILL NOT BE SURVEYED BUT RATHER TAPED OFF PRIOR TO SAMPLE COLLECTION.

7-19-94 JOHN BIRKINSHAW (44)

AREA: POND 5



8:50 BEGIN COLLECTING EP-009A

SAMPLE DESCRIPTION:

TAN TO BROWN, FINE TO MEDIUM GRAIN SAND AND SILT. MINOR TO MODERATE ROOTS AND ORGANIC MATERIAL. ISOLATED GYPSUM CRYSTALS.

(45) 7-19-94 JOHN BIRKINSHAW

AREA: POND 5 (CONT.)

9:10 BEGIN COLLECTING EP-010A

SAMPLE DESCRIPTION:

TAN TO BROWN FINE GRAIN SAND AND SILT. ISOLATED GYPSUM CRYSTALS. MINOR CLAY.

9:30 BEGIN COLLECTING EP-011A

SAMPLE DESCRIPTION:

TAN TO BROWN FINE GRAIN SAND AND SILT. ISOLATED GRAY CLAYEY SILTY SAND MINOR TO MODERATE ORGANIC MATERIAL AND ROOTS. ISOLATED GYPSUM CRYSTALS.

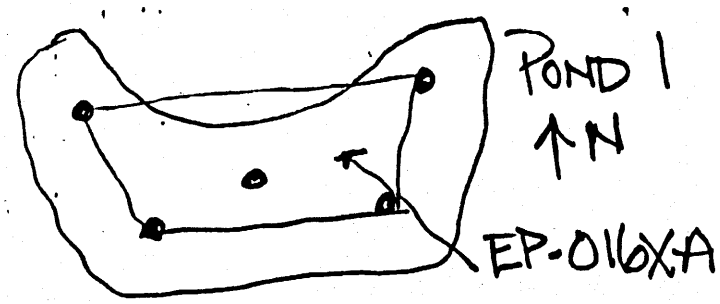
7-20-94 JOHN BIRKINSHAW (46)

PROJECT: SOUTH JORDAN EVAPORATION PONDS

AREA: POND 1

SAMPLING SUMMARY:

AN ADDITIONAL 1.5' OF MATERIAL HAS BEEN REMOVED FROM POND 1 FOLLOWING THE ORIGINAL POST REMOVAL SAMPLING EVENT. EACH OF THE POST REMOVAL SAMPLE SUBSITES WILL BE RE-LOCATED AND SAMPLED FOLLOWING THE PROTOCOL DESCRIBED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN.



8:20 BEGIN COLLECTING EP-016XA

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN FINE GRAIN SAND AND SILT.

(47) 7-20-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND IX

SAMPLING SUMMARY:
AN ADDITIONAL 1'FT OF MATERIAL IS BEING REMOVED FROM AREAS WITHIN POND IX. ONE CHECK SAMPLE WILL BE COLLECTED FROM THE PREVIOUSLY SAMPLED EP-025X SUBSITES. THE SAMPLE WILL BE COLLECTED USING THE PROTOCOL ESTABLISHED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. THE SAMPLE WILL BE ANALYZED FOR SO_4^{2-} (L) TO SERVE AS A GUIDELINE FOR DETERMINE HOW MUCH MATERIAL WILL NEED TO BE REMOVED.

7-20-94 JOHN BIRKINSHAW (48)

AREA: POND IX

8:55 BEGIN COLLECTING EP-012A

SAMPLE DESCRIPTION:

SANDY GRAVEL: TAN TO BROWN FINE TO COARSE SAND. GRAVELS FROM 1/4" -2". ISOLATED AREAS OF ABUNDANT GYPSUM PPT. ON GRAVELS.

(49) 7-21-94 JOHN BIRKINSHAW

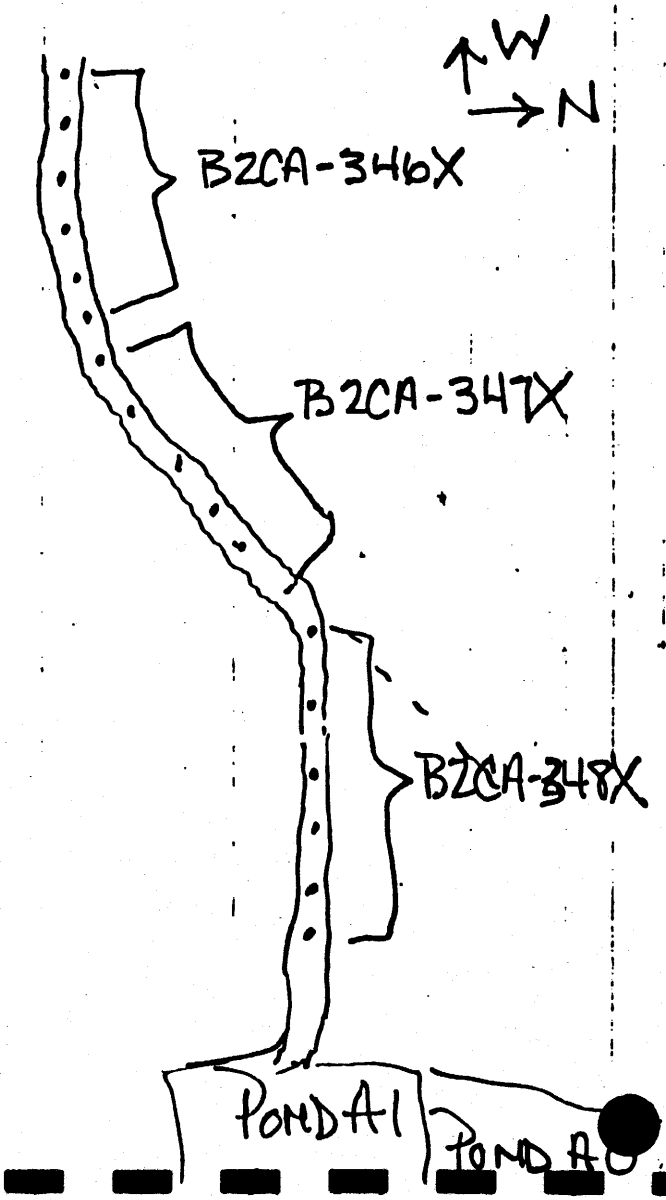
PROJECT: SOUTH JORDAN EVAPORATION PONDS CANAL

SAMPLING SUMMARY:

THE MAIN SEGMENT OF THE SOUTH JORDAN EVAPORATION PONDS CANAL HAS BEEN CLEANED AND POST REMOVAL SAMPLED. ALL POST REMOVAL SAMPLES WERE ANALYZED FOR LEAD AND ARSENIC. 3 ADDITIONAL SAMPLES WILL BE COLLECTED FROM THE CANAL AND ANALYZED FOR LEACHABLE SULFATE. THE SAMPLES WILL BE COLLECTED AS 6-POINT COMPOSITES ON 500' CENTERS. ALL SAMPLE SUBSITES WILL BE SAMPLED FROM 0-6". THE SAMPLE SUBSITES WILL BE INITIALLY PACKED OFF WITH THE SUBSITES BEING SURVEYED FOLLOWING SAMPLE COLLECTION.

7-21-94 JOHN BIRKINSHAW (50)

AREA: SOUTH JORDAN EVAPORATION PONDS CANAL



(51) 7-21-94 JOHN BIRKINSHAW

AREA: SOUTH JORDAN EVAP. POND CANAL

12:30 BEGIN COLLECTING B2CA-346X

SAMPLE DESCRIPTION:

TAN TO BROWN SILTY SAND AND LT. BROWN TO REDDISH BROWN SANDY GRAVEL. ISOLATED GYPSUM CRYSTALS AND CEMENTATION.

12:45 BEGIN COLLECTING B2CA-347X

SAMPLE DESCRIPTION:

BROWN TO ORANGISH BROWN SANDY GRAVEL, W/ LT. BROWN SILTY SAND. MINOR TO STRONGLY IRON STAINED, ISOLATED CEMENTATION. GYPSUM PPT.

13:00 BEGIN COLLECTING B2CA-348X

SAMPLE DESCRIPTION:

LIGHT BROWN TO ORANGISH BROWN SLIGHTLY TO STRONGLY IRON STAINED SILTY SAND AND SANDY GRAVEL. MODERATE CEMENTATION AND GYPSUM CRYSTALS.

7-22-94 JOHN BIRKINSHAW (52)

PROJECT: SOUTH JORDAN EVAP. PONDS

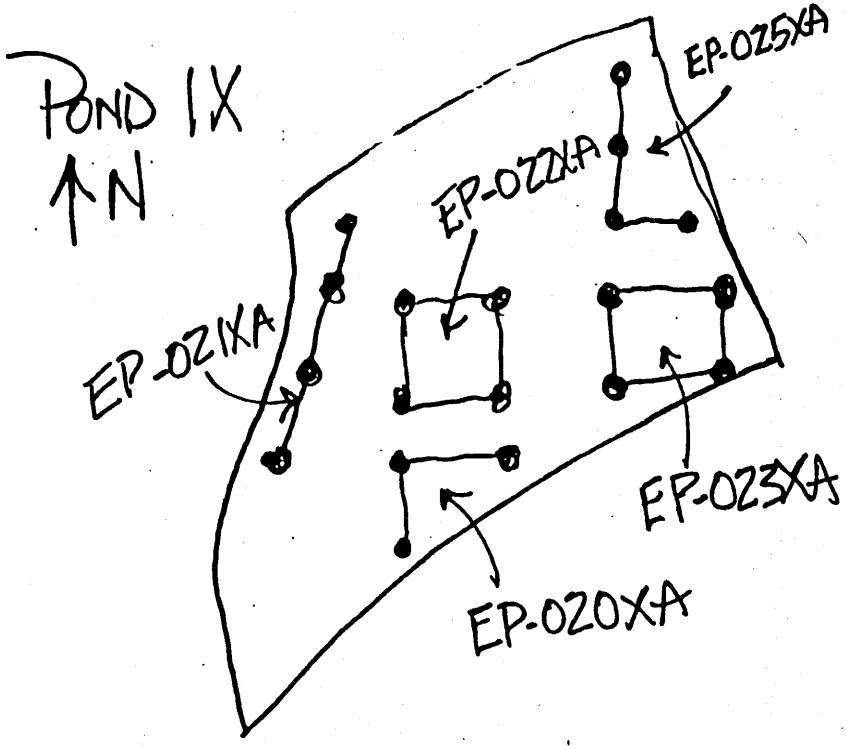
AREA: POND 1X

SAMPLING SUMMARY:

FIVE OF THE SEVEN SUB-AREAS PREVIOUSLY SAMPLED WITHIN POND 1X WERE FOUND TO BE SLIGHTLY ELEVATED WITH SO_4^{2-}. THE REMOVAL WITHIN THESE SUB-AREAS CONTINUED WITH AN ADDITIONAL 1' FOOT OF MATERIAL BEING REMOVED. EACH OF THE SAMPLE SUBSITES WITHIN THESE SUB-AREAS WILL BE REVISTED AND SAMPLED USING THE PROTOCOL ESTABLISHED WITHIN THE SOUTH JORDAN EVAP. POND CONSOLIDATION ACTION WORK PLAN. SAMPLE SUBSITES WILL BE RE-SURVEYED BY PPG PERSONEL PRIOR TO SAMPLE COLLECTION. ALL COLLECTED SAMPLES WILL BE SAMPLED FROM 0-4" AND ANALYZED FOR As, Pb, pH & SO_4^{2-}.

(53) 7-22-94 JOHN BIRKINSHAW

AREA: POND IX



13:10 BEGIN COLLECTING EP-025XA

SAMPLE DESCRIPTION:
SANDY GRAVEL: TAN TO LIGHT BROWN FINE TO MEDIUM SAND, ABUNDANT CALICHE ON GRAVELS. BROWN TO DARK BROWN SILTY SAND.

7-22-94 JOHN BIRKINSHAW (54)

13:20 BEGIN COLLECTING EP-023XA

SAMPLE DESCRIPTION:
SANDY GRAVEL: TAN TO BROWN FINE TO MEDIUM SAND AND SILT. ABUNDANT CALICHE ON GRAVELS.

13:40 BEGIN COLLECTING EP-022XA

SAMPLE DESCRIPTION:
SANDY GRAVEL AND SILTY SAND BROWN SAND AND GRAVEL. LIGHT BROWN FINE TO MEDIUM GRAIN SILTY SAND.

14:00 BEGIN COLLECTING EP-021XA
TAN TO DARK BROWN FINE GRAIN SAND AND SILT. ISOLATED CALICHE COATED GRAVELS.

14:15 BEGIN COLLECTING EP-020XA

SAMPLE DESCRIPTION:
TAN TO BROWN SANDY GRAVEL MINOR TO MODERATE MATRIX.

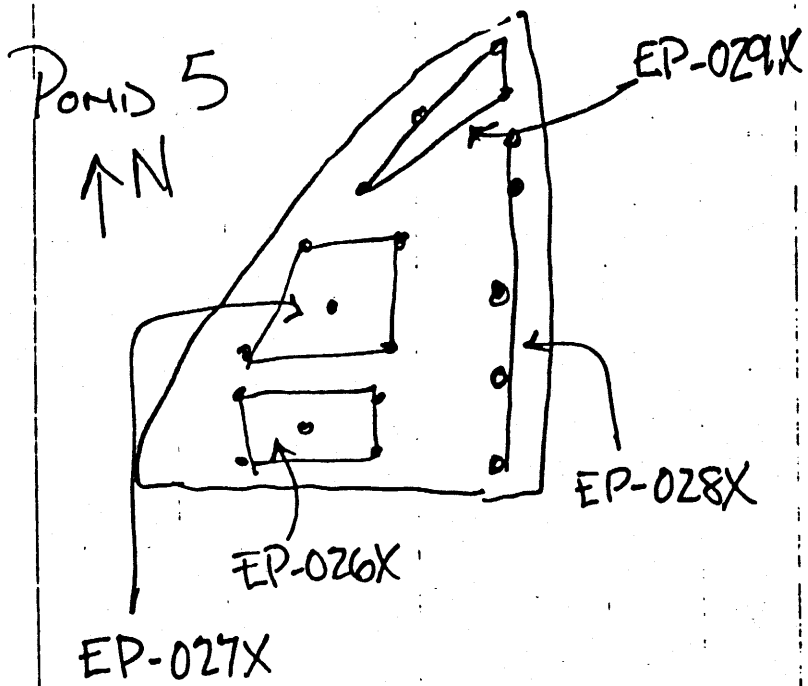
(55) 7-26-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 5

SAMPLING SAMPLING:
THE REMOVAL WITHIN POND 5 HAS BEEN COMPLETED. APPROXIMATELY 1' OF MATERIAL HAS BEEN REMOVED THROUGHOUT THE POND AREA. THE POND WILL BE SAMPLED USING THE PROTOCOL ESTABLISHED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. A TOTAL OF 4 POST REMOVAL SAMPLES WILL BE COLLECTED, 3 - 5 POINT AND 1 - 4 POINT. EACH SUBSITE WILL BE SAMPLED FROM 0-4". ALL SAMPLE SUBSITES WILL BE SURVEYED BY KUC SURVEYERS PRIOR TO SAMPLE COLLECTION. ALL SAMPLES WILL BE TRANSPORTED TO FORD ANALYTICAL AND ANALYZED FOR AS, PB, PH & SO_4^{2-}(L).

7-26-94 JOHN BIRKINSHAW (56)

AREA: POND 5



9:45 BEGIN COLLECTING EP-028X

SAMPLE DESCRIPTION:

TAN TO BROWN, FINE GRAIN SAND AND SILT. ISOLATED CLEAR CRYSTALS, POSSIBLY GYPSUM.

(57) 7-26-94 JOHN BIRKINSHAW.

AREA: POND 5 (CONT.)

10:00 BEGIN COLLECTING EP-029X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN FINE GRAIN SAND AND SILT.

10:15 BEGIN COLLECTING EP-027X

SAMPLE DESCRIPTION:

TAN TO BROWN, FINE GRAIN SAND AND SILT. ISOLATED CLEAR CRYSTALS, POSSIBLY GYPSUM.

10:30 BEGIN COLLECTING EP-026X

SAMPLE DESCRIPTION:

TAN TO BROWN, FINE GRAIN SAND, SILT AND MINOR CLAY MODERATE ORGANIC MATERIAL, ROOTS.

8-2-94 JOHN BIRKINSHAW (58)

PROJECT: SOUTH JORDAN EVAP. PONDS

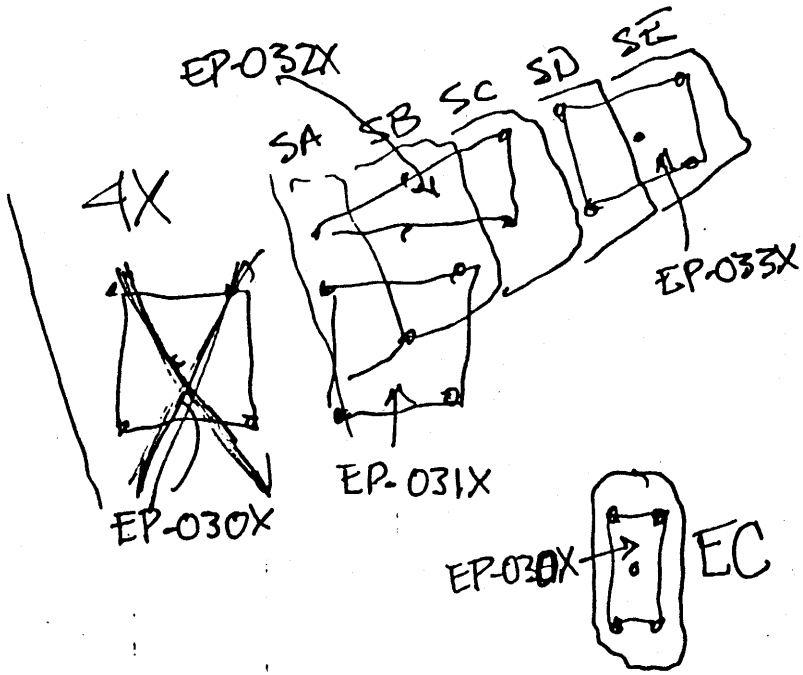
AREA: SEEPAGE PONDS
- PONDS SA, SB, SC, SD, SE, EC AND AREA 4X

SAMPLING SUMMARY:

THE AREA ENCOMPASSING ALL THE SEEPAGE COLLECTION PONDS AND A PORTION OF AREA 4X. ~~THE~~ ALL ~~POND AREA~~ BE SAMPLED AS A WHOLE USING THE CRITERIA OUTLINED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN, A 400' GRID, USING 5 POINT COMPOSITE SUBSITES WILL BE SURVEYED BY PPG PERSONEL PRIOR TO SAMPLE COLLECTION. ALL SUBSITES WILL BE SAMPLED FOR 0-4". A TOTAL OF 4, 5-POINT COMPOSITE SAMPLES WILL BE COLLECTED WITH THE REMOVAL AREA.

(59) 8-2-94 JOHN BIRKINSHAW

AREA: SEEPAGE PONDS



13:30 BEGIN COLLECTING EP-033X

SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SILTY SAND, ISOLATED CEMENTATION.

8-2-94 JOHN BIRKINSHAW (60)

AREA: SEEPAGE PONDS

13:45 BEGIN COLLECTING EP-032X

SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SILTY SAND. ISOLATED IRON STAINING. MINOR ORANGISH RED SILTY SAND.

14:00 BEGIN COLLECTING EP-031X.

SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SILTY SAND. ISOLATED COARSE GRAIN YELLOWISH ORANGE SAND.

14:20 BEGIN COLLECTING EP-030X

SAMPLE DESCRIPTION:
LIGHT BROWN TO BROWN SILTY CLAY. CLAY LINER.

(61) 8-3-94 JOHN BIRKINSHAW

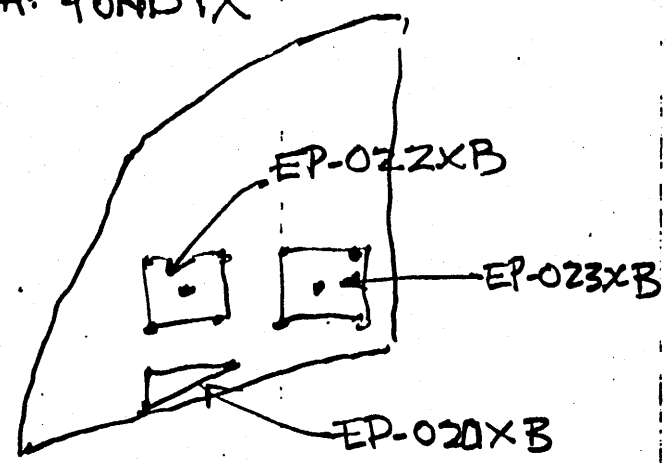
PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND IX:

SAMPLING SUMMARY:

AN ADDITIONAL 1 FOOT OF MATERIAL HAS BEEN REMOVED WITHIN THE SOUTH-EASTERN CORNER OF POND IX. THIS AREA WILL BE RESAMPLED FOLLOWING THE PROTOCOL ESTABLISHED WITHIN THE SOUTH JORDAN EVAP. PONDS CONSOLIDATION ACTION WORK PLAN. THREE SAMPLES WHICH WERE FOUND TO BE SLIGHTLY BLEAKEST WITH SO_4^{2-}. THE SAMPLES TO BE COLLECTED WILL BE ID WITH THE SAME ID'S AS THE PRIOR SAMPLES WITH THE EXCEPTION OF A "B" FOLLOWING THE ID INDICATING A 3RD SAMPLING EVENT.

8-3-94 JOHN BIRKINSHAW (62)

AREA: POND IX



8:30 BEGIN SAMPLING EP-020XB
SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SANDY GRAVEL. GRAVELS FROM 1/4" - 1"

8:45 BEGIN SAMPLING EP-022XB
SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SANDY GRAVEL. MINOR CALICHE ON GRAVELS.

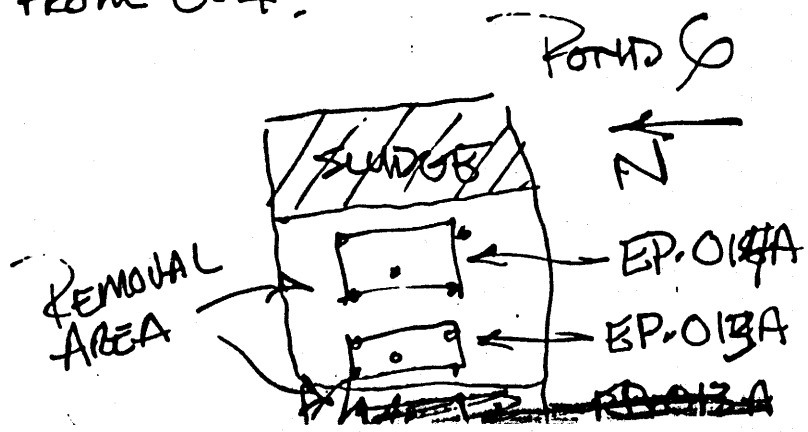
9:00 BEGIN SAMPLING EP-023XB
SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SANDY GRAVEL MINOR TO MODERATE CALICHE ON GRAVELS.

(23) 8-3-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAP. PONDS
AREA: POND 6

SAMPLING SUMMARY:

THE SOUTHWESTERN HALF OF POND 6 HAS BEEN REMOVED. 2 CHECK SAMPLES WILL BE COLLECTED TO DETERMINE SO_4^{2-} CONCENTRATIONS IN THE MATERIAL LEFT BEHIND. THE SAMPLES TO BE COLLECTED WILL BE 5-POINT COMPOSITES. A FOUR HUNDRED FOOT ~~GRID~~ SQUARE CELL WILL BE PACED OFF WITH A FIFTH SUBSITE BEING LOCATED AT THE CENTER OF THE SQUARE. SAMPLE SUBSITES WILL BE SAMPLED FROM 0-4".

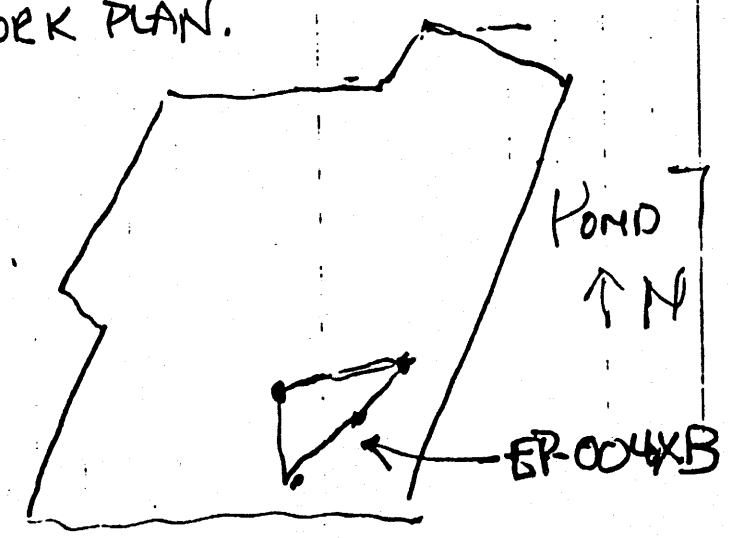


8-5-94 JOHN BIRKINSHAW (24)

PROJECT: SOUTH JORDAN EVAP. PONDS
AREA: POND 7.

SAMPLING SUMMARY:

AN ADDITIONAL 1 FOOT OF MATERIAL HAS BEEN REMOVED FROM THE SOUTH EAST QUARTER OF POND 7. THE AREA WILL BE RESAMPLED USING THE SAMPLE ID EP-004XB, INDICATING THE 3RD RESAMPLING. THE SAMPLE WILL BE COLLECTED FOLLOWING THE PROTOCOL ESTABLISHED WITHIN THE WORK PLAN.



(65) 8-5-94 JOHN BIRKINSHAW

AREA: POND 7

8:15 BEGIN COLLECTING EP-004XB

SAMPLE DESCRIPTION:

SILTY SAND: TAN TO BROWN, FINE TO MEDIUM GRAIN SAND AND SILT.

AREA: SEEPAGE PONDS

SAMPLING SUMMARY:

AN ADDITION 1.5' HAS BEEN REMOVED FROM THE ZONE WITHIN THE SEEPAGE PONDS WHERE THE POST REMOVAL SAMPLE EP-032X WAS COLLECTED. EACH SUBSITE FOR EP-032X WILL BE RESURVEYED AND THE AREA WILL BE RESAMPLED.

10:15 BEGIN COLLECTING EP-032XH

SAMPLE DESCRIPTION:

TAN TO BROWN SILTY SAND, MINOR ISOLATED CEMENTED ZONES.

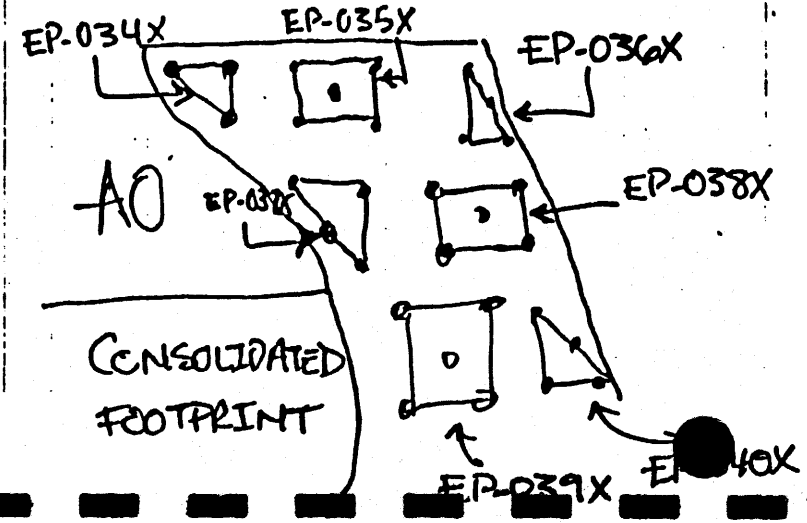
8-8-94 JOHN BIRKINSHAW (66)

PROJECT: SOUTH JORDAN EVAP. PONDS

AREA: POND F.

SAMPLING SUMMARY:

THE NORTHERN HALF OF POND F WHICH WAS CHARACTERIZED WITH MINOR IMPACTS FROM THE HISTORICAL WATER STORAGE HAS BEEN CLEANED AND IS READY FOR POST REMOVAL SAMPLING. A TOTAL OF 7 POST-REMOVAL SAMPLES WILL BE COLLECTED FOLLOWING THE PROTOCOL ESTABLISHED WITHIN THE SOUTH JORDAN EVAP. POND CONSOLIDATION ACTION WORK PLAN. SAMPLES WILL BE COLLECTED AS COMPOSITES RANGING FROM 3 - 5 SAMPLE SUBSITES.



(69) 8-8-94 JOHN BIRKINSHAW

AREA: POND F

14:20 BEGIN COLLECTING EP-039X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SANDY GRAVEL WITH ISOLATED MINOR IRON STAINING.

14:35 BEGIN COLLECTING EP-040X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SANDY GRAVEL, ABUNDANT ORGANIC MATERIAL.

15:00 BEGIN COLLECTING EP-037X

SAMPLE DESCRIPTION

LIGHT BROWN TO BROWN SILTY SAND AND LIGHT BROWN SANDY GRAVEL. ISOLATED MINOR IRON STAINING.

15:20 BEGIN COLLECTING EP-038X

SAMPLE DESCRIPTION:

LIGHT BROWN TO BROWN SILTY SAND.

8-8-94 JOHN BIRKINSHAW (68)

15:30 AREA: POND F

15:30 BEGIN COLLECTING EP-036X

SAMPLE DESCRIPTION:

TAN TO BROWN SILTY SAND, MINOR ORGANIC MATERIAL.

15:40 BEGIN COLLECTING EP-035X

SAMPLE DESCRIPTION.

TAN TO BROWN, FINE GRAIN SILTY SAND. ISOLATED MINOR IRON STAINING.

15:50 BEGIN COLLECTING EP-034X

SAMPLE DESCRIPTION:

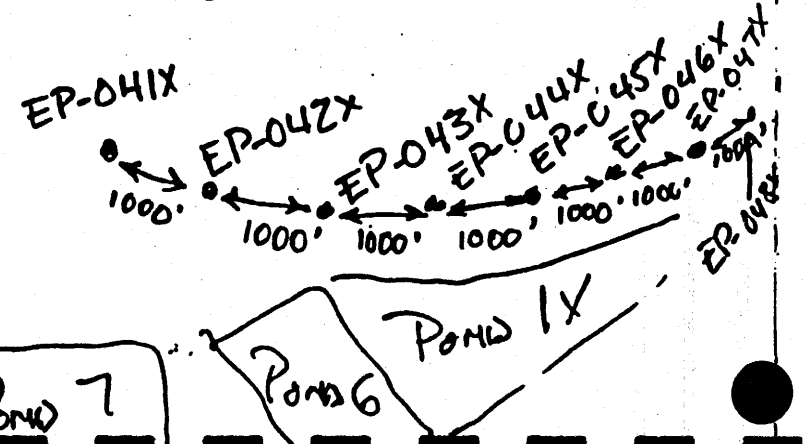
TAN TO LIGHT BROWN, FINE GRAIN SAND WITH MINOR ISOLATED GRAVELS. MINOR IRON STAINING.

(69) 8-9-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAP. PONDS
AREA: WEST BORROW AREA

SAMPLING SUMMARY:
EIGHT TRENCHES ARE TO BE EXCAVATED TO A DEPTH OF 15'. EACH TRENCH WILL BE SAMPLED AND ANALYZED TO CHARACTERIZE THE BORROW MATERIAL TO BE USED WITHIN THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION. SAMPLES WILL BE COLLECTED FROM EACH LITHOLOGIC UNIT, WITH SAMPLE INTERVALS NOT TO EXCEED 3'. A BACKHOE WILL BE USED TO EXCAVATE THE MATERIAL.

WEST BORROW AREA: → N



8-9-94 JOHN BIRKINSHAW (70)

AREA: WEST BORROW AREA

6:20 BEGIN TRENCHING EPB-8

LITHOLOGIC LOG
0-2' TAN TO LIGHT BROWN POOR TOPSOIL/SILTY SAND. FINE GRAIN MATERIAL. MINOR TO MODERATE ORGANICS
2-5' SANDY SILT/SILTY SAND: TAN TO LIGHT BROWN, FINE TO MEDIUM GRAIN.
5- SANDY GRAVEL: LIGHT BROWN TO BROWN, MEDIUM TO COARSE GRAVEL SAND. GRAVELS FROM 1/4" TO 2".
@12' FINER GRAIN SAND, COBBLES UP TO 6"

SAMPLES COLLECTED:
EP-041X-1: 0-2' TOP SOIL
EP-041X-2: 2-5' SILTY SAND
EP-041X-3: 5-8' SANDY GRAVEL
EP-041X-4: 8-11' SANDY GRAVEL
EP-041X-5: 11-15' SANDY GRAVEL

(71) 8-9-94 JOHN BIRKINSHAW

8:50 BEGIN TRENCHING EPB-7

LITHOLOGIC LOG:
0-1.6' TOP SOIL: TAN TO LIGHT BROWN SANDY SILTY LOAM. MINOR ORGANICS.
1.6-15' SILTY SAND: TAN TO LIGHT BROWN, FINE TO MEDIUM SAND AND SILT.
@12' INCREASED CLAY CONTENT. GRAYISH TAN MATERIAL.

SAMPLES COLLECTED:

EP-042X-1 : 0-1.6' TOP SOIL
EP-042X-2 : 1.6-5' SILTY SAND
EP-042X-3 : 5-8' SILTY SAND
EP-042X-4 : 8-11' SILTY SAND
EP-042X-5 : 11-15' SILTY SAND

8-9-94 JOHN BIRKINSHAW (72)

9:20 BEGIN TRENCHING EPB-6

LITHOLOGIC LOG:
0-1.2' SILTY LOAM: BROWN TO DARK BROWN SILTY LOAM W/ ABUNDANT ORGANICS.
1.2-15' SILTY SAND: LIGHT BROWN, FINE GRAIN SAND AND SILT.

SAMPLES COLLECTED:

EP-043X-1 : 0-1.2' TOP SOIL
EP-043X-2 : 1.2-4.0 SILTY SAND
EP-043X-3 : 4-7' SILTY SAND
EP-043X-4 : 7-10 SILTY SAND
EP-043X-5 : 10-13 SILTY SAND
EP-043X-6 : 13-15 SILTY SAND

(13) 8-9-94 JOHN BIRKINSHAW

AREA: WEST BORROW AREA

9:50 BEGIN TRENCH EP-044X
TRENCH EPB-5

LITHOLOGIC LOG:

0-1' TOP SOIL: LIGHT BROWN TO BROWN SILTY LOAM, MODERATE ORGANICS.

1-15' SILTY SAND: LIGHT BROWN TO BROWN FINE GRAIN SAND AND SILT.

SAMPLES COLLECTED:

EP-044X-1: 0-1' TOP SOIL
EP-044X-2: 1-4' SILTY SAND
EP-044X-3: 4-7' SILTY SAND
EP-044X-4: 7-10' SILTY SAND
EP-044X-5: 10-13' SILTY SAND
EP-044X-6: 13-15' SILTY SAND

(14)

AREA: WEST BORROW AREA

13:45 BEGIN TRENCHING EP-045X
TRENCH EPB-4

LITHOLOGIC LOG

0-0.7' TOPSOIL, LIGHT BROWN TO BROWN SILTY LOAM. MODERATE ORGANICS.

0.7-15' SILTY SAND: TAN TO BROWN, FINE GRAIN SAND AND SILT.

SAMPLES COLLECTED:

EP-045X-1: 0-0.7' TOP SOIL
EP-045X-2: 0.7-4.0' SILTY SAND
EP-045X-3: 4.0-7.0' SILTY SAND
EP-045X-4: 7-10 SILTY SAND
EP-045X-5: 10-13 SILTY SAND
EP-045X-6: 13-15 SILTY SAND

(75) 8-9-94 JOHN BIRKINSHAW

AREA: WEST BORROW AREA.

14:10 BEGIN TRENCHING EP-046X
TRENCH EPB-3

LITHOLOGIC LOG

0-0.5' TOP SOIL {AREA PREVIOUSLY SCRAPED} BROWN SILTY LOAM.

0.5-15' SILTY SAND: LT. BROWN TO BROWN, FINE TO MED. GRAIN SAND.

SAMPLES COLLECTED:
EP-046X-1 : 0-0.5' TOP SOIL
EP-046X-2 : 0.5-4.0' SILTY SAND
EP-046X-3 : 4.0-7.0' SILTY SAND
EP-046X-4 : 7-10 SILTY SAND
EP-046X-5 : 10-13 SILTY SAND
EP-046X-6 : 13-15 SILTY SAND

(76)

AREA: WEST BORROW AREA

14:30 BEGIN TRENCHING EP-047X
TRENCH EPB-2

LITHOLOGIC LOG:

0-9' SILTY SAND (TOP SOIL PREVIOUSLY SCRAPED) BROWN, FINE GRAIN SAND AND SILT

9-15' SANDY GRAVEL: COARSE GRAIN SAND, BROWN TO REDDISH BROWN. GRAVELS FROM 1/4"-3" MINOR IRON STAINING.

SAMPLES COLLECTED:
EP-047X-1 : 0-3' SILTY SAND
EP-047X-2 : 3-6' SILTY SAND
EP-047X-3 : 6-9' SILTY SAND
EP-047X-4 : 9-12' SANDY GRAVEL
EP-047X-5 : 12-15' SANDY GRAVEL
~~EP-047X-6~~

(17) 8-9-94

~~EP~~ AREA: WEST BORROW AREA

14:45 BEGIN TRENCHING EP-048X
TRENCH EPB-1

LITHOLOGIC LOG:

0-6' SANDY GRAVEL:
BROWN, FINE TO MEDIUM SAND
GRAVELS FROM 1/4" -3". MINOR
ISOLATED WHITE CRYSTALS.

6-15' SILTY SAND:
BROWN, FINE TO MEDIUM
GRAIN SAND. MINOR ISOLATED
WHITE CRYSTALS.

SAMPLES COLLECTED:

EP-048X-1: 0-3' SANDY GRAVEL
EP-048X-2: 3-6' SANDY GRAVEL
EP-048X-3: 6-9' SILTY SAND
EP-048X-4: 9-12' SILTY SAND
EP-048X-5: 12-15' SILTY SAND

8-17-94 JOHN BICKINSHAW (78)

PROJECT: SOUTH JORDAN EVAP. PONDS
AREA: CONSOLIDATED MATERIAL FOOTPRINT

SAMPLING SUMMARY:
THE MATERIAL PLACED WITHIN THE CONSOLIDATED AREA FOOTPRINT WILL BE SAMPLED PRIOR TO THE PLACEMENT OF THE CAP MATERIAL. SAMPLE SUBSITES WILL BE LOCATED ON A 400' GRID, WITH 5-SUBSITES BEING COMPOSITED TO MAKE EACH SAMPLE. AT EACH SUBSITE, APPROXIMATELY 8oz. OF MATERIAL WILL BE COLLECTED FROM 0-4". THE SOUTHERN HALF OF THE CONSOLIDATED AREA WILL BE SAMPLED ON 8-17-94. WORK CONTINUES WITHIN THE NORTHERN HALF WITH THE PLACEMENT OF MATERIAL FROM POND 6. ALL SAMPLES WILL BE ANALYZED FOR As, Pb, pH AND SO_4^{2-}(L).

(79) 8-17-94 JOHN BIRKINSHAW

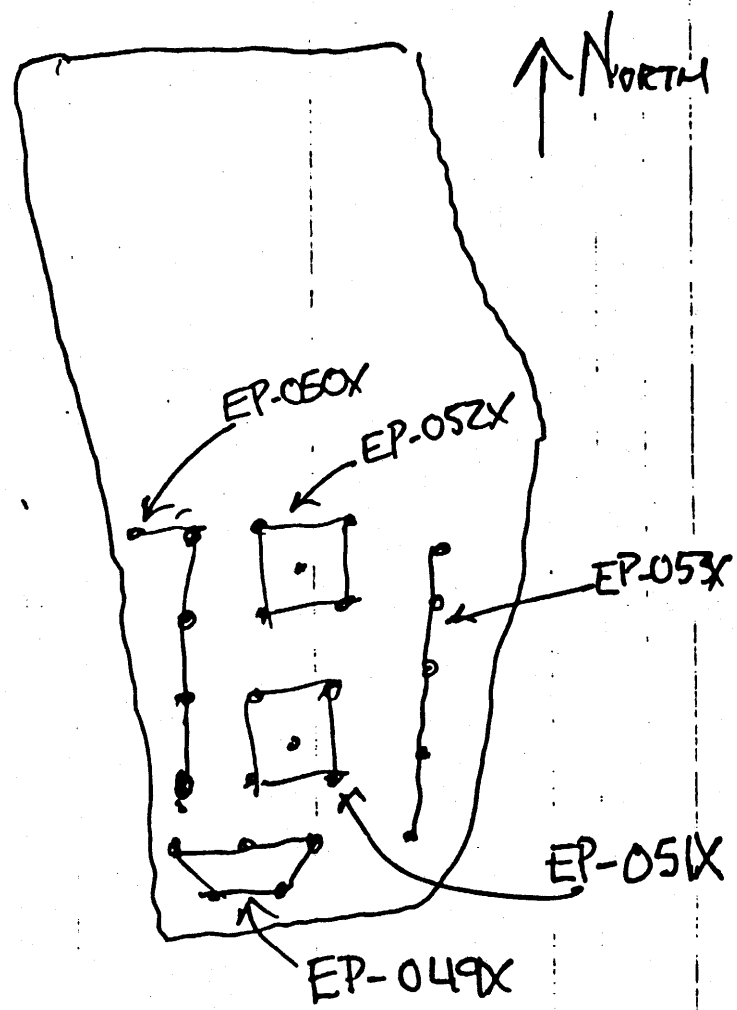
AREA: CONSOLIDATED FOOTPRINT

SAMPLING SUMMARY:

THE ~215 ACRE FOOTPRINT IN WHICH THE POND SEDIMENT HAVE BEEN CONSOLIDATED AND MIXED WITH BORROW MATERIAL WILL BE SAMPLED TO ESTABLISH THE CONCENTRATIONS OF As, Pb & SO_4^{2-} ALONG WITH pH PRIOR TO THE CAP MATERIAL PLACEMENT. A 400' SPACING GRID WILL BE SURVEYED OVER THE AREA AND COMPOSITE SAMPLES WILL BE SAMPLED FROM 0-4". COMPOSITE SAMPLES WILL RANGE FROM 3 TO 5 POINTS DEPENDING UPON THE BOUNDARIES OF THE FOOTPRINT. AS OF 8-17-94, ONLY THE SOUTHERN HALF OF THE CONSOLIDATED AREA HAS BEEN ~~PREPED~~ CONTOURED FROM THE PLACEMENT OF CAPPING MATERIAL. FIVE SAMPLES WILL BE COLLECTED TODAY.

8-17-94 JOHN BIRKINSHAW (80)

CONSOLIDATION AREA:



(79) 8-17-94 JOHN BIRKINSHAW

AREA: CONSOLIDATION AREA

13:30 BEGIN SAMPLING EP-049X

SAMPLE DESCRIPTION:

TAN TO LT. BROWN SILTY SAND AND SANDY GRAVEL WITH MIXED YELLOWISH BROWN TREATED SLUDGE.

13:45 BEGIN SAMPLING EP-050X

SAMPLE DESCRIPTION:

TAN SILTY SAND WITH INTERBEDDED YELLOWISH BROWN AND WHITE SLUDGE.

14:00 BEGIN COLLECTING EP-051X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SANDY GRAVEL WITH INTERBEDDED TREATED SLUDGE.

8-17-94 JOHN BIRKINSHAW (80)

AREA: CONSOLIDATED AREA

14:15 BEGIN COLLECTING EP-052X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SILTY SAND AND SANDY GRAVEL AND TREATED SLUDGE.

14:30 BEGIN COLLECTING EP-053X

SAMPLE DESCRIPTION:

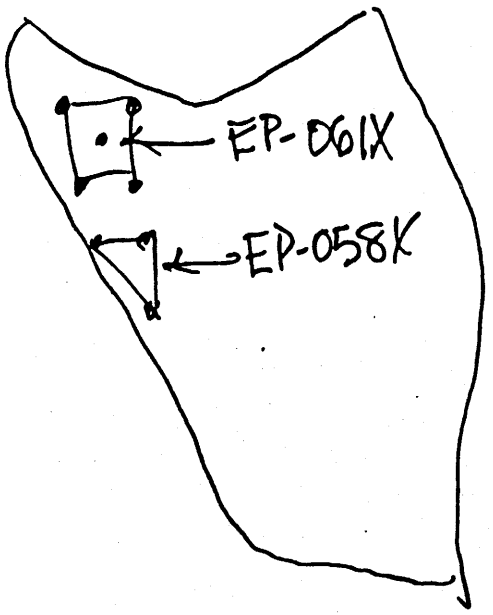
TAN TO LIGHT BROWN SILTY SAND AND TREATED SLUDGE.

(81) 8-26-94 JOHN BIRKINSHAW

AREA: CONSOLIDATION AREA

SAMPLING SUMMARY:

THE NW SECTION OF THE CONSOLIDATED AREA HAS BEEN COMPLETED AND MADE READY FOR THE PLACEMENT OF BORROW MATERIAL (CAP.) TWO COMPOSITE SAMPLES WILL BE COLLECTED TO DETERMINE FINAL CONCENTRATIONS OF As, Pb AND SO_4^{2-} ALONG WITH pH PRIOR TO THE PLACEMENT OF THE CAP.



8-26-94 JOHN BIRKINSHAW (82)

AREA: CONSOLIDATION AREA

9:00 BEGIN SAMPLING EP-061X

SAMPLE DESCRIPTION:

LT. BROWN TO BROWN SILTY SAND AND TAN TO LT. BROWN SANDY GRAVEL WITH MINOR TREATED SLUDGE

9:20 BEGIN SAMPLING EP-058X

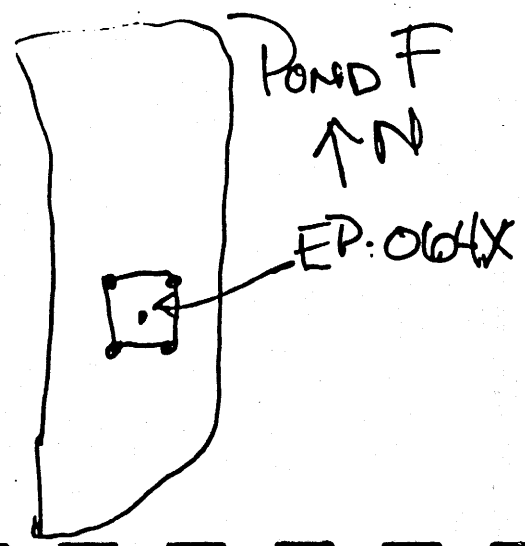
TAN TO LIGHT BROWN SANDY GRAVEL WITH MODERATE TREATED SLUDGE.

(83) 8-26-94 JOHN BIRKINSHAW

AREA: POND F

SAMPLING SUMMARY:

AN ISOLATED AREA LOCATED WITHIN THE SOUTH CENTRAL PORTION OF POND F WAS FOUND TO BE SLIGHTLY ELEVATED WITH SOIL. THE AREA HAS BEEN CLEANED WITH APPROXIMATELY 1-1½' OF MATERIAL BEING REMOVED. ONE 5-POINT COMPOSITE SAMPLE WILL BE COLLECTED FROM THE AREA AND SAMPLED FROM 0-4".



8-26-94 JOHN BIRKINSHAW (84)

AREA: POND F

10:45 BEGIN COLLECTING EP-064X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SILTY SAND WITH ISOLATED GRAVELS. MINOR TO MODERATE ORGANIC MATERIAL.

(85) 8-30-94 JOHN BIRKINSHAW

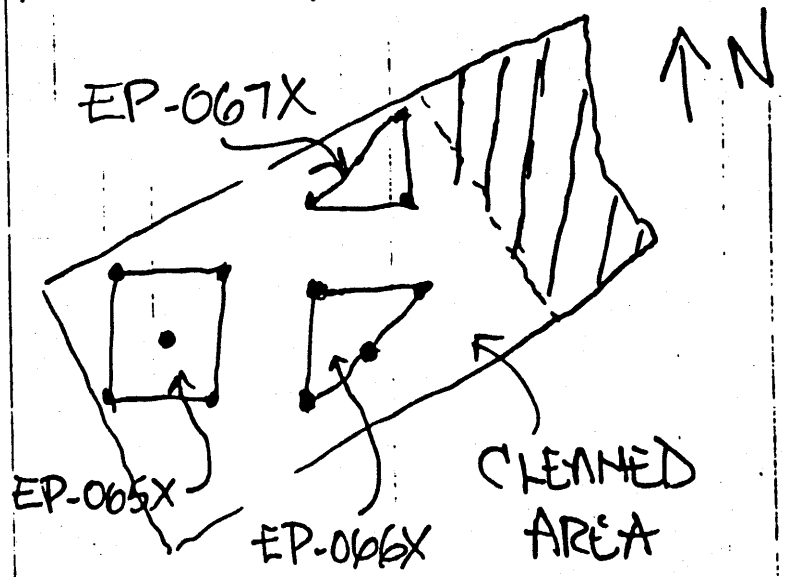
PROJECT: SOUTH JORDAN EVAP. PONDS
AREA: POND 6

SAMPLING SUMMARY:

THE REMOVAL WITHIN POND 6 HAS BEEN 75% COMPLETED. THREE COMPOSITE POST REMOVAL SAMPLES WILL BE COLLECTED WITHIN THE CLEANED AREA. SAMPLE SUBSITES WILL BE SURVEY PRIOR TO SAMPLE COLLECTION. ONE 5-POINT AND TWO 4-POINT SAMPLES WILL BE COLLECTED WHICH WERE LAID OUT ON A 400' GRID. ALL SAMPLE SUBSITES WILL BE SAMPLED FROM 0-4" FOLLOWING THE PROTOCOL ESTABLISHED WITH THE SOUTH JORDAN EVAPORATION PONDS CONSOLIDATION ACTION WORK PLAN. ALL SAMPLES WILL BE ANALYZED FOR As, Pb, pH AND SO_4^{2-}(L) BY FORD ANALYTICAL OF S.L.C. UTAH.

8-30-94 JOHN BIRKINSHAW (86)

AREA: POND 6



13:25 BEGIN COLLECTING EP-065X

SAMPLE DESCRIPTION:

LT. BROWN TO BROWN SAND AND GRAVEL. SAND, FINE TO MEDIUM GRAIN w/ MINOR CLAY AND SILT. GRAVELS FROM 1"-3", MINOR CALICHE DEPOSITS ON GRAVELS.

(87) 8-30-94 JOHN BIRKINSHAW

~~FS~~ AREA: POND 6

13:40 BEGIN SAMPLING EP-066X

SAMPLE DESCRIPTION:
SANDY GRAVEL w/ MINOR CLAY: BROWN TO DARK BROWN MEDIUM GRAIN SAND W/ MINOR DARK BROWN CLAY. GRAVELS FOR 1/4" - 2". MINOR CALICHE ON GRAVELS.

13:50 BEGIN SAMPLING EP-067X

SAMPLE DESCRIPTION:

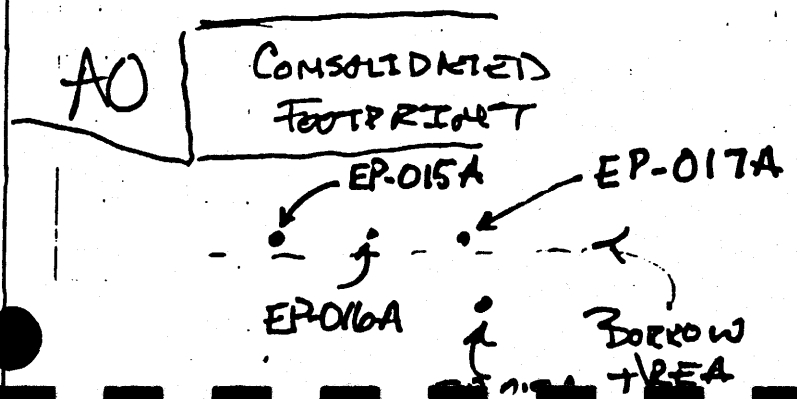
SANDY GRAVEL: BROWN MEDIUM GRAIN SAND AND GRAVEL. GRAVELS FROM 1/4 - 2". MINOR CALICHE.

8-31-94 JOHN BIRKINSHAW (88)

AREA: BORROW AREA

SAMPLING SUMMARY:

FOUR SAMPLES, CHECK, ARE TO BE COLLECTED FROM THE NORTHERN 1/4 OF THE WEST BORROW AREA. TWO SAMPLES ARE TO BE COLLECTED FROM SEDIMENTS WHICH ARE VISIBLY IRON STAINED, AND TWO FROM SEDIMENTS WHICH ARE OBSERVED TO BE BACKGROUND OR UNIMPACTED. SAMPLES WILL BE COLLECTED AS COMPOSITES, ~~BUT~~ WITH SUBSITES BEING OBSERVED TO HAVE SIMILAR SEDIMENTS.



(89) 8-31-94 JOHN BIRKINSHAW

AREA: BORROW AREA

9:00 BEGIN COLLECTING EP-015A

SAMPLE DESCRIPTION:

SANDY GRAVEL: PREDOMINATELY FINE GRAIN SAND, MODERATELY IRON STAINED AND GRAVELS FROM 1/2" - 2".

9:10 BEGIN COLLECTING EP-016A

SAMPLE DESCRIPTION:

SILTY SAND: FINE GRAIN SILT AND SAND. MODERATE IRON STAINING.

9:20 BEGIN COLLECTING EP-017A

SILTY SAND: LT. BROWN TO BROWN WITH ISOLATED GRAY. IRON STAINED STREAKS. BACKGROUND MATERIAL

9:30 BEGIN COLLECTING EP-018A

SANDY GRAVEL: TAN TO LT. BROWN SAND AND GRAVEL. BACKGROUND

9-1-94 JOHN BIRKINSHAW (90)

PROJECT: SOUTH JORDAN EVAP. PONDS

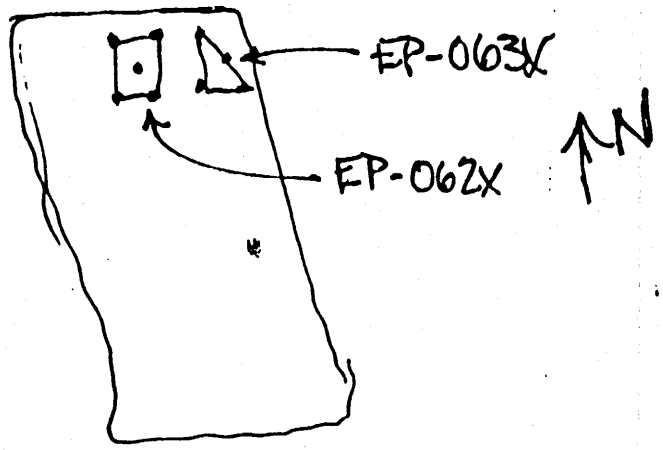
AREA: CONSOLIDATION FOOTPRINT

SAMPLING SUMMARY:

THE NORTHERN EDGE OF THE CONSOLIDATION AREA HAS BEEN COMPLETED WITH REGARD TO PLACEMENT OF POND SEDIMENTS. TWO POST PLACEMENT SAMPLES WILL BE COLLECTED TO DOCUMENT THE CONSOLIDATED MATERIAL PRIOR TO THE PLACEMENT OF THE CAPPING MATERIAL. ONE 5-POINT AND ONE 4-POINT COMPOSITE SAMPLE WILL BE COLLECTED. BOTH SAMPLES WILL BE COLLECTED FROM 0-4". SAMPLES WILL BE ANALYZED FOR As, Pb, pH AND SO_4^{2-} BY FORD ANALYTICAL OF S.L.C., UT.

(91) 9-1-94 JOHN BIRKINSHAW

AREA: CONSOLIDATED AREA



8:00 BEGIN COLLECTING EP-062X

SAMPLE DESCRIPTIONS

TAN TO LIGHT BROWN SILTY SAND WITH ISOLATED TREATED SLUDGE

8:15 BEGIN COLLECTING EP-063X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN SILTY SAND WITH ISOLATED GRAVELS. MODERATE INTERBEDDED TREATED SLUDGE.

9-1-94 JOHN BIRKINSHAW (92)

AREA: BORROW AREA

SAMPLING SUMMARY:

CHECK SAMPLES ARE TO BE COLLECTED FROM MATERIALS FOUND WITH THE LIMITS OF THE BORROW EXCAVATION WHICH ARE FOUND TO BE POSSIBLY IMPACTED OR IRON STAINED. THE SAMPLES ARE TO BE COLLECTED AS GRAB SAMPLES REPRESENTING WORST CASE MATERIALS.

14:00 BEGIN COLLECTING EP-019A

- LOCATION: STATION 7 + 60' AND 80' WEST OF CENTER LINE

SAMPLE DESCRIPTION:

MODERATELY IRON STAIN FINE GRAIN SAND INTERBEDDED WITH GRAY AND BROWN FINE GRAIN SILTY SAND.

(93) 9-1-94 JOHN BIRKINSHAW

AREA: BORROW AREA

14:20 BEGIN COLLECTING EP-020A
LOCATION: STATION 6 + 18'
AND 20' EAST

SAMPLE DESCRIPTION:

MODERATELY TO STRONGLY IRON STAINED, FINE TO MEDIUM GRAIN SAND WITH ISOLATED PEBBLES AND GRAVELS UP TO 1/2".

14:40 BEGIN COLLECTING EP-021A
LOCATION: STATION 10 + 25'
160' WEST

SAMPLE DESCRIPTION:

MODERATELY TO STRONGLY STAINED FINE TO MEDIUM GRAIN SAND AND SILT.

9-6-94 JOHN BIRKINSHAW (94)

PROJECT: SOUTH JORDAN EVAP. PONDS
AREA: SOUTHERN BORROW RESOURCE AREA

TRENCHING SUMMARY:

NUMEROUS TRENCHES ARE TO BE EXCAVATED TO DETERMINE AND CHARACTERIZE THE MATERIAL LOCATED BETWEEN THE SOUTHERN EXTENT OF THE CONSOLIDATED AREA AND THE PONDS LOCATED ON THE EXTREME SOUTH END OF THE SOUTH JORDAN EVAPORATION PONDS SITE. THE INVESTIGATION IS BEING UNDERTAKEN TO DETERMINE VOLUMETRIC QUANTITIES OF MATERIALS. i.e. GRAVELS OR COARSER GRAIN MATERIALS. ALL TRENCHES WILL BE LOGGED AND SURVEYED

(95) 9-6-94 JOHN BIRKINSHAW

8:15 BEGIN TRENCHING EPBS-1

TRENCH LOG:
0-6' SILTY SANDY GRAVEL: TAN TO LIGHT BROWN SILT AND SAND. GRAVELS FROM 1/4" - 2" ABUNDANT. ABUNDANT ORGANICS
6-15' SANDY GRAVEL: LIGHT BROWN TO BROWN MEDIUM TO COARSE GRAIN, SAND. GRAVELS FROM 1/2" - 2". INCREASING SAND WITH DEPTH.

PHOTOS:
#1: CLOSE UP OF EPBS-1 9-6-94 JB
#2: CLOSE UP OF EPBS-1 9-6-94 JB
#3: LOOKING EAST AT EPBS-1 9-6-94 JB

9-6-94 JOHN BIRKINSHAW (96)

8:35 BEGIN TRENCHING EPBS-2

TRENCH LOG:
0-2' SILTY SANDY GRAVEL: DARK BROWN SILTY SANDY GRAVEL ABUNDANT ORGANICS. MODERATE CALICHE
2-3' SANDY GRAVEL: BROWN TO ORANGISH BROWN, FINE TO MEDIUM GRAIN SAND. GRAVELS FROM 1/2" - 2".
3-10' SANDY GRAVEL: TAN TO LIGHT BROWN, FINE TO GRAIN. GRAVELS FROM 1-3". ABUNDANT CALICHE.
@ 8' LIGHT BROWN TO BROWN SAND
10-15' SILTY SANDY GRAVEL: TAN, LIGHT BROWN AND IRON STAINED FINE GRAIN SAND. DECREASE IN GRAVEL CONTENT FROM ABOVE INTERVALS.

PHOTOS:
#4 CLOSE UP OF EPBS-2 9-6-94
#5 LOOKING WEST AT EPBS-2 9-6-9

(97) 9-6-94 JOHN BIRKINSHAW

9:10 BEGIN TRENCHING EPBS-3

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: DARK BROWN FINE TO MEDIUM SAND AND SILT. GRAVELS FROM 1/2"-2". MODERATE CALICHE.

2-3' SANDY GRAVEL: LIGHT BROWN TO ORANGISH BROWN FINE TO MED GRAIN SAND. GRAVELS PREDOMINATELY 3/8".

3-11' SANDY GRAVEL: TAN TO LIGHT BROWN SAND, FINE TO MED. GRAIN. GRAVELS FROM 1/2-3". MODERATE CALICHE.

11-15' SANDY GRAVEL: TAN, LIGHT BROWN AND ORANGISH BROWN FINE GRAIN SAND w/ SILT. GRAVELS FROM 1/2"-2". INCREASED FINES.

PHOTOS:

#6 CLOSE UP OF EPBS-3 9-6-94

#7 LOOKING WEST AT EPBS-3 9-6-94

9-6-94 JOHN BIRKINSHAW (98)

9:40 BEGIN TRENCHING EPBS-4

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: DARK BROWN, FINE TO MEDIUM GRAIN SAND w/ SILT. GRAVELS FROM 1/2-2".

2-15' SANDY GRAVEL: TAN GRADING TO BROWN w/ DEPTH. MINOR TO MODERATE MATRIX. GRAVELS PREDOMINATELY 3/8" w/ ISOLATED GRAVELS UP TO 3".

PHOTOS:

#8 CLOSE UP OF EPBS-4 9-6-94

#9 LOOKING NORTH AT EPBS-4 9-6-94

(99) 9-6-94 JOHN BIRKINSHAW

10:10 BEGIN TRENCHING EPBS-~~6~~5

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: DARK BROWN, FINE TO MEDIUM GRAIN SAND AND SILT. GRAVELS FROM 1/2"-2".

2-8' SANDY GRAVEL: TAN TO LIGHT BROWN FINE TO MEDIUM GRAIN SAND GRAVELS FROM 1/2-2". MODERATE CALICHE

8-15 GRAVELLY SAND: LIGHT BROWN MEDIUM GRAIN SAND GRADING TO BROWN COARSER GRAIN. GRAVELS FROM 3/8 - 1/2". INCREASED MATRIX.

PHOTOS:

#10. CLOSE UP OF EPBS-5 9-6-94

#11. LOOKING SOUTH AT EPBS-5 9-6-94

9-6-94 JOHN BIRKINSHAW (100)

10:35 BEGIN TRENCHING EPBS-

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: DARK BROWN, FINE TO MEDIUM GRAIN SAND AND SILT. GRAVELS FROM 1/2-2".

2-4' SANDY GRAVEL: BROWN TO ORANGISH BROWN SAND. GRAVELS FROM 2-4", MODERATE IRON STAINING.

4-8': SANDY GRAVEL: LIGHT BROWN TO BROWN, FINE TO MEDIUM SAND. GRAVELS FROM 1/2-2".

8-15' GRAVELLY SAND: BROWN TO REDDISH BROWN COARSE GRAIN SAND. MODERATE IRON STAINING. GRAVELS RANGING FROM 1/4" - 1". ABUNDANT MATRIX. ISOLATED WHITE TO YELLOWISH WHITE PPT. ON GRAVELS. POSSIBLE GYPSUM PPT.

PHOTOS:

#12. CLOSE UP OF EPBS-6 9-6-94

#13. LOOKING SOUTH AT EPBS-6 9-6-94

(101) 9-6-94 JOHN BIRKINSHAW

11:00 BEGIN TRENCHING EPBS-7

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: DARK BROWN FINE TO MEDIUM GRAIN SAND AND SILT. GRAVELS FROM 1/2 - 2". MODERATE CALICHE.

2-8': SANDY GRAVEL: TAN TO LIGHT BROWN, FINE TO MEDIUM SAND. GRAVELS FROM 1/2 - 2", MODERATE CALICHE.

8-15' SANDY GRAVEL: BROWN, MEDIUM TO COARSE GRAIN SAND. GRAVELS FROM 1/2 - 2", WITH ISOLATED COBBLES UP TO 4".

PHOTOS:

#14. CLOSE UP OF EPBS-7 9-6-94

#15. LOOKING WEST AT EPBS-7 9-6-94

9-6-94 JOHN BIRKINSHAW (102)

11:25 BEGIN TRENCHING EPBS-8

TRENCH LOG:

0-2' GRAVELLY SILTY SAND: BROWN TO DARK BROWN, SAND AND SILT. GRAVELS FROM 1/2 - 2", DECREASE IN GRAVELS THEN PREVIOUS TRENCHING.

2-8' SANDY GRAVEL: TAN TO LIGHT BROWN SANDY FINE TO MEDIUM GRAIN. GRAVELS FROM 1/2 - 3". MODERATE

8-15 SANDY GRAVELS: BROWN TO ORANGISH BROWN, FINE GRAIN SAND. GRAVELS PREDOMINATE 2", WITH COBBLES UP TO 4".

PHOTOS:

#16. CLOSE UP OF EPBS-8 9-6-94

#17. LOOKING SE AT EPBS-8 9-6-94

(103) 9-6-94 JOHN BIRKINSHAW

11:50 BEGIN TRENCHING EPBS-9

0-11' ROAD BASE (SANDY GRAVEL) BROWN FINE TO MEDIUM GRAIN SAND. GRAVELS FROM 1/4 - 1/2". STOCKPILED IN MID 1970's.

11-15' SANDY GRAVEL: BROWN, MEDIUM GRAIN SAND. GRAVELS FROM 1"-3" WITH SEAMS OF 1/2 - 1" GRAVELS

PHOTOS:

#18 CLOSE UP OF EPBS-9

#19 LOOKING SE AT EPBS-9

9-6-94 JOHN BIRKINSHAW (104)

12:40 BEGIN TRENCHING EPBS-10

TRENCH LOG:

0-2' SANDY GRAVEL: TAN TO LT. BROWN, MEDIUM GRAIN SAND. GRAVELS FROM 1/2 - 3"

2-6' SANDY GRAVEL W/ SILT: DARK BROWN FINE GRAIN SAND & SILT. GRAVELS FROM 1/2" - 2"

6-11' SILTY SAND: BROWN TO ORANGISH BROWN FINE GRAIN SAND AND SILT.

11-15' SANDY GRAVEL: TAN TO BROWN, MEDIUM GRAIN SAND GRAVELS FROM 1" - 3".

PHOTOS:

#20 CLOSE UP OF EPBS-10

#21 LOOKING SE AT EPBS-10

(105) 9-6-94 JOHN BIRKINSHAW

12:55 BEGIN TRENCHING EPBS-11

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: BROWN TO DARK BROWN, FINE TO MEDIUM SAND. GRAVELS FROM 1/2 - 2".

2-10' SANDY GRAVEL: TAN GRADING TO ORANGISH BROWN GRAVELS FROM 1/2" - 2".

10-15 SILTY SAND w/ GRAVEL: TAN AND ORANGISH BROWN FINE TO MEDIUM SAND WITH INTERBEDDED 1/4" GRAVEL LENSES.

PHOTOS:

#22 CLOSE UP OF EPBS-11

#23 LOOKING SE AT EPBS-11

9-6-94 JOHN BIRKINSHAW (106)

13:25 BEGIN TRENCHING EPBS-12

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: BROWN TO DARK BROWN, FINE TO MEDIUM SAND. GRAVELS FROM 1/2 - 2".

2-6' SANDY GRAVEL: TAN TO BROWN, MEDIUM GRADING TO COARSE SAND. GRAVELS FROM 1" TO 4".

6-10' GRAVELLY SAND: TAN W/ ORANGISH BROWN, COARSE GRAIN SAND, GRAVELS FROM 1/8 - 1/4" MINOR TO MODERATE IRON STAINING.

10-15 SILTY SAND: TAN TO LIGHT BROWN FINE GRAIN SAND AND SILT.

PHOTOS:

#24 CLOSE UP OF EPBS-12

#25 LOOKING SE AT EPBS-12

(107) 9-6-94 JOHN BIRKINSHAW

13:50 BEGIN TRENCHING EPBS-13

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: BROWN TO DARK BROWN, FINE TO MED. GRAIN SAND. GRAVELS FROM 1-2"

2-9' SANDY GRAVEL: TAN GRADING TO ORANGISH BROWN, MEDIUM GRAIN SAND. GRAVELS FROM 1/2" - 3"

9-12' GRAVELLY SAND: BROWN TO ORANGISH BROWN, MEDIUM TO COARSE SAND. GRAVELS FROM 1/4" - 3/4".

12-15' SILTY SAND: TAN TO LIGHT BROWN, FINE GRAIN SAND AND SILT.

PHOTOS:

#26 CLOSE UP OF EPBS-13

#27 LOOKING SW AT EPBS-13.

9-6-94 JOHN BIRKINSHAW (108)

14:15 BEGIN TRENCHING EPBS-14

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: BROWN TO DARK BROWN, FINE TO MED. GRAIN SAND. GRAVELS FROM 1-2"

2-4 SANDY GRAVEL: TAN TO BROWN, FINE TO MEDIUM GRAIN SAND. GRAVELS FROM 1-3"

4-8' SILTY SAND: TAN TO LIGHT BROWN W/ STREAKS OF GRAY, FINE GRAIN SAND & SILT.

PHOTOS

#28 CLOSE UP OF EPBS-14

#29 LOOKING SE AT EPBS-14

(109) 9-6-94 JOHN BIRKINSHAW

14:30 BEGIN TRENCHING EPBS-15

TRENCH LOG:

0-2' SILTY SANDY GRAVEL: BROWN TO DARK BROWN FINE TO MEDIUM GRAIN SAND, GRAVELS FROM 1-2".

2-5 SANDY GRAVEL → GRAVELLY SAND LT BROWN TO REDDISH BROWN MEDIUM TO COARSE GRAIN SAND. GRAVELS FROM ½" - 3".

5-8" SILTY SAND: TAN TO LIGHT BROWN FINE GRAIN SAND AND SILT.

PHOTOS

#1 CLOSE UP OF EPBS-15

#2 LOOKING SOUTH AT EPBS-15

9-6-94 JOHN BIRKINSHAW (110)

14:45 BEGIN TRENCHING EPBS-16

TRENCH LOG:

0-2" SILTY SANDY GRAVEL: BROWN TO DARK BROWN, FINE TO MEDIUM GRAIN SAND.

2-3' GRAVELLY SAND: TAN TO LIGHT BROWN FINE GRAIN SAND WITH MINOR TO MODERATE GRAVELS UP TO 2"

3-8' SILTY SAND: TAN TO LIGHT BROWN, FINE GRAIN SAND AND SILT.

PHOTOS

#3 CLOSE UP OF EPBS-16

#4 LOOKING SE AT EPBS-16

(111) 9-6-94 JOHN BIRKINSHAW

15:00 BEGIN TRENCHING ~~EPBS-17~~ EPBS-17

0-10' SANDY GRAVEL
TAN TO LIGHT BROWN SAND WITH GRAVELS FROM 1/2"-2"

-UNABLE TO GO DEEPER DUE TO EXCESSIVE SLUFFING.

PHOTOS

#5 CLOSE UP OF EPBS-17

#6 LOOKING SW AT EPBS-17

9-6-94 JOHN BIRKINSHAW (112)

15:15 BEGIN TRENCHING EPBS-18

0-10' SANDY GRAVEL:
TAN TO LIGHT BROWN W/ MINOR TO MODERATE IRON STAINING.

-UNABLE TO GO DEEPER DUE TO EXCESSIVE SLUFFING.

PHOTOS

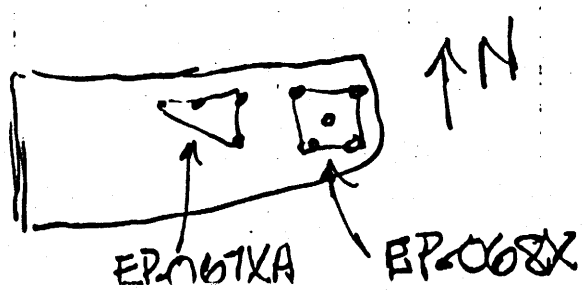
#7 CLOSE UP OF EPBS-18

#8 ~~CLOSE UP OF~~ LOOKING SW AT EPBS-18

(113) 9-7-94 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POND 6

SAMPLING SUMMARY:
THE REMOVAL WITHIN POND 6 HAS BEEN COMPLETED. IN ADDITION TO THE ONE SAMPLE WHICH HAS YET TO BE COLLECTED, THE SAMPLE CELL EP-067X WILL BE RESAMPLED DUE TO THE SLIGHTLY ELEVATED SULFATE. AN ADDITIONAL ~~EP-067~~ 1½ FEET OF MATERIAL HAS BEEN REMOVED FROM THE EP-067X AREA. SAMPLES EP-067XA AND EP-068X WILL BE 4 AND 5 POINT COMPOSITE SAMPLES RESPECTIVELY. EACH SAMPLE WILL BE COLLECTED FROM 0-4". SAMPLES WILL BE ANALYZED FOR As, Pb, pH AND SO_4^{2-} BY FORD ANALYTICAL OF S.L.C. UT



9-7-94 JOHN BIRKINSHAW (114)

AREA: POND 6

13:30 BEGIN COLLECTING EP-067XA
SAMPLE DESCRIPTION:

TAN TO BROWN SANDY GRAVEL. INTERBEDDED DARK BROWN CLAYEY SAND.

13:50 BEGIN COLLECTING EP-068X

SAMPLE DESCRIPTION:

TAN TO BROWN SANDY GRAVEL INTERBEDDED DARK BROWN SANDY CLAYEY MATERIAL.

AREA: BORROW AREA

SAMPLING SUMMARY:
SEVERAL GRAB SAMPLES WILL BE COLLECTED WITHIN THE BORROW AREA EXCAVATION TO MONITOR THE MATERIAL BEING REMOVED. SEDIMENTS WHICH APPEAR TO BE SOMEWHAT SUSPIOUS WILL BE SAMPLED.

12:15 BEGIN COLLECTING EP-022A
LOCATION: STATION 16 +45'
10' WEST
SAMPLE DESCRIPTION
MINOR TO MODERATELY IRON STAINED SANDY GRAVEL.

12:20 BEGIN COLLECTED EP-023A
LOCATION: 1000' SE OF END OF CANAL
SAMPLE DESCRIPTION:
MODERATELY IRON STAINED SANDY GRAVEL.

12:25 BEGIN COLLECTING EP-024A
LOCATION: 2000' SE OF END OF CANAL
SAMPLE DESCRIPTION:
MODERATELY IRON STAINED SANDY GRAVEL.

12:30 BEGIN COLLECTING EP-025A
LOCATION: 500' SE OF END OF CANAL
SAMPLE DESCRIPTION:
MODERATELY IRON STAINED SANDY GRAVEL.

(117) Thomas Nannini
9-9-94

Area:

Sampling Summary:
Check samples will be collected from materials found with in the limits of the borrow excavation which are found to be possibly impacted or Iron stained. The Samples will be collected as "grabs" representing "worst case" material.

Sample Descriptions:
EP-026A: This material consist of a well sorted medium to fine grained sand located ~ 600' east of Veg line and ~1100' south of Main Repository Haul Road

EP-027A: This material consist of coarse Sandy Gravel which is coated in a Fe and Mg Oxide. This Sample is located ~ 500' east of Veg. line and 800' South of Main Repository Haul Road

9-13-94 JOHN BIRKINSHAW (118)

AREA: BORROW AREA

SAMPLING SUMMARY:
AS THE BORROW AREA EXCAVATION CONTINUES, GRAB SAMPLES WILL BE COLLECTED TO MONITOR THE MATERIAL BEING REMOVED. MATERIALS WHICH APPEAR TO BE IRON STAINED WILL BE SAMPLED AS WORST CASE MATERIAL

BEGIN SAMPLING EP-028A:
LOCATION: 500' SW FROM HAUL INTERSECTION WITH CENTERLINE OF BORROW EXCAVATION
MODERATELY IRON STAINED SANDY GRAVEL

BEGIN SAMPLING EP-029A:
LOCATION 2000' SW FROM HAUL ROAD INTERSECTION W/ CENTERLINE OF BORROW EXCAVATION. MODERATELY IRON STAINED SANDY GRAVEL.

EP-030A: 2500' SW (AS ABOVE)
STRONGLY IRON STAINED SANDY GRAVEL.

(119) 9-14-94 JOHN BIRKINSHAW

AREA: ~~PROJEC~~ POND 6

SAMPLING SUMMARY:

SAMPLE EP-067X WHICH ~~HAS BEEN~~ COLLECTED TWICE TO DATE HAS BEEN FOUND TO BE SLIGHTLY ELEVATED WITH SULFATE. AN ADDITIONAL 18" HAS BEEN REMOVED FROM THE AREA AND PREPARED FOR A RESAMPLING EVENT. POST REMOVAL SAMPLE EP-067XB WILL BE COLLECTED FROM 0-4". EACH SUBSITE HAS BEEN RESURVEYED. THE ~~SAMPLE~~ WILL BE ANALYZED FOR As, Pb, SO_4^{2-}(L) AND pH.

14:20 BEGIN COLLECTING EP-067XB

SAMPLE DESCRIPTION:

TAN TO LT. BROWN SANDY GRAVEL. MINOR INTERBEDDED YELLOW SILTY CLAY.

9-15-94 JOHN BIRKINSHAW (20)

AREA: 10400 SOUTH RIGHT OF WAY

SAMPLING SUMMARY:

THE REMOVAL WITHIN THE 10400 SOUTH RIGHT OF WAY HAS BEEN PARTIALLY COMPLETED. THE WESTERN HALF WILL BE SAMPLED. 200' SAMPLE CELLS WILL BE SURVEYED PRIOR TO SAMPLE COLLECTION. EACH SAMPLE WILL BE A 5-POINT COMPOSITE. EACH SUBSITE WILL BE SAMPLED FROM 0-4". SAMPLES WILL BE ANALYZED FOR As, Pb, pH AND SO_4^{2-}(L).

13:50 BEGIN COLLECTING EP-069X

SAMPLE DESCRIPTION:

TAN TO LIGHT BROWN TO MODERATELY IRON STAINED SANDY GRAVEL.

14:20 BEGIN COLLECTING EP-070X

SAMPLE DESCRIPTION:

MODERATELY IRON STAINED TO STRONGLY IRON STAINED SANDY GRAVEL

(121) 9-16-94 JOHN BIRKINSHAW

AREA: CONSOLIDATED FOOTPRINT

SAMPLING SUMMARY:
THE NORTHERN HALF OF THE CONSOLIDATED AREA PLACEMENT HAS BEEN COMPLETED. SAMPLES EP-056X, EP-057X, EP-059X AND EP-060X WILL BE COMPLETED. EACH SAMPLE IS A 400' SQUARE, 5-POINT COMPOSITE.

13:15 BEGIN COLLECTING EP-059X.
SAMPLE DESCRIPTION:
TAN TO LIGHT BROWN SANDY GRAVEL.

13:35 BEGIN COLLECTING EP-060X
SAMPLE DESCRIPTION:
LT. BROWN SANDY GRAVEL WITH ISOLATED TREATED SLUDGE.

13:50 BEGIN COLLECTING EP-057X
SAMPLE DESCRIPTION:
LT. BROWN SANDY GRAVEL W/ MODERATED TREATED SLUDGE.

14:10 BEGIN COLLECTING EP-056X
SAMPLE DESCRIPTION:
LT BROWN SANDY GRAVEL W/ MINOR TREATED SLUDGE.

9-16-94 JOHN BIRKINSHAW (122)

AREA: 10400 SOUTH RIGHT OF WAY

SAMPLING SUMMARY:
THE REMOVAL WITHIN THE 10400 SOUTH RIGHT OF WAY HAS BEEN COMPLETED. 2 ADDITIONAL SAMPLES WILL BE COLLECTED, EP-071X AND EP-072X. EACH SAMPLE WILL BE A 200' SQUARE, 5 POINT COMPOSITE CELL.

14:40 BEGIN COLLECTING EP-072X.
SAMPLE DESCRIPTION:
BROWN TO REDDISH BROWN SANDY GRAVEL. AREAS OF STRONGER IRON STAINING.

15:00 BEGIN COLLECTING EP-071X
SAMPLE DESCRIPTION:
MODERATE TO STRONGLY IRON STAINED SANDY GRAVEL.

(123) 9-21-94 JOHN BIRKINSHAW

AREA: SOUTHERN CONSOLIDATED FOOTPRINT

SAMPLING SUMMARY:

WORK HAS BEEN COMPLETED REGARDING POND SEDIMENTS BEING MOVED ONTO THE CONSOLIDATED FOOTPRINT. TWO SAMPLES WILL BE COLLECTED, EP-054X AND EP-055X WHICH WILL COMPLETE THE CONSOLIDATED AREA SAMPLING.

~~11:10~~

11:10 BEGIN COLLECTING EP-054X

SAMPLE DESCRIPTION:

TAN TO LT. BROWN SANDY GRAVEL. MINOR IRON STAINING IN ISOLATED AREAS.

11:30 BEGIN COLLECTING EP-055X

SAMPLE DESCRIPTION:

TAN TO LT. BROWN SANDY GRAVEL. MINOR TO MODERATE IRON STAINING IN MATRIX MATERIAL.

9-21-94 JOHN BIRKINSHAW (124)

AREA: 10400 SOUTH RIGHT OF WAY

SAMPLING SUMMARY:

THE ~~SOUTHERN~~ EASTERN HALF OF THE 10400 S. RIGHT OF WAY THROUGH THE CONSOLIDATED FOOTPRINT HAS BEEN CLEANED FURTHER. THE TWO MOST EASTERN SAMPLE CELLS WILL BE RESAMPLED.

11:45

BEGIN SAMPLING EP-072XA

SAMPLE DESCRIPTION:

BROWN TO YELLOWISH BROWN SANDY GRAVEL.

12:00 BEGIN COLLECTING EP-071XA

SAMPLE DESCRIPTION:

BROWN TO YELLOWISH BROWN SANDY GRAVEL.

10-20-94 10400 SOUTH EXTENSION {~~EAST~~}

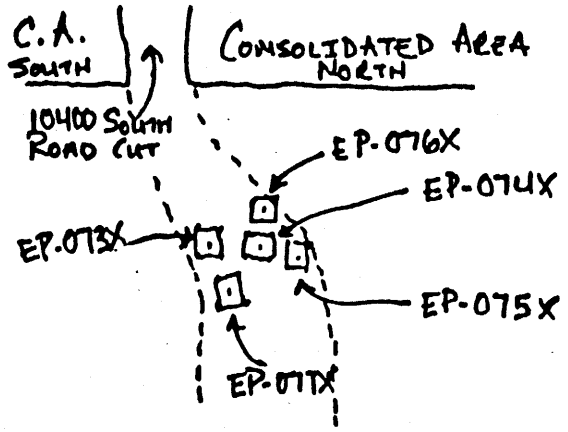
THREE GRAB SAMPLES, EP-031A - EP-033A WILL BE COLLECTED OF MATERIALS WHICH VISUALLY SEEM TO BE IMPACTED, i.e. STRONGLY IRON STAINED. THE SAMPLES WILL BE COLLECTED WEST OF THE SEEPAGE PONDS AT THE CREAST OF THE 10400 SOUTH EXTENSION ROAD.

(25) 10-19-94 10400 South Extension
John Birkinshaw

AREA: 10400 South Extension {East Side}

SAMPLING SUMMARY:

FIVE COMPOSITE SAMPLES WILL BE COLLECTED FROM THE 10400 SOUTH EXTENSION ROAD CUT EAST OF THE CONSOLIDATED AREA. EACH SAMPLE SUBSITE WILL BE SAMPLED FROM 0-4" AND ANALYZED FOR As, Pb, pH & SO_4^{2-}(L).



13:50 Begin collecting EP-073X.

SAMPLE DESCRIPTION:

SANDY GRAVEL: TAN TO LIGHT BROWN, FINE TO MEDIUM SAND WITH MINOR TO MODERATE IRON STAINING IN ISOLATED AREAS.

PHOTOS: ROLL #14

#5. CLOSE UP OF EP-073X, SUBSITE #5 10-19-94 JB.

#6. LOOKING EAST AT EP-073X, 10400 S. EXTENSION

10-19-94 10400 South Extension
John Birkinshaw (26)

14:20 Begin collecting EP-074X

SAMPLE DESCRIPTION:

SANDY GRAVEL: TAN TO BROWN, FINE TO MEDIUM GRAIN SAND. MODERATE IRON STAINING. GRAVELS FROM 1/2"- 1".

#7. CLOSE UP OF EP-074X, SUBSITE #5 10-19-94

#8. LOOKING EAST AT EP-074X, 10-19-94.

14:40 Begin collecting EP-075X

SAMPLE DESCRIPTION:

SANDY GRAVEL: TAN FINE GRAIN SAND, NO Fe STAINING GRAVELS FROM 1/2"- 1"

#9. CLOSE UP OF EP-075X, SUBSITE #5, 10-19-94

#10. LOOKING EAST AT EP-075X, 10-19-94

15:00 Begin collecting EP-076X

SAMPLE DESCRIPTION: TAN TO LT. BROWN FINE GRAIN SAND, MINOR TO MODERATE 1/2" GRAVELS.

#11. CLOSE UP OF EP-076X, SUBSITE #5, 10-19-94

#12. LOOKING EAST AT EP-076X, 10-19-94

15:30 Begin collecting EP-077X

SAMPLE DESCRIPTION: GRAVELLY SAND: TAN TO MEDIUM GRAIN SAND w/ 1/2" GRAVELS.

#13. CLOSE UP OF EP-077X, SUBSITE #5, 10-19-94

#14. LOOKING EAST AT EP-077X, 10-19-94.

(127) PHOTO LOG: JBEP-13

#1. CLOSE UP OF EP-060X-2, C.F.
9-16-94 JB

#2. CLOSE UP OF EP-060-4, C.F.
9-16-94 JB

#3 LOOKING NW AT EP-060X, C.F. 9-16-94 JB

#4 CLOSE UP OF EP-057X-2, C.F.
9-16-94 JB

#5 CLOSE UP OF EP-057X-4, C.F.
9-16-94 JB

#6 LOOKING NW AT EP-057X, C.F.
9-16-94 JB

#7 CLOSE UP OF EP-056X-2, C.F.
9-16-94 JB

#8. CLOSE UP OF EP-056X-4, C.F.
9-16-94 JB

#9 LOOKING NW AT EP-056X, C.F.
9-16-94 JB

#10. CLOSE UP OF EP-072X-2, 10400S.
9-16-94 JB

#11. CLOSE UP OF EP-072X-4, 10400 S.
9-16-94 JB

#12. ~~CLOS~~ LOOKING NW AT EP-072X, 10400S.
9-16-94 JB

#13 CLOSE UP OF EP-071X-2, 10400S
9-16-94 JB

(128)

#14. CLOSE UP OF EP-071X-4, 10400S.
9-16-94 JB

#15 LOOKING SW AT EP-071X, 10400S.
9-16-94 JB

#16 CLOSE UP OF EP-054X-2, CON. FOOT.
9-21-94 JB

#17 LOOKING SW AT EP-054X, CON. FOOT. 9-21-94 JB

#18. CLOSE UP OF EP-055X-2, C.F.
9-21-94 JB

#19. ~~CLOSE UP OF EP-055X~~ LOOKING SOUTH AT EP-055X,
9-21-94 JB

#20 CLOSE UP ~~OF~~ EP-056-4, EP-055X
9-21-94 JB

#21. ~~CLOSE~~ UP OF EP-072XA-4, 10400 S JB 9-21-94

#22. LOOKING NW AT EP-072XA, 10400 S JB 9-21-94

ROLL 14:

#1. CLOSE UP OF EP-072XA-2, 10400 S. JB 9-21-94

#2. CLOSE UP OF EP-071XA-2, 10400 S JB 9-21-94

#3. CLOSE UP OF EP-071XA-4 10400 S JB 9-21-94

#4. LOOKING NW AT EP-071XA 10400S JB 9-21-94

PHOTO LOG: JBEP-12

#9. CLOSE UP OF EP-067XA-2, POND 6
9-7-94 JB

#10 CLOSE UP OF EP-067XA-4, POND 6
9-7-94 JB

#11 LOOKING NW AT EP-067XA, POND 6
9-7-94 JB

#12 CLOSE UP OF EP-068X-1, POND 6
9-7-94 JB

#13 CLOSE UP OF EP-068X-2, POND 6
9-7-94 JB

#14 LOOKING SOUTH AT EP-068X, POND 6
9-7-94 JB

#15 CLOSE UP OF EP-067XB-2, POND 6
9-14-94 JB

#16 CLOSE UP OF EP-067XB-4, POND 6
9-14-94 JB

#17 LOOKING NW AT EP-067XB,
POND 6, 9-14-94 JB

#18 LOOKING EAST AT EP-069X,
10400 SOUTH RIGHT OF WAY, 9-15-94 JB

#19 CLOSE UP OF EP-069X-2, 10400 SOUTH
9-15-94 JB

#20 CLOSE UP OF EP-069-4X, 10400 SOUTH
9-15-94 JB

#21 LOOKING SE AT EP-070X, 10400 SOUTH
9-15-94 JB

#22 CLOSE UP OF EP-070X-2,
10400 SOUTH 9-15-94 JB

#23 CLOSE UP OF EP-070X-4,
10400 SOUTH 9-15-94 JB

#24 CLOSE UP OF EP-059X-2
CONSOLIDATED FOOTPRINT 9-16-94 JB

#25 CLOSE UP OF EP-059X-4,
C.F. 9-16-94 JB

#26 LOOKING SE AT EP-059X-5
C.F. 9-16-94 JB

(131) PHOTO LOG
ROLL: JBEP-1

1. LOOKING NE AT POND D REMOVAL AREA. 6-14-94 J.B.
2. CLOSE UP OF EP-001X, SUBSITE #1 6-14-94 JB - POND D
3. CLOSE UP OF EP-001X, SUBSITE #3 6-14-94 JB - POND D
4. CLOSE UP OF EP-001X, SUBSITE #5 6-14-94 JB - POND D
5. CLOSE UP OF EP-002X, SUBSITE #1 6-14-94 JB - POND D
6. CLOSE UP OF EP-002X, SUBSITE #3 6-14-94 JB - POND D
7. CLOSE UP OF EP-003X, SUBSITE #2 6-22-94 JB - POND 7
8. CLOSE UP OF EP-003X, SUBSITE #4 6-22-94 JB - POND 7
9. CLOSE UP OF EP-004X, SUBSITE #2 6-22-94 JB - POND 7
10. CLOSE UP OF EP-004X, SUBSITE #4 6-22-94 JB - POND 7
11. CLOSE UP OF EP-005X, SUBSITE #1 6-22-94 JB - POND 7
12. CLOSE UP OF EP-005X, SUBSITE #2 6-22-94 JB - POND 7

PHOTO LOG (132)
ROLL: JBEP-1 CONT.

13. CLOSE UP OF EP-006X, SUBSITE #2 6-22-94 JB - POND 7
14. CLOSE UP OF EP-006X, SUBSITE #4 6-22-94 JB - POND 7
15. CLOSE UP OF EP-008X, SUBSITE #1 6-22-94 JB - POND 7
16. CLOSE UP OF EP-008X, SUBSITE #3 6-22-94 JB - POND 7
17. CLOSE UP OF EP-007X, SUBSITE #1 6-22-94 JB - POND 7
18. CLOSE UP OF EP-007X, SUBSITE #3 6-22-94 JB - POND 7
19. LOOKING EAST AT POND 7 6-22-94 JB
20. LOOKING NE AT POND 7 - NORTHERN 1/4 6-22-94 JB
21. LOOKING NE AT POND 7 - NORTHERN MIDDLE 1/4. 6-22-94 JB
22. LOOKING EAST AT POND 7 - SOUTHERN MIDDLE 1/4. 6-22-94 JB
23. LOOKING SE AT POND 7 - SOUTHERN 1/4. 6-22-94 JB
24. LOOKING SOUTH AT POND 7. SOUTHERN 1/4. 6-22-94 JB

(133) PHOTO LOG
ROLL: JBEP-2

1. 6-27-94. Close up of trench EP-003A. Photo by L. Elkin. Pond 7.
2. (same as #1).
3. 6-27-94. Close up of Trench EP-004A, Pond 9. Photo by L. Elkin
4. 6-27-94. Close up of Trench EP-005A, Pond 7. Photo by J. Burkenshaw.
5. 6-27-94. Close up of Trench EP-006A Pond 7. Photo by L. Elkin.
6. 6-28-94 LOOKING SE AT B2CA-251X EVAP. POND CANAL. JB
7. 6-28-94 LOOKING SOUTH AT B2CA-252X EVAP. POND CANAL JB
8. 6-28-94 LOOKING SOUTH AT B2CA-253X EVAP. POND CANAL JB
9. 6-28-94 LOOKING SOUTH AT B2CA-254X EVAP. POND CANAL JB
10. LOOKING NORTH AT B2CA-255X 6-28-94 EVAP. POND CANAL. JB
11. 6-28-94 LOOKING NORTH AT B2CA-256X EVAP. POND CANAL JB
12. LOOKING NORTH AT B2CA-257X EVAP. POND CANAL.

PHOTO LOG (134)
ROLL: JBEP-2 CONT.

13. LOOKING EAST AT POND 3 REMOVAL AREA. 7-6-94 JB
14. LOOKING NE AT POND 3 REMOVAL AREA. 7-6-94 JB
15. LOOKING SOUTH AT POND 4 REMOVAL AREA. 7-6-94 JB
16. LOOKING SE AT POND 4 REMOVAL AREA. 7-6-94 JB
17. LOOKING SE AT POND 4 REMOVAL AREA. 7-6-94 JB
18. LOOKING EAST AT POND 4 REMOVAL AREA. 7-6-94 JB
19. CLOSE UP OF SEDIMENTS WITHIN POND 3. 7-6-94 JB
20. CLOSE UP OF SEDIMENTS WITHIN POND 4. 7-6-94 JB
21. LOOKING SW AT POND A5, PARTIAL REMOVAL 7-6-94 JB
22. LOOKING WEST AT POND A5, PARTIAL REMOVAL 7-6-94 JB
23. CLOSE UP OF EP-015X-2, POND 2 7-6-94 JB
24. LOOKING EAST AT POND 2, EP-015X 7-6-94 JB
25. CLOSE UP OF EP-015X-4, POND 2 7-6-94 JB

(135) PHOTO LOG
ROLL: JBEP-3

1. LOOKING SOUTH AT POND A5, SAMPLE EP-018X, 7-11-94 JB
2. CLOSE UP OF EP-018X-4, POND A5, 7-11-94 JB
3. CLOSE UP OF EP-018X-2, POND A5, 7-11-94 JB
4. CLOSE UP OF EP-018X-6, POND A5, 7-11-94 JB
5. CLOSE UP OF EP-017X-2, POND A5, 7-11-94 JB
6. CLOSE UP OF EP-017X-4, POND A5, 7-11-94 JB
7. LOOKING SW AT POND A5, SAMPLE EP-017X, 7-11-94 JB
8. LOOKING NE AT POND 7, SAMPLE EP-003XA, 7-11-94 JB
9. CLOSE UP OF EP-003XA-2, POND 7 7-11-94 JB
10. CLOSE UP OF EP-003XA-4, POND 7 7-11-94 JB
11. LOOKING SE AT POND 7, EP-004XA 7-11-94 JB
12. CLOSE UP OF EP-004XA-2, POND 7 7-11-94 JB

PHOTO LOG:
ROLL: JBEP-3 CONT. (36)

13. CLOSE UP OF EP-004XA-4, POND 7, 7-11-94 JB
14. LOOKING NORTH AT EP-005XA, POND 7, 7-11-94 JB
15. CLOSE UP OF EP-005XA-2, 7-11-94 JB
16. CLOSE UP OF EP-006XA-2 POND 7, 7-11-94, JB
17. CLOSE UP OF EP-006XA-4 POND 7, 7-11-94 JB
18. LOOKING NW AT EP-006XA POND 7, 7-11-94 JB
19. CLOSE UP OF EP-007XA-2, POND 7 7-11-94 JB
20. LOOKING NE AT EP-007XA, POND 7, 7-11-94 JB
21. CLOSE UP OF EP-008XA-2, POND 7 7-11-94 JB
22. LOOKING NE AT EP-008XA, POND 7 7-11-94 JB
23. CLOSE UP OF EP-015X-2, POND 2 7-1-94
24. LOOKING EAST AT POND 2, EP-015X 7-1-94

(137) PHOTO LOG
ROLL: JBEP-4

1. LOOKING SOUTH AT EP-025X
7-14-94 JB POND IX
2. CLOSE UP OF EP-025X-2, POND IX
7-14-94 JB
3. CLOSE UP OF EP-025X-4, POND IX
7-14-94 JB
4. LOOKING SW AT EP-024X, POND IX
7-14-94 JB
5. CLOSE UP OF EP-024X-2, POND IX
7-14-94 JB
6. CLOSE UP OF EP-024X-4, POND IX
7-14-94 JB
7. CLOSE UP OF EP-021X-4, POND IX
7-14-94 JB
8. LOOKING SW AT EP-021X, POND IX
7-14-94 JB
9. CLOSE UP OF EP-021X-2, POND IX
7-14-94 JB
10. CLOSE UP OF EP-023X-2, POND IX
7-14-94 JB
11. LOOKING SW AT EP-023X, POND IX
7-14-94 JB
12. CLOSE UP OF EP-023X-4, POND IX
7-14-94 JB

PHOTO LOG (138)
ROLL: JBEP-4 CONT.

13. CLOSE UP OF EP-022X-4, POND IX
7-14-94 JB
14. LOOKING NW AT EP-022X, POND IX
7-14-94 JB
15. CLOSE UP OF EP-020X-2, POND IX
7-14-94 JB
16. LOOKING EAST AT EP-020X, POND IX
7-14-94 JB
17. CLOSE UP OF EP-019X-2, POND IX
7-14-94 JB
18. LOOKING SE AT EP-019X, POND IX
7-14-94 JB
19. CLOSE UP OF EP-019X-4, POND IX
7-14-94 JB
20. CLOSE UP OF EP-016X-1, POND 1
7-14-94 JB
21. CLOSE UP OF EP-016X-5, POND 1
7-14-94 JB
22. CLOSE UP OF EP-013XA-2 POND 3
7-14-94 JB
23. LOOKING EAST AT EP-013XA
POND 3, 7-14-94 JB
24. LOOKING SE AT EP-016X;
POND 1 7-14-94 JB

(139) PHOTO LOG
JBEP-5

1. LOOKING SOUTH AT EP-009XA, POND 4
7-14-94 JB
2. CLOSE UP OF EP-009XA-2, POND 4
7-14-94 JB
3. LOOKING NE AT EP-010XA, POND 4
7-14-94 JB
4. CLOSE UP AT EP-010XA-4, POND 4
7-14-94 JB
5. CLOSE UP OF EP-010XA-2, POND 4
7-14-94 JB
6. LOOKING NORTH AT EP-012XA, POND 4
7-14-94 JB
7. CLOSE UP OF EP-012XA-6, POND 4
7-14-94 JB
8. CLOSE UP OF EP-012XA-2, POND 4
7-14-94 JB
9. LOOKING NW AT EP-009A, POND 5
7-19-94 JB
10. CLOSE UP OF EP-009A-5, POND 5
7-19-94 JB
11. LOOKING NW AT EP-010A, POND 5
7-19-94 JB
12. CLOSE UP OF EP-010A-5, POND 5
7-19-94 JB
27. CLOSE UP OF B2CA-348X-3, EP. CANAL
7-21-94 JB

ROLL: JBEP-5 CONT. (140)

13. LOOKING NORTH AT EP-011A, POND 5, 7-19-94 JB
14. CLOSE UP OF EP-011A-5, POND 5
7-19-94 JB
15. LOOKING SW AT POND 1, EP-016XA.
7-20-94 JB
16. CLOSE UP OF EP-016XA-2, POND 1
7-20-94 JB
17. CLOSE UP OF EP-016XA-4, POND 1
7-20-94 JB
18. LOOKING NORTH AT EP-012A, POND 1X, 7-20-94 JB
19. CLOSE UP OF POND 1X, EP-012A, SEDIMENTS. 7-20-94 JB
20. LOOKING EAST AT B2CA-346X, E.P. CANAL
7-21-94 JB
21. CLOSE UP OF B2CA-346X-3, E.P. CANAL
7-21-94 JB
22. CLOSE UP OF B2CA-346X-6, E.P. CANAL
7-21-94 JB
23. LOOKING EAST AT B2CA-347X, E.P. CANAL
7-21-94 JB
24. CLOSE UP OF B2CA-347X-3, E.P. CANAL
7-21-94 JB
25. CLOSE UP OF B2CA-347X-6, E.P. CANAL
7-21-94 JB
26. LOOKING EAST AT B2CA-348X, E.P. CANAL
7-21-94 JB

(141) PHOTO LOG:
JBEP-6

1. LOOKING SOUTH AT EP-025XA, POND IX
7-22-94 JB
2. CLOSE UP OF EP-025XA-2, POND IX
7-22-94 JB
3. CLOSE UP OF EP-025XA-H, POND IX
7-22-94 JB
4. CLOSE UP OF EP-023XA-2, POND IX
7-22-94 JB
5. LOOKING SW AT EP-023XA, POND IX
7-22-94 JB
6. CLOSE UP OF EP-023XA-H, POND IX
7-22-94 JB
7. LOOKING SW AT EP-022XA, POND IX
7-22-94 JB
8. CLOSE UP OF EP-021XA-H, POND IX
7-22-94 JB
9. LOOKING SOUTH AT EP-021XA, POND IX, 7-22-94 JB
10. CLOSE UP OF EP-021XA-2, POND IX
7-22-94 JB
11. CLOSE UP OF EP-020XA-2, POND IX
7-22-94 JB
12. LOOKING ~~UP~~ SW AT EP-020XA, POND IX, 7-22-94 JB

JBEP-6 (CONT.) (142)

13. LOOKING NORTH AT EP-028X, POND 5
7-26-94 JB
14. CLOSE UP OF EP-028X-H, POND 5
7-26-94 JB
15. LOOKING WEST AT EP-029X, POND 5
7-26-94 JB
16. CLOSE UP OF EP-029X-H, POND 5
7-26-94 JB
17. CLOSE UP OF EP-029X-2, POND 5
7-26-94 JB
18. LOOKING SOUTH AT EP-027X, POND 5
7-26-94 JB
19. CLOSE UP OF EP-027X-2, POND 5
7-26-94 JB
20. CLOSE UP OF EP-027X-H, POND 5
7-26-94 JB
21. LOOKING SE AT EP-026X, POND 5
7-26-94 JB
22. CLOSE UP OF EP-026X-2, POND 5
7-26-94 JB
23. CLOSE UP OF EP-026X-H, POND 5
7-26-94 JB
24. CLOSE UP OF EP-028-2, POND 5
7-26-94 JB

(143) JBEP-7

1. CLOSE UP OF EP-033X-4, SEEPAGE PONDS, 8-2-94 JB
2. CLOSE UP OF EP-033X-2, SEEPAGE PONDS, 8-2-94 JB
3. CLOSE UP OF EP-032X-4, SEEPAGE PONDS, 8-2-94 JB
4. LOOKING EAST AT EP-033X, SEEPAGE PONDS, 8-2-94 JB
5. CLOSE UP OF EP-032X-2, SEEPAGE PONDS. 8-2-94 JB
6. LOOKING EAST AT EP-032X, SEEPAGE PONDS 8-2-94 JB
7. CLOSE UP OF EP-031X-2, SEEPAGE PONDS. 8-2-94 JB
8. LOOKING NE AT EP-031X-2, SEEPAGE PONDS 8-2-94 JB
9. CLOSE UP OF EP-031X-4, SEEPAGE PONDS. 8-2-94 JB
10. CLOSE UP OF EP-030X-2, SEEPAGE PONDS. 8-2-94 JB
11. LOOKING SOUTH AT EP-030X, POND EC 8-2-94 JB
12. CLOSE UP OF EP-030X-4, POND EC 8-2-94 JB

JBEP-7 (CONT.) (144)

13. CLOSE UP OF EP-020XB-2 POND IX 8-3-94 JB
14. LOOKING EAST AT EP-020XB POND IX, 8-3-94 JB
15. CLOSE UP OF EP-022XB-4 POND IX, 8-3-94 JB
16. LOOKING WEST AT EP-022XB POND IX, 8-3-94 JB
17. CLOSE UP OF EP-022XB-2, POND IX, 8-3-94 JB
18. CLOSE UP OF EP-023XB, POND IX, 8-3-94 JB
19. LOOKING EAST AT EP-023XB POND IX, 8-3-94 JB
20. CLOSE UP OF EP-023XB-4 POND IX, 8-3-94 JB
21. LOOKING NORTH AT EP-013A POND 6, 8-3-94 JB
22. LOOKING SOUTH AT EP-014A POND 6 8-3-94 JB

(145) JBEP-8

1. LOOKING SE AT EP-004XB, POND 7
8-5-94 JB
2. CLOSE UP OF EP-004XB-2, POND 7
8-5-94 JB
3. CLOSE UP OF EP-004XB-4, POND 7
8-5-94 JB
4. CLOSE UP OF EP-039X-2, POND F
8-8-94 JB
5. LOOKING NE AT EP-039X, POND F
8-8-94 JB
6. CLOSE UP OF EP-040X-2, POND F
8-8-94 JB
7. LOOKING SOUTH AT EP-040X,
POND F 8-8-94 JB
8. CLOSE UP OF EP-040X-4, POND F
8-8-94 JB
9. CLOSE UP OF EP-039X-4, POND F
8-8-94 JB
10. CLOSE UP OF EP-037X-4, POND F
8-8-94 JB
11. LOOKING SOUTH AT EP-037X,
POND F, 8-8-94 JB
12. CLOSE UP OF EP-037X-2, POND F
8-8-94 JB
13. CLOSE UP OF EP-038X-2, POND F
8-8-94 JB

JBEP-8 (CONT.) (146)

14. CLOSE UP OF EP-038X-4, POND F
8-8-94 JB
15. LOOKING SOUTH AT EP-038X
8-8-94 JB POND F.
16. CLOSE UP OF EP-036X-4,
POND F, 8-8-94 JB
17. CLOSE UP OF EP-036X-2, POND F
8-8-94 JB
18. LOOKING SOUTH AT EP-036X,
POND F 8-8-94 JB
19. CLOSE UP OF EP-035X-4, POND F
8-8-94 JB
20. ~~CLOSE~~ LOOKING NW AT EP-035X,
POND F, JB 8-8-94
21. CLOSE UP OF EP-035X-2, POND F,
8-8-94 JB
22. CLOSE UP OF EP-034X-2,
POND F, 8-8-94 JB
23. LOOKING SOUTH AT EP-034X
POND F, 8-8-94
24. CLOSE UP OF EP-042X,
BORROW AREA, 8-9-94 JB

~~27. CLOSE UP OF EP-042X BORROW AREA, 8-9-94 JB~~

(147) JBEP-9

1. LOOKING SOUTH AT EP-042X, TRENCH EPB-7, BORROW AREA. 8-9-94 JB
2. CLOSE UP OF EP-042X, TRENCH EPB-7 BORROW-AREA, 8-9-94 JB
3. LOOKING SOUTH AT EP-043X, TRENCH EPB-6, BORROW AREA 8-9-94 JB
4. CLOSE UP OF EP-043X, TRENCH EPB-6, BORROW AREA, 8-9-94 JB
5. LOOKING SOUTH AT EP-044X, TRENCH EPB-5 BORROW AREA, 8-9-94 JB
6. CLOSE UP OF EP-044X, TRENCH EPB-5 BORROW AREA, 8-9-94 JB
7. LOOKING SOUTH AT EP-045X, TRENCH EPB-4, BORROW AREA, 8-9-94 JB
8. CLOSE UP OF EP-045X, TRENCH EPB-4 BORROW AREA 8-9-94 JB
9. LOOKING SE AT EP-046X, TRENCH EPB-3, 8-9-94 JB BORROW AREA
10. CLOSE UP OF EP-046X, TRENCH EPB-3 8-9-94 JB BORROW AREA.
11. LOOKING EAST AT EP-047X, TRENCH EPB-2, 8-9-94 JB BORROW AREA
12. CLOSE UP OF ~~EPB~~ EP-047X, TRENCH EPB-2, 8-9-94 JB BORROW AREA.

JBEP-9 (148)

13. LOOKING EAST AT EP-048X, TRENCH EPB-1, 8-9-94 JB BORROW
14. CLOSE UP OF EP-048X, TRENCH EPB-1 8-9-94, JB BORROW
15. LOOKING EAST AT EP-049X, CONSOLIDATED FOOTPRINT. 8-17-94 JB
16. CLOSE UP OF EP-049X-1, CON. FOOT. 8-17-94 JB
17. LOOKING NORTH AT EP-050X, CONSOLIDATED FOOTPRINT. 8-17-94 JB
18. CLOSE UP OF EP-050X-1, CON. FOOT 8-17-94 JB
19. CLOSE UP OF EP-052X-1, C.F. 8-17-94 JB
20. LOOKING NE AT EP-052X C.F. 8-17-94
21. CLOSE UP EP-053X-1, C.F. 8-17-94 JB
22. LOOKING NORTH AT EP-053X C.F. 8-17-94 JB
23. LOOKING NE AT EP-051X C.F. JB 8-17-94
24. CLOSE UP OF EP-051X-1 C.F. 8-17-94 JB

(149) JBEP-10

1. CLOSE UP OF EP-061X-2, CONSOLIDATED FOOTPRINT. 8-26-94 JB
2. CLOSE UP OF EP-061X-4, CONSOLIDATED FOOTPRINT. 8-26-94 JB
3. LOOKING NW AT EP-061X, CONSOLIDATED FOOTPRINT. 8-26-94 JB
4. CLOSE UP OF EP-058X-2, CONSOLIDATED FOOTPRINT. 8-26-94 JB
5. LOOKING SE AT EP-058X, CONSOLIDATED FOOTPRINT. 6-26-94 JB
6. CLOSE UP OF EP-064X-2, POND F 8-26-94 JB
7. CLOSE UP OF EP-064X-4, POND F 8-26-94 JB
8. LOOKING NORTH AT EP-064X POND F JB
9. CLOSE UP OF EP-064X-4, POND F 8-26-94 JB
10. LOOKING SE AT EP-065X, POND 6 8-30-94 JB
11. CLOSE UP OF EP-065X-2, POND 6 8-30-94 JB
12. CLOSE UP OF EP-065X-4, POND 6 8-30-94 JB
13. LOOKING NW AT EP-066X, POND 6 8-30-94 JB

JBEP-10 CONT. (150)

14. CLOSE UP OF EP-066X-2, POND 6 8-30-94 JB
15. CLOSE UP OF EP-066X-4, POND 6 8-30-94 JB
16. LOOKING NW AT EP-067X, POND 6 8-30-94 JB
17. CLOSE UP OF EP-067X-4, POND 6 8-30-94 JB
18. CLOSE UP OF EP-067X-2, POND 6 8-30-94 JB
19. CLOSE UP OF EP-015A, BORROW AREA 8-31-94 JB
20. CLOSE UP OF EP-017A, BORROW AREA 8-31-94 JB
21. LOOKING SOUTH AT EP-062X, CONSOLIDATED FOOTPRINT, 9-1-94, JB
22. CLOSE UP OF EP-062X-2, C.F., 9-1-94 JB
23. CLOSE UP OF EP-062X-4, C.F. 9-1-94 JB
24. LOOKING SOUTH AT EP-063X C.F. 9-1-94 JB
25. CLOSE UP OF EP-063X-2 C.F., 9-1-94 JB
26. CLOSE UP OF EP-063X-4 C.F. 9-1-94 JB

MEASUREMENT CONVERSIONS

INCH CM

IF YOU KNOW	MULTIPLY BY	TO FIND
LENGTH		
inches	2.540	centimeters
feet	30.480	centimeters
yards	0.914	meters
miles	1.609	kilometers
millimeters	0.039	inches
centimeters	0.393	inches
meters	3.280	feet
meters	1.093	yards
kilometers	0.621	miles
WEIGHT		
ounces	28.350	grams
pounds	0.453	kilograms
grams	0.035	ounces
kilograms	2.204	pounds
VOLUME		
fluid ounces	29.573	milliliters
pints	0.473	liters
quarts	0.946	liters
gallons (U.S.)	3.785	liters
milliliters	0.033	fluid ounces
liters	1.056	quarts
liters	0.264	gallons (U.S.)

TEMPERATURE

°C = (°F - 32) x .555
°F = (°C x 1.8) + 32

Inches	Decimals of foot	Millimeters
1/16	.0052	1.5875
1/8	.0104	3.1750
3/16	.0156	4.7625
1/4	.0208	6.3500
5/16	.0260	7.9350
3/8	.0313	9.5250
1/2	.0417	12.700
5/8	.0521	15.875
3/4	.0625	19.050
7/8	.0729	22.225
1"	.0833	25.400
2"	.1667	50.800
3"	.2500	76.200
4"	.3333	101.60
5"	.4167	127.00
6"	.5000	152.40
7"	.5833	177.80
8"	.6667	203.20
9"	.7500	228.60
10"	.8333	254.00
11"	.9167	279.40
1 foot	1.0000	304.80

EP-FN-JWB-002

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

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PLANT PROJECTS GROUP
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BINGHAM CANYON, UT. 84006
Phone 801-569-7029

Project SOUTH JORDAN EVAPORATION PONDS

"Rite in the Rain" - a unique all-weather writing surface created to attract water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

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① 1-11-95 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POST RECLAMATION SAMPLING

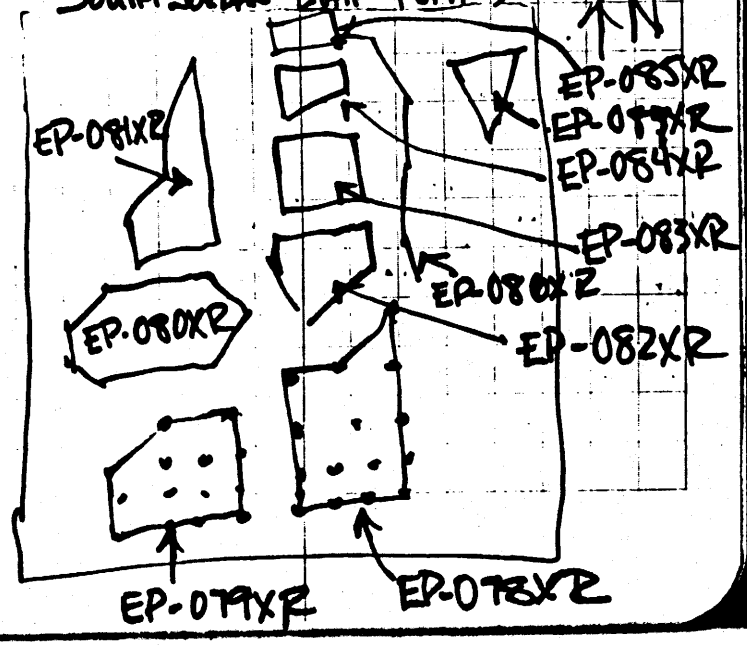
SAMPLING SUMMARY:

A TOTAL 10 COMPOSITE SAMPLES WILL BE COLLECTED FROM THE SOUTH JORDAN EVAPORATION PONDS RECLAMATION AREA. ALL AREAS IN WHICH SOILS WERE REMOVED AND CLEAN FILL MATERIAL WAS IMPORTED WILL BE SAMPLED. IN ADDITION, 4 OF THE 10 SAMPLES WILL BE COLLECTED FROM THE CAP MATERIAL USED WITHIN THE CONSOLIDATION AREA. COMPOSITE SAMPLES WILL RANGE FROM 7-POINT TO 21-POINT DEPENDING UPON THE SIZE OF THE AREA. AREAS TO BE SAMPLED INCLUDE: PONDS 1-7, POND 1X, POND A5, POND D, POND F AND THE AREA INCLUDING THE SEEPAGE PONDS AND EAST SIDE COLLECTION POND.

1-11-95 JOHN BIRKINSHAW
SAMPLING SUMMARY: CONT. ②

ALL SAMPLES WILL BE COLLECTED AS COMPOSITES WITH AN EQUAL QUANTITY BEING COLLECTED FROM EACH SUBSITE. SUBSITES WILL BE SAMPLED FROM 0-4". ALL SUBSITES WILL BE SURVEYED IN BY PPC SURVEYERS PRIOR TO SAMPLE COLLECTION. SAMPLE ID'S WILL INCLUDE AN "R" AT THE END OF THE POST REMOVAL ID TO DENOTE A POST RECLAMATION SAMPLE.

SOUTH JORDAN EVAP PONDS



(3) 1-11-95 JOHN BIRKINSHAW

PROJECT: SOUTH JORDAN EVAPORATION PONDS - POST RECLAMATION SAMPLING:

WEATHER: PARTLY CLOUDY, WINDY, COOL

13:00 BEGIN COLLECTING EP-078XR
16-POINT COMPOSITE
4 OZ. COLLECTED FROM EACH SUBSITE, 0-4"

SAMPLE DESCRIPTION: EP-078XR
PREDOMINATELY DARK BROWN SITY LOAM W/ MODERATE ORGANIC MATERIAL. ISOLATED ZONES OF INCREASED CLAY CONTENT. VERY MOIST FOLLOWING RAIN & SNOW STORMS.
AREAS OF SITY GRAVEL W/ MINOR CLAY. GRAVELS FROM 1/4" - 1". BROWN TO DARK BROWN SILT. MINOR ORGANIC MATERIAL MIX/TILLED INTO GRAVELS.

1-11-95 JOHN BIRKINSHAW (4)

POST RECLAMATION SAMPLING:

14:00 BEGIN COLLECTING EP-079XR
- 15 POINT COMPOSITE
- 4 OZ. COLLECTED FROM EACH SUBSITE. 0-4"

SAMPLE DESCRIPTION: EP-079XR
CLAYEY SILTY LOAM AND SITY GRAVEL. BROWN TO DARK BROWN SILT AND CLAY, MOIST. GRAVELS FROM 1/4 - 1" IN DIAMETER. MINOR TO MODERATE ORGANIC MATERIAL MIXED INTO SEDIMENTS THROUGHOUT AREA.

(5) JOHN BIRKINSHAW 1-12-95

PROJECT: SOUTH JORDAN EVAPORATION POND
AREA: POST RECLAMATION SAMPLING
WEATHER: PARTLY CLOUDY, WINDY, COOL

13:15 BEGIN COLLECTING EP-080XR
20-POINT COMPOSITE *
4 oz. COLLECTED FROM EACH SUBSITE
0-4" - SAMPLE INTERVAL

SAMPLE DESCRIPTION:
CLAYEY SILTY LOAM WITH AREAS OF SILTY GRAVEL. BROWN TO DARK BROWN SILT AND CLAY, GRAVELS FROM 1/2" - 1". SOILS VERY MOIST FROM SNOW AND RAIN,

14:30 BEGIN COLLECTING EP-081XR
21-POINT COMPOSITE
4 oz. COLLECTED FROM EACH SUBSITE, 0-4" SAMPLE INTERVAL.

SAMPLE DESCRIPTION.
CLAYEY SILTY LOAM WITH AREAS OF SILTY GRAVEL. BROWN TO DARK BROWN FINES. GRAVELS FROM 1/2"-2".

*SUBSITES 1-13 COLLECTED 1-12-95
COLLECTION HAULTED DUE TO DARKNESS

JOHN BIRKINSHAW 1-18-95 (6)

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POST RECLAMATION SAMPLING
WEATHER: PARTLY CLOUDY, 4" SNOW ON GROUND.

11:00 CONTINUE COLLECTING EP-081XR
-SUBSITES: 14-21

SAMPLE DESCRIPTION:
BROWN TO DARK BROWN SILTY LOAM WITH MINOR CLAY AND GRAVEL. ISOLATED TAN TO BROWN SILTY SAND. FINE TO MEDIUM GRAIN.
- CLOSE UP PHOTOS TAKEN. AREA VIEWS WILL BE PHOTOGRAPHED FOLLOWING SNOW MELT.

12:00 BEGIN COLLECTING EP-084XR
8-POINT COMPOSITE
8 oz. COLLECTED FROM EACH SUBSITE, 0-4" SAMPLE INTERVAL.

SAMPLE DESCRIPTION:
CLAYEY SILTY LOAM WITH MINOR TO MODERATE GRAVEL. MODERATE ORGANICS. BROWN TO DARK BROWN.

(7) JOHN BIRKINSHAW 1-18-95

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POST RECLAMATION SAMPLING
WEATHER: PARTLY CLOUDY, 4" SNOW ON GROUND

13:00 BEGIN COLLECTING EP-085XR
13-POINT COMPOSITE
6 OZ. COLLECTED FROM EACH SUBSITE
0-4" SAMPLE INTERVAL

SAMPLE DESCRIPTION:
CLAYEY SILTY LOAM ~~WA~~ WITH GRAVEL. MINOR SILTY SAND. BROWN TO DARK BROWN, VERY MOIST. MINOR ORGANIC MATERIAL.

14:30 BEGIN COLLECTING EP-086XR
11-POINT COMPOSITE
6 OZ. COLLECTED FROM EACH
0-4" SAMPLE INTERVAL

SAMPLE DESCRIPTION: {SUBSITES: 6-11}
BROWN TO DARK BROWN SILTY LOAM w/ MINOR GRAVEL. ISOLATED AREAS OF SILTY GRAVEL. MODERATE ORGANIC MATERIAL.

JOHN BIRKINSHAW 1-18-95 (8)

15:30 BEGIN COLLECTING EP-087XR
7-POINT COMPOSITE
8 OZ. COLLECTED FROM EACH SUBSITE
0-4" SAMPLE INTERVAL.

SAMPLE DESCRIPTION:
DARK BROWN TO BROWN, MOIST SILTY LOAM WITH MINOR ISOLATED GRAVEL. MINOR TO MODERATE ORGANIC MATERIAL.

16:10 BEGIN COLLECTING EP-083XR
9-POINT COMPOSITE
6 OZ. COLLECTED FROM EACH SUBSITE
0-4" SAMPLE INTERVAL

SAMPLE DESCRIPTION:
DARK BROWN TO BROWN, MOIST, SILTY LOAM AND BROWN SILTY GRAVEL. MINOR TO MODERATE ORGANIC MATERIAL. GRAVELS FROM 1/2" - 2" IN DIAMETER.

(9) JOHN BIRKINSHAW 1-18-95

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POST RECLAMATION SAMPLING
WEATHER: PARTLY CLOUDY, 4" OF SNOW ON GROUND

16:45 CONTINUE COLLECTING EP-086XR
- SUBSITES: 1-5
6 OZ. COLLECTED FROM EACH SUBSITE
0-4" SAMPLE INTERVAL

SAMPLE DESCRIPTION:
SILTY SANDY GRAVEL, TAN TO BROWN, FINE TO MEDIUM GRAIN SAND. GRAVELS FROM 1/2" - 1". MODERATE TO ABUNDANT ORGANIC MATERIAL, WEEDS & WINTER WHEAT.

JOHN BIRKINSHAW 1-19-95 (10)

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: POST RECLAMATION SAMPLING
WEATHER: CLEAR, 4" SNOW ON GROUND

12:00 BEGIN COLLECTING EP-087XR
7-POINT COMPOSITE
8 OZ. COLLECTED FROM EACH SUBSITE
0-4" SAMPLE INTERVAL

SAMPLE DESCRIPTION:
BROWN TO DARK BROWN SILTY LOAM WITH CLAY, SAND AND GRAVEL. MINOR TO MODERATE ORGANIC MATERIAL. GRAVELS FROM 1/2 - 1".

(11) JOHN BIRKINSHAW 1-27-95

PROJECT: SOUTH JORDAN EVAPORATION PONDS
AREA: 10400 SOUTH RIGHT OF WAY ROAD CUT
- BACK FILL, POST RECLAMATION SAMPLE.

SAMPLING SUMMARY:
ONE COMPOSITE SAMPLE WILL BE COLLECTED FROM THE MATERIAL USED TO BACKFILL THE 10400 SOUTH RIGHT OF WAY ROAD CUT. THE RIGHT OF WAY HAS BEEN BACKFILLED AND BROUGHT UP TO GRADE. A TRENCH HAS BEEN CUT DOWN THE CENTERLINE OF THE RIGHT OF WAY TO ACCOMADATE A 36" HDDE PIPE. SAMPLE SUBSITE WILL BE LOCATED APPROXIMATELY 6 FEET SOUTH OF THE TRENCH DESCRIBED ABOVE. SAMPLE SUBSITES WILL BE LOCATED 500' APART ON A EAST/WEST TREND OFFSET FROM THE CENTERLINE OF THE RIGHT OF WAY. SAMPLE SUBSITES WILL BE WALKED OFF AND SURVEYED FOLLOWING SAMPLE COLLECTION. SAMPLE SUBSITES WILL BE SAMPLED FROM 0-4".

JOHN BIRKINSHAW 1-27-95 (12)

AREA: 10400 SOUTH RIGHT OF WAY ROAD CUT

12:15 BEGIN COLLECTING EP-088XR
- 10 POINT COMPOSITE
6 OZ. COLLECTED FROM EACH SUBSITE
0-4" SAMPLE INTERVAL

SAMPLE DESCRIPTION: EP-088XR
BROWN SILTY SAND, MEDIUM TO COARSE GRAIN. SANDY GRAVEL, BROWN SAND WITH GRAVELS FROM 1/2-1".