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SITE INSPECTION REPORT FOR NU-WEST INDUSTRIES CONDA PLANT CARIBOU, IDAHO

TDD F10-8702-08

Report Prepared by: Ecology and Environment, Inc.
Date: March 1988

Submitted to: J.E. Osborn, Regional Project Officer
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U.S. Environmental Protection Agency
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SITE INSPECTION REPORT
NU-WEST INDUSTRIES CONDA PLANT
CONDA, IDAHO
TDD F10-8702-08

Site Name/Address

Nu-West Industries Conda Plant
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Conda, ID 83230

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Date of Investigations

March 24, 1987 0900 - 1430 hours

Dates of Sampling

July 27 to August 3, 1987

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ABSTRACT

Under U.S. Environmental Protection Agency (EPA) Technical Directive Document (TDD) F10-8702-08, a file review and site inspection was conducted of the Nu-West Industries Phosphate Plant, Conda, Idaho, to evaluate the facility's status within the Agency's Uncontrolled Hazardous Waste Site Program. As a result of this inspection, six ground-water samples, five waste samples (liquid and solid fractions), and two sediment samples were collected. The samples were analyzed for EPA Target Compound List (TCL) parameters, and four anions (chlorides, fluoride, phosphate, and sulfate) to determine the presence and concentrations of TCL compounds in local ground water, the characteristics of wastes stored on the site, and the potential for the site to affect human health or environmental quality in the area.

The results of the inspection indicate that hazardous substances exist on site and have potential to be released into the environment. Although contaminant plumes in ground water were not detected beneath the site at the time of E&E's sampling, information collected during the study indicates that past releases from the site have adversely affected local water quality conditions and that the potential exists for similar occurrences in the future.

1.0 INTRODUCTION

The Nu-West Industries Conda Plant, formerly owned by Beker Industries, is an active facility in Caribou County, Idaho. The site has been identified by the United States Environmental Protection Agency (EPA) from preliminary screening as requiring additional information to accurately profile the nature and extent of past waste disposal activity at the site. Ecology and Environment, Inc. (E&E), has been requested by the EPA under Contract Number 68-01-7347, and Technical Directive Document Number F10-8702-08 to conduct a Site Inspection (SI) of the property. The SI was intended to evaluate the existence and nature of potential hazardous waste contamination at the site alleged in a Preliminary Assessment completed by the Idaho Hazardous Materials Bureau in 1985.

An EPA Site Inspection represents the last phase of a three-step process designed to identify and rank actual or potential public health and environmental threats associated with a particular site relative to other sites across the nation. The SI specifically is intended to gather sufficient data, supplemental to that gathered during Site Discovery and Preliminary Assessment activities, to prioritize sites for additional work and guide decision makers in ascertaining the scope of such work. The SI is not intended to provide complete environmental characterization of a site.

The Nu-West plant processes phosphate ore and phosphate fertilizers. A number of waste streams are produced from the plant processes, and are stored in on-site waste disposal ponds. EPA has raised concerns over the potential off-site migration of hazardous substances stored at the facility.

This document is a compilation of data gathered during the investigation of the Nu-West Industries Site. Information pertaining to ownership history, environmental setting, and operations of the site are included in this report, as is information developed during field sampling and site characterization activities. Information collected during the inspection is summarized on EPA form 2070-13, in Appendix A.

2.0 OWNER AND OPERATOR HISTORY

The El Paso Natural Gas Products Company purchased the site property in the early 1960s, and constructed a phosphate ore processing plant which was in operation by 1964. Beker Industries purchased the plant and property in 1971. Beker operated the facility until 1985, when operations ceased due to financial reasons (1). On July 24, 1987, Nu-West Industries purchased the plant and property. During the E&E field investigation, the plant was being re-conditioned and prepared for reactivation. Normal operations of the facility commenced in late 1987. The ownership history of the Nu-West Industries Site is presented in Table 1.

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TABLE 1

SITE OWNERSHIP

Owner	Years of Operation	Main Office
Nu-West Industries	07/24/87 to present	8108 Prentice Avenue Inglewood, CO 80111
Beker Industries	1971 to 1987	124 W. Dunam Greenwich, CN
El Paso Natural Gas Products Company	1964 to 1971	P.O. Box 3986 Odessa, TX

3.0 LOCATION

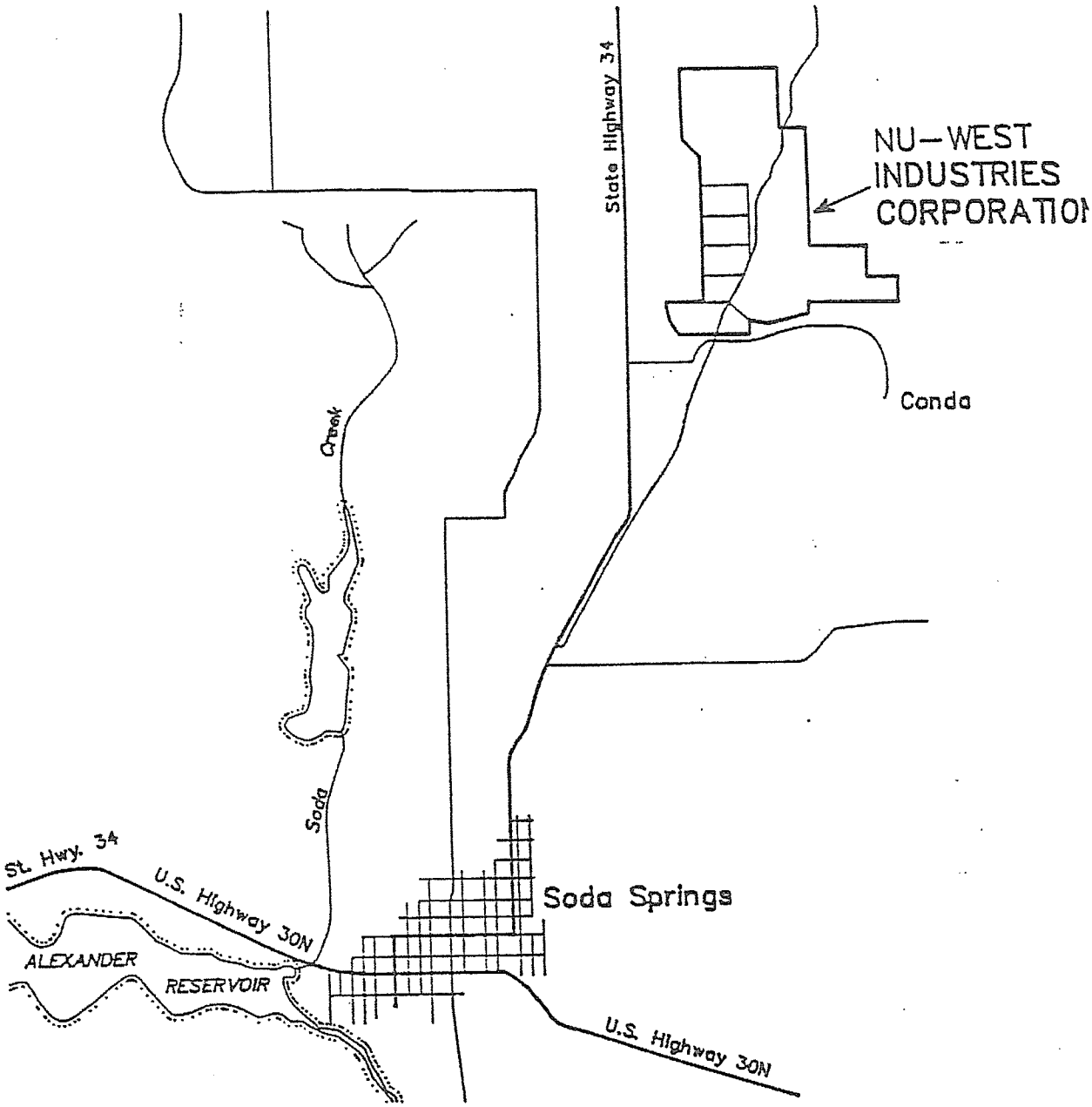
The Nu-West plant is located approximately five miles north of Soda Springs, Idaho, near the abandoned mining town of Conda. The site covers approximately 1,600 acres in Sections 3, 4, 9, 10, 15, and 16 of Township 8 South, Range 42 East of the Boise Meridian, at approximate latitude 42° 41', and longitude 111° 32' (3) (see Figure 1). Site access is gained via the Conda Junction Road, which exits from State Highway 34, five miles north of Soda Springs.

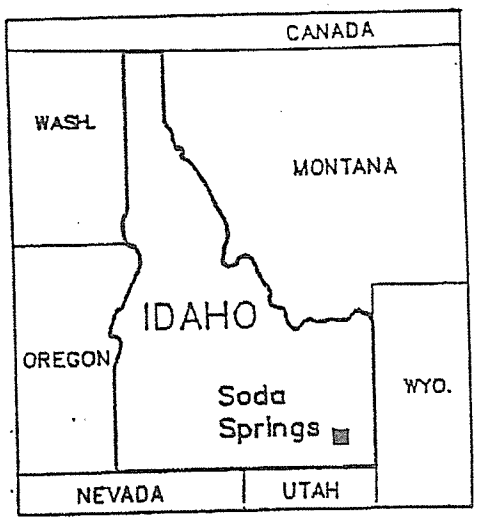
4.0 DESCRIPTION OF SITE AND SURROUNDING AREA

The Nu-West Site is a large, complex facility that includes processing equipment acquired over a period of approximately 10 years (Figure 2). Sub-plants within the facility include sulfuric and phosphoric acid plants, calciners, an ammonia plant, and rock grinding, scrubber, and wash plants. Nu-West formulates and markets phosphate based chemicals and fertilizers. Phosphate ore is mined in the Aspen Range to the east of the site by sub-contractors. Product is shipped from the site primarily by rail (4).

The site is situated in a broad rural valley, near the western base of the Aspen Range (Figure 1). Significant crops in the area include wheat and hay. Several other large industrial complexes are located in the valley. The J.R. Simplot Company operates a phosphate ore mill one mile south of Nu-West, and chemical plants owned by the Monsanto Chemical Company and the Kerr-McGee Chemical Corporation are located approximately four miles southwest of the site.

The largest population center in the site area is the City of Soda Springs, situated five miles south-southwest of the site, with an approximate population of 3,000 people (5). Approximately four people live within a one-mile radius of the Nu-West waste ponds. The mining town of Conda had an approximate population of 300 before its abandonment in 1983 or 1984. Population demographics within a three-mile radius of the Nu-West waste ponds are summarized in Table 2 (3, 6).





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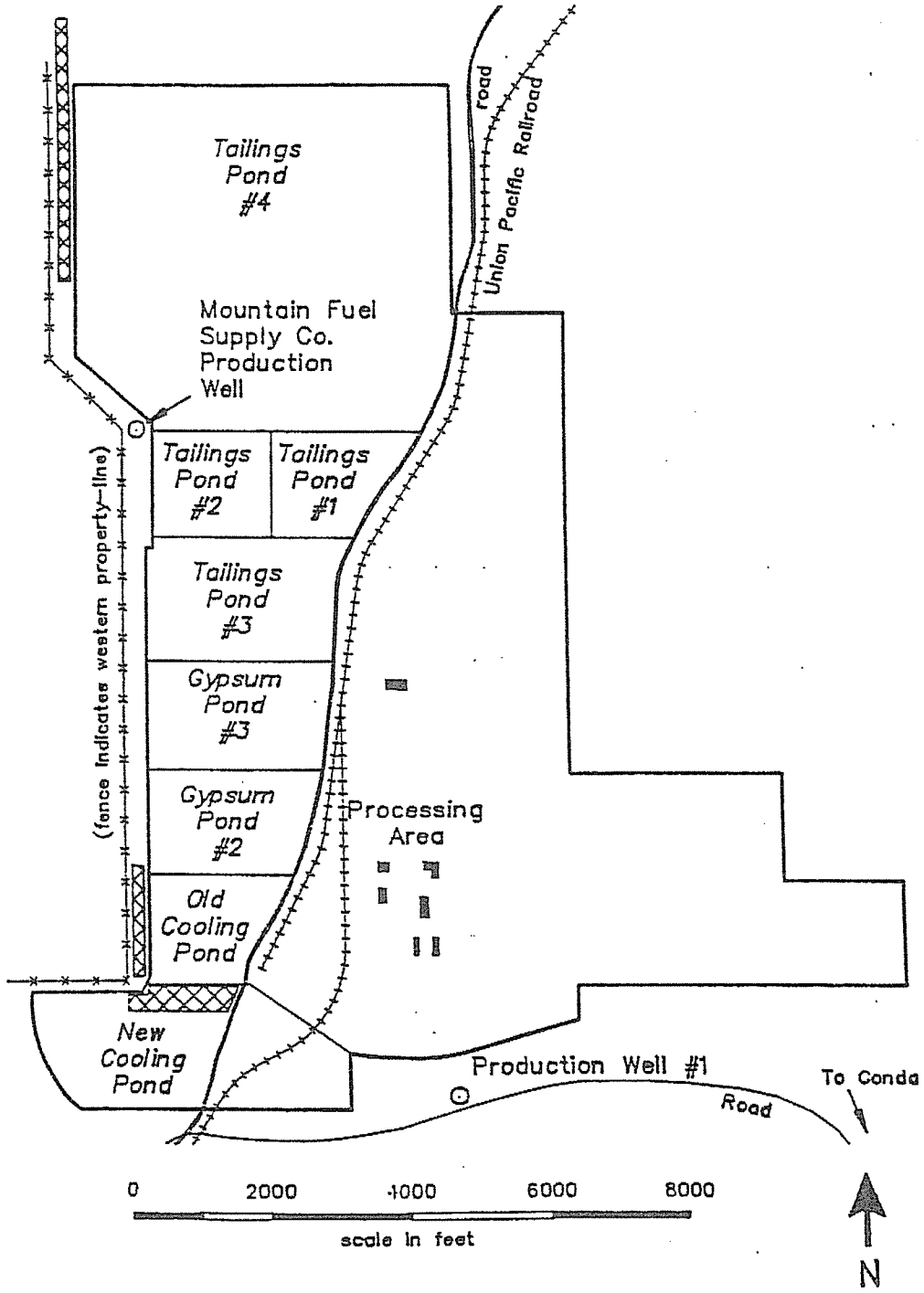
Drawn by: D. P.	Date: Sept. 17, 19

FIGURE 1
LOCATION MAP
NU-WEST INDUSTRIES
Conda, ID



LEGEND

- Facility boundary
- Fence
- Existing production well
- EM survey grid
- Building

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FIGURE 2
SITE MAP WITH ON-SITE WELL AND EM GRID LOCATIONS
NU-WEST INDUSTRIES
Conda, ID

TABLE 2

DEMOGRAPHICS WITHIN THREE MILES

Radial Distance	Demographic Description
On site	Number of employees: 153*
1 mile	Residents: Approx. 4 Buildings: 85
2 miles	Residents: Approx. 27 Buildings: 95
3 miles	Residents: Approx. 76 Buildings: 130

* - At time of E&E field activities.

5.0 TOPOGRAPHY AND DRAINAGE

The site is located in the Bear River Basin of southeast Idaho, which is characterized by broad, flat valleys with base elevations near 6,000 feet above sea level, and northwest trending mountain ranges with relief above the valley floors of 1,000 to 1,500 feet. One such range, the Aspen Range, is located directly east of the Nu-West Site. The headwaters of Soda Creek, the main drainage system in the area, is near Five Mile meadows. The creek flows south to the Alexander Reservoir near the town of Soda Springs (Figure 1).

Storage of large quantities of ore tailings at Nu-West has altered the natural topography in the site area. The tailings and gypsum ponds have been in use since 1964, and presently cover approximately 600 to 700 acres. The gypsum ponds rise as much as 150 feet above the valley floor. Drainage systems decant slurry water off the top of the higher ponds into ponds at lower elevations. The final catch basin for all free surface liquids in the waste pond area is the cooling pond, located in the southwest corner of the site (Figure 2). At the time of the investigation, there appeared to be no outlet from the cooling pond. A new cooling pond, approximately 50 feet lower in elevation, is being constructed south of the old pond.

In March 1976, a dike surrounding a gypsum pond containing free liquids failed and released between 200 and 400 acre-feet of wastewater. The water spread out and ponded on an estimated 50 to 100 acres of farm land. The water then migrated via a natural drainage path, forming a small river that extended four miles to the south. Wastewater reportedly infiltrated local soil and underlying bedrock along its overland migration path, and never entered a natural surface water body (7).

6.0 GEOLOGY AND HYDROLOGY

6.1 Regional Geology and Hydrology

Southeastern Idaho is part of the Basin and Range physiographic province. The Basin and Range province is characterized by northwest-southeast trending high-angle normal faults which have created a series of valleys bounded by isolated mountain ranges (8).

The structure and geology of the site area reflect this characteristic pattern of the Basin and Range. Geologic units in the area range in age from pre-Tertiary to Quaternary, and have a complex structural history. The broad structural basin containing Five Mile Meadows is bordered by the Chesterfield Range on the west and the Aspen Range on the east. The ranges on the east and west sides of the valley are composed of pre-Tertiary and Tertiary rocks. In contrast, the valley floors are mantled by Quaternary/Tertiary volcanic rocks and recent sediments.

The Aspen Range is composed dominantly of pre-Tertiary sandstones, conglomerates, limestones, dolomites, cherts, shales, and quartzites. These units have been extensively folded and faulted. Included in this sequence is the Permian Phosphoria Formation that is mined locally for use in phosphate manufacturing.

The Tertiary rocks of the Salt Lake Formation are exposed mainly in the Chesterfield Range. This unit consists of fresh water limestones, tufaceous sandstones, and conglomerates. The Salt Lake Formation yields varying amounts of water that is used locally for domestic and stock wells (9).

Tertiary and/or Quaternary basalt flows cover most of the valley floors in the area. Locally, the basalt is covered by recent alluvial sediments and/or soil. The basalt flows are generally dark-gray in color with a vesicular texture. The flows originated from local vents and, near these source areas, are rubbly and scoriaceous. The total thickness of the flow sequence varies from less than 50 feet near the margins where they contact older rocks to a maximum thickness estimated to be as much as 1,000 feet. A series of fault scarps trending west-of-north exist within the valley north of Soda Springs. The scarps are marked by extensive zones of fractured, rubbly basalt (10).

The basalt flows are the major source of ground water in the area. The most productive aquifers are zones between flows where the rubbly flow-tops are porous.

A system of springs have precipitated large deposits of Quaternary-age travertine or tufa in the area around Soda Springs. The white- to buff-colored deposits of calcium carbonate are rich in iron and manganese. High concentrations of these minerals in some local spring waters make the water undesirable for domestic use. The tufa beds are locally interbedded with the basalt flows.

Recent sediments mantle much of the land surface at lower elevations in the Soda Springs area. These generally unconsolidated silts, sands, and gravels represent deposition along stream channels, as well as slopewash

and landslide deposits. The recent sediments include terrace and bench deposits from former levels of Bear Lake, which is located approximately seven miles south of the site area at the head of the Bear River. Former levels of the lake stood as much as 30 feet above the present lake elevation. The alluvial material yields variable amounts of water that is utilized primarily by domestic and stock wells (9).

The direction of ground-water movement in the Soda Creek Basin is generally to the west-southwest (9). This pattern is locally affected by the northwest-southeast trending normal faults that exist in the area (10). The faults serve as conduits for the movement of ground water and cause local changes in the vertical and/or horizontal patterns of flow.

The most important sources of recharge to aquifers in the area are via infiltration of precipitation and seepage from streams near the valley sides. An additional source of recharge to the basalt aquifer is by leakage from the Blackfoot Reservoir.

Construction of the Blackfoot Reservoir had a dramatic affect on the water table in the Soda Creek Basin. After construction of the reservoir in 1910, the Five Mile Meadows area located seven miles to the south was transformed from productive crop land to marsh land. In addition, the flow volumes of Soda Creek, which drains the central portion of the basin, reportedly doubled as a result of the elevated ground-water levels (9).

6.2 Site-Specific Geology

The site is located at the eastern margin of the Blackfoot Lava Field. Bedrock beneath the site is basalt of Tertiary and/or Quaternary Age. In the eastern portion of the Soda Creek Basin, the basalt is overlain by five to 25 feet of recent sediments. Logs of six wells on site and nine wells within 1.5 miles of Nu-West indicate that the total thickness of the basalt in the site area ranges from 45 to greater than 230 feet. The basalt is generally thinnest near the base of the Aspen Range, and increases to the west toward the center of the basin.

The basalt unit is composed of a series of flows separated by zones of cinders and broken basalt, with local accumulations of clay and travertine. The individual basalt flows range from five to 40 feet in thickness. The inter-flow zones range in thickness from three to 15 feet.

To the southeast of the site in the Conda area, the bedrock is pre-Tertiary limestone and chert. Along the base of the Aspen range to the north and south of the site are local deposits of Travertine.

6.3 Site-Specific Hydrology

The highly fractured basalt unit is the most productive aquifer in the site area. Wells completed in the basalt (including the MF well and Simplot #10) generally yield greater than 1,000 gallons per minute. The depth to water in the basalt aquifer ranges from 35 feet below ground surface east-southeast of the site, to 175 feet below ground surface directly west of the site.

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Wells in the Conda area and in the foothills adjacent to the site (including Production Well #1 and Simplot #11) draw water from pre-Tertiary sediments. The depth to water in these wells ranges from 40 to 97 feet below ground surface.

7.0 WATER USE

7.1 Surface Water

The nearest surface water to the Nu-West site is Soda Creek, located 2.5 miles to the west (see Figure 1). There are no registered surface water intakes within three miles of the site, although Soda Creek is used for irrigation and stock water in other areas (upstream and downstream). Soda Creek flows south to the Alexander Reservoir, which is used primarily for recreation (boating and fishing), and hydro-electric power generation.

7.2 Ground Water

Ground water in the Nu-West Site area is used for domestic and public drinking supplies, irrigation, and industrial purposes. Private and public supplies within three miles of the site serve a population of approximately 3,072 (Table 3) (11).

The City of Soda Springs Water Department distributes water to all residences inside the city limits. This water is obtained from two natural springs located north of the city. One of the springs, Formation Springs, is located within three miles of the Nu-West Site. Both springs are assumed to be hydrologically upgradient of the Nu-West Site.

There are seven registered domestic wells within a three mile radius of the Nu-West Site, serving an estimated 27 people. Total depths of these wells range between 90 feet to 245 feet below the ground surface. Eleven registered industrial production wells exist on and near the Nu-West site, one of which provides drinking water for approximately 45 J.R. Simplot employees in Conda (Simplot #11) (12). At the time of the E&E site inspection, Nu-West employees consumed bottled water due to the poor water quality of the only well in use at the site (MF well). All other industrial wells in the vicinity (five Nu-West, three Simplot) were not in operation. J.R. Simplot wells #7, #8, and #10 are not in use due to poor water quality, which has included high levels of iron, sulfate, nitrate, and bacteria (6). Table 3 summarizes ground water use within three miles of the Nu-West site.

TABLE 3

GROUND WATER USE WITHIN THREE MILES
OF THE NU-WEST INDUSTRIES CONDA PLANT

Owner/ Designation	Type of Well	Use	Depth (bgs)	Approximate Population Served (1)
Nu-West/unknown	Industrial	not in use	250'	0
Nu-West/unknown	Industrial	not in use	200'	0
Nu-West/#5	Industrial	not in use	272'	0
Nu-West/#2	Industrial	not in use	250'	0
Nu-West/MF Supply (2)	Industrial	plant supply	250'	0
Nu-West/#1 (2)	Industrial	plant back up	280'	0
Agricultural Products Co.	Industrial	unknown	300'	Unknown
Simplot #7	Industrial	not in use	260'	0
Simplot #11 (2)	Industrial/ drinking	plant/drinking supply	180'	45
Simplot #10 (2)	Industrial	plant back up	220'	0
Simplot #8	Industrial	not in use	300'	0
Torgesen (2)	Domestic	Drinking/Private	245'	3.8
Vandegriff	Domestic	Drinking/Private	125'	3.8
Porter	Domestic	Drinking/Private	117'	3.8
Maughn	Domestic	Drinking/Private	134'	3.8
Nelson (2)	Domestic	Drinking/Private	137'	3.8
Vonberg	Domestic	Drinking/Private	90'	3.8
Larson	Domestic	Drinking/Private	100'	3.8
City of Soda Springs/ Formation Springs	Natural Spring	Municipal Supply	N/A	3,000
			TOTAL	3,072

(1) 3.8 persons per domestic well is used as an estimated population per EPA's Hazard Ranking System guidance.

(2) Indicates wells sampled as part of the Nu-West Industries SI.

8.0 CLIMATE

Southeastern Idaho has a semiarid climate that is characterized by hot summers and cold winters. A National Weather Service weather station is located in Conda, and reports approximately 19 inches of precipitation annually, with June having the highest monthly precipitation (2.15 inches) and July having the lowest monthly precipitation (0.78 inches). Average annual lake evaporation in the area is 35 inches, yielding a net precipitation deficit of 16 inches annually. One year, 24-hour maximum rainfall for Soda Springs is 1.06 inches (12).

9.0 OVERVIEW OF SITE OPERATIONS

The phosphate processing industry includes a wide variety of manufacturing segments which produce such commodities as phosphoric acid, elemental phosphorous, concentrated superphosphates, and ammoniated phosphates. Industry products can be separated into two major use categories: agricultural and industrial. Approximately 90% of phosphate processing products are used for agricultural purposes with fertilizers accounting for the majority (13).

The Nu-West facility is a typical phosphate processing plant which produces concentrated phosphoric acid (superphosphoric acid, 72% P_2O_5) and diammonium phosphate (DAP). DAP is used in the formulation of fertilizer. A generalized flow diagram of the processes employed at the Nu-West Site is presented in Figure 3. Because the Nu-West facility is located in a relatively non-industrialized area, feedstocks used in the plant processes must be manufactured on site. Feedstock production sub-plants include two sulfuric acid plants, and an ammonium plant. A summary of all sub-plants at the facility is provided in Table 4 (13).

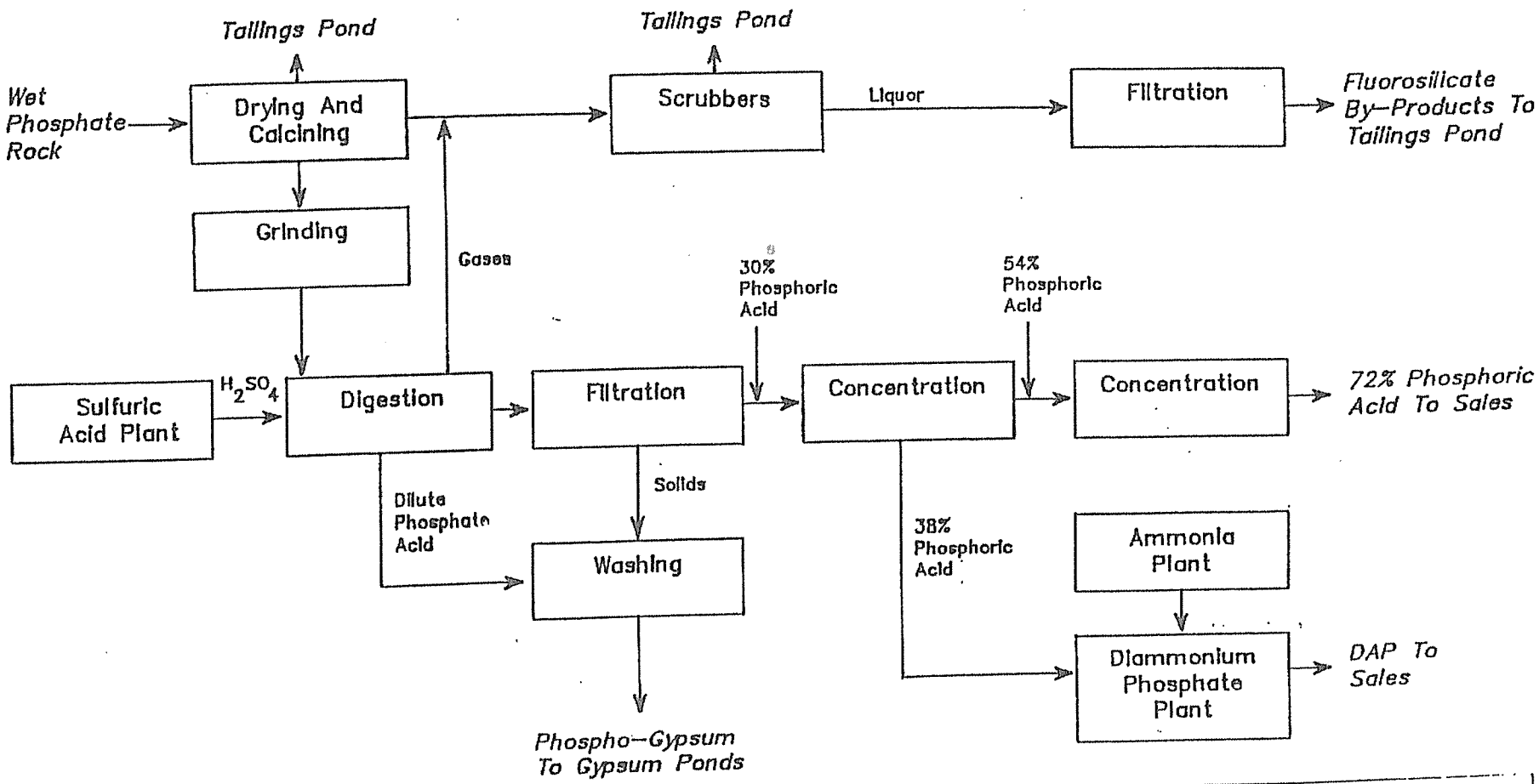
The Nu-West Industries facility employs the wet process for converting phosphate rock into phosphoric acid. The wet process involves the acidulation of the rock. To produce phosphoric acid, four primary unit operations are utilized: raw material feed preparation, rock digestion, filtration, and concentration (see Figure 3). Nu-West uses further processes to produce super phosphoric acid and diammonium phosphate. A variety of waste streams are produced at different stages within each process, and are discussed in section 10.0.

10.0 CHARACTERISTICS OF POTENTIAL CONTAMINANT SOURCES

The Nu-West facility generates two major waste streams: ore tailings, and phospho-gypsum (gypsum). Additional wastes generated at the facility include scrubber residuals, cooling water, and waste oil. Hazardous materials stored on-site include: solvents (55 gallons), sulfuric acid (800 tons), phosphoric acid (200 tons), ammonia (100 tons), and 14 to 20 transformers containing oil contaminated with polychlorinated biphenyls (PCBs) (4).

10.1 Ore Tailings

Ore tailings originate from mechanical processing in the wash plant, and consist of the finer clay portions of raw ore. The tailings are slurried to the tailings ponds with recycled wash water. No analyses of the ore used at the Nu-West facility are available. However, several tailings samples were analyzed in the past for Extraction Procedure (EP) Toxicity by Beker Industries. The results are summarized in Table 5. None of the leachate concentrations from the tailings exceeded EP Toxicity criteria for hazardous waste.



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Job: F10-8702-08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 4, 1987

FIGURE 3
GENERALIZED FLOW DIAGRAM OF WET PROCESS PHOSPHORIC ACID PRODUCTION (PED CO., 1985)
NU-WEST INDUSTRIES
Conda, ID

TABLE 4

SUMMARY OF SUB-PLANTS AT
NU-WEST INDUSTRIES, CONDA, IDAHO

Sub-Plant Processing Equipment	Year Constructed	Operating Company at Time of Installation	Comments
El Paso Calciner	1965	El Paso Natural Gas	• Avg. Capacity 530,000 tons/yr., 1974-1977
Rock Grinding Facilities			• Ore preparation
West Sulfuric Acid Plant			• Avg. Capacity 256,000 tons/yr., 100% Sulfuric Acid
Phosphoric Acid Plant			• Avg. Capacity 218,000 tons/yr., 1974-1977
Superphosphoric Acid Plant			• 45,116 tons/yr., in 1977; 72% P_2O_5
Diammonium Phosphate (DAP) Plant			
Wash Plant	1967	Mountain Fuel Supply Co.	• Removes clay and sand from ore.
MF Calciner			• Avg. Capacity 390,000 tons/yr., 1974-1977
East Sulfuric Acid Plant	1973	Beker Industries	• Avg. Capacity 298,000 tons/yr., 100% sulfuric Acid
Ammonia Plant	1974	Beker Industries	• Avg. Capacity 61,000 tons/yr., 1975-1977
Central Farmers Calciner	1975	Beker Industries	• Avg. Capacity 40,000 tons/yr., 1975-1977

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TABLE 5

LEACHATE CHARACTERISTICS OF TAILINGS (4)

Substance	EP Toxicity (mg/L)	EPA EP Toxicity Maximum Concentration (mg/L)
Arsenic	0.670	5.0
Barium	57.25	100.0
Cadmium	0.380	1.0
Chromium	2.15	5.0
Lead	2.07	5.0
Mercury	0.145	0.2
Selenium	0.665	1.0
Silver	1.45	5.0

The tailings are stored in four on-site tailings ponds. Approximately 10 million tons of tailings have been deposited in the ponds. The approximate size of the ponds are (Figure 2)(4):

- #1: 42 acres
- #2: 48 acres
- #3: 55 acres
- #4: 280 acres

The tailings ponds are unlined, and are surrounded by dikes constructed of gypsum. At the time of the E&E site inspection, all of the tailings ponds contained eight to 10 feet of water.

10.2 Gypsum Solids

Phospho-gypsum or gypsum, is the major solid waste residual generated at wet process phosphoric acid plants. The gypsum is a by-product of the digester system, which produces ortho-phosphoric acid (P_2O_5) from phosphate ore. The general chemical reaction is as follows:

$$Ca_3(PO_4)_2 + 3H_2SO_4 + H_2O \rightarrow 2H_3PO_4 + 3\ Ca\ SO_4 \cdot 2H_2O$$

phosphate ore + sulfuric acid + water → phosphoric acid + gypsum

Analytical results of gypsum solids and liquids (slurry water) have not been obtained for Nu-West, but are available for a similar phosphoric acid plant in Idaho (J.R. Simplot Co., Pocatello, Idaho) (13). The composition of gypsum solids and liquids at J.R. Simplot Co. and their corresponding EP Toxicity values are presented in Table 6.

NUW 004498

TABLE 6

SUMMARY OF GYPSUM COMPOSITION FOR A PHOSPHORIC ACID PLANT IN IDAHO (14)

Substance	Gypsum Solids Extract		Gypsum Liquids	EP Toxicity Maximum Concentration (mg/l)
	Total (mg/l)	EP Toxicity (mg/l)	Total (mg/l)	
Arsenic	2.20	0.012	0.023	5.00
Barium	87.0	0.630	0.170	100.0
Cadmium	4.0	0.150	0.036	1.00
Chromium	51.0	0.180	0.360	5.00
Lead	24.07	0.084	0.002	5.00
Mercury	0.10	0.0004	0.0004	0.200
Selenium	4.40	0.004	0.004	1.00
Silver	4.90	0.020	0.002	5.00
Copper	18.0	0.440	0.008	---
Zinc	29.0	0.690	0.590	---
Fluoride	7590	15.20	17.30	---
Chloride	6.70	0.670	162	---
Sulfate	339000	1490	1170	---
Total Phosphorous	4170	30.3	82	---

Gypsum is slurried to two storage ponds (stacks), located on the western edge of the site (Figure 2). Approximately 30 million tons of gypsum have been deposited in the ponds. The gypsum ponds are unlined, and have been stacked up to a height of 150 feet above the natural ground surface. At the time of the E&E site inspection, the gypsum ponds did not contain water because the plant was not operating.

10.3 Scrubber Residuals

Scrubber residuals originate from the calciners and numerous wet scrubbers located in the wash plant. The scrubber residuals are collected as a liquor, and are piped to the tailings ponds for disposal. No data pertaining to chemical composition of the scrubber liquors are available.

10.4 Cooling/Process Water

Cooling water is used for a number of purposes. It is cycled through parts of the plant for cooling purposes, and is used as make-up water for gypsum and tailings slurries. The water is stored in an on-site pond, located at the southwest edge of the site (Figure 2). Due to the nature of the plant water cycling process, the cooling pond receives water of high acidity (pH 1-2).

Water used for gypsum slurry is decanted off the gypsum ponds into the cooling pond. The composition and characteristics of the cooling water is similar to that of the gypsum slurry water, presented in Table 6. The Nu-West cooling pond currently contains approximately 80 million gallons of water (4). A new cooling pond is currently being constructed at the Nu-West Site.

10.5 Waste Oil/Landfill

Waste oil is generated from process machinery throughout the plant. Some waste oil and empty drums have been disposed of in an on-site landfill, located between the cooling water pond and gypsum pond #2 (Figure 2). Several leaking drums were observed within the landfill area during E&E's initial site visit.

11.0 PREVIOUS INVESTIGATIVE HISTORY

Investigations of ground-water quality in the vicinity of the Nu-West facility have been conducted by state agencies and nearby property owners in the past. In 1966, the J.R. Simplot Company (Conda operation) detected contamination in their production wells #8 and #10, located downgradient of the Nu-West facility (6). Simplot determined that elevated levels of a variety of inorganic elements and compounds in local ground water were the result of releases of wastes from the Nu-West facility. The wells were finally abandoned in the early 1970s due to poor water quality.

During March, 1976, a dike surrounding the Nu-West cooling pond failed and released 400 acre-feet of wastewater into the surrounding area. The Idaho Division of Environment conducted a preliminary evaluation of the effects of the spill on flooded land areas, and proposed a longer term study plan. The preliminary evaluation consisted of sampling production

and domestic wells in the area and the wastewater itself. Data from this sampling effort suggested that dilution during spring runoff reduced surface concentrations to within acceptable limits (14). The Caribou County Health Department monitored Simplot wells #8, #10, and #11 during the time period of the spill. Figure 4 summarizes concentration ranges of phosphate, cadmium, and fluoride during the time period of January 1975 to June 1977 (6). Significant increases in concentrations of the three compounds immediately following the spill are evident from the illustration and suggest that spills occurring on the Nu-West Site have the potential to quickly infiltrate to the local ground-water system.

12.0 E&E SITE INSPECTION

12.1 Objectives and Scope

The objectives of E&E's site inspection were to:

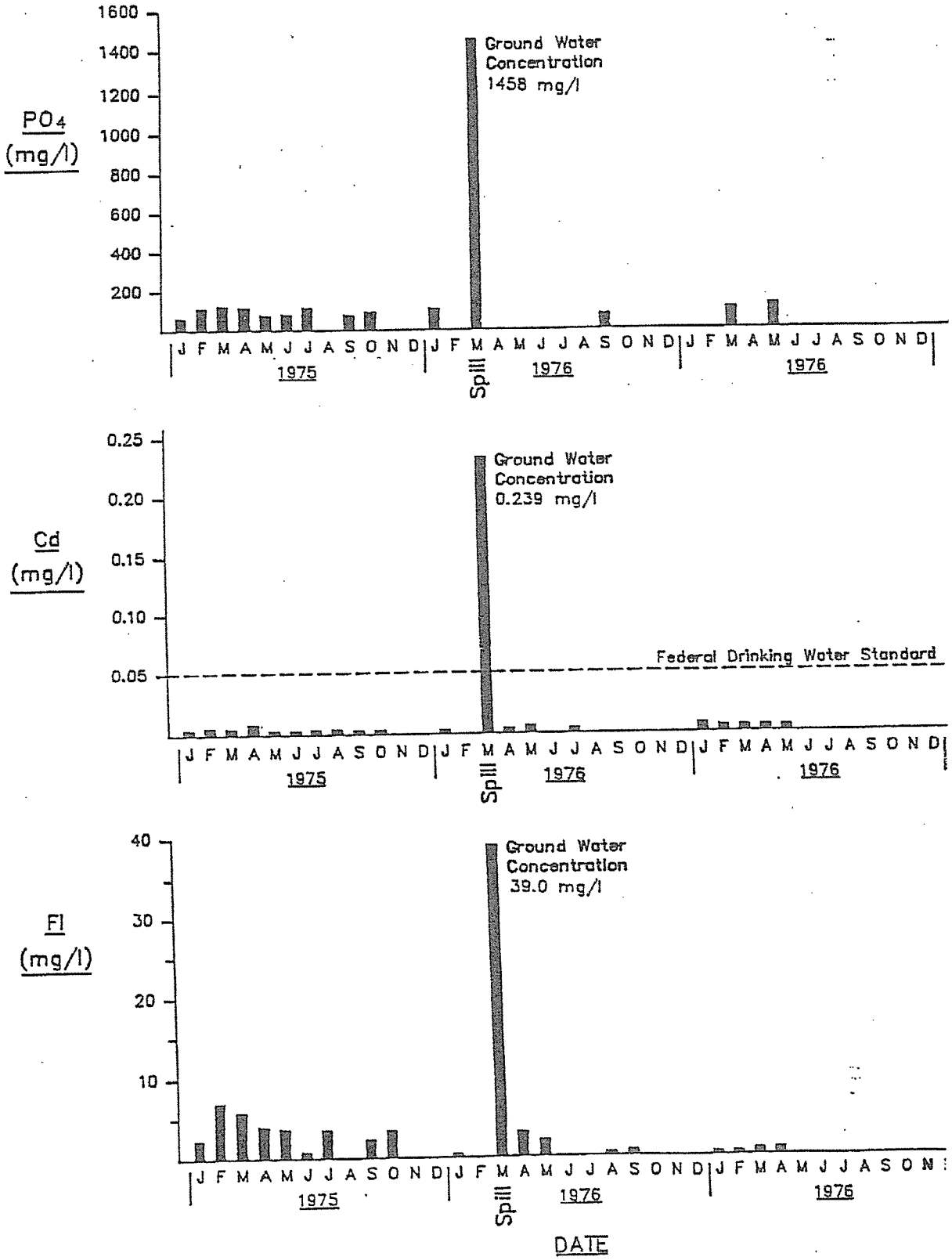
- o determine whether contaminants from the waste storage areas had infiltrated ground water and migrated to existing wells in the site vicinity;
- o determine the chemical concentrations of EPA TCL inorganic substances (except cyanide) stored in on-site ponds;
- o determine the presence and concentrations of TCL compounds (except cyanide) in the local ground water; and
- o determine if there is a need for emergency action, or other less urgent action at the site.

To accomplish these objectives, the following field activities were conducted:

- o collection of samples from solid and liquid fractions of the on-site waste storage ponds;
- o collection of ground-water samples from two on-site production wells, two off-site production wells, two off-site domestic wells, and two nearby springs;
- o collection of composite sediment samples from likely runoff pathways near the on-site landfill;
- o analyses of samples for EPA TCL compounds and four selected anions; and
- o geophysical surveying of the site perimeter using electro-magnetic conductivity meters.

The E&E field team conducted field activities between July 27 and August 3, 1987.

FIGURE 4
CONCENTRATIONS OF PHOSPHATE, CADMIUM, AND FLUORIDE FROM 1975 TO 1977 IN J.R. SIMPLOT WELL #10, CONDA, ID



Source: 6

12.2 Sample Numbers, Types, and Analytes

Table 7 presents a summary of the number and types of samples collected during the inspection, and associated analytical parameters. A total of six ground-water samples were collected; two from on-site industrial production wells, two from off-site industrial production wells, and two from domestic wells in the site area (Figures 5 and 6). All ground water samples were analyzed for TCL organics and inorganics, except cyanide (Appendix B), and four anions that have been detected in area wells during past sampling efforts. The anions include chloride, fluoride, phosphate, and sulfate.

Two aqueous samples and three solid samples were collected from the Nu-West waste ponds. Liquid samples were collected as grabs from the cooling pond and tailings pond, and were analyzed for TCL inorganics (except cyanide) and the four previously mentioned anions (see Figure 5). A liquid sample was not collected from the gypsum ponds because free liquids were not present in these ponds during the E&E site inspection. The solids samples were collected as spatial composites and were prepared by homogenizing four equal volume aliquots per sample. Aliquots were collected from suspected areas of release (runoff pathways), or areas near deposition of slurry into the ponds (effluent pipes) (see Figure 5). The samples collected from the waste ponds were analyzed for TCL inorganics (except cyanide) and the four previously mentioned anions.

Two composite soil samples were collected from suspected run-off areas near the landfill located between the cooling pond and Gypsum Pond #2. The samples were prepared by homogenizing four equal volume aliquots per sample from locations depicted in Figure 5. The landfill soil samples were analyzed for TCL organics only.

Quality Assurance/Quality Control (QA/QC) samples included a single water blank. No rinsate or transfer blanks were prepared because intermediate transfer devices (bailers) were not utilized.

12.3 Sampling Methodologies and Decontamination

All ground-water samples collected from production and domestic wells were collected using a three-step process:

1) the existence of holding tanks and chemical treatment devices was determined;

2) The static well volume was calculated using information provided by well logs or the well owner; and

3) approximately 3 to 4 static volumes of water were purged while field parameter samples (specific conductance, pH, and temperature) were monitored for stabilization.

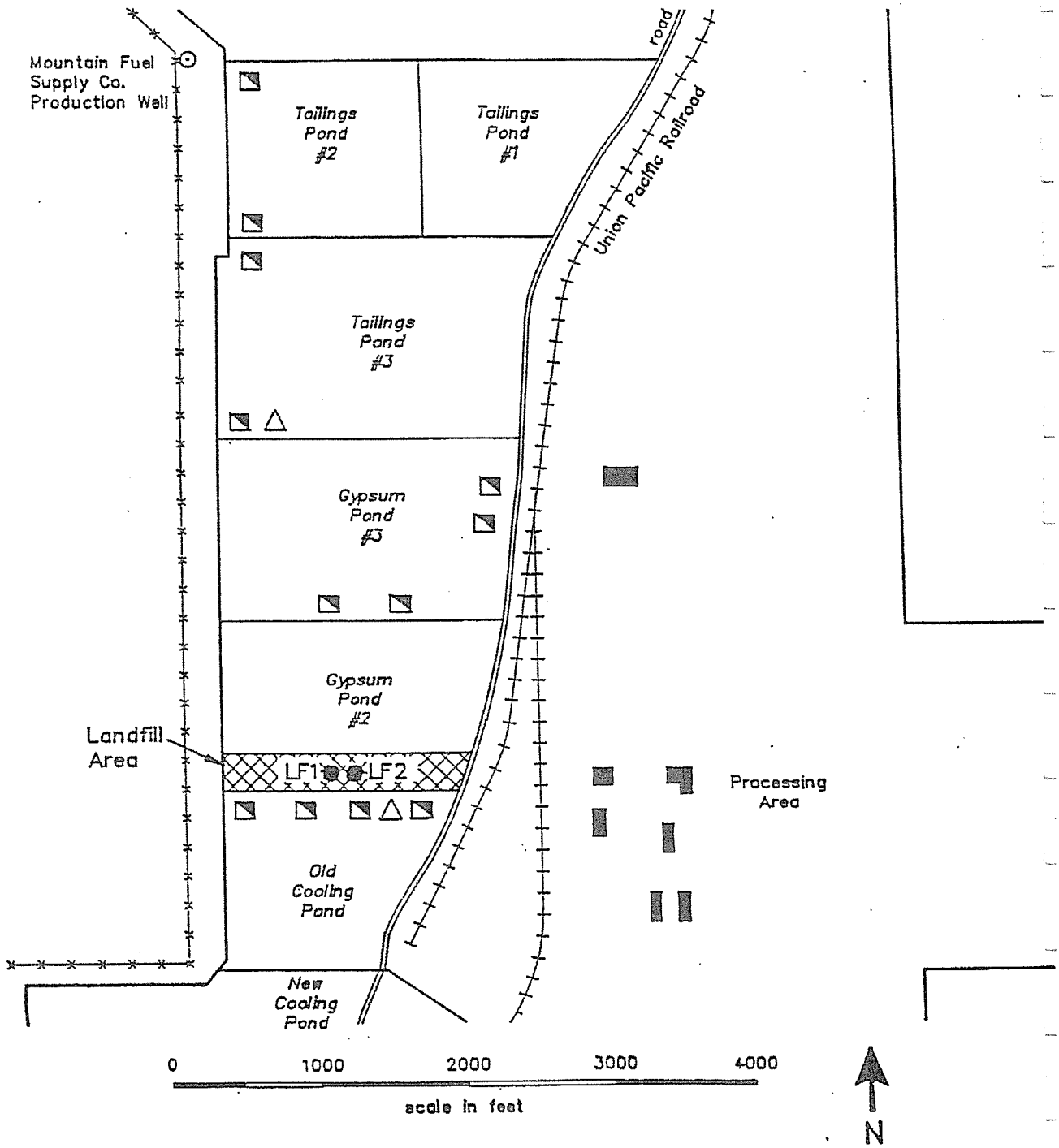
TABLE 7

SAMPLE SUMMARY

Matrix	Sample Location	Date Sampled	Sample Type	Analytical Parameters
Ground Water	MF Well	07/28/87	Grab	TCL Organics, Inorganics (except cyanide), anions
	Nu-West #1 Well	07/28/87	Grab	TCL Organics, Inorganics (except cyanide), anions
	Simplot #10 Well	07/28/87	Grab	TCL Organics, Inorganics (except cyanide), anions
	Simplot #11 Well	07/28/87	Grab	TCL Organics, Inorganics (except cyanide), anions
	Torgesen Well	08/04/87	Grab	TCL Organics, Inorganics (except cyanide), anions
	Nelson Well	08/04/87	Grab	TCL Organics, Inorganics (except cyanide), anions
Wastewater	Cooling Pond	07/28/87	Grab	TCL Inorganics (except cyanide), anions
	Tailings Pond	07/28/87	Grab	TCL Inorganics (except cyanide), anions
Waste Solids	Cooling Pond	07/28/87	Composite	TCL Inorganics (except cyanide), anions
	Tailings Pond	07/28/87	Composite	TCL Inorganics (except cyanide), anions
	Gypsum Pond	07/28/87	Composite	TCL Inorganics (except cyanide), anions
Sediment	Landfill #1	08/04/87	Composite	TCL Organics
	Landfill #2	08/04/87	Composite	TCL Organics
Water	Blank	07/28/87	QA/QC	TCL Organics, Inorganics (except cyanide), anions

Upon stabilization of field parameters and after the predetermined volume of water had been purged, sample fractions for volatile analyses were collected, followed by fractions for Base/Neutral/Acid extractable analyses, inorganics, and anions. Well sampling measurements and field parameters were recorded on Well Sampling Data Sheets (Appendix C).

NUW 004504



LEGEND

- Facility boundary
- Fence
- Production well sampled
- Sediment aliquot sample (for compositing)
- Pond water sample
- Building
- LF# Sediment sample (landfill) and designation

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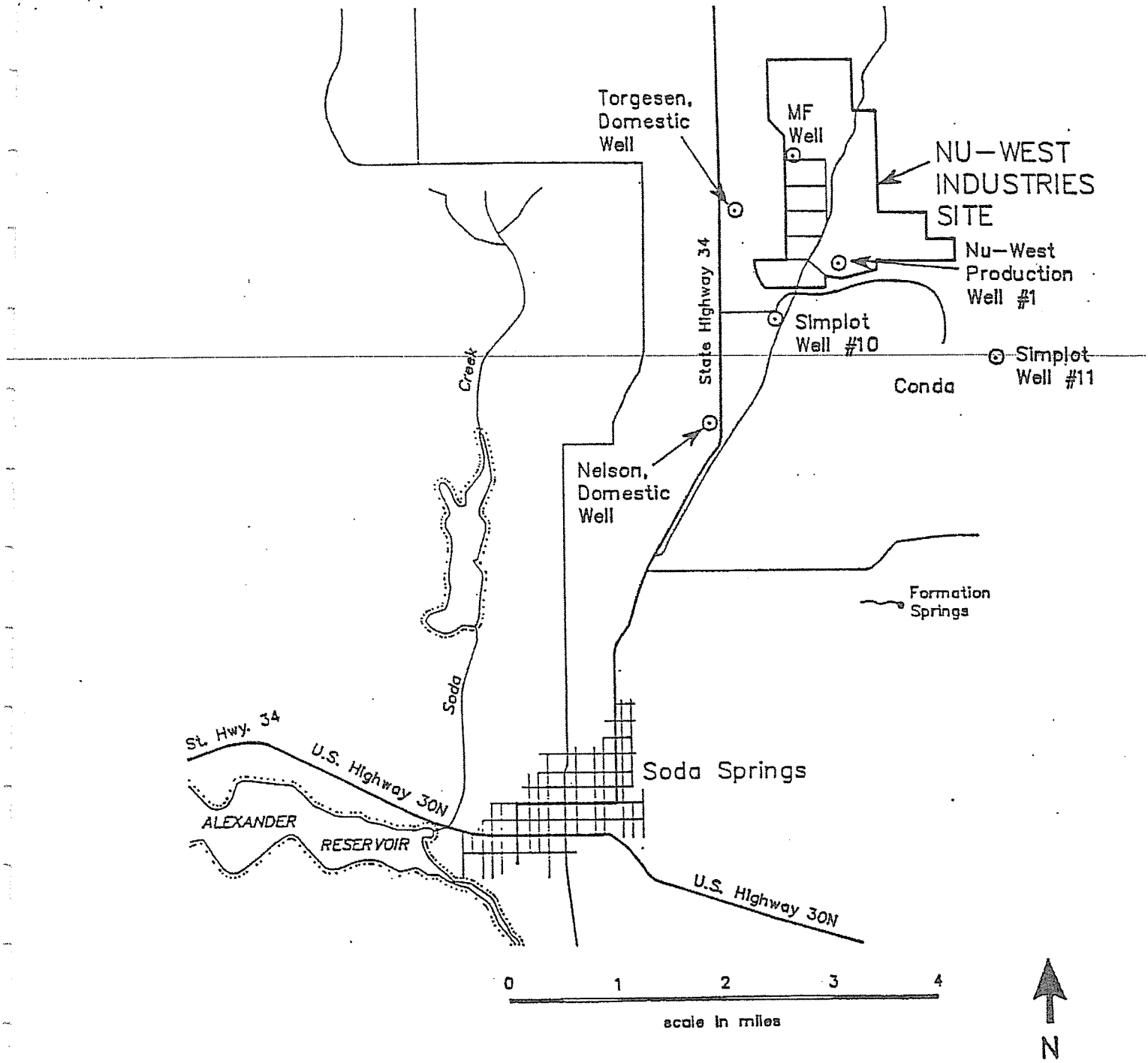
Job: F10-8702-08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 4, 1987

FIGURE 5
ON-SITE SAMPLE LOCATIONS
NU-WEST INDUSTRIES
Conda, ID



LEGEND

⊙ Well sample

Spring sample

ecology & environment, inc.	
Job: F10-8702-08	Waste Site: ID0020
Drawn by: D. P.	Date: March 10, 1988

FIGURE 6
GROUNDWATER SAMPLE LOCATIONS
NU-WEST INDUSTRIES
Conda, ID

Waste pond water samples were collected by hand dipping the sample containers no less than one inch below the water surface. An effort was made to collect samples with as little suspended sediments as possible. Solids and soil samples were collected using stainless steel spoons, and were placed in stainless steel pans for homogenization.

The QA/QC blank sample was prepared in the field with carbon-free water shipped from the E&E laboratory.

To avoid possible cross-contamination of the samples, all sampling equipment (e.g., spoons and pans) was transferred to and from the sampling site in clean plastic bags. Field decontamination of stainless steel pans consisted of a consecutive series of the following washes and rinses:

- water rinse;
- acetone wash;
- methanol wash;
- organic-free water rinse; and
- air dry.

12.4 Geophysical Survey

The objective of the geophysical survey was to identify potential ground-water contaminant plumes emanating from waste ponds at the Nu-West facility.

12.4.1 Theory and Description of Geophysical Techniques

Electromagnetic (EM) conductivity instruments use low frequency electromagnetic fields to measure terrain conductivity (15). Terrain conductivity is a function of many variables, but is largely keyed to electrolytes and metallic objects in the subsurface. A sinusoidally varying magnetic field induces currents into the ground so that the amplitude is linearly proportional to the terrain conductivity. The magnitude of these currents is determined by measuring the secondary magnetic field that is generated.

A Geonics Limited EM 34-3 was used for the survey. The EM 34-3 is equipped with transmitting and receiving coils connected to a meter which measures units of conductivity in millimhos per meter. The transmitter coil induces circular eddy current loops in the subsurface. The magnitude of any one of these current loops is directly proportional to the terrain conductivity in the vicinity of that loop. A secondary magnetic field is then generated by the current loops, part of which is intercepted by the receiver soil and read on the meter.

The EM 34-3 is a two-person portable instrument with step-wise, selectable exploration depths from 7.5 meters to 60 meters. The exploration depths are defined as the depth above which 75% of the measured signal is derived, assuming uniform conductivity with depth (16). Two readings can be obtained for each interval, one while the receiver and transmitter rings are positioned perpendicular to the ground surface (horizontal dipole) and one when the rings are placed on the ground parallel to the surface (vertical dipole). The horizontal dipole is sensitive to variations in near-surface materials, and the vertical dipole is sensitive to vertical fea-

tures in the subsurface (i.e., joints, faults, and vertical dike-like formations). Transmitter/receiver coil spacing intervals, orientation, and their corresponding survey depths are summarized in Table 8.

TABLE 8

EM 34-3 SPACING, INTERVALS, ORIENTATION, AND SURVEY DEPTHS

Spatial Separation of Transmitter/Receiver coils (meters)	Coil Orientation	Effective Survey Depth (meters)
10	Vertical	7.5
10	Horizontal	15
20	Vertical	15
20	Horizontal	30
40	Vertical	30
40	Horizontal	60

12.4.2 On-Site Geophysical Survey Methods

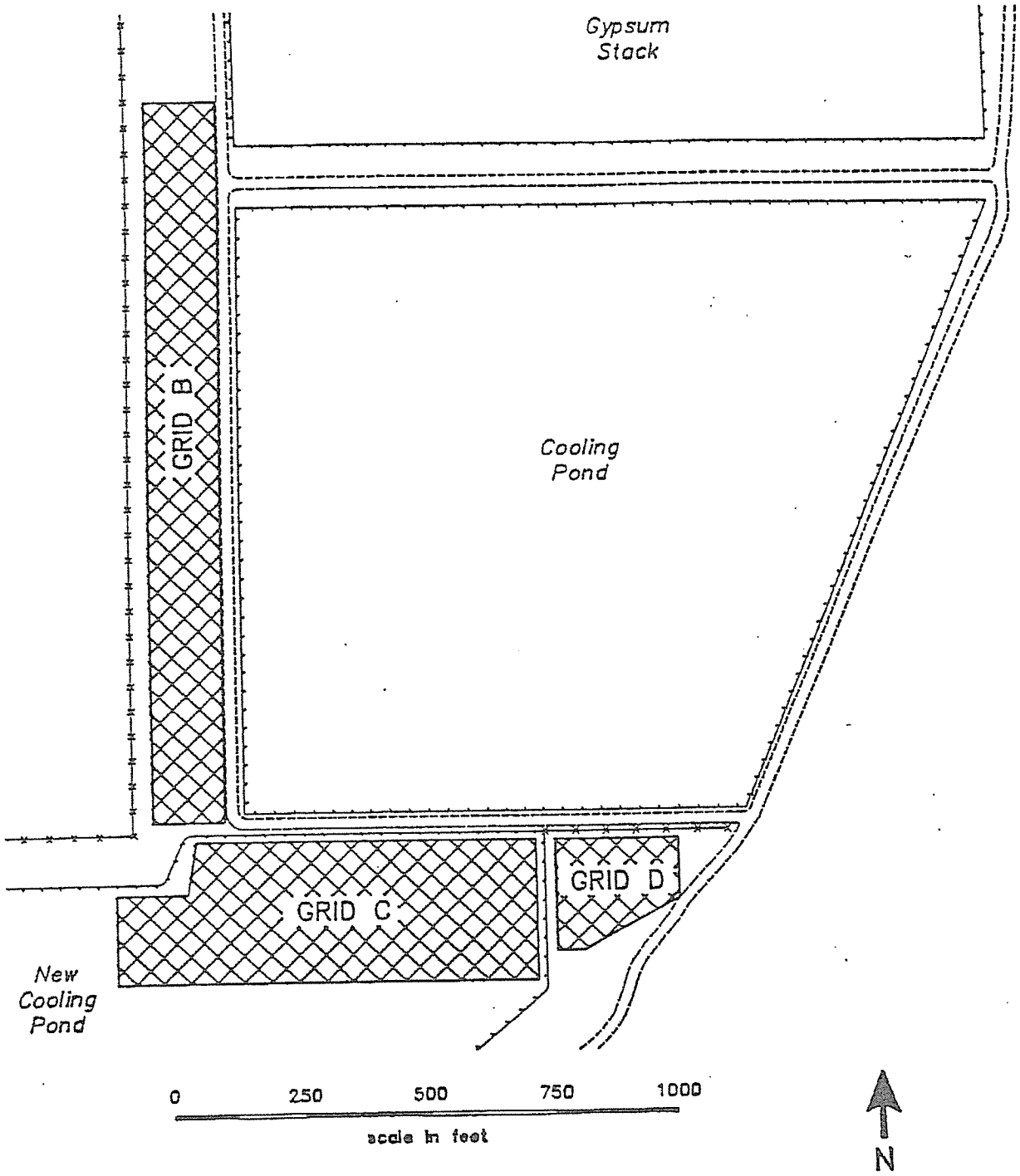
The exploration depths selected for the geophysical survey of the Nu-West facility were 7.5, 15, 30, and 60 meters. These depths were selected based on known ground water occurrence in the area which varies from 35 feet southeast of the site to 175 feet northwest of the site.

Four areas were surveyed using transects set up on 50-foot intervals. Area A was used for background measurements and was located to the west of Tailings Pond #4 (Figure 2). Areas B through D are illustrated in Figure 7. The grid lines were not extended east of the cooling pond due to the interference from power lines and possible underground lines. Available information indicates ground-water movement in the site area is to the southwest. Survey areas were thus chosen along the south and west sides of the cooling pond to identify potential plumes migrating from the pond.

The geophysical survey was conducted on July 28 and August 1, 4, and 5, 1987. A total of 12,720 linear meters were surveyed using 18 transects (Table 9). As indicated in Table 9, the EM 34-3 survey used three different spatial intervals between the transmitter and receiver coils (10, 20, and 40 meters) to investigate to depths of 7.5, 15, 30, and 60 meters. The EM 34-3 was recalibrated each time a new coil spacing was utilized for the instrument.

13.0 RESULTS AND DISCUSSION

Complete data tables for all samples are included in Appendix D and quality assurance memoranda are presented in Appendix E. Field sample documentation is summarized in Appendix F.



LEGEND

- Fence
- Unimproved road
- Rising slope
- Depression

ecology & environment, inc.	
Job: F10-8702-08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 198

FIGURE 7
ELECTROMAGNETIC SURVEY
GRID AREAS
NU-WEST INDUSTRIES
Conda, ID

TABLE 9

SUMMARY OF GEOPHYSICAL SURVEY INFORMATION AT
NU-WEST INDUSTRIES, CONDA, IDAHO

Line #	Length (m)	Direction	Coil Separation Intervals Surveyed	Location
Background Lines (Grid A):				
1A	510m	S to N	10m	35 feet west of northwest N-S property fence, northwest of Mountain Fuel Production Well.
2A	500m	N to S	10m, 20m, 40m	50 feet west of line 1A.
3A	520m	S to N	10m, 20m, 40m	50 feet west of line 2A.
4A	530m	N to S	10m	50 feet west of line 3A.
Lines West of Cooling Pond (Grid B):				
1B	480m	S to N	10m, 20m, 40m	10 feet west of Cooling Pond Dike and north of the New Pond Dike.
2B	480m	N to S	10m, 20m, 40m	50 feet west of line 1B.
3B	480m	S to N	20m, 40m	50 feet west of line 2B.
Lines in Unfinished Pond (Grid C):				
1C	210m	E to W	10m, 20m, 40m	15 south of E-W dike in New Pond and 20 feet west of N-S dike in new Area.
2C	240m	W to E	10m, 20m, 40m	40 feet south of line 1C.
3C	240m	E to W	10m, 20m, 40m	40 feet south of line 2C.
4C	280m	W to E	10m, 20m, 40m	40 feet south of line 3C.
5C	280m	E to W	20m, 40m	50 feet south of line 4C.
6C	360m	W to E	20m, 40m	50 feet south of line 5C.
Lines Southeast of Cooling Pond (Grid D):				
1D	80m	W to E	10m, 20m, 40m	35 feet south of E-W fence and east of N-S dike of New Pond.
2D	80m	E to W	10m, 20m, 40m	50 feet south of line 1D.
3D	80m	W to E	10m, 20m, 40m	50 feet south of line 2D.
4D	50m	W to E	10m, 20m	50 feet south of line 3D.
5D	20m	W to E	10m	50 feet south of line 4D.

Instrument used: Geonics Ltd. EM 34-3 Conductivity Meter
Total number of grid lines = 18
Total Meters Surveyed = 12,770 (approximately 39,000 feet)
Note: See Figure 6 for grid line locations.

13.1 Ground-Water Samples

A total of six ground-water samples were collected as part of the field investigation, four from industrial production wells and two from domestic drinking water wells.

13.1.1 Production Wells

Acetone was detected at concentrations ranging from 15 to 30 ug/l in the four industrial production well samples. However, acetone was also detected in the transport blank sample (Section 13.4). Chloroform was detected at an estimated concentration of 2 ug/l in the sample from Production Well #1. No other organic compounds were detected in the samples. Table 10 summarizes inorganic elements detected in the four well samples. A total of 17 TCL inorganic elements were detected in at least one of the samples. Selenium exceeded Federal Primary Drinking Water Standards in all of the production well samples. Selenium is often present in soil and ground water as a result of the use or production of superphosphate fertilizers (17). Manganese and sulfate exceeded Federal Secondary Drinking Water Standards in the Simplot #10 well. The presence of manganese and sulfate at these concentrations may be related to the site location, as both elements occur naturally at high concentrations in the phosphate rock of the nearby Aspen Range (9).

Phosphate was detected at 8.2 mg/l in Simplot Well #10. This concentration was approximately 30 times greater than that found in the MF well, and approximately 170 times greater than that found in the background well (Simplot #11).

13.1.2 Domestic Wells

Acetone was detected in the two domestic well samples at concentrations of 78 ug/l (Torgeson) and 87 ug/l (Nelson). However, acetone was also detected in the transport blank sample (Section 13.4). No other organic compounds were detected in the samples.

Table 10 summarizes inorganic elements detected in the two samples. A total of 11 TCL inorganic elements were detected in at least one of the samples. None of the sample concentrations exceeded Federal Primary or Secondary Drinking Water Standards.

Formation Springs, a municipal water supply source located within three miles of the Nu-West Site, was sampled in conjunction with a site investigation of the nearby Kerr McGee Chemical Corporation facility during the same time period as the Nu-West investigation (TDD F10-8702-04). The sample revealed no contaminant concentrations above Federal Drinking Water Standards.

13.2 Waste Pond Samples

Two liquid fraction samples and three composite solid fraction samples were collected from the on-site waste ponds.

TABLE 10

SUMMARY OF INORGANIC ELEMENTS AND ANIONS
DETECTED IN GROUND WATER SAMPLES
(mg/l)

Element	Simplot 11 (Background)	MF Well	P.W. #1	Simplot 10	Torgesen	Nelson	Federal Drinking Water Standard (mg/l)
Aluminum	U	0.160	0.08	U	U	U	
Antimony	U	U	U	U	U	U	
Arsenic	U	U	U	0.007	0.003	0.001	0.05 (Primary)
Barium	0.08	U	U	0.130	U	U	1.0 (Primary)
Beryllium	U	U	U	U	U	U	
Cadmium	U	U	U	U	U	U	0.01 (Primary)
Calcium	95.8	109.6	124.3	150.5	113.1	49.1	
Chromium	U	0.004	0.004	0.004	U	U	0.05 (Primary)
Cobalt	U	U	U	U	U	U	
Copper	0.005	0.004	U	0.013	U	0.005	1.0 (Secondary)
Iron	U	U	0.029	U	U	0.031	0.3 (Secondary)
Lead	0.007	0.009	0.012	U	0.021	U	0.05 (Primary)
Magnesium	16.4	50.1	42.8	51.7	55.4	20.3	
Manganese	0.004	0.02	0.025	0.056	0.002	0.005	0.05 (Secondary)
Mercury	U	0.0001	0.0001	U	U	U	0.002 (Primary)
Nickel	0.017	0.007	0.013	0.007	U	U	
Potassium	1.5	2.8	2.6	8.0	3.5	3.6	
Selenium	0.014	0.021	0.017	0.027	0.004	0.002	0.01 (Primary)
Silver	U	U	U	U	U	U	0.05 (Primary)
Sodium	6.9	4.9	30.6	51.2	14.0	19.5	
Thallium	U	U	U	U	U	U	
Vanadium	U	0.007	0.010	0.007	U	U	
Zinc	0.002	U	U	0.009	0.092	0.344	5.0 (Secondary)
Chloride	11.1	9.4	13.0	27.7	28.2	40.0	250 (Secondary)
Fluoride	0.12	0.40	0.33	0.29	0.20	0.17	
Phosphate	0.048	0.28	0.26	8.2	0.096	0.12	
Sulfate	58.4	178	225	426	69.9	37.7	250 (Secondary)

U - Element was not detected at Contract Required Detection Limit (CRDL). For complete data tables, including detection limits, see Appendix D.

Six TCL organic compounds were detected in the two soil samples and are summarized in Table 13. Three of the compounds detected are volatile organics, two are semi-volatile organics and one was polychlorinated biphenyl (PCB). The detected compounds are generally associated with solvents, oils, and tars.

TABLE 13

SUMMARY OF ORGANIC COMPOUNDS
DETECTED IN THE LANDFILL AREA SOIL SAMPLES

Compound	LF #1 (mg/kg)	LF #2 (mg/kg)
Toluene	U (0.001)	0.001
Phenanthrene	0.430	0.075
2-Methylnaphthalene	0.190	0.029
PCB - Arochlor 1248	0.478	U (0.020)
Methylene Chloride	0.067	0.018
Styrene	0.001	U (0.008)

U - Undetected at listed detection limit.

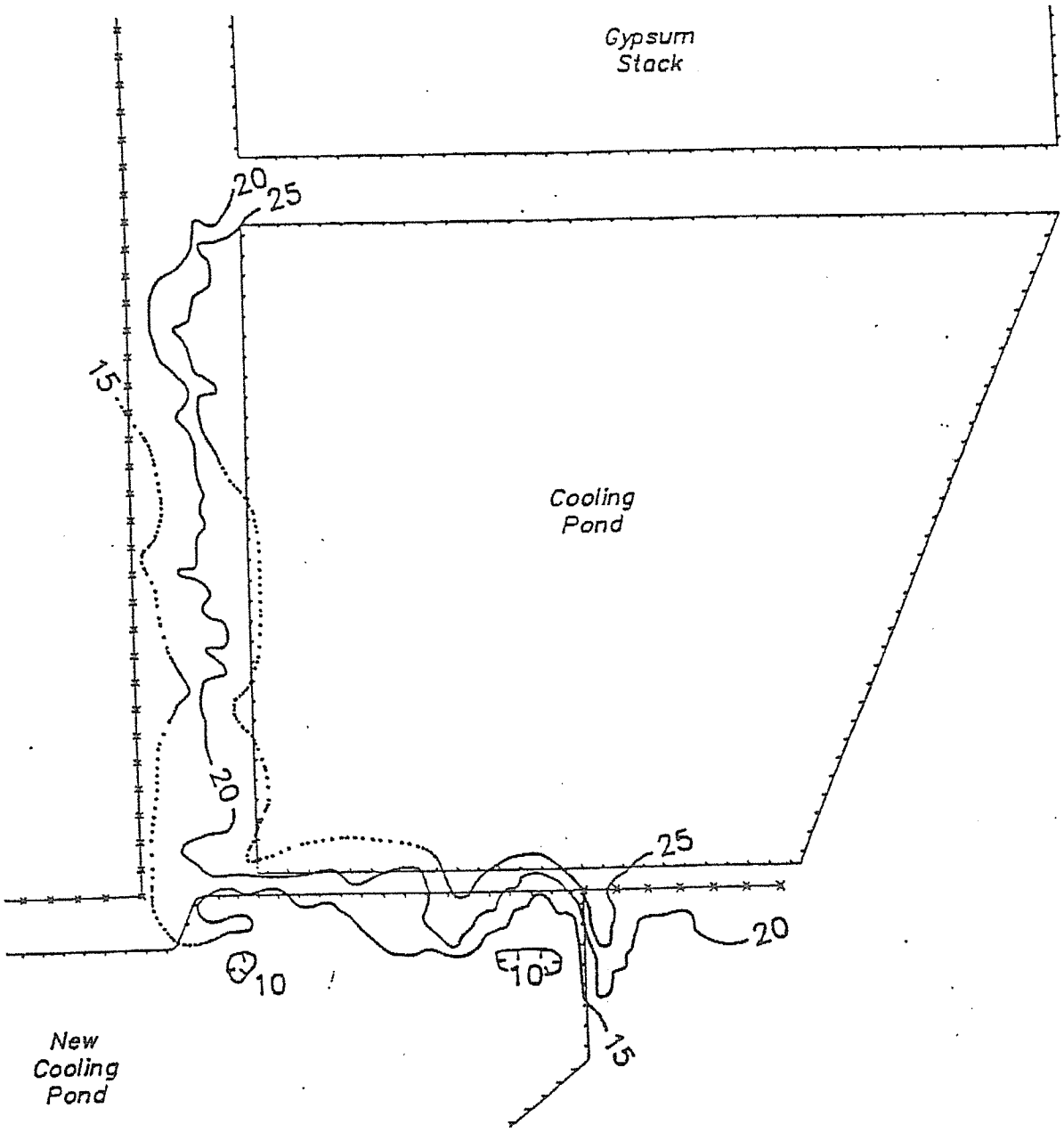
Methylene chloride is a common solvent used by the laboratories. The levels detected in these samples may be the result of contamination in the laboratory.

13.4 QA/QC Samples

Of the 127 organic compounds on the EPA TCL, acetone and chloroform were the only compounds detected in any of the ground-water samples. All of the well samples contained low concentrations of acetone, ranging from 16 ug/l (Simplot #11) to 87 ug/l (Nelson Well). Acetone, a common laboratory solvent, was also detected in the QA/QC blank sample at a concentration of 15 ug/l. It appears from these data that the acetone detected in the ground water samples is potentially the result of laboratory contamination. Chloroform, although not detected in the transport blank sample, was detected in the Production Well #1 sample at a concentration of 2 ug/l.

Seven TCL inorganic elements and the four anions (chloride, fluoride, phosphate, and sulfate) were detected in the QA/QC samples. The relatively low concentrations of these elements and anions are incidental in comparison with the concentrations detected in the field samples. Analytical results of the QA/QC sample are included in Appendix D.

NUW 004514



LEGEND

Fence

Contour line (known)

Contour line (approximate)

Rising slope

Depression

BACKGROUND

Range = 9–24.5 millimhos/meter

Average = 17.6 millimhos/meter

# of readings = 206

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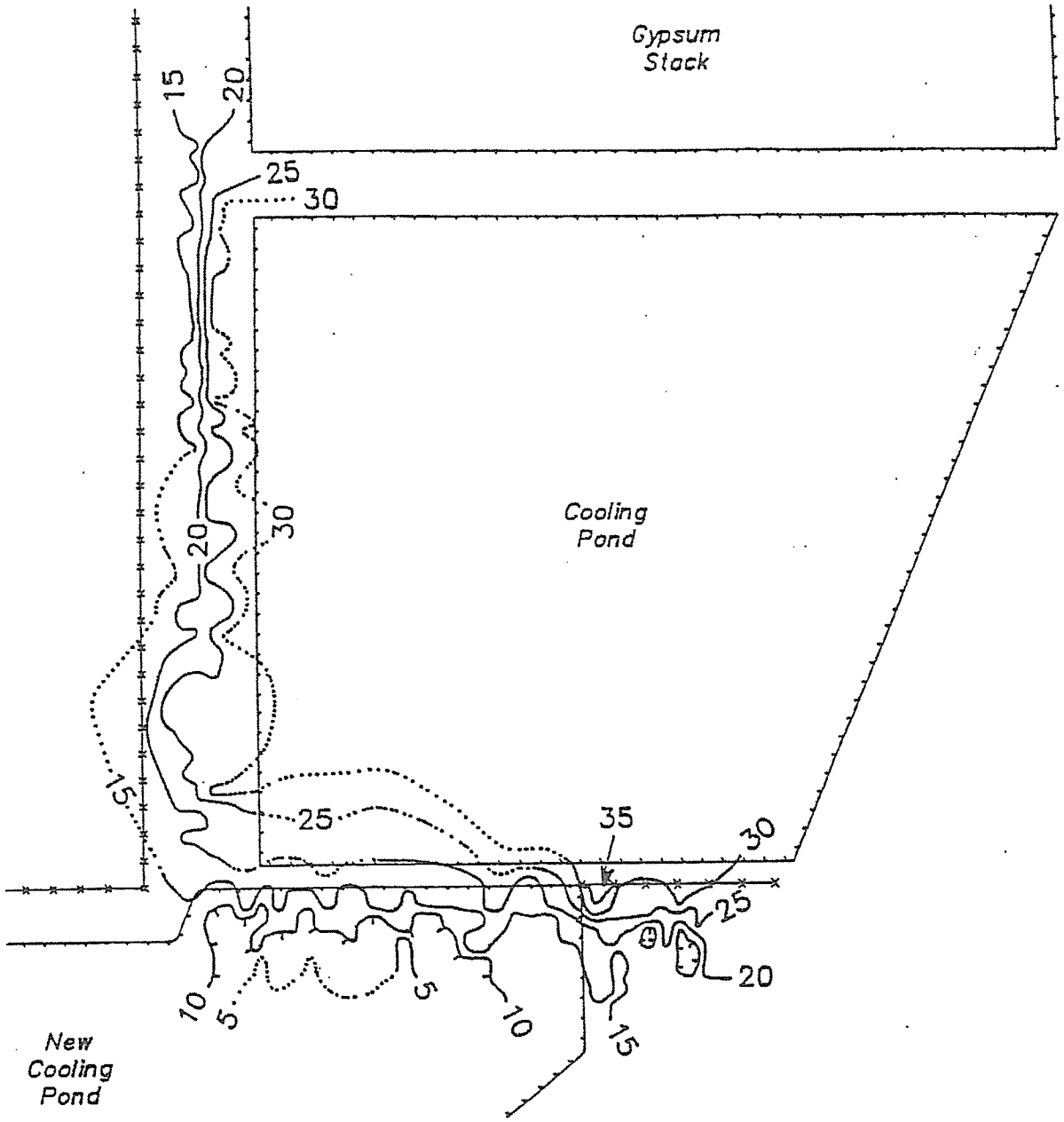
Job: F10–8702–08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 1987

FIGURE 8
EM34–3 SURVEY AT 7.5 METER DEPTH WITH HORIZONTAL DIPOL
NU–WEST INDUSTRIES
Conda, ID



LEGEND

- Fence
- Contour line (known)
- Contour line (approximate)
- Rising slope
- Depression

BACKGROUND

Range = 3–21.0 millimhos/meter
Average = 17.6 millimhos/meter
No. of readings = 155

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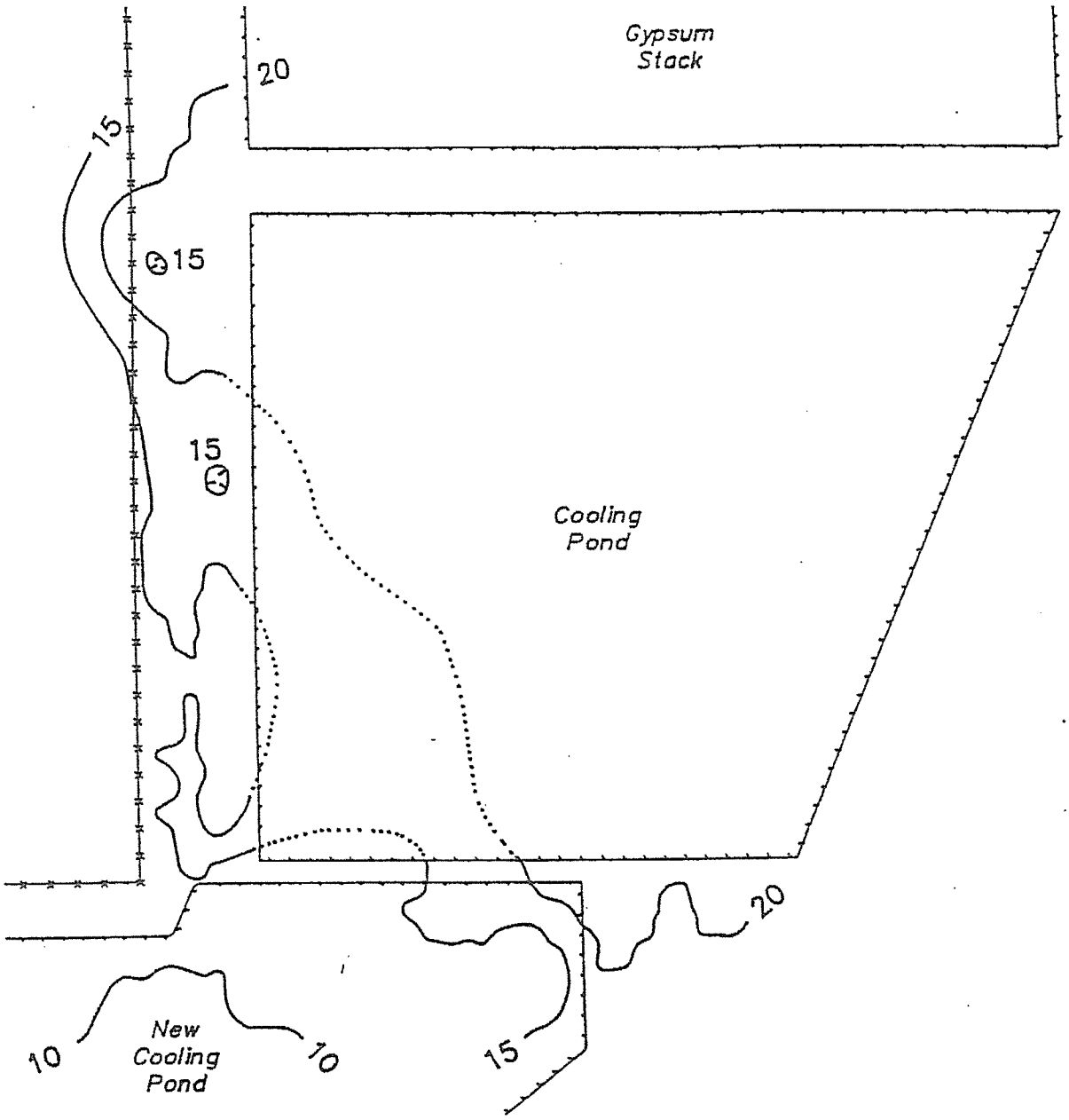
Job: F10–8702–08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 1987

FIGURE 9
EM34–3 SURVEY AT 15 METE
DEPTH WITH VERTICAL DIPOLE
NU–WEST INDUSTRIES
Conda, ID



0 250 500 750 1000

scale in feet

contour interval = 5millimhos/meter

N

LEGEND

Fence

Contour line (known)

Contour line (approximate)

Rising Slope

Depression

BACKGROUND

Range = 8–18.0 millimhos/meter

Average = 12.6 millimhos/meter

No. of readings = 50

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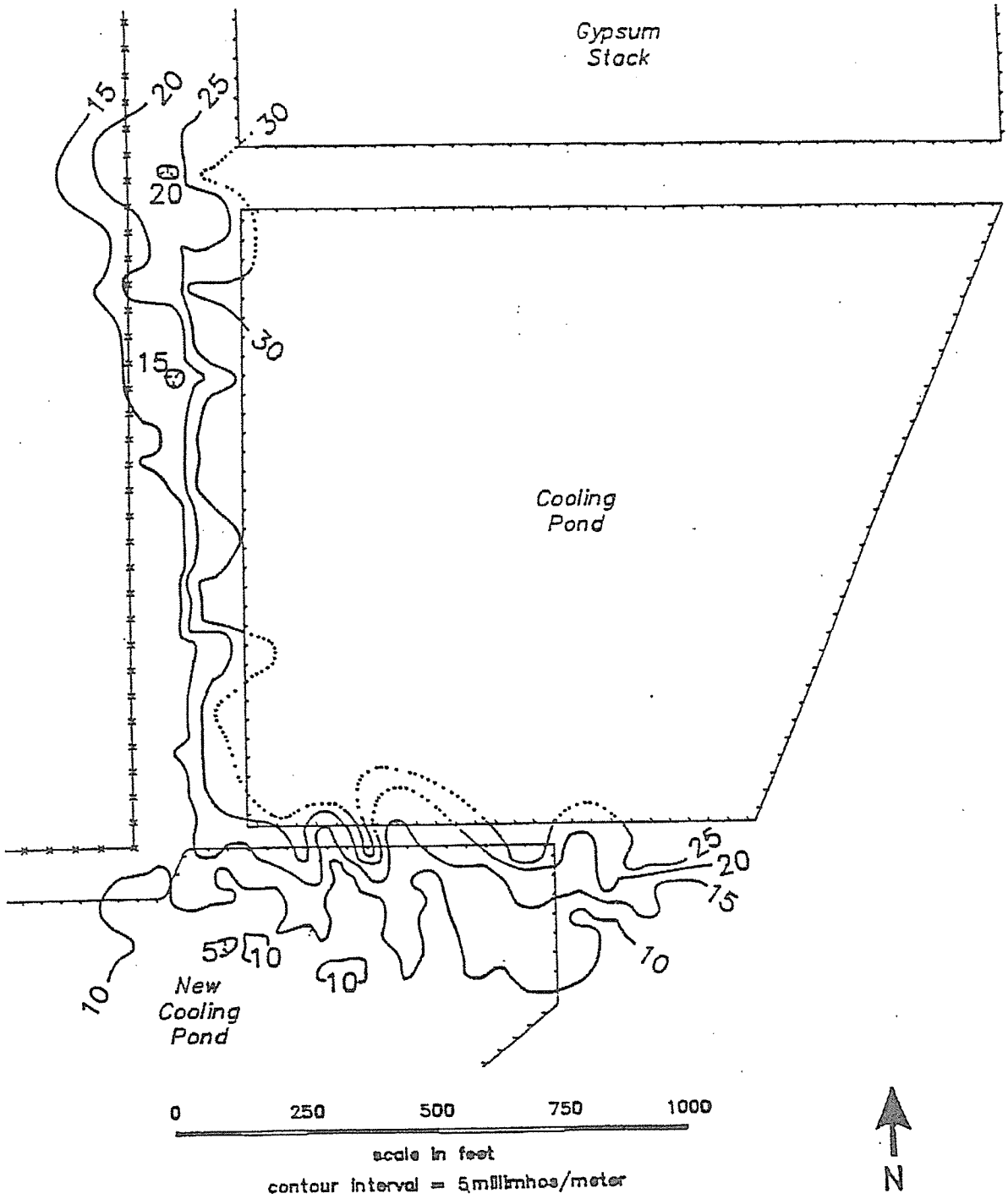
Job: F10–6702–08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 1987

FIGURE 10
EM34–3 SURVEY AT 15 METER DEPTH WITH HORIZONTAL DIPOLE
NU–WEST INDUSTRIES
Conda, ID



LEGEND

- Fence
- Contour line (known)
- Contour line (approximate)
- Rising Slope
- Depression

BACKGROUND

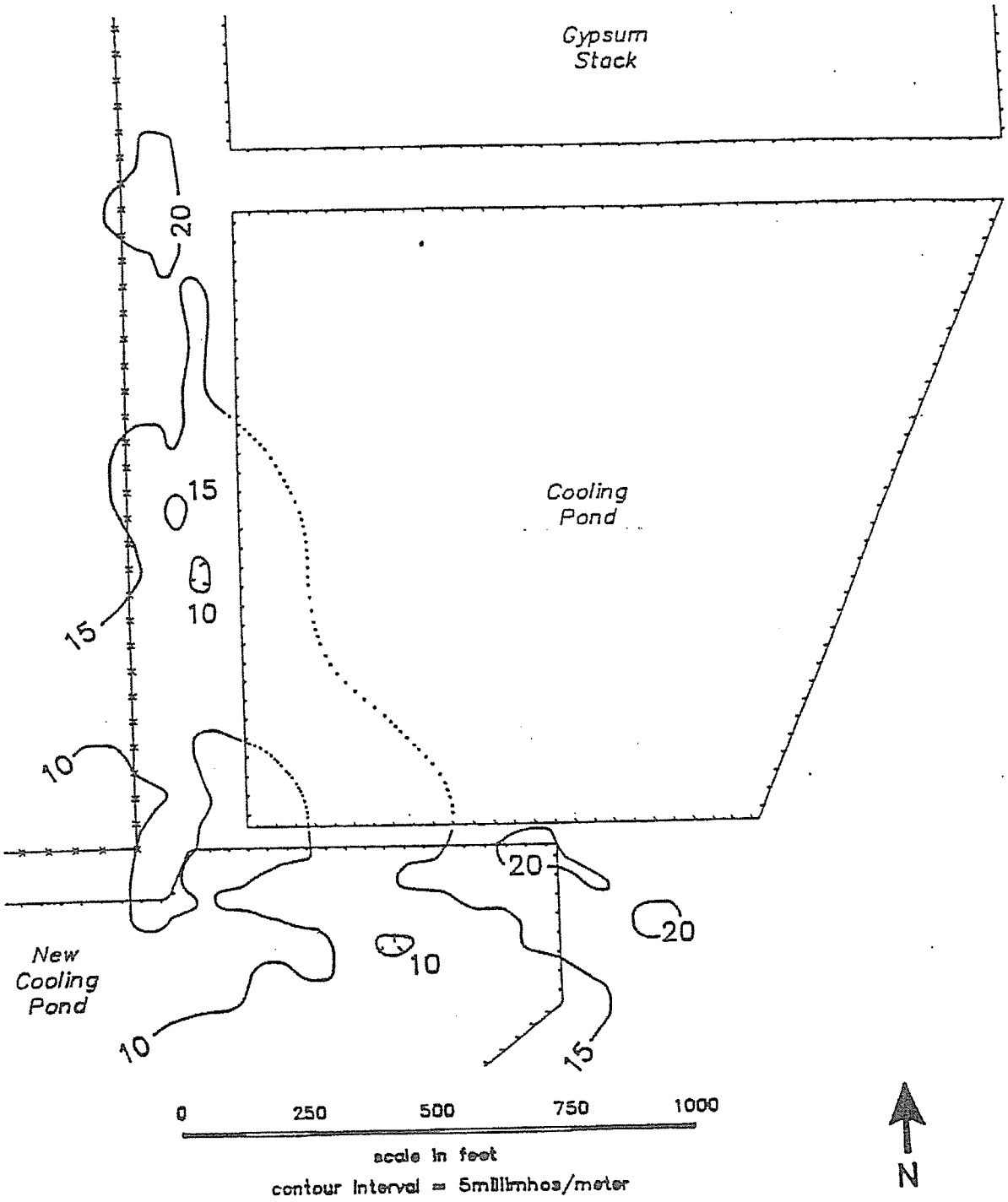
Range = 5–13.5 millimhos/meter

Average = 8.8 millimhos/meter

No. of readings = 50

ecology & environment, inc.	
Job: F10-8702-08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 1987

FIGURE 11
EM34-3 SURVEY AT 30 METER DEPTH WITH VERTICAL DIPOLE
NU-WEST INDUSTRIES
Conda, ID



LEGEND

- Fence
- Contour line (known)
- Contour line (approximate)
- Rising slope
- Depression

BACKGROUND

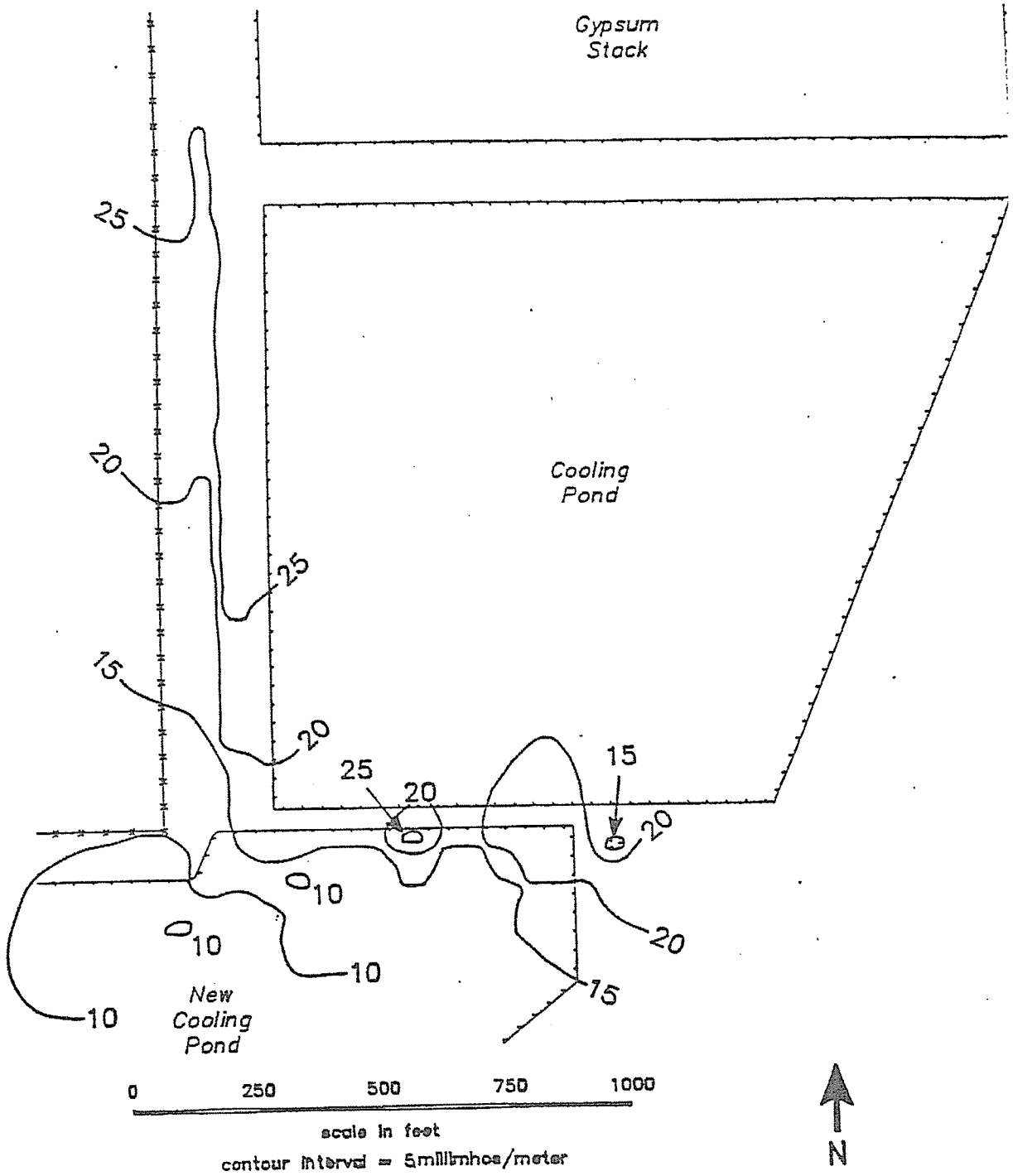
Range = 5–13.5 millimhos/meter

Average = 8.8 millimhos/meter

No. of readings = 50

ecology & environment, inc.	
Job: F10–8702–08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 1987

FIGURE 12
EM34–3 SURVEY AT 30 METER DEPTH WITH HORIZONTAL DIPOLE
NU–WEST INDUSTRIES
Conda, ID



LEGEND

Fence

Contour line

Rising slope

Depression

BACKGROUND

Range = 4–19 millimhos/meter

Average = 10 millimhos/meter

No. of readings = 26

ecology & environment, inc.	
Job: F10–8702–08	Waste Site: ID0020
Drawn by: D. P.	Date: Nov. 9, 1987

FIGURE 13
EM34–3 SURVEY AT 60 METER DEPTH WITH VERTICAL DIPOLE
NU–WEST INDUSTRIES
Conda, ID

Samples collected from the on-site waste ponds contained a number of inorganic hazardous substances in both the solid and liquid fractions. The cooling pond had the highest concentrations of heavy metals.

14.2 Ground-Water Quality

Concentrations of TCL inorganic elements and four anions detected in ground-water samples showed no identifiable trends at the time of the E&E site investigation. None of the domestic well samples appear to be affected by contaminants attributable to the Nu-West Site. High selenium levels detected in the four production wells, in addition to the relatively high concentrations of manganese, phosphate and sulfate detected in the sample from Simplot production well #10, indicate that mining, phosphate-containing products manufacturing, and possible fertilizer use in the site area are affecting local ground-water quality (17).

Levels of TCL inorganic elements and anions detected in the ground-water samples during the E&E site investigation were similar to those obtained by the Caribou County Health Department during non-spill event time periods. However, the levels detected during the E&E site investigation should not be considered indicative of stable long-term ground-water quality conditions at the site. Figure 4 shows that significant increases in ground-water contaminant concentrations have occurred as a result of a past spill at the Nu-West facility. Although the EM survey results are inconclusive, the data suggest that some leakage from the cooling pond may be occurring presently. If leakage from the cooling pond increases as a result of pond aging or increased water circulation, a contaminant plume may develop and migrate to the south-southwest.

14.3 Landfill Constituents

The on-site landfill poses some potential hazards to on-site workers, and run-off from the area could migrate eastward through ditches. Although the detected concentrations were all less than one part per million, the compounds were detected in samples collected east of the landfill proper from a migration pathway (ditch). Direct source samples from leaking drums observed in the landfill might reveal concentrations of these organic contaminants at higher levels. Of particular concern is the presence of PCB in one of the samples (LF #1). Nu-West is known to have stored PCB-contaminated transformers on site (4), but company personnel allege that none have been disposed of in the landfill. The PCBs could also be associated with waste oil deposited in the landfill (2).

14.4 Overview of Potential Contaminant Migration Pathways and Targets

Ground water and overland migration are the two most likely pathways for contaminant transport from the Nu-West Site. Past spills from the facility have migrated over the land surface and infiltrated to ground water tnrough joints and fissures in the underlying basalt flows. Sampling data show generally elevated concentrations of anions in Simplot Well #10. EM data tentatively suggest that contaminants may be migrating south from the site in ground water. Soda Creek, the nearest permanent surface water to the site, would likely not be affected by a wastewater spill because of its distance from the site (2.5 miles), the nature of the local topography, and the tendancy for surface water to quickly infiltrate the ground in the

site vicinity. Soil surrounding the on-site landfill is a potential source of direct contact exposure with organic contaminants. Local air quality will likely also be affected since the Nu-West facility has recommenced production operations.

REFERENCES

1. Ecology and Environment, Inc., April 10, 1987. Trip Report Memorandum from Jeffrey Whidden, FIT-PM, E&E, to John Osborn, FIT-RPO, USEPA, regarding Beker Industries Site Inspection. TDD F10-8702-08.

2. _____, July 27, 1987. Field Notes during Site Inspection, Nu-West Industries. TDD F10-8702-08.

3. U.S.G.S., 1982. 7.5 Minute Topographical Maps: Alexander, Soda Springs, China Hat. Provisional Editions.

4. Ecology and Environment, Inc., March 27, 1987. Letter from David L. Eaton, Beker Industries, to Jeffrey M. Whidden, FIT-PM, E&E, regarding requested information. Includes attachments A through G.

5. Lee Godfree, Soda Springs Water Department, Personal Communication, July 1987.

6. Ecology and Environment, Inc., July 28, 1987. Field Notes and Ground Water Quality records obtained in discussions with J.R. Simplot representatives.

7. USEPA Site File, Memo from Monty G. Marches and Dennis A. Dettuth, Idaho Division of Environment, to files, regarding the gypsum pond dike failure at Beker Industries, Soda Springs. March 15, 1976.

8. Lobeck, A.K., 1966. Geologic Map of the United States; The Geographical Press. Maplewood, NJ.

9. Dion, N.P., 1974. An Estimate of Leakage from Blackfoot Reservoir at Bear River Basin, Southeastern Idaho. Prepared by the USGS in cooperation with the Idaho Department of Water Administration. WIB No. 34.

10. Armstrong, F.C., 1969. Geologic Map of the Soda Spring Quadrangle, Southeastern Idaho. USGS Map I-557.

11. State of Idaho, Department of Water Resources, March 15, 1987. Water Rights Abstract, Soda Springs, Idaho area.

12. Climatic Atlas of the United States, 1979. U.S. Department of Commerce, National Climatic Center, NC.

13. PEDCO Environmental, Inc., 1983. Evaluation of Waste Management for Phosphate Processing. USEPA Contract No. 68-03-3036.

14. USEPA Site File, Preliminary Assessment of Beker Industries, Soda Springs, Idaho. July 16, 1985. Completed by Idaho Division of Environment.

REFERENCES (Cont.)

15. McNeill, J.D., 1979. EM 31 Operating Manual. Geonics, Ltd.

16. McNeill, J.D., 1980. EM 34-3 Survey Interpretation Techniques. Technical Note TN-8, Geonics, Ltd.

17. Fetter, C.W. Jr., 1980. Applied Hydrogeology. Bell and Howell Company, Columbus, Ohio.

APPENDIX A

SITE INSPECTION REPORT FORM
(EPA FORM 2070-13)

FOR
NU-WEST INDUSTRIES CONDA PLANT

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE ID	02 SITE NUMBER
	D000466888

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Nu-West Industries	Box 37

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CON DIS
Conda	ID	83230	Caribou	029	02

09 COORDINATES LATITUDE	LONGITUDE
42° 41' 00.0"	111° 32' 00.0"

10 TYPE OF OWNERSHIP (Check one)
X A. PRIVATE ___B. FEDERAL ___C. STATE ___D.COUNTY ___E. MUNICIPAL
___F. OTHER ___G.UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
03/24/87 (MO/DAY/YR)	X ACTIVE ___INACTIVE	1964 (BEGINNING YEAR) - Present (ENDING YEAR) ___UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
___A. EPA X B. EPA CONTRACTOR Ecology & Environment, Inc. (Name of firm) ___C. MUNICIPAL ___D. MUNICIPAL CONTRACTOR ___ (Name of firm)
___E. STATE ___F. STATE CONTRACTOR ___ (Name of firm) ___G. OTHER ___ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Jeffrey Whidden	Field Investigator	E&E, Inc.	(206) 624-953

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
George Brooks	Field Investigator	E&E, Inc.	(206) 624-953

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Craig Harlen	General Manager	P.O. Box 37 Conda, ID 83230	(208) 547-4
Dave Eaton	Former Environmental Supervisor	P.O. Box 37 Conda, ID 83230	(208) 547-3

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDIIONS
X PERMISSION ___ WARRANT	0900 - 1430	Sunny, 35°F.

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE N
William Glasser	USEPA Region X Superfund	(206) 442-7

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELPHONE NO.	08 DATE
William Richards	EPA-FIT	E&E, Inc.	(206) 624-9537	09/20/87

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE ID	02 SITE NUMBER D000466888

. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

PHYSICAL STATES (Check all that apply)

_ A. SOLID
_ B. POWDER, FINES
_ C. SLUDGE
_ D. OTHER _____ (Specify)
X E. SLURRY
X F. LIQUID
_ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS Unknown
CUBIC YARDS _____
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

X A. TOXIC
_ B. CORROSIVE
_ C. RADIOACTIVE
X D. PERSISTENT
_ E. SOLUBLE
_ F. INFECTIOUS
_ G. FLAMMABLE
_ H. IGNITABLE
_ I. HIGHLY VOLATILE
_ J. EXPLOSIVE
_ K. REACTIVE
_ L. INCOMPATIBLE
_ M. NOT APPLICABLE

II. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		Disposed of in on-site landfill.
IOC	INORGANIC CHEMICALS	Unknown		In waste ponds.
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	Unknown		In waste ponds.

V. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATIO
MES	Cadmium	7440-43-9	Surface Impoundment	4.74	mg/l
MES	Chromium	7440-47-3	Surface Impoundment	12.80	mg/l
IOC	Chloride	999	Surface Impoundment	129.0	mg/l
IOC	Fluoride	999	Surface Impoundment	20.2	g/l
IOC	Phosphate	7723-14-0	Surface Impoundment	28.4	g/l
IOC	Sulfate	999	Surface Impoundment	27.6	g/l
OCC	Toluene	108-88-3	Landfill	0.001	mg/Kg
OCC	Phenanthrene	85-01-8	Landfill	0.430	mg/Kg
OCC	2-Methylnaphthalene	91-57-6	Landfill	0.190	mg/Kg
OCC	PCB-Arochlor 1248	12672-29-6	Landfill	0.478	mg/Kg

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Sulfuric Acid	7664-93-9	FDS		
FDS	Phosphoric Acid	7664-38-2	FDS		
FDS	Ammonia	7664-41-7	FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.

EPA form 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE ID | 02 SITE NUMBER D000466888

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUND WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: approx. 72 — 04 NARRATIVE DESCRIPTION

No contamination attributable to Nu-West detected in ground water samples, although potential of ground water contamination exists if one of the waste ponds leaks or a spill occurs at the site.

01 X B. SURFACE WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: Unknown — 04 NARRATIVE DESCRIPTION

Potential of surface water contamination if one of the waste ponds fails.

01 ___ C. CONTAMINATION OF AIR — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None reported, observed, or suspected.

01 ___ D. FIRE/EXPLOSIVE CONDITIONS — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None reported, observed, or suspected.

01 X E. DIRECT CONTACT — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 153 — 04 NARRATIVE DESCRIPTION

Potential of direct contact with wastes by site workers or trespassers. Waste ponds are not fenced or secured.

01 X F. CONTAMINATION OF SOIL — 02 X OBSERVED (DATE: 08/87) X POTENTIAL ___ ALLEGED

03 AREA POTENTIALLY AFFECTED: Unknown (Acres) — 04 NARRATIVE DESCRIPTION

Potential contamination of soil if a spill occurs from surface impoundments. Soil surrounding landfill in run-off path is contaminated.

01 X G. DRINKING WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

No drinking water contamination detected in ground-water samples, although potential contamination exists if a spill occurs.

01 X H. WORKER EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None known, although workers may come in contact with low pH water (cooling pond), solid wastes containing heavy metals, or contaminated soils near landfill.

01 ___ I. POPULATION EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None reported, observed, or suspected.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE ID	02 SITE NUMBER
	D000466888

I. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

___ J. DAMAGE TO FLORA 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

NARRATIVE DESCRIPTION

None reported, observed, or suspected.

___ K. DAMAGE TO FAUNA 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

NARRATIVE DESCRIPTION (Include name(s) of species)

None reported, observed, or suspected.

___ L. CONTAMINATION OF FOOD CHAIN 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

NARRATIVE DESCRIPTION

None reported, observed, or suspected.

X M. UNSTABLE CONTAINMENT OF WASTES 02 X OBSERVED (DATE: 03/76) ___ POTENTIAL ___ ALLEGED

(Spills/runoff/standing liquids/leaking drums)

POPULATION POTENTIALLY AFFECTED: approx. 72 04 NARRATIVE DESCRIPTION

A waste water spill occurred at the site in March 1976, and was the result of a dike failure. Wastes in the on-site landfill are uncontained; surface run-off from the landfill could migrate eastward across the site.

X N. DAMAGE TO OFFSITE PROPERTY 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

NARRATIVE DESCRIPTION

Acute damage to nearby farm land occurred following the 1976 dike failure.

___ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

NARRATIVE DESCRIPTION

None reported, observed, or suspected.

___ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

NARRATIVE DESCRIPTION

None reported, observed, or suspected.

DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Low levels of organic contaminants detected in run-off path near the on-site landfill.

III. TOTAL POPULATION POTENTIALLY AFFECTED: approx. 200

IV. COMMENTS

Surrounding population and crop land potentially affected if large releases to surface or ground water occurs.

V. SOURCES OF INFORMATION (Cite specific references. e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.
State of Idaho, Water Rights Abstract and Well Logs, 1987.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE ID	02 SITE NUMBER
	D000466888

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
___A. NPDES				
___B. UIC				
X C. AIR				On file with State.
___D. RCRA				
___E. RCRA INTERIM STATUS				
___F. SPCC PLAN				
___G. STATE (Specify)				
___H. LOCAL (Specity)				
___I. OTHER (Specify)				
___J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
X A. SURFACE IMPOUNDMENT	Unknown	
___B. PILES		
___C. DRUMS, ABOVE GROUND		
___D. TANK, ABOVE GROUND		
___E. TANK, BELOW GROUND		
X F. LANDFILL	Unknown	
___G. LANDFARM		
___H. OPEN DUMP		
___I. OTHER _____ (Specify)		

04 TREATMENT (Check all that apply)
- ___A. INCENERATION
- ___B. UNDERGROUND INJECTION
- X C. CHEMICAL/PHYSICAL
- ___D. BIOLOGICAL
- ___E. WASTE OIL PROCESSING
- ___F. SOLVENT RECOVERY
- ___G. OTHER RECYCLING/RECOVERY
- ___H. OTHER _____ (Specify)

05 Other

X A. BUILDINGS ON SIT
approx. 30

06 AREA OF SITE

1,600 (Acre

07 COMMENTS

High volume waste streams from facility (tailings, gypsum, cooling water) stored in on-site ponds ranging in size between 40 acres and 280 acres. Waste oil has also been deposited in an on-site landfill.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

___A. ADEQUATE, SECURE ___B.MODERATE X C.INADEQUATE, POOR ___D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Waste ponds on site are unlined, and are constructed of waste gypsum. Waste water spills in the past have occurred from dike failures. On-site landfill is unlined, unsecured, and not capped. Crushed and leaking drum were evident at the time of the site inspection.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: X YES ___NO

02 COMMENTS

Workers, trespassers, or wildlife have potential to come in contact with wastes.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

E&E Site Inspection, 1987.
USEPA Site File; Idaho Division of Environment, Preliminary Assessment, 1984.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE ID	02 SITE NUMBER
	D000466888

I. DRINKING WATER SUPPLY

TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. X	B. ___
NON-COMMUNITY	C. ___	D. X

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ___	B. ___	C. X
D. ___	E. ___	F. ___

03 DISTANCE TO SITE

A. 0.5 (mi)

B. 0.5 (mi)

III. GROUND WATER

1 GROUND WATER USE IN VICINITY (Check one)

___ A. ONLY SOURCE FOR DRINKING

X B. DRINKING (Other sources available)

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

___ C. COMMERCIAL, INDUSTRIAL IRRIGATION (Limited other sources available)

___ D. NOT USED UNUSABLE

2 POPULATION SERVED BY GROUND WATER approx. 3,072

03 DISTANCE TO NEAREST DRINKING WATER WELL approx.0.5 (mi)

4 DEPTH TO GROUND WATER	05 DIRECTION OF GROUND WATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
35 - 175 (ft)	South-Southwest	35 (ft)	Unknown (gpd)	___ YES X NO

9 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

Eleven industrial supply wells within three miles of the site with depths ranging between 180' and 300' BGS. Nine are currently inactive. Seven domestic drinking water wells and a ground water spring serving the City of Soda Springs also exist within three miles of the site.

0 RECHARGE AREA		11 DISCHARGE AREA	
___ YES	COMMENTS	___ YES	COMMENTS
X NO		X NO	

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

___ A. RESERVOIR, RECREATION DRINKING WATER SOURCE

X B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES

___ C. COMMERCIAL, INDUSTRIAL

___ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Soda Creek	___	2.5 (m
	___	(
	___	(m

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 4	B. 27	C. 76
NO. OF PERSONS	NO. OF PERSONS	NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 0.5 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 95

04 DISTANCE TO NEAREST OFF-SITE BUILDING 0.5 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of s e.g., rural, village, densely populated urban area)

Population in the site area is sparse, mostly rural homes and farms. The nearest population center to the site is Soda Springs, located seven miles to the south, with a population of approximately 3,000.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE ID	02 SITE NUMBER
	D000466888

II. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

___A. $10^{-6} - 10^{-8}$ cm/sec ___B. $10^{-4} - 10^{-6}$ cm/sec X C. $10^{-4} - 10^{-3}$ cm/sec ___D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

___A. IMPERMEABLE (Less than 10^{-6} cm/sec) ___B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ___C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) X D. VERY PERMEABLE (Greater than 10^{-2} cm/sec

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
5 - 25 (ft)	Unknown (ft)	Unknown

06 NET PRECIPITATION	07 ONE YEAR 24-HOUR RAINFALL	08 SLOPE SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
-16.0 (in)	1.06 (in)	4.2 %	West	< 3 %

09 FLOOD POTENTIAL
SITE IS IN > 100 YEAR FLOOD PLAN

10 N/A SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWA

11 DISTANCE TO WETLANDS (5 acre minimum)
ESTUARINE A. > 3 (mi) OTHER B. > 3 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species) > 3 (mi)
ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY
DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. 0.25 (mi)	B. 6.0 (mi)	C. N/A (mi)	D. 0 (mi

4 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located at the western base of the Aspen Range, a northwest trending mountain range of the Bear River Basin. The valley in which the site is situated is drained by Soda Creek located approximately 2.5 miles to the west of the site.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.
U.S.G.S. 7.5 Minute Topographic Maps: Soda Springs, China Hat, 1984.
Climatic Atlas of the U.S., 1979.
State of Idaho, Water Rights Abstract and Well Logs, 1987.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE ID	02 SITE NUMBER D000466888

SAMPLES TAKEN

AMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
ROUND WATER	6	ARI, Seattle, WA	Received
URFACE WATER		EPA Region X Lab., Port Orchard, WA	Received
ASTE	5	EPA Region X Lab., Port Orchard, WA	Received
IR			
UNOFF			
PILL			
OIL	2	EPA Region X Lab., Port Orchard, WA	Received
EGATATION			
THER (QA/QC)	1	ARI, Seattle WA EPA Region X Lab., Port Orchard, WA	Received

. FIELD MEASUREMENTS TAKEN

TYPE	02 COMMENTS
pH	Water only; ranges: 1.22 (Cooling pond) to 7.85 (Simplot #11)
Conductivity	Water only; ranges: 427 umho (Nelson well) to >20,000 (Cooling Pond)
Temperature	Water only; ranges: 9°C to 20°C
Organic Vapors	HNu; ranges: 100 ppm detected at landfill within 6" of soil surface.

. PHOTOGRAPHS AND MAPS

. TYPE X GROUND X AERIAL

02 IN CUSTODY OF USEPA Region X Superfund
(Name of organization or individual)

MAPS
X YES
___ NO

04 LOCATION OF MAPS
USEPA Region X Site File

. OTHER FIELD DATA COLLECTED (Provide narrative description)

Geophysical survey of four grids located near on-site waste ponds at depths of 7.5, 15, 30, and 60 meters. Results of the survey did not conclusively determine the existence of subsurface contaminant plumes near the waste ponds. Samples of liquid and solid materials from on-site waste storage ponds were collected. Ground-water samples from on- and off-site wells were also collected, as was a water sample from nearby Formation Springs. For complete results, see the Final SI Report.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.

PA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE ID	02 SITE NUMBER D000466888

II. CURRENT OPERATOR (Provide if different from owner)			OPERATOR'S PARENT COMPANY (If applicable)		
01 NAME (same)	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	04 SIC CODE		12 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)			PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)		
01 NAME (same)	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE ID	02 SITE NUMBER D000466888

. ON-SITE GENERATOR

NAME (Same as owner)	02 D+B NUMBER	
STREET ADDRESS (P.O. BOX, RFD #, ETC.)	04 SIC CODE	
CITY	06 STATE	07 ZIP CODE

II. OFF-SITE GENERATOR(S)

NAME N/A	02 D+B NUMBER	01 NAME	02 D+B NUMBER
STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. TRANSPORTER(S)

NAME N/A	02 D+B NUMBER	01 NAME	02 D+B NUMBER
STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
5 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
1 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
3 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
5 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE ID	02 SITE NUMBER D000466888

II. PAST RESPONSE ACTIVITIES

01 ___ A. WATER SUPPLY CLOSED — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ D. SPILLED MATERIAL REMOVED — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ F. WASTE REPACKAGED — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ H. ON SITE BURIAL — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ L. ENCAPSULATION — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ N. CUTOFF WALLS — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

01 ___ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None reported, observed, or suspected.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE ID	02 SITE NUMBER
	D000466888

I. PAST RESPONSE ACTIVITIES (Continued)

___R. BARRIER WALLS CONSTRUCTED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___S. CAPPING/COVERING 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___T. BULK TANKAGE REPAIRED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___U. GROUT CURTAIN CONSTRUCTED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___V. BOTTOM SEALED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___W. GAS CONTROL 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___X. FIRE CONTROL 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___Y. LEACHATE TREATMENT 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___Z. AREA EVACUATED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___1. ACCESS TO SITE RESTRICTED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___2. POPULATION RELOCATED 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

___3. OTHER REMEDIAL ACTIVITIES 02 DATE _____ 03 AGENCY _____

DESCRIPTION
None reported, observed, or suspected.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE ID	02 SITE NUMBER D000466888

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ___YES _X_NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

None reported.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E&E Site Inspection, 1987.

EPA FORM 2070-13 (7-81)

APPENDIX B

EPA TARGET COMPOUND LIST (TCL)

ANALYTICAL PROTOCOLS

The standardized organic analytical methods are based on Federal Register Methods 625 (B/N/A), 608 (pesticide), 624 (VOA), EPA Methods for Chemical Analysis of Water and Wastes (MCAWW), and Test Methods for Evaluating Solid Wastes (SW-846) modified for CLP use in the analysis of both water and soil samples.

TABLE B-1

ORGANICS ANALYSES

Volatile Compounds (VOA)	Contract Required Quantitation Limits *	
	Low Concentration Water [a] (ug/l)	Low Concentration Soil/Sediment [b] (ug/kg)
1. Chloromethane	10	10
2. Bromomethane	10	10
3. Vinyl Chloride	10	10
4. Chloroethane	10	10
5. Methylene Chloride	5	5
6. Acetone	10	10
7. Carbon Disulfide	5	5
8. 1,1-Dichloroethene	5	5
9. 1,1-Dichloroethane	5	5
10. trans-1,2-Dichloroethene	5	5
11. Chloroform	5	5
12. 1,2-Dichloroethane	5	5
13. 2-Butanone	10	10
14. 1,1,1-Trichloroethane	5	5
15. Carbon Tetrachloride	5	5
16. Vinyl Acetate	10	10
17. Bromodichloromethane	5	5
18. 1,2-Dichloropropane	5	5
19. trans-1,3-Dichloropropene	5	5
20. Trichloroethene	5	5
21. Dibromochloromethane	5	5
22. 1,1,2-Trichloroethane	5	5
23. Benzene	5	5
24. cis-1,3-Dichloropropene	5	5
25. 2-Chloroethylvinylether	10	10
26. Bromoform	5	5
27. 2-Hexanone	10	10
28. 4-Methyl-2-Pentanone	10	10
29. Tetrachloroethene	5	5
30. 1,1,2,2-Tetrachloroethane	5	5
31. Toluene	5	5
32. Chlorobenzene	5	5
33. Ethyl Benzene	5	5
34. Styrene	5	5
35. Total Xylenes	5	5

TABLE B-1 (CONT.)

Semi-volatile Organic Compounds (BNA)	Contract Required Quantitation Limits *	
	Low Concentration Water [c] (ug/l)	Low Concentration Soil/Sediment [d] (ug/kg)
1. Phenol	10	330
2. bis(-2-Chloroethyl)Ether	10	330
3. 2-Chlorophenol	10	330
4. 1,3-Dichlorobenzene	10	330
5. 1,4-Dichlorobenzene	10	330
6. Benzyl Alcohol	10	330
7. 1,2-Dichlorobenzene	10	330
8. 2-Methylphenol	10	330
9. bis(2-Chloroisopropyl)Ether	10	330
10. 4-Methylphenol	10	330
11. N-Nitroso-Di-n-propylamine	10	330
12. Hexachloroethane	10	330
13. Nitrobenzene	10	330
14. Isophorone	10	330
15. 2-Nitrophenol	10	330
16. 2,4-Dimethylphenol	10	330
17. Benzoic Acid	50	1600
18. bis(2-Chloroethoxy)Methane	10	330
19. 2,4-Dichlorophenol	10	330
20. 1,2,4-Trichlorobenzene	10	330
21. Naphthalene	10	330
22. 4-Chloroanaline	10	330
23. Hexachlorobutadiene	10	330
24. 4-Chloro-3-Methylphenol	10	330
25. 2-Methylnaphthalene	10	330
26. Hexachlorocyclopentadiene	10	330
27. 2,4,6-Trichlorophenol	10	330
28. 2,4,5-Trichlorophenol	50	1600
29. 2-Chloronaphthalene	10	330
30. 2-Nitroanaline	50	1600
31. Dimethyl Phthalate	10	330
32. Acenaphthylene	10	330
33. 3-Nitroaniline	50	1600
34. Acenaphthene	10	330
35. 2,4-Dinitrophenol	50	1600

TABLE B-1 (CONT.)

Semivolatile Organic Compounds (BNA)	Contract Required Quantitation Limits *	
	Low Concentration Water [c] (ug/l)	Low Concentration Soil/Sediment [d] (ug/kg)
36. 4-Nitrophenol	50	1600
37. Dibenzofuran	10	330
38. 2,4-Dinitrotoluene	10	330
39. 2,6-Dinitrotoluene	10	330
40. Diethylphthalate	10	330
41. 4-Chlorophenyl-phenylether	10	330
42. Fluorene	10	330
43. 4-Nitroaniline	50	1600
44. 4,6-Dinitro-2-Methylphenol	50	1600
45. N-Nitrosodiphenylamine	10	330
46. 4-Bromophenyl-phenylether	10	330
47. Hexachlorobenzene	10	330
48. Pentachlorophenol	50	1600
49. Phenathrene	10	330
50. Anthracene	10	330
51. Di-n-Butylphthalate	10	330
52. Fluoranthene	10	330
53. Pyrene	10	330
54. Butylbenzylphthalate	10	330
55. 3,3'-Dichlorobenzidine	20	660
56. Benzo(a)Anthracene	10	330
57. bis(2-Ethylhexyl)Phthalate	10	330
58. Chrysene	10	330
59. Di-n-Octyl Phthalate	10	330
60. Benzo(b)Fluoranthene	10	330
61. Benzo(k)Fluoranthene	10	330
62. Benzo(a)Pyrene	10	330
63. Indeno(1,2,3-cd)Pyrene	10	330
64. Dibenz(a,h)Anthracene	10	330
65. Benzo(g,h,i)Perylene	10	330

TABLE B-1 (CONT.)

Pesticide / PCB Compounds	Contract Required Quantitation Limits *	
	Low Concentration Water [e] (ug/l)	Low Concentration Soil/Sediment [f] (ug/kg)
1. Alpha-BHC	.05	8
2. Beta-BHC	.05	8
3. Delta-BHC	.05	8
4. Gamma-BHC (Lindane)	.05	8
5. Heptachlor	.05	8
6. Aldrin	.05	8
7. Heptachlor Epoxide	.05	8
8. Endosulfan I	.05	8
9. Dieldrin	.1	16
10. 4,4'-DDE	.1	16
11. Endrin	.1	16
12. Endosulfan II	.1	16
13. 4,4'-DDD	.1	16
14. Endosulfan Sulfate	.1	16
15. 4,4'-DDT	.1	16
16. Methoxychlor	.5	80
17. Endrin Ketone	.1	16
18. Chlordane	.5	80
19. Toxaphene	1.0	160
20. AROCLOR-1016	.5	80
21. AROCLOR-1221	.5	80
22. AROCLOR-1232	.5	80
23. AROCLOR-1242	.5	80
24. AROCLOR-1248	.5	80
25. AROCLOR-1254	1.0	160
26. AROCLOR-1260	1.0	160

* Specific quantitation limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

a Medium Water Contract Required Quantitation Limits (CRQL) for Volatile TCL Compounds are 100 times the individual Low Water CRQL.

b Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Volatile TCL Compounds are 100 times the individual Low Soil/Sediment CRQL.

TABLE B-1 (CONT.)

c Medium Water Contract Required Quantitation Limits (CRQL) for Semivolatile TCL Compounds are 100 times the individual Low Water (CRQL).

d Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Semivolatile TCL Compounds are 60 times the individual Low Soil/Sediment (CRQL).

e Medium Water Contract Required Quantitation Limits (CRQL) for Pesticide/PCB TCL Compounds are 100 times the individual Low Water (CRQL).

f Medium Soil/Sediment Contract Required Quantitation Limits (CRQL) for Pesticide/PCB TCL Compounds are 60 times the individual Low Soil/Sediment (CRQL).

TABLE B-2

INORGANIC ANALYSES

Element	Contract Required Quantitation Limits *	
	Low Concentration Water (ug/l)	Low Concentration Soil (mg/kg)
Aluminum	200	40
Antimony	60	15
Arsenic	10	2
Barium	200	40
Beryllium	5	1
Cadmium	5	1
Calcium	5000	1000
Chromium	10	2
Cobalt	50	10
Copper	25	5
Iron	100	20
Lead	5	1
Magnesium	5000	1000
Manganese	15	3
Mercury	0.2	.1
Nickel	40	8
Potassium	5000	1000
Selenium	5	1
Silver	10	2
Sodium	5000	1000
Thallium	10	2
Vanadium	50	10
Zinc	20	4

* Specific detection limits are highly matrix dependent. The quantitation limits listed herein are provided for guidance and may not always be achievable.

APPENDIX C

WELL SAMPLING DATA SHEETS

ECOLOGY AND ENVIRONMENT, INC.
WELL SAMPLING DATA SHEET

TDO#: F10-8702-08
Date: 7-28-87
Recorder: B. Richards

Site Name: Baker Industries
Well #: Production Well #1
Location: on-site

GENERAL

TYPE OF WELL: Monitoring ☐ Domestic ☐ Commercial/Industrial ☒ Irrigation ☐
Other (specify) ☐ _____

Casing Material: steel
Constructed Depth: 280
Casing Diameter: 16"
Screened Interval: 45'-240', open hole below 240
Elevation: NA
Measured from: Top of well casing ☐
Top of Surface casing ☐ Ground Surface ☐ Other (specify) ☒ NA

Security Cap: Locked ☐ Unlocked ☐ None Present ☐

Other Seal or Pump in Place: Yes ☒ No ☐

Physical Condition of Well (i.e., damaged, etc.): good

FIELD MEASUREMENTS

DEPTH TO STATIC WATER: 38' (from well log)
Measured from: Top of Well Casing ☐
Other (specify) ☒ NA

Measuring Device: Electric tape ☐ Wetted Tape ☐ Other (specify) ☒ NA
Depth to Bottom: 280 (From well log)
Obstructions: _____

PURGING INFORMATION:

Pump (Type, Model): electric sub.
Purge Rate of Pumping Method: NA
Bailer (Type, Size): _____
Checked by (bucket, timed flow, etc.): —
Approximate total volume purged: NA

Time	Volume Purged	Temp (°C)	pH	Conduct. (umhos)	Other	Other	Other
1415	NA	15	6.84	938			
1425	NA	15	7.37	900			
1435	NA	15	7.64	926			
Final 1435	collected sample						

SAMPLING INFORMATION

ANALYSES TO BE PERFORMED:

Metals ☒
Base/Neutrals ☒
Acids ☒
Pesticides/PCBs ☒
Volatiles ☒
Total Cyanide ☐

Herbicides ☐
Dioxins ☐
Other (specify) ☐ _____

Cyanide Prescreen: Yes ☐ No ☒
Sulfide: Yes ☐ No ☒
Oxidizing Agents: Yes ☐ No ☒

SAMPLE COLLECTION DEVICE:

SS. Bailer ☐ Teflon Bailer ☐
Pump (specify tubing type) ☐ _____
Faucet ☒

Duplicates Collected: Yes ☐ No ☐
Splits Provided: Yes ☒ No ☐

Sample #s: EPA# 87314452
CLP# JC103

NOTES:

ECOLOGY AND ENVIRONMENT, INC.
WELL SAMPLING DATA SHEET

TDD#: F10- 8702-08
Date: 7-28-87
Recorder: B. Richards

Site Name: Beker Industries
Well #: MF well
Location: On-site

GENERAL

TYPE OF WELL: Monitoring ☐ Domestic ☐ Commercial/Industrial ☒ Irrigation ☐
Other (specify) ☐ _____

Casing Material: _____ Constructed Depth: ~ 200-250
Casing Diameter: _____ Screened Interval: Unknown
Elevation: _____ Measured from: Top of well casing ☐
Top of Surface casing ☐ Ground Surface ☐ Other (specify) ☐ _____

Security Cap: Locked ☐ Unlocked ☐ None Present ☐
Other Seal or Pump in Place: Yes ☒ No ☐
Physical Condition of Well (i.e., damaged, etc.): good

FIELD MEASUREMENTS

DEPTH TO STATIC WATER: NA Measured from: Top of Well Casing ☐
Other (specify) ☒ NA

Measuring Device: Electric tape ☐ Wetted Tape ☐ Other (specify) ☐ _____
Depth to Bottom: NA Obstructions: _____

PURGING INFORMATION:
Pump (Type, Model): electric sub. Purge Rate of Pumping Method: well pumps continuo
Bailer (Type, Size): _____ Checked by (bucket, timed flow, etc.): NA
Approximate total volume purged: well pumps continuo

	Time	Volume Purged	Temp (°C)	pH	Conduct. (umhos)	Other	Other	Other
	0915	NA	15	6.76	876			
Final	0920	NA	15	6.93	827	collected	sample	

SAMPLING INFORMATION

ANALYSES TO BE PERFORMED:

Metals ☒
Base/Neutrals ☒
Acids ☒
Pesticides/PCBs ☒
Volatiles ☒
Total Cyanide ☐

Herbicides ☐
Dioxins ☐
Other (specify) ☐ _____

Cyanide Prescreen: Yes ☐ No ☒
Sulfide: Yes ☐ No ☒
Oxidizing Agents: Yes ☐ No ☒

SAMPLE COLLECTION DEVICE:

SS. Bailer ☐ Teflon Bailer ☐
Pump (specify tubing type) ☐ _____
Faucet ☒

Duplicates Collected: Yes ☐ No ☐
Splits Provided: Yes ☒ No ☐

Sample #s: EPA # B7314450
CLP # JC101

NOTES: No well log available. Map provided by Beker Industries shows location of MF well in section 4. However, the well log provided by Beker is for a well located

NUW 004549

ECOLOGY AND ENVIRONMENT, INC.
WELL SAMPLING DATA SHEET

TDO#: F10- 8702-08
Date: 7
Recorder: B. Richards

Site Name: Baker Industries
Well #: Simplot #10
Location: off-site
NW SE Sec. 16, T8S, R

GENERAL

TYPE OF WELL: Monitoring ☐ Domestic ☐ Commercial/Industrial ☒ Irrigation ☐
Other (specify) ☐ _____

Casing Material: steel
Constructed Depth: 220'
Casing Diameter: open hole below 10'
Screened Interval: open Hole
Elevation: NA
Measured from: Top of well casing ☐
Top of Surface casing ☐ Ground Surface ☐ Other (specify) ☒ NA

Security Cap: Locked ☐ Unlocked ☐ None Present ☐

Other Seal or Pump in Place: Yes ☒ No ☐

Physical Condition of Well (i.e., damaged, etc.): good

FIELD MEASUREMENTS

DEPTH TO STATIC WATER: 57'
Measured from: Top of Well Casing ☐
Other (specify) ☒ NA

Measuring Device: Electric tape ☐ Wetted Tape ☐ Other (specify) ☒ NA
Depth to Bottom: 220 (from well log)
Obstructions: _____

PURGING INFORMATION:

Pump (Type, Model): electric Sub.
Purge Rate of Pumping Method: NA
Bailer (Type, Size): _____
Checked by (bucket, timed flow, etc.): NA
Approximate total volume purged: NA

Time	Volume Purged	Temp (°C)	pH	Conduct. (umhos)	Other	Other	Other
1528	NA	13	7.1	1100			
1538	NA	12	6.91	1122			
1548	NA	15	6.78	1158			
Final 1558	Collected	Sample					

SAMPLING INFORMATION

ANALYSES TO BE PERFORMED:

Metals ☒
Base/Neutrals ☒
Acids ☒
Pesticides/PCBs ☒
Volatiles ☒
Total Cyanide ☐

Herbicides ☐
Dioxins ☐
Other (specify) ☐

Cyanide Prescreen: Yes ☐ No ☒
Sulfide: Yes ☐ No ☒
Oxidizing Agents: Yes ☐ No ☒

SAMPLE COLLECTION DEVICE:

SS. Bailer ☐ Teflon Bailer ☐
Pump (specify tubing type) ☐ _____
Faucet ☒

Duplicates Collected: Yes ☐ No ☒
Splits Provided: Yes ☐ No ☒

Sample #s: EPA # 87314453
CLP# JC104

NOTES: Well runs off and on throughout each working day. Well pump ran for 20 minutes prior to sampling.

ECOLOGY AND ENVIRONMENT, INC.
WELL SAMPLING DATA SHEET

TDD#: F10- 8702-08
Date: 7-28-87
Recorder: B. Richards

Site Name: Beker Industries
Well #: Simplot well #11
Location: off-site

GENERAL

TYPE OF WELL: Monitoring ☐ Domestic ☐ Commercial/Industrial ☒ Irrigation ☐
Other (specify) ☐ _____

Casing Material: Steel
Constructed Depth: 180'
Casing Diameter: 8"
Screened Interval: _____
Elevation: NA
Measured from: Top of well casing ☐
Top of Surface casing ☐ Ground Surface ☐ Other (specify) ☒ NA

Security Cap: Locked ☐ Unlocked ☐ None Present ☐

Other Seal or Pump in Place: Yes ☐ No ☐

Physical Condition of Well (i.e., damaged, etc.): _____

FIELD MEASUREMENTS

DEPTH TO STATIC WATER: ~1' (after pumping - from well log)
Measured from: Top of Well Casing ☐
Other (specify) ☒ NA

Measuring Device: Electric tape ☐ Wetted Tape ☐ Other (specify) ☒ NA

Depth to Bottom: 180' (from well log)
Obstructions: _____

PURGING INFORMATION:

Pump (Type, Model): electric Sub.
Purge Rate of Pumping Method: NA
Bailer (Type, Size): _____
Checked by (bucket, timed flow, etc.): NA
Approximate total volume purged: NA

	Time	Volume Purged	Temp (°C)	pH	Conduct. (umhos)	Other	Other	Other
	1617	NA	12	7.85	583			
	1622	NA	12	7.72	505			
	1627	NA	13	7.40	538			
	1632	NA	9	7.30	470			
Final	1637	NA	10	7.5	—			

SAMPLING INFORMATION

ANALYSES TO BE PERFORMED:

Metals ☒
Base/Neutrals ☒
Acids ☒
Pesticides/PCBs ☒
Volatiles ☒
Total Cyanide ☐

Herbicides ☐
Dioxins ☐
Other (specify) ☐ _____

Cyanide Prescreen: Yes ☐ No ☒
Sulfide: Yes ☐ No ☒
Oxidizing Agents: Yes ☐ No ☒

SAMPLE COLLECTION DEVICE:

SS. Bailer ☐ Teflon Bailer ☐
Pump (specify tubing type) ☐ _____
Faucet ☒

Duplicates Collected: Yes ☐ No ☒
Splits Provided: Yes ☐ No ☒

Sample #s: EPA # 87314454
CLP # JC105

NOTES: well pump ran for 20+ minutes prior to sampling

ECOLOGY AND ENVIRONMENT, INC.
WELL SAMPLING DATA SHEET

TDD#: F10- 8702-08
Date: 8-4-87
Recorder: B. Richards

Site Name: Beker Industries
Well #: Ray Nelson
Location: SE NE Sec. 20, T8S,

GENERAL

TYPE OF WELL: Monitoring [X] Domestic [ ] Commercial/Industrial [ ] Irrigation [ ]
Other (specify) [ ] _____

Casing Material: Steel
Constructed Depth: 147'
Casing Diameter: 5"
Screened Interval: 105-147'
Elevation: NA
Measured from: Top of well casing [ ]
Top of Surface casing [ ] Ground Surface [ ] Other (specify) [ ] _____

Security Cap: Locked [ ] Unlocked [ ] None Present [ ]

Other Seal or Pump in Place: Yes [X] No [ ]

Physical Condition of Well (i.e., damaged, etc.): good

FIELD MEASUREMENTS

DEPTH TO STATIC WATER: ~76 (from well log
Measured from: Top of Well Casing [ ]
Other (specify) [X] unknown

Measuring Device: Electric tape [ ] Wetted Tape [ ] Other (specify) [X] NA

Depth to Bottom: NA
Obstructions: _____

PURGING INFORMATION:

Pump (Type, Model): Electric Sub.
Purge Rate of Pumping Method: ~15 gpm
Bailer (Type, Size): _____
Checked by (bucket, timed flow, etc.): bucket
Approximate total volume purged: 225 gpm

Time	Volume Purged	Temp (°C)	pH	Conduct. (umhos)	Other	Other	Other
1650	75	9.5	7.19	436			
1655	150	9.5	7.14	427			
1700	225	9.5	7.20	427			
Final 1700	Collected	Sample					

SAMPLING INFORMATION

ANALYSES TO BE PERFORMED:

Metals [X]
Base/Neutrals [X]
Acids [X]
Pesticides/PCBs [X]
Volatiles [X]
Total Cyanide [ ]

Herbicides [ ]
Dioxins [ ]
Other (specify) [ ] _____

Cyanide Prescreen: Yes [ ] No [X]
Sulfide: Yes [ ] No [X]
Oxidizing Agents: Yes [ ] No [X]

SAMPLE COLLECTION DEVICE:

SS. Bailer [ ] Teflon Bailer [ ]
Pump (specify tubing type) [ ] _____
Faucet [X]

Duplicates Collected: Yes [ ] No [X]
Splits Provided: Yes [ ] No [X]

Sample #s: EPA # 87314456
CLP # JC106

NOTES: well has a holding tank by-pass. Sample water did not pass through tank.

ECOLOGY AND ENVIRONMENT, INC.
WELL SAMPLING DATA SHEET

TDD#: F10-8702-08
Date: 8-4-87
Recorder: B. Richards

Site Name: Baker Industries
Well #: Richard Torgeson
Location: SW NW Sec. 9, T8S, R4

GENERAL

TYPE OF WELL: Monitoring ☐ Domestic ☒ Commercial/Industrial ☐ Irrigation ☐
Other (specify) ☐ _____

Casing Material: Steel
Constructed Depth: 225'
Casing Diameter: 6"
Screened Interval: 185-225'
Elevation: NA
Measured from: Top of well casing ☐
Top of Surface casing ☐ Ground Surface ☐ Other (specify) ☒ NA

Security Cap: Locked ☐ Unlocked ☐ None Present ☐

Other Seal or Pump in Place: Yes ☒ No ☐

Physical Condition of Well (i.e., damaged, etc.): good

FIELD MEASUREMENTS

DEPTH TO STATIC WATER: ~175 (from well log)
Measured from: Top of Well Casing ☐
Other (specify) ☐ unknown

Measuring Device: Electric tape ☐ Wetted Tape ☐ Other (specify) ☒ NA

Depth to Bottom: NA
Obstructions: _____

PURGING INFORMATION:

Pump (Type, Model): electric sub.
Purge Rate of Pumping Method: ~15 gpm
Bailer (Type, Size): _____
Checked by (bucket, timed flow, etc.): bucket
Approximate total volume purged: ~375 gal.

Time	Volume Purged	Temp (°C)	pH	Conduct. (umhos)	Other	Other	Other
1612	150	9°	6.93	920			
1617	225	9	6.77	870			
1627	375	9	6.69	846			
Final 1635	collected sample						

SAMPLING INFORMATION

ANALYSES TO BE PERFORMED:

Metals ☒
Base/Neutrals ☒
Acids ☒
Pesticides/PCBs ☒
Volatiles ☒
Total Cyanide ☐

Herbicides ☐
Dioxins ☐
Other (specify) ☐ _____

Cyanide Precreen: Yes ☐ No ☒
Sulfide: Yes ☐ No ☒
Oxidizing Agents: Yes ☐ No ☒

SAMPLE COLLECTION DEVICE:

SS. Bailer ☐ Teflon Bailer ☐
Pump (specify tubing type) ☐ _____
Faucet ☒

Duplicates Collected: Yes ☐ No ☒
Splits Provided: Yes ☐ No ☒

Sample #s: EPA # 87314456
CLP # JC107

NOTES: Well is equipped with a large holding/pressure tank (several hundred gallons capacity). Pump turned [illegible] prior to purging

APPENDIX D

DATA TABLES

13.2.1 Cooling Pond

Table 11 summarizes inorganic elements and anions detected in the solid fraction of the cooling pond samples. A total of 20 TCL inorganic elements were detected in the sample.

Table 12 summarizes inorganic elements and anion detected in the cooling pond liquid fraction samples. A total of 20 TCL inorganic elements were detected in the sample. In comparison to the other on-site waste ponds, the cooling pond revealed relatively high concentrations of cadmium (4.7 mg/l) and chromium (12.8 mg/l).

Field parameters measured prior to sample collection are also included in Table 12. The cooling pond water had a pH of 1.22 and the conductivity value was greater than the highest reading obtainable with instrumentation used in the field (greater than 20,000 umhos).

Although the cooling pond water is recycled back to the plant, and technically should not be considered a waste, the water contains hazardous substances and meets the Resource Conservation and Recovery Act (RCRA) definition of a corrosive substance (pH less than 2). Additionally, levels of cadmium and chromium detected in the cooling pond liquid fraction sample exceed RCRA Extraction Procedure Toxicity (EP Toxicity) criteria (1.0 mg/l and 5.0 mg/l, respectively) for designation as a hazardous waste. This sample appeared clear during collection, and it is assumed that it contained less than 0.5% filterable solids.

13.2.2 Tailings Pond

Table 11 summarizes inorganic elements and anions detected in the solid fraction of the tailings pond. A total of 21 TCL inorganic elements were detected in the sample. In comparison to the other on-site waste ponds, the tailings solid fraction sample revealed relatively high levels of cadmium (110 mg/Kg), chromium (1,489 mg/Kg), mercury (0.44 mg/Kg), and selenium (29.5 mg/Kg).

Table 12 summarizes inorganic elements and anions detected in the liquid fraction of the tailings pond. A total of 17 TCL inorganic elements were detected in the sample. Field parameters measured prior to sample collection are also included in Table 12. The tailings pond water had a pH of 5.8 and a specific conductance of 5,320 umhos.

13.2.3 Gypsum Ponds

Table 11 summarizes inorganic elements and anions detected in the solid fraction of the gypsum ponds. A total of 20 TCL inorganic elements were detected in the sample.

TABLE 11

SUMMARY OF INORGANIC ELEMENTS AND ANIONS
DETECTED IN SOLID FRACTION WASTE POND SAMPLES

Element	Cooling Pond (mg/kg)	Gypsum Ponds (mg/kg)	Tailings Ponds (mg/kg)
Aluminum	2581	1179	14330
Antimony	U	0.4	2.9
Arsenic	1.8	1.8	22.6
Barium	24.0	U	101
Beryllium	0.17	0.17	1.31
Cadmium	10.4	8.5	110.1
Calcium	143500	178800	107800
Chromium	27.1	46.6	1489
Cobalt	U	U	U
Copper	8.6	11.6	131.8
Iron	194	278	17500
Lead	9.0	10.0	14.0
Magnesium	144	42.0	3432
Manganese	5.0	2.3	221
Mercury	0.109	0.289	0.444
Nickel	8.5	6.2	255.0
Potassium	438	611	4280
Selenium	5.9	11.1	29.5
Silver	2.32	4.11	7.89
Sodium	798	335	1036
Thallium	U	U	3.6
Vanadium	28.9	28.8	1584
Zinc	46.0	30.0	1722
Chloride	85.7	1.4	83.4
Fluoride	20160	6470	4350
Phosphate	3939	3030	28400
Sulfate	27540	18960	27640

U - Element was not detected at Contract Required Detection Limit (CRDL). For complete data tables, including detection limits, see Appendix D.

NUW 004556

TABLE 12

SUMMARY OF INORGANIC ELEMENTS, ANIONS, AND FIELD PARAMETERS DETECTED IN LIQUID FRACTION WASTE PONDS SAMPLES

Element	Cooling Pond (mg/l)	Tailings Pond (mg/l)
Aluminum	128.4	0.47
Antimony	0.092	U
Arsenic	0.037	0.006
Barium	U	U
Beryllium	U	U
Cadmium	4.74	0.019
Calcium	404	548
Chromium	12.8	0.03
Cobalt	U	U
Copper	5.46	0.019
Iron	110	0.29
Lead	0.116	0.03
Magnesium	158	306
Manganese	3.85	0.13
Mercury	0.0001	0.15
Nickel	3.43	0.065
Potassium	918	55.9
Selenium	0.012	0.016
Silver	0.002	U
Sodium	21.1	391
Thallium	0.059	U
Vanadium	15.5	0.167
Zinc	33.6	0.11
Chloride	88.0	129
Fluoride	4600	18.8
Phosphate	3340	2.1
Sulfate	4220	3424
pH	1.22	5.80
Specific Conductance	20,000 umhos	5,320 umhos
Temperature	20°C	20°C

U - Element was not detected at Contract Required Detection Limit (CRDL). For complete data tables, including detection limits, see Appendix D.

13.3 On-Site Landfill Samples

Two composite soil samples were collected from run-off routes near the on-site landfill. These drainage pathways (ditches) contained no stained soil, although crushed, leaking drums and stained soil were observed in and near the landfill.

13.5 EM Survey Results

Figures 8 through 13 illustrate terrain conductivity contours derived from the EM survey results. A background grid, located west and northwest of the tailings ponds, was surveyed to obtain the natural conductivity of underlying materials at the site. The background values were used to determine the significance of readings obtained on site. Table 14 summarizes the background ranges and on-site ranges for different depth intervals surveyed with the EM 34-3.

TABLE 14

EM 34-3 DATA RANGES

Depth (m)	Dipole Orientation	Background Range (mmho/m)	On-Site Range (mmho/m)
7.5	Horizontal	9.0 - 24.5	8.0 - 28.0
15	Vertical	3.0 - 21.0	3.0 - 35.0
15	Horizontal	8.0 - 18.0	7.5 - 25.0
30	Vertical	5.0 - 13.5	3.5 - 30.0
30	Horizontal	6.0 - 12.5	6.0 - 23.0
60	Vertical	4.0 - 19.0	7.0 - 29.0

Table 14 indicates that there is no significant difference between the background and on-site values obtained from the EM survey. Consequently, on-site readings are not indicative of a local anomaly, although a general trend of increasing conductivity near the cooling pond is evident (Figures 8 through 13).

Subsurface conductivity patterns as determined by the EM survey appear to be characteristic of ground-water flow patterns associated with vertical joints and horizontal fractures in basalt formations. The trend of generally increasing conductivity near the cooling pond may suggest that leakage from the pond is occurring and that contaminants are entering the underlying ground-water system.

14.0 CONCLUSIONS

14.1 Waste Pond Constituents

Comparisons of data from the waste pond samples (total inorganics) to those available from past analyses of the waste pond constituents (EP Toxicity) provided by Nu-West cannot be made. However, previous analyses for total inorganics in gypsum solids at phosphoric acid plants in Idaho (Table 6) indicate concentrations similar to those detected during the E&E site investigation (Table 11).

NUW 004558

26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZ3

Project: TEC-380A

Station No: JC101 Source: Well (Indust/Agric) Depth: QA Code:

Sample No: 87 314450 Begin Sample Date: 87/07/28 09:20

Laboratory: RX Description: MF WELL

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.40	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	0.28	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	109.6	mg/l
Mgnsium	Mg-Total	50.1	mg/l
Sodium	Na-Total	4.9	mg/l
Potssium	K -Total	2.8	mg/l
Arsenic	As-Total	1U	ug/l
Barium	Ba-Total	500	ug/l
Beryllium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	4	ug/l
Copper	Cu-Total	4	ug/l
Iron	Fe-Total	5U	ug/l
Lead	Pb-Total	9	ug/l
Mangnese	Mn-Total	20	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	7	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	7	ug/l
Zinc	Zn-Total	1U	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	160	ug/l
Selenium	Se-Total	21	ug/l
Mercury	Hg-Total	0.10	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		9.4	mg/l
Sulfate	Total	170	mg/l

(Sample Complete)

JC 101
MF WELL

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 557A
Sample Matrix Waters
Data Release Authorized: Susan D Rao

Case Number: 7719
QC Report No: 557
Contract No: 68-01-7236
Date Received: 31 July 1987

Volatile Compounds

Concentration: Low
Date Prepared: 8/4/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	1 JB UJ
67-64-1	Acetone	30
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		µg
78-87-5	1,2-Dichloropropane	5
10061-02-6	Trans-1,3-Dichloropropene	5
79-01-6	Trichloroethene	5
124-48-1	Dibromochloromethane	5
79-00-5	1,1,2-Trichloroethane	5
71-43-2	Benzene	5
10061-01-5	cis-1,3-Dichloropropene	5
110-75-8	2-Chloroethylvinylether	1
75-25-2	Bromoform	5
108-10-1	4-Methyl-2-Pentanone	1
591-78-6	2-Hexanone	1
127-18-4	Tetrachloroethene	5
79-34-5	1,1,2,2-Tetrachloroethane	5
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value

U — Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.

J — Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds or when result is less than specified DL.

C — This flag applies to pesticide parameter confirmed by GC/MS.

B — This flag is used when the analyte is fo in the blank as well as a sample. It inc possible/probable blank contaminatio

K — This flag is used when the quantitated falls above the limit of the calibration curve. Indicates a dilution has been r and submitted also in data package.

M — Analyte does not meet EPA spectral ma

ratory Name: ANALYTICAL RESOURCES, INC.
7719

JC 101
MF WELL

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		µg/L
83-32-9	Acenaphthene	10
51-28-5	2,4-Dinitrophenol	50
100-02-7	4-Nitrophenol	50
132-64-9	Dibenzofuran	10
121-14-2	2,4-Dinitrotoluene	10
606-20-2	2,6-Dinitrotoluene	10
84-66-2	Diethylphthalate	10
7005-72-3	4-Chlorophenyl-phenylether	1
86-73-7	Fluorene	10
100-01-6	4-Nitroaniline	50
534-52-1	4,6-Dinitro-2-Methylphenol	5
86-30-6	N-Nitrosodiphenylamine(1)	10
101-55-3	4-Bromophenyl-phenylether	1
118-74-1	Hexachlorobenzene	1
87-86-5	Pentachlorophenol	50
85-01-8	Phenanthrene	10
120-12-7	Anthracene	1
84-74-2	Di-n-Butylphthalate	1
206-44-0	Fluoranthene	1
129-00-0	Pyrene	1
85-68-7	Butylbenzylphthalate	1
91-94-1	3,3'-Dichlorobenzidine	2
56-55-3	Benzo(a)Anthracene	1
117-81-7	bis(2-Ethylhexyl)Phthalate	1
218-01-9	Chrysene	1
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	1
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	1
191-24-2	Benzo(g,h,i)Perylene	

(1) Cannot be separated from diphenylamine

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab No: 7719

JC 101
MF WELL

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

8/5/87

V(s) = 1000 W(s) = NA V(t)= 10000 V(i) = 2.0

atory Name: ANALYTICAL RESOURCES, INC.
: 7719

JC 101
MF WELL

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks > 10% IS peak height	VOA	-	-
2	-	NO UNKNOWN ABN peaks > 10% IS peak height	ABN	-	-
3					
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4-5-87

26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZZ

Project: TEC-380A

Station No: JC102

Sample No: 87 311451 Begin Sample Date: 87/07/28 : Source: Well (Indust/Agric) Depth: QA Code:

Laboratory: RX Description: TP BLANK

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.07	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	0.008	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	1.2	mg/l
Mgnsium	Mg-Total	0.1	mg/l
Sodium	Na-Total	0.1	mg/l
Potssium	K -Total	0.1U	mg/l
Arsenic	As-Total	1U	ug/l
Barium	Ba-Total	50U	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	1U	ug/l
Copper	Cu-Total	.5	ug/l
Iron	Fe-Total	5U	ug/l
Lead	Pb-Total	12	ug/l
Mangnese	Mn-Total	2	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	5U	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	1U	ug/l
Zinc	Zn-Total	1U	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	460	ug/l
Selenium	Se-Total	1U	ug/l
Mercury	Hg-Total	0.10	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		0.27	mg/l
Sulfate	Total	0.13	mg/l

(Sample Complete)

JC 102
TP

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 557B
Sample Matrix Waters
Date Release Authorized: Susan D Rao

Case Number: 7719
QC Report No: 557
Contract No: 68-01-7236
Date Received: 31 July 1987

Volatile Compounds

9/4/87
P.M.

Concentration: Low
Date Prepared: 8/4/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L	
74-87-3	Chloromethane	10 U	
74-83-9	Bromomethane	10 U	
75-01-4	Vinyl Chloride	10 U	
75-00-3	Chloroethane	10 U	
75-09-2	Methylene Chloride	1 ~~JB~~	UJ
67-64-1	Acetone	15	
75-15-0	Carbon Disulfide	5 U	
75-35-4	1,1-Dichloroethene	5 U	
75-34-3	1,1-Dichloroethane	5 U	
156-60-5	Trans-1,2-Dichloroethene	5 U	
67-66-3	Chloroform	5 U	
107-06-2	1,2-Dichloroethane	5 U	
78-93-3	2-Butanone	10 U	
71-55-6	1,1,1-Trichloroethane	5 U	
56-23-5	Carbon Tetrachloride	5 U	
108-05-4	Vinyl Acetate	10 U	
75-27-4	Bromodichloromethane	5 U	

CAS Number		µg
78-87-5	1,2-Dichloropropane	
10061-02-6	Trans-1,3-Dichloropropene	
79-01-6	Trichloroethene	5
124-48-1	Dibromochloromethane	
79-00-5	1,1,2-Trichloroethane	
71-43-2	Benzene	
10061-01-5	cis-1,3-Dichloropropene	
110-75-8	2-Chloroethylvinylether	
75-25-2	Bromoform	
108-10-1	4-Methyl-2-Pentanone	
591-78-6	2-Hexanone	
127-18-4	Tetrachloroethene	
79-34-5	1,1,2,2-Tetrachloroethane	
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value

U — Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.

J — Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds or

C — This flag applies to pesticide parame confirmed by GC/MS.

B — This flag is used when the analyte is in the blank as well as a sample. It possible/probable blank contaminati

K — This flag is used when the quantitat falls above the limit of the calibratio curve. Indicates a dilution has bee and submitted also in data package.

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 102
TP

9/4/87

P.M.

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		
83-32-9	Acenaphthene	
51-28-5	2,4-Dinitrophenol	
100-02-7	4-Nitrophenol	
132-64-9	Dibenzofuran	
121-14-2	2,4-Dinitrotoluene	
606-20-2	2,6-Dinitrotoluene	
84-66-2	Diethylphthalate	
7005-72-3	4-Chlorophenyl-phenylether	
86-73-7	Fluorene	
100-01-6	4-Nitroaniline	
534-52-1	4,6-Dinitro-2-Methylphenol	
86-30-6	N-Nitrosodiphenylamine(1)	
101-55-3	4-Bromophenyl-phenylether	
118-74-1	Hexachlorobenzene	
87-86-5	Pentachlorophenol	
85-01-8	Phenanthrene	
120-12-7	Anthracene	
84-74-2	Di-n-Butylphthalate	
206-44-0	Fluoranthene	
129-00-0	Pyrene	
85-68-7	Butylbenzylphthalate	
91-94-1	3,3'-Dichlorobenzidine	
56-55-3	Benzo(a)Anthracene	
117-81-7	bis(2-Ethylhexyl)Phthalate	
218-01-9	Chrysene	
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	
191-24-2	Benzo(g,h,i)Perylene	

(1) Cannot be separated from diphenylamine

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case No: 7719

JC 102
TP

P.M. 9/4/87

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction:

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

W(s) = 1000 W(s) = NA V(t) = 10000 V(i) = 2.0

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 102
TP

9/4/87
P.M.

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks > 10% IS peak height	VOA	-	-
2	-	NO UNKNOWN ABN peaks > 10% IS peak height	ABN	-	-
3					
4					
5					
6					
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26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

Officer: JEA Account: FA10PUZZ

BEKER INDUSTRIES

Project: TEC-380A

Station No: JC103

Sample No: 87 314452 Begin Sample Date: 87/07/28 14:34 Source: Well (Indust/Agric) Depth: QA Code:

Laboratory: RX Description: PRODUCTION WELL #1

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.33	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	0.26	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	124.3	mg/l
Mgnsium	Mg-Total	42.8	mg/l
Sodium	Na-Total	30.6	mg/l
Potssium	K -Total	2.6	mg/l
Arsenic	As-Total	1U	ug/l
Barium	Ba-Total	50U	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	4	ug/l
Coppel	Cu-Total	1U	ug/l
Iron	Fe-Total	29	ug/l
Lead	Pb-Total	12	ug/l
Mangnese	Mn-Total	25	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	13	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	10	ug/l
Zinc	Zn-Total	5	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	80	ug/l
Selenium	Se-Total	17	ug/l
Mercury	Hg-Total	0.10	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		13.0	mg/l
Sulfate	Total	225	mg/l

(Sample Complete)

JC 103 R
PROD. WELL

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 557CR
Sample Matrix Waters
Data Release Authorized: Susan D Rao

Case Number: 7719
QC Report No: 557
Contract No: 68-01-7236
Date Received: 31 July 1987

Volatile Compounds

P.M. 9/4/87

Concentration: Low
Date Prepared: 8/4/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	**Methylene Chloride**	2 JB
67-64-1	**Acetone**	30
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	**Chloroform**	2 J
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		
78-87-5	1,2-Dichloropropane	
10061-02-6	Trans-1,3-Dichloropropene	
79-01-6	Trichloroethene	
124-48-1	Dibromochloromethane	
79-00-5	1,1,2-Trichloroethane	
71-43-2	Benzene	
10061-01-5	cis-1,3-Dichloropropene	
110-75-8	2-Chloroethylvinylether	
75-25-2	Bromoform	
108-10-1	4-Methyl-2-Pentanone	
591-78-6	2-Hexanone	
127-18-4	Tetrachloroethene	
79-34-5	1,1,2,2-Tetrachloroethane	
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value

U — Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.

J — Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds or when result is less than specified DL.

C — This flag applies to pesticide param confirmed by GC/MS.

B — This flag is used when the analyte is in the blank as well as a sample. It possible/probable blank contamina

K — This flag is used when the quantitat falls above the limit of the calibrat curve. Indicates a dilution has bee and submitted also in data packags.

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 103
PROD WELL

7/9/87
P.M.

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		
83-32-9	Acenaphthene	1
51-28-5	2,4-Dinitrophenol	5
100-02-7	4-Nitrophenol	
132-64-9	Dibenzofuran	1
121-14-2	2,4-Dinitrotoluene	
606-20-2	2,6-Dinitrotoluene	
84-66-2	Diethylphthalate	1
7005-72-3	4-Chlorophenyl-phenylether	1
86-73-7	Fluorene	
100-01-6	4-Nitroaniline	
534-52-1	4,6-Dinitro-2-Methylphenol	
86-30-6	N-Nitrosodiphenylamine(1)	
101-55-3	4-Bromophenyl-phenylether	
118-74-1	Hexachlorobenzene	
87-86-5	Pentachlorophenol	
85-01-8	Phenanthrene	
120-12-7	Anthracene	
84-74-2	Di-n-Butylphthalate	
206-44-0	Fluoranthene	
129-00-0	Pyrene	
85-68-7	Butylbenzylphthalate	
91-94-1	3,3'-Dichlorobenzidine	
56-55-3	Benzo(a)Anthracene	
117-81-7	bis(2-Ethylhexyl)Phthalate	
218-01-9	Chrysene	
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	
191-24-2	Benzo(g,h,i)Perylene	

(1) Cannot be separated from diphenylamine

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case No: 7719

JC 103
PROD. WELL 1

9/d/87
P.M.

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction:

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

V(s) = 1000 W(s) = NA V(t)= 10000 V(i) = 2.0

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 103
PROD. WELL 1

9/4/87

P.M.

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks > 10% IS peak height	VOA	-	-
2	-	NO UNKNOWN ABN peaks > 10% IS peak height	ABN	-	-
3					
4					
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26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZZ

Project: TEC-380A

Station No: JC104

Sample No: 87 314453 Begin Sample Date: 87/07/28 15:50 Source: Well (Indust/Agric) Depth: QA Code:

Laboratory: RX Description: SIMPLOT #10

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.29	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	8.2	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	150.5	mg/l
Mgnsium	Mg-Total	51.7	mg/l
Sodium	Na-Total	51.2	mg/l
Potssium	K -Total	8	mg/l
Arsenic	As-Total	7	ug/l
Barium	Ba-Total	130	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	1	ug/l
Copper	Cu-Total	13	ug/l
Iron	Fe-Total	5U	ug/l
Lead	Pb-Total	5U	ug/l
Mangnese	Mn-Total	56	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	7	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	7	ug/l
Zinc	Zn-Total	9	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	50U	ug/l
Selenium	Se-Total	27	ug/l
Mercury	Hg-Total	0.05U	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		37.7	mg/l
Sulfate	Total	126	mg/l

(Sample Complete)

JC 104
SIMPLOT #10

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 557D
Sample Matrix Waters
Date Release Authorized: Susan D Rao

Case Number: 7719
QC Report No: 557
Contract No: 68-01-7236
Date Received: 31 July 1987

Volatile Compounds

P.M. 9/5/87

Concentration: Low
Date Prepared: 8/4/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	~~1 MB~~ 4 J
67-64-1	Acetone	29
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number	
78-87-5	1,2-Dichloropropane
10061-02-6	Trans-1,3-Dichloropropene
79-01-6	Trichloroethene
124-48-1	Dibromochloromethane
79-00-5	1,1,2-Trichloroethane
71-43-2	Benzene
10061-01-5	cis-1,3-Dichloropropene
110-75-8	2-Chloroethylvinylether
75-25-2	Bromoform
108-10-1	4-Methyl-2-Pentanone
591-78-6	2-Hexanone
127-18-4	Tetrachloroethene
79-34-5	1,1,2,2-Tetrachloroethane
108-88-3	Toluene
108-90-7	Chlorobenzene
100-41-4	Ethylbenzene
100-42-5	Styrene
	Total Xylenes

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value

U — Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.

J — Indicates an estimated value. This flag is used either when estimating a concentration

C — This flag applies to pesticide param confirmed by GC/MS.

B — This flag is used when the analyte i in the blank as well as a sample. It possible/probable blank contamin

K — This flag is used when the quantitate falls above the limit of the calibrati curve. Indicates a dilution has be

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 104
SIMPLOT #10

P.M. 9/4/87

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		
83-32-9	Acenaphthene	
51-28-5	2,4-Dinitrophenol	
100-02-7	4-Nitrophenol	
132-64-9	Dibenzofuran	
121-14-2	2,4-Dinitrotoluene	
606-20-2	2,6-Dinitrotoluene	
84-66-2	Diethylphthalate	
7005-72-3	4-Chlorophenyl-phenylether	
86-73-7	Fluorene	
100-01-6	4-Nitroaniline	
534-52-1	4,6-Dinitro-2-Methylphenol	
86-30-6	N-Nitrosodiphenylamine(1)	
101-55-3	4-Bromophenyl-phenylether	
118-74-1	Hexachlorobenzene	
87-86-5	Pentachlorophenol	
85-01-8	Phenanthrene	
120-12-7	Anthracene	
84-74-2	Di-n-Butylphthalate	
206-44-0	Fluoranthene	
129-00-0	Pyrene	
85-68-7	Butylbenzylphthalate	
91-94-1	3,3'-Dichlorobenzidine	
56-55-3	Benzo(a)Anthracene	
117-81-7	bis(2-Ethylhexyl)Phthalate	
218-01-9	Chrysene	
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	
191-24-2	Benzo(g,h,i)Perylene	

(1) Cannot be separated from diphenylamine

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case No: 7719

JC 104
SIMPLOT #10

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction:

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

P.W. 8/4/87

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

V(t) = 2.0

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 104
SIMPLOT #10

9/4/87

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks >10% IS peak height	VOA	-	-
2	-	UNKNOWN (Base peak m/e 55)	ABN	1578	52 J
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26-JAN-88
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EPA Region X Lab Management System
Sample/Project Analysis Results

Officer: JEA Account: FA10PUZZ

Project: TEC-380A BEKER INDUSTRIES

Station No: JC105

Sample No: 87 314454 Begin Sample Date: 87/07/28 16:50 Source: Well (Indust/Agric) Depth: QA Code:

Laboratory: RX Description: SIMPLOT #11

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.12	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	0.048	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	95.8	mg/l
Mgnsium	Mg-Total	16.4	mg/l
Sodium	Na-Total	6.9	mg/l
Potssium	K -Total	1.5	mg/l
Arsenic	As-Total	1U	ug/l
Barium	Ba-Total	30	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	1U	ug/l
Copper	Cu-Total	5	ug/l
Iron	Fe-Total	5U	ug/l
Lead	Pb-Total	7	ug/l
Mangnese	Mn-Total	4	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	17	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	1U	ug/l
Zinc	Zn-Total	2	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	50U	ug/l
Selenium	Se-Total	14	ug/l
Mercury	Hg-Total	0.05U	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		11.1	mg/l
Sulfate	Total	58.4	mg/l

(Sample Complete)

JC 105
SIMPLOT #11

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 557E
Sample Matrix Waters
Data Release Authorized: Susan D Rasa

Case Number: 7719
QC Report No: 557
Contract No: 68-01-7236
Date Received: 31 July 1987

Volatile Compounds

Concentration: Low
Date Prepared: 8/4/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	1 ~~MB~~ UJ
67-64-1	Acetone	16
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		µg
78-87-5	1,2-Dichloropropene	5
10061-02-6	Trans-1,3-Dichloropropene	5
79-01-6	Trichloroethene	5
124-48-1	Dibromochloromethane	5
79-00-5	1,1,2-Trichloroethane	5
71-43-2	Benzene	5
10061-01-5	cis-1,3-Dichloropropene	5
110-75-8	2-Chloroethylvinylether	1
75-25-2	Bromoform	1
108-10-1	4-Methyl-2-Pentanone	1
591-78-6	2-Hexanone	1
127-18-4	Tetrachloroethene	
79-34-5	1,1,2,2-Tetrachloroethane	
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.
J	Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds or when result is less than specified DL.
C	This flag applies to pesticide paramete confirmed by GC/MS.
B	This flag is used when the analyte is fo in the blank as well as a sample. It in possible/probable blank contaminatio
K	This flag is used when the quantitated falls above the limit of the calibration curve. Indicates a dilution has been r and submitted also in data package.

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 105
SIMPLOT #11

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		µ
83-32-9	Acenaphthene	
51-28-5	2,4-Dinitrophenol	
100-02-7	4-Nitrophenol	5
132-64-9	Dibenzofuran	
121-14-2	2,4-Dinitrotoluene	
606-20-2	2,6-Dinitrotoluene	1
84-66-2	Diethylphthalate	
7005-72-3	4-Chlorophenyl-phenylether	
86-73-7	Fluorene	
100-01-6	4-Nitroaniline	
534-52-1	4,6-Dinitro-2-Methylphenol	
86-30-6	N-Nitrosodiphenylamine(1)	
101-55-3	4-Bromophenyl-phenylether	
118-74-1	Hexachlorobenzene	
87-86-5	Pentachlorophenol	
85-01-8	Phenanthrene	
120-12-7	Anthracene	
84-74-2	Di-n-Butylphthalate	
206-44-0	Fluoranthene	
129-00-0	Pyrene	
85-68-7	Butylbenzylphthalate	
91-94-1	3,3'-Dichlorobenzidine	
56-55-3	Benzo(a)Anthracene	
117-81-7	bis(2-Ethylhexyl)Phthalate	
218-01-9	Chrysene	
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	
191-24-2	Benzo(g,h,i)Perylene	

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case No: 7719

JC 105
SIMPLOT #11

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/3/87
Date Analyzed: 8/4/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction:

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

V(s) = 1000 W(s) = NA V(t)= 10000 V(i) = 2.0

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 105
SIMPLOT #11

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks > 10% IS peak height	VOA	-	-
2	-	NO UNKNOWN ABN peaks > 10% IS peak height	ABN	-	-
3					
4					
5					
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EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Project: TEC-380A

Officer: JEA Account: FA10PU22

Sample No: 87 314455 Begin Sample Date: 87/08/03 17:50 Source: Well (Drinking Water Depth: QA Code:

Laboratory: RX Description: NELSON

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.17	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	0.12	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	49.1	mg/l
Mgnsium	Mg-Total	20.3	mg/l
Sodium	Na-Total	19.5	mg/l
Potssium	K -Total	3.6	mg/l
Arsenic	As-Total	1	ug/l
Barium	Ba-Total	50U	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	1U	ug/l
Copper	Cu-Total	5	ug/l
Iron	Fe-Total	31	ug/l
Lead	Pb-Total	5U	ug/l
Mangnese	Mn-Total	5	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	5U	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	1U	ug/l
Zinc	Zn-Total	344	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	50U	ug/l
Selenium	Se-Total	2	ug/l
Mercury	Hg-Total	0.06U	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		10.0	mg/l
Sulfate	Total	37.7	mg/l

(Sample Complete)

JC 106
NELSON WE

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 557F
Sample Matrix Waters
Data Release Authorized: Lisa D Rao

Case Number: 7698
QC Report No: 556
Contract No: 68-01-7236
Date Received: 6 August 1987

Volatile Compounds

P. M. 9/4/87

Concentration: Low
Date Prepared: 8/11/87
Date Analyzed: 8/11/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	87
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number		
78-87-5	1,2-Dichloropropane	
10061-02-6	Trans-1,3-Dichloropropene	
79-01-6	Trichloroethene	
124-48-1	Dibromochloromethane	
79-00-5	1,1,2-Trichloroethane	
71-43-2	Benzene	
10061-01-5	cis-1,3-Dichloropropene	
110-75-8	2-Chloroethylvinylether	
75-25-2	Bromoform	
108-10-1	4-Methyl-2-Pentanone	
591-78-6	2-Hexanone	
127-18-4	Tetrachloroethene	
79-34-5	1,1,2,2-Tetrachloroethane	
108-88-3	Toluene	
108-90-7	Chlorobenzene	
100-41-4	Ethylbenzene	
100-42-5	Styrene	
	Total Xylenes	

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value

U — Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.

J — Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds or

C — This flag applies to pesticide paran confirmed by GC/MS.

B — This flag is used when the analyte in the blank as well as a sample. I possible/probable blank contamina

K — This flag is used when the quantita falls above the limit of the calibrati curve. Indicates a dilution has be and submitted also in data package.

oratory Name: ANALYTICAL RESOURCES, INC.
7719
ase:

JC 106
NELSON WELL

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/6/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		µ
83-32-9	Acenaphthene	1
51-28-5	2,4-Dinitrophenol	5
100-02-7	4-Nitrophenol	5
132-64-9	Dibenzofuran	1
121-14-2	2,4-Dinitrotoluene	1
606-20-2	2,6-Dinitrotoluene	
84-66-2	Diethylphthalate	
7005-72-3	4-Chlorophenyl-phenylether	
86-73-7	Fluorene	
100-01-6	4-Nitroaniline	
534-52-1	4,6-Dinitro-2-Methylphenol	
86-30-6	N-Nitrosodiphenylamine(1)	
101-55-3	4-Bromophenyl-phenylether	
118-74-1	Hexachlorobenzene	
87-86-5	Pentachlorophenol	
85-01-8	Phenanthrene	
120-12-7	Anthracene	
84-74-2	Di-n-Butylphthalate	
206-44-0	Fluoranthene	
129-00-0	Pyrene	
85-68-7	Butylbenzylphthalate	
91-94-1	3,3'-Dichlorobenzidine	
56-55-3	Benzo(a)Anthracene	
117-81-7	bis(2-Ethylhexyl)Phthalate	
218-01-9	Chrysene	
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	
191-24-2	Benzo(g,h,i)Perylene	

(1) Cannot be separated from diphenylamine

gnr 87

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case No: 7719

JC 106
NELSON WELL

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/6/87
Date Analyzed: 8/12/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction:

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

9/18/87
4548

V(s) = 1000 W(s) = NA. V(t)= 10000 V(i) = 2.0

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 106
NELSON WELL

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks >10% IS peak height	VOA	-	-
2	-	UNKNOWN (Base peak m/e 55)	ABN	1577	27 J
3					
4					
5					
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26-JAN-88
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EPA Region X Lab Management System
Sample/Project Analysis Results

Officer: JEA Account: FA10PUZZ

BEKER INDUSTRIES

Project: TEC-380A Depth: QA Code:

Sample No: 87 311456 Begin Sample Date: 87/08/03 16:35 Source: Well (Drinking Water

Laboratory: RX Description: TORGESON

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	0.20	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	0.096	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	113.1	mg/l
Mgnsium	Mg-Total	55.4	mg/l
Sodium	Na-Total	14.0	mg/l
Potssium	K -Total	3.5	mg/l
Arsenic	As-Total	3	ug/l
Barium	Ba-Total	50U	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	0.2U	ug/l
Chromium	Cr-Total	1U	ug/l
Copper	Cu-Total	1U	ug/l
Iron	Fe-Total	5U	ug/l
Lead	Pb-Total	21	ug/l
Mangnese	Mn-Total	2	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	5U	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	1U	ug/l
Zinc	Zn-Total	92	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	50U	ug/l
Selenium	Se-Total	4	ug/l
Mercury	Hg-Total	0.06U	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		28.2	mg/l
Sulfate	Total	49.9	mg/l

(Sample Complete)

JC 107
OREGON WELL

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ANALYTICAL RESOURCES, INC.
Lab Sample ID 5570
Sample Matrix Waters
Data Release Authorized: Susan D Rao

Case Number: 7698
QC Report No: 556
Contract No: 68-01-7236
Date Received: 6 August 1987

Volatile Compounds

P. W. 9/4/87

Concentration: Low
Date Prepared: 8/11/87
Date Analyzed: 8/11/87
Conc/Dil Factor: 1 pH: NA
Percent moisture: (Not decanted) NA

CAS Number		µg/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	5 U
67-64-1	Acetone	78
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	5 U
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	10 U
71-55-6	1,1,1-Trichloroethane	5 U
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 U
75-27-4	Bromodichloromethane	5 U

CAS Number	
78-87-5	1,2-Dichloropropene
10061-02-6	Trans-1,3-Dichloropropene
79-01-6	Trichloroethene
124-48-1	Dibromochloromethane
79-00-5	1,1,2-Trichloroethane
71-43-2	Benzene
10061-01-5	cis-1,3-Dichloropropene
110-75-8	2-Chloroethylvinylether
75-25-2	Bromoform
108-10-1	4-Methyl-2-Pentanone
591-78-6	2-Hexanone
127-18-4	Tetrachloroethene
79-34-5	1,1,2,2-Tetrachloroethane
108-88-3	Toluene
108-90-7	Chlorobenzene
100-41-4	Ethylbenzene
100-42-5	Styrene
	Total Xylenes

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value

U — Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with U based on necessary concentration/dilution action.

J — Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds or

C — This flag applies to pesticide paran confirmed by GC/MS.

B — This flag is used when the analyte i in the blank as well as a sample. I possible/probable blank contamin

K — This flag is used when the quantita falls above the limit of the calibra curve. Indicates a dilution has be and submitted also in data package.

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 107
DR/-ESON WELL

P.W.
9/4/87

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low
Date Extracted: 8/6/87
Date Analyzed: 8/12/87
Conc/Dilution Factor: 1
Percent Moisture (Decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction: NO

CAS Number		µg/L
108-95-2	Phenol	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U
95-57-8	2-Chlorophenol	10 U
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
100-51-6	Benzyl Alcohol	10 U
95-50-1	1,2-Dichlorobenzene	10 U
95-48-7	2-Methylphenol	10 U
39638-32-9	bis(2-chloroisopropyl)Ether	10 U
106-44-5	4-Methylphenol	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U
67-72-1	Hexachloroethane	10 U
98-95-3	Nitrobenzene	10 U
78-59-1	Isophorone	10 U
88-75-5	2-Nitrophenol	10 U
105-67-9	2,4-Dimethylphenol	10 U
65-85-0	Benzoic Acid	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U
120-83-2	2,4-Dichlorophenol	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U
91-20-3	Naphthalene	10 U
106-47-8	4-Chloroaniline	10 U
87-68-3	Hexachlorobutadiene	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U
91-57-6	2-Methylnaphthalene	10 U
77-47-4	Hexachlorocyclopentadiene	10 U
88-06-2	2,4,6-Trichlorophenol	10 U
95-95-4	2,4,5-Trichlorophenol	50 U
91-58-7	2-Chloronaphthalene	10 U
88-74-4	2-Nitroaniline	50 U
131-11-3	Dimethyl Phthalate	10 U
208-96-8	Acenaphthylene	10 U
99-09-2	3-Nitroaniline	50 U

CAS Number		µ
83-32-9	Acenaphthene	
51-28-5	2,4-Dinitrophenol	
100-02-7	4-Nitrophenol	5
132-64-9	Dibenzofuran	
121-14-2	2,4-Dinitrotoluene	
606-20-2	2,6-Dinitrotoluene	
84-66-2	Diethylphthalate	
7005-72-3	4-Chlorophenyl-phenylether	
86-73-7	Fluorene	
100-01-6	4-Nitroaniline	
534-52-1	4,6-Dinitro-2-Methylphenol	
86-30-6	N-Nitrosodiphenylamine(1)	
101-55-3	4-Bromophenyl-phenylether	
118-74-1	Hexachlorobenzene	
87-86-5	Pentachlorophenol	
85-01-8	Phenanthrene	
120-12-7	Anthracene	
84-74-2	Di-n-Butylphthalate	
206-44-0	Fluoranthene	
129-00-0	Pyrene	
85-68-7	Butylbenzylphthalate	
91-94-1	3,3'-Dichlorobenzidine	
56-55-3	Benzo(a)Anthracene	
117-81-7	bis(2-Ethylhexyl)Phthalate	
218-01-9	Chrysene	
117-84-0	Di-n-Octyl Phthalate	
205-99-2	Benzo(b)Fluoranthene	
207-08-9	Benzo(k)Fluoranthene	
50-32-8	Benzo(a)Pyrene	
193-39-5	Indeno(1,2,3-cd)Pyrene	
53-70-3	Dibenz(a,h)Anthracene	
191-24-2	Benzo(g,h,i)Perylene	

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case No: 7719

JC 107
TORGESON WELL

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low
Date Extracted: 8/6/87
Date Analyzed: 8/12/87
Conc/Dil Factor: 1 to 1
Percent Moisture (decanted): NA

GPC Cleanup: NO
Separatory Funnel Extraction: YES
Continuous Liquid-Liquid Extraction:

P.H.
9/4/87

CAS Number		µg/L
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33212-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.00 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.00 U
11096-82-5	Aroclor-1260	1.00 U

V(i) = Volume of extract injected (ul)

V(s) = Volume of water extracted (ml)

W(s) = Weight of sample extracted (gm)

V(t) = Volume of total extract (ul)

V(s) = 1000 W(s) = NA V(t)= 10000 V(i) = 2.0

Laboratory Name: ANALYTICAL RESOURCES, INC.
Case: 7719

JC 107
TORGERSON WELL

f. M.
9/4/87

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (µg/L)
1	-	NO UNKNOWN VOA peaks > 10% IS peak height	VOA	-	-
2	-	NO UNKNOWN ABN peaks > 10% IS peak height	ABN	-	-
3					
4					
5					
6					
7					
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26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Project: TEC-380A

Officer: JEA Account: FA10PHZZ

Sample No: 87 314450 Begin Sample Date: 87/07/28 11:20 Source: Well (Indust/Agric) Depth: QA Code:

Laboratory: RX Description: TAILING POND

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	18.8	mg/l

Nutrients - Specifie Parameter		Water-Total Result	Units
Phos	Total	2.1	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	548	mg/l
Mgnsium	Mg-Total	306	mg/l
Sodium	Na-Total	391	mg/l
Potssium	K -Total	55.9	mg/l
Arsenic	As-Total	6	ug/l
Barium	Ba-Total	50U	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	19.0	ug/l
Chromium	Cr-Total	30	ug/l
Copper	Cu-Total	19	ug/l
Iron	Fe-Total	290	ug/l
Lead	Pb-Total	30	ug/l
Mangnese	Mn-Total	130	ug/l
Thallium	Tl-Total	1U	ug/l
Nickel	Ni-Total	65	ug/l
Silver	Ag-Total	0.2U	ug/l
Vanadium	V -Total	167	ug/l
Zinc	Zn-Total	110	ug/l
Antimony	Sb-Total	1U	ug/l
Aluminum	Al-Total	170	ug/l
Selenium	Se-Total	16	ug/l
Mercury	Hg-Total	0.15	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		129	mg/l
Sulfate	Total	3124	mg/l

(Sample Complete)

26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZZ

Project: TEC-380A Depth: QA Code:

Sample No: 87 314459 Begin Sample Date: 87/07/28 10:15 Source: Well (Indust/Agric)

Laboratory: RX Description: COOLING POND

Gen Inorg/Phys-Speci Parameter		Water-Total Result	Units
Fluoride	Total	4600	mg/l

Nutrients - Specific Parameter		Water-Total Result	Units
Phos	Total	3340	mg/l

Metals - Specified Parameter		Water-Total Result	Units
Calcium	Ca-Total	404	mg/l
Mgnsium	Mg-Total	158	mg/l
Sodium	Na-Total	21.1	mg/l
Potssium	K -Total	918	mg/l
Arsenic	As-Total	37	ug/l
Barium	Ba-Total	500	ug/l
Berylium	Be-Total	0.2U	ug/l
Cadmium	Cd-Total	1710	ug/l
Chromium	Cr-Total	12880	ug/l
Copper	Cu-Total	5460	ug/l
Iron	Fe-Total	110000	ug/l
Lead	Pb-Total	116	ug/l
Mangnese	Mn-Total	3850	ug/l
Thallium	Tl-Total	59	ug/l
Nickel	Ni-Total	3427	ug/l
Silver	Ag-Total	2.1	ug/l
Vanadium	V -Total	15500	ug/l
Zinc	Zn-Total	33550	ug/l
Antimony	Sb-Total	92	ug/l
Aluminum	Al-Total	128400	ug/l
Selenium	Se-Total	12	ug/l
Mercury	Hg-Total	0.10	ug/l

Ion Chromatography Parameter		Water-Total Result	Units
Chloride		88	mg/l
Sulfate	Total	1220	mg/l

(Sample Complete)

NUW 004595

26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZZ

Project: TEC-380A

Sample No: 87 314461 Begin Sample Date: 87/07/28 11:06 Source: Sediment (General) Depth: QA Code:

Laboratory: RX Description: GYPPOND

Gen Inorg/Phys-Speci Parameter		Sediment Result	Units
Fluoride	Sedmt	6470	mg/kg-dr

Nutrients - Specific Parameter		Sediment Result	Units
Phos	Sedmt	3030	mg/kg-dr

Metals - Specified Parameter		Sediment Result	Units
Calcium	Ca-Sedmt	178800	mg/kg-dr
Mgnsium	Mg-Sedmt	42	mg/kg-dr
Sodium	Na-Sedmt	335	mg/kg-dr
Potssium	K -Sedmt	611	mg/kg-dr
Arsenic	As-Sedmt	1.8	mg/kg-dr
Barium	Ba-Sedmt	5U	mg/kg-dr
Berylium	Be-Sedmt	0.17	mg/kg-dr
Cadmium	Cd-Sedmt	3.5	mg/kg-dr
Chromium	Cr-Sedmt	46.6	mg/kg-dr
Copper	Cu-Sedmt	11.6	mg/kg-dr
Lead	Pb-Sedmt	10	mg/kg-dr
Mangnese	Mn-Sedmt	2.3	mg/kg-dr
Nickel	Ni-Sedmt	6.2	mg/kg-dr
Silver	Ag-Sedmt	4.11	mg/kg-dr
Vanadium	V -Sedmt	28.8	mg/kg-dr
Zinc	Zn-Sedmt	30	mg/kg-dr
Antimony	Sb-Sedmt	0.4	mg/kg-dr
Aluminum	Al-Sedmt	1179	mg/kg-dr
Selenium	Se-Sedmt	11.1	mg/kg-dr
Iron	Fe-Sedmt	278	mg/kg-dr
Thallium	Tl-Sedmt	0.1U	mg/kg-dr
Mercury	Hg-Sedmt	0.289	mg/kg-wt

Ion Chromatography Parameter		Sediment Result	Units
Chloride	Sedmt	1.4	mg/kg-dr
Sulfate	Sedmt	18960	mg/kg-dr

(Sample Complete)

26-JAN-88
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

Officer: JEA Account: FA10PUZZ

BEKER INDUSTRIES

Project: TEC-390A Depth: QA Code:

Sample No: 87 314462 Begin Sample Date: 87/07/28 10:30 Source: Sediment (General)

Laboratory: RX Description: COOLING POND

Gen Inorg/Phys-Speci Parameter		Sediment Result	Units
Fluoride	Sedmt	20160	mg/kg-dr

Nutrients - Specific Parameter		Sediment Result	Units
Phos	Sedmt	3939	mg/kg-dr

Metals - Specified Parameter		Sediment Result	Units
Calcium	Ca-Sedmt	143500	mg/kg-dr
Mgnsium	Mg-Sedmt	144	mg/kg-dr
Sodium	Na-Sedmt	798	mg/kg-dr
Potssium	K -Sedmt	438	mg/kg-dr
Arsenic	As-Sedmt	1.8	mg/kg-dr
Barium	Ba-Sedmt	24	mg/kg-dr
Berylium	Be-Sedmt	0.17	mg/kg-dr
Cadmium	Cd-Sedmt	10.4	mg/kg-dr
Chromium	Cr-Sedmt	27.1	mg/kg-dr
Copper	Cu-Sedmt	8.6	mg/kg-dr
Lead	Pb-Sedmt	9	mg/kg-dr
Mangnese	Mn-Sedmt	5.0	mg/kg-dr
Nickel	Ni-Sedmt	8.5	mg/kg-dr
Silver	Ag-Sedmt	2.32	mg/kg-dr
Vanadium	V -Sedmt	28.9	mg/kg-dr
Zinc	Zn-Sedmt	16	mg/kg-dr
Antimony	Sb-Sedmt	0.10	mg/kg-dr
Aluminum	Al-Sedmt	2581	mg/kg-dr
Selenium	Se-Sedmt	5.9	mg/kg-dr
Iron	Fe-Sedmt	194	mg/kg-dr
Thallium	Tl-Sedmt	0.10	mg/kg-dr
Mercury	Hg-Sedmt	0.109	mg/kg-wt

Ion Chromatography Parameter		Sediment Result	Units
Chloride	Sedmt	85.7	mg/kg-dr
Sulfate	Sedmt	17540	mg/kg-dr

(Sample Complete)

26-JAN-88
08:09:18

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZZ

Project: TEC-330A

Sample No: 87 314463 Begin Sample Date: 87/07/28 12:00 Source: Sediment (General) Depth: QA Code:

Laboratory: RX Description: TAILING POND

Gen Inorg/Phys-Speci Parameter		Sediment Result	Units
Fluoride	Sedmt	4350	mg/kg-dr

Nutrients - Specific Parameter		Sediment Result	Units
Phos	Sedmt	28400	mg/kg-dr

Metals - Specified Parameter		Sediment Result	Units
Calcium	Ca-Sedmt	107800	mg/kg-dr
Mgnsium	Mg-Sedmt	3432	mg/kg-dr
Sodium	Na-Sedmt	1036	mg/kg-dr
Potssium	K -Sedmt	4280	mg/kg-dr
Arsenic	As-Sedmt	22.6	mg/kg-dr
Barium	Ba-Sedmt	101	mg/kg-dr
Berylium	Be-Sedmt	1.31	mg/kg-dr
Cadmium	Cd-Sedmt	110.1	mg/kg-dr
Chromium	Cr-Sedmt	1189	mg/kg-dr
Copper	Cu-Sedmt	131.8	mg/kg-dr
Lead	Pb-Sedmt	14	mg/kg-dr
Mangnese	Mn-Sedmt	121	mg/kg-dr
Nickel	Ni-Sedmt	255	mg/kg-dr
Silver	Ag-Sedmt	7.89	mg/kg-dr
Vanadium	V -Sedmt	1584	mg/kg-dr
Zinc	Zn-Sedmt	1722	mg/kg-dr
Antimony	Sb-Sedmt	2.9	mg/kg-dr
Aluminum	Al-Sedmt	14330	mg/kg-dr
Selenium	Se-Sedmt	29.5	mg/kg-dr
Iron	Fe-Sedmt	17500	mg/kg-dr
Thallium	Tl-Sedmt	3.6	mg/kg-dr
Mercury	Hg-Sedmt	0.144	mg/kg-wt

Ion Chromatography Parameter		Sediment Result	Units
Chloride	Sedmt	83.4	mg/kg-dr
Sulfate	Sedmt	27410	mg/kg-dr

(Sample Complete)

26-JAN-88
08:09:48

EPA Region X GC/MS Management Syst
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZZ

Project: TEC-380A

Sample No: 87 311464 Begin Sample Date: 87/08/03 15:10 Source: Sediment (General) Depth: QA Code:

Laboratory: RX Description: LF #1

VOA - PP Scan (GCMS) Parameter	Sediment Result	Units
Carbon Tetrachloride	7U	ug/kg
Acetone	14UJ	ug/kg
Chloroform	7U	ug/kg
Benzene	7U	ug/kg
1,1,1-Trichloroethane	7U	ug/kg
Bromomethane	13U	ug/kg
Chloromethane	13U	ug/kg
Chloroethane	13U	ug/kg
Vinyl Chloride	13U	ug/kg
Methylene Chloride	68	ug/kg
Carbon Disulfide	7U	ug/kg
Bromoform	7U	ug/kg
Bromodichloromethane	7U	ug/kg
1,1-Dichloroethane	7U	ug/kg
1,1-Dichloroethene	7U	ug/kg
Trichlorofluoromethane	2UJ	ug/kg
1,2-Dichloropropane	7U	ug/kg
2-Butanone	14UJ	ug/kg
1,1,2-Trichloroethane	7U	ug/kg
Trichloroethene	7U	ug/kg
1,1,2,2-Tetrachloroetha	NAR	ug/kg
Total Xylenes	1UJ	ug/kg
Ethylbenzene	1UJ	ug/kg
Styrene	1J	ug/kg
1,2-Dichloroethane	7U	ug/kg
Vinyl Acetate	14U	ug/kg
4-Methyl-2-Pentanone	13U	ug/kg
Toluene	1UJ	ug/kg
Chlorobenzene	7U	ug/kg
Dibromochloromethane	7U	ug/kg
Tetrachloroethene	7U	ug/kg
Cis-1,2-Dichloroethene	7U	ug/kg
trans-1,2-Dichloroethen	7U	ug/kg
2-Hexanone	13U	ug/kg
cis-1,3-Dichloropropene	7U	ug/kg
trans-1,3-Dichloroprope	7U	ug/kg
Spike DI-1,2-Dichloroet	106	% Recov
Spike 1,4-Bromofluorobe	94	% Recov
Spike D8-Toluene	100	% Recov

B/N/Acid Scan Parameter	Sediment Result	Units
Benzo(a)pyrene	2400BU	ug/kg
2,4-Dinitrophenol	11000U	ug/kg
Dibenzo(a,h)anthracene	2400U	ug/kg
Benzo(a)anthracene	2400U	ug/kg
4-Chloro-3-Methylphenol	2400U	ug/kg
Benzoic acid	11000U	ug/kg
Hexachloroethane	2400U	ug/kg
Hexachlorocyclopentadie	2400U	ug/kg
Isophorone	2400U	ug/kg
Acenaphthene	2400U	ug/kg
Diethylphthalate	2400BU	ug/kg
Di-n-Butylphthalate	2400BU	ug/kg
Phenanthrene	430J	ug/kg
Butylbenzylphthalate	2400U	ug/kg
N-Nitrosodiphenylamine	2400U	ug/kg
Fluorene	2400U	ug/kg
Hexachlorobutadiene	2400U	ug/kg
Pentachlorophenol	11000U	ug/kg
2,4,6-Trichlorophenol	2400U	ug/kg
2-Nitroaniline	11000U	ug/kg
2-Nitrophenol	2400U	ug/kg
Naphthalene	2400U	ug/kg
2-Methylnaphthalene	190J	ug/kg
2-Chloronaphthalene	2400U	ug/kg
3,3'-Dichlorobenzidine	4700U	ug/kg
2-Methylphenol	2400U	ug/kg
1,2-Dichlorobenzene	2400U	ug/kg
o-Chlorophenol	2400U	ug/kg
2,4,5-Trichlorophenol	11000U	ug/kg
Nitrobenzene	2400U	ug/kg
3-Nitroaniline	11000U	ug/kg
4-Nitroaniline	11000U	ug/kg
4-Nitrophenol	11000U	ug/kg
Benzyl Alcohol	2400U	ug/kg
4-Bromophenyl-phenyleth	2400U	ug/kg
2,4-Dimethylphenol	2400U	ug/kg
4-Methylphenol	2400U	ug/kg
1,4-Dichlorobenzene	2400U	ug/kg
4-Chloroaniline	2400U	ug/kg
Phenol	2400U	ug/kg
bis(2-Chloroethyl)Ether	2400U	ug/kg
bis(2-Chloroethoxy)Meth	2400U	ug/kg
bis(2-Ethylhexyl)Phthal	1200BJ	ug/kg
Di-n-Octyl Phthalate	2400BU	ug/kg
Hexachlorobenzene	2400U	ug/kg

(Continued on next page)

B/N/Acid Scan *** Continued *** Parameter	Sediment Result	Units
Anthracene	2400U	ug/kg
1,2,4-Trichlorobenzene	2400U	ug/kg
2,4-Dichlorophenol	2400U	ug/kg
2,4-Dinitrotoluene	2400U	ug/kg
Pyrene	2400U	ug/kg
Dimethylphthalate	2400U	ug/kg
Dibenzofuran	2400U	ug/kg
Benzo(ghi)perylene	2400U	ug/kg
Indeno(1,2,3-cd)pyrene	2400U	ug/kg
Benzo(b)fluoranthene	2400BU	ug/kg
Fluoranthene	2400U	ug/kg
Benzo(k)fluoranthene	2400BU	ug/kg
Acenaphthylene	2400U	ug/kg
Chrysene	2400U	ug/kg
4,6-Dinitro-2-methylphe	11000U	ug/kg
1,3-Dichlorobenzene	2400U	ug/kg
2,6-Dinitrotoluene	2400U	ug/kg
N-Nitroso-di-n-Propylam	2400U	ug/kg
4-Chlorophenyl-phenylet	2400U	ug/kg
bis(2-Chloroisopropyl)E	2400U	ug/kg
Spike D5-Phenol	132	% Recov
Spike D10-Pyrene	119	% Recov
Spike 2-Fluorophenol	128	% Recov
Spike D5-Nitrobenzene	87	% Recov
Spike 2-Fluorobiphenyl	98	% Recov
Spike D14-Terphenyl	135	% Recov

Pest/PCB - PP Scan Parameter	Sediment Result	Units
4,4'-DDT	2U	ug/kg
Chlordane	2U	ug/kg
gamma-BHC (Lindane)	2U	ug/kg
Dieldrin	2U	ug/kg
Endrin	2U	ug/kg
Methoxychlor	20U	ug/kg
4,4'-DDD	2U	ug/kg
4,4'-DDE	2U	ug/kg
Heptachlor	2U	ug/kg
Hexachlorobutadiene	NAR	ug/kg
Hexachlorobenzene	NAR	ug/kg
Aldrin	2U	ug/kg
alpha-BHC	2U	ug/kg

Project: TEC-380A

BEKER INDUSTRIES

Officer: JEA Account: FA10PUZ2

Sample No: 87 314461 Begin Sample Date: 87/08/03 15:10 Source: Sediment (General) Depth: QA Code:

Laboratory: RX Description: LF #1

Pest/PCB - PP Scan *** Continued *** Parameter	Sediment Result	Units
beta-BHC	2U	ug/kg
delta-BHC	2U	ug/kg
alpha-Endosulfan	2U	ug/kg
Heptachlor epoxide	2U	ug/kg
Endosulfan sulfate	2U	ug/kg
Endrin aldehyde	2U	ug/kg
Toxaphene	60U	ug/kg
PCB - 1260	20U	ug/kg
PCB - 1254	20U	ug/kg
PCB - 1221	20U	ug/kg
PCB - 1232	20U	ug/kg
PCB - 1248	478	ug/kg
PCB - 1016	20U	ug/kg
beta-Endosulfan	2U	ug/kg
PCB - 1242	20U	ug/kg
Spike o,p'-DDE	NAR	% Recov
Spike Hexabromobenzene	111	% Recov
Spike Tetrabromobenzene	NAR	% Recov

(Sample Complete)

26-JAN-88
03:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10PU22

Project: TEC-330A

Sample No: 87 311465 Begin Sample Date: 87/08/03 15:20 Source: Sediment (General) Depth: QA Code:

Laboratory: RX Description: LF 32

VOA - PP Scan (GCMS) Parameter	Sediment Result	Units
Carbon Tetrachloride	8U	ug/kg
Acetone	36UJ	ug/kg
Chloroform	8U	ug/kg
Benzene	8U	ug/kg
1,1,1-Trichloroethane	8U	ug/kg
Bromomethane	16U	ug/kg
Chloromethane	16U	ug/kg
Chloroethane	16U	ug/kg
Vinyl Chloride	16U	ug/kg
Methylene Chloride	18B	ug/kg
Carbon Disulfide	8U	ug/kg
Bromoform	8U	ug/kg
Bromodichloromethane	8U	ug/kg
1,1-Dichloroethane	8U	ug/kg
1,1-Dichloroethene	8U	ug/kg
Trichlorofluoromethane	1UJ	ug/kg
1,2-Dichloropropane	8U	ug/kg
2-Butanone	17UJ	ug/kg
1,1,2-Trichloroethane	8U	ug/kg
Trichloroethene	8U	ug/kg
1,1,2,2-Tetrachloroetha	8U	ug/kg
Total Xylenes	2UJ	ug/kg
Ethylbenzene	1UJ	ug/kg
Styrene	8U	ug/kg
1,2-Dichloroethane	8U	ug/kg
Vinyl Acetate	16U	ug/kg
4-Methyl-2-Pentanone	16U	ug/kg
Toluene	1J	ug/kg
Chlorobenzene	8U	ug/kg
Dibromochloromethane	8U	ug/kg
Tetrachloroethene	8U	ug/kg
Cis-1,2-Dichloroethene	8U	ug/kg
trans-1,2-Dichloroethen	8U	ug/kg
2-Hexanone	16U	ug/kg
cis-1,3-Dichloropropene	8U	ug/kg
trans-1,3-Dichloroprope	8U	ug/kg
Spike D4-1,2-Dichloroet	105	% Recov
Spike 1,4-Bromofluorobe	102	% Recov
Spike D8-Toluene	97	% Recov

B/N/Acid Scan Parameter	Sediment Result	Units
Benzo(a)pyrene	570BU	ug/kg
2,4-Dinitrophenol	2800U	ug/kg
Dibenzo(a,h)anthracene	570U	ug/kg
Benzo(a)anthracene	570U	ug/kg
4-Chloro-3-Methylphenol	570U	ug/kg
Benzoic acid	2800U	ug/kg
Hexachloroethane	570U	ug/kg
Hexachlorocyclopentadie	570U	ug/kg
Isophorone	570U	ug/kg
Acenaphthene	570U	ug/kg
Diethylphthalate	570BU	ug/kg
Di-n-Butylphthalate	570BU	ug/kg
Phenanthrene	75J	ug/kg
Butylbenzylphthalate	570U	ug/kg
N-Nitrosodiphenylamine	570U	ug/kg
Fluorene	570U	ug/kg
Hexachlorobutadiene	570U	ug/kg
Pentachlorophenol	2800U	ug/kg
2,4,6-Trichlorophenol	570U	ug/kg
2-Nitroaniline	2800U	ug/kg
2-Nitrophenol	570U	ug/kg
Naphthalene	570U	ug/kg
2-Methylnaphthalene	29J	ug/kg
2-Chloronaphthalene	570U	ug/kg
3,3'-Dichlorobenzidine	1100U	ug/kg
2-Methylphenol	570U	ug/kg
1,2-Dichlorobenzene	570U	ug/kg
o-Chlorophenol	570U	ug/kg
2,4,5-Trichlorophenol	2800U	ug/kg
Nitrobenzene	570U	ug/kg
3-Nitroaniline	2800U	ug/kg
4-Nitroaniline	2800U	ug/kg
4-Nitrophenol	2800U	ug/kg
Benzyl Alcohol	570U	ug/kg
4-Bromophenyl-phenyleth	570U	ug/kg
2,4-Dimethylphenol	570U	ug/kg
4-Methylphenol	570U	ug/kg
1,4-Dichlorobenzene	570U	ug/kg
4-Chloroaniline	570U	ug/kg
Phenol	570U	ug/kg
bis(2-Chloroethyl)Ether	570U	ug/kg
bis(2-Chloroethoxy)Meth	570U	ug/kg
bis(2-Ethylhexyl)Phthal	540BJ	ug/kg
Di-n-Octyl Phthalate	570BU	ug/kg
Hexachlorobenzene	570U	ug/kg

B/N/Acid Scan *** Continued *** Parameter	Sediment Result	Units
Anthracene	570U	ug/kg
1,2,4-Trichlorobenzene	570U	ug/kg
2,4-Dichlorophenol	570U	ug/kg
2,4-Dinitrotoluene	570U	ug/kg
Pyrene	570U	ug/kg
Dimethylphthalate	570U	ug/kg
Dibenzofuran	570U	ug/kg
Benzo(ghi)perylene	570U	ug/kg
Indeno(1,2,3-cd)pyrene	570U	ug/kg
Benzo(b)fluoranthene	570BU	ug/kg
Fluoranthene	570U	ug/kg
Benzo(k)fluoranthene	570BU	ug/kg
Acenaphthylene	570U	ug/kg
Chrysene	540U	ug/kg
4,6-Dinitro-2-methylphe	2800U	ug/kg
1,3-Dichlorobenzene	570U	ug/kg
2,6-Dinitrotoluene	570U	ug/kg
N-Nitroso-di-n-Propylam	570U	ug/kg
4-Chlorophenyl-phenylet	570U	ug/kg
bis(2-Chloroisopropyl)E	570U	ug/kg
Spike D5-Phenol	119	% Recov
Spike D10-Pyrene	90	% Recov
Spike 2-Fluorophenol	126	% Recov
Spike D5-Nitrobenzene	87	% Recov
Spike 2-Fluorobiphenyl	82	% Recov
Spike D14-Terphenyl	110	% Recov

Pest/PCB - PP Scan Parameter	Sediment Result	Units
4,4'-DDT	2U	ug/kg
Chlordane	2U	ug/kg
gamma-BHC (Lindane)	2U	ug/kg
Dieldrin	2U	ug/kg
Endrin	2U	ug/kg
Methoxychlor	20U	ug/kg
4,4'-DDD	2U	ug/kg
4,4'-DDE	2U	ug/kg
Heptachlor	2U	ug/kg
Hexachlorobutadiene	NAR	ug/kg
Hexachlorobenzene	NAR	ug/kg
Aldrin	2U	ug/kg
alpha-BHC	2U	ug/kg

(Continued on next page)

26-JAN-08
08:09:48

EPA Region X Lab Management System
Sample/Project Analysis Results

BEKER INDUSTRIES

Officer: JEA Account: FA10P022

Project: TEC-380A

Depth: QA Code:

Sample No: 87 311465 Begin Sample Date: 07/08/03 15:20 Source: Sediment (General)

Laboratory: RX Description: LF #2

Pest/PCB - PP Scan Sediment
*** Continued ***

Parameter	Result	Units
beta-BHC	2U	ug/kg
delta-BHC	2U	ug/kg
alpha-Endosulfan	2U	ug/kg
Heptachlor epoxide	2U	ug/kg
Endosulfan sulfate	2U	ug/kg
Endrin aldehyde	2U	ug/kg
Toxaphene	60U	ug/kg
PCB - 1260	20U	ug/kg
PCB - 1254	20U	ug/kg
PCB - 1221	20U	ug/kg
PCB - 1232	20U	ug/kg
PCB - 1248	20U	ug/kg
PCB - 1016	20U	ug/kg
beta-Endosulfan	2U	ug/kg
PCB - 1242	20U	ug/kg
Spike o,p'-DDE	NAR	% Recov
Spike Hexabromobenzene	100	% Recov
Spike Tetrabromobenzene	NAR	% Recov

(Sample Complete)

Additional Information

Data tables included in this report may contain only those parameters pertinent to this site inspection. If a complete set of all data is required, including all undetected substances, please contact the U.S. Environmental Protection Agency, Region X, Superfund Branch, 1200 Sixth Avenue, Seattle, WA 98101. Requests should reference case, sample number, and site identification number.

ecology and environment, inc.
101 YESLER WAY, SEATTLE, WASHINGTON, 98104, TEL. 206/624-9537
International Specialists in the Environment

MEMORANDUM

DATE: September 9, 1987

TO: John Osborn, FIT-RPO, USEPA, Region X

FOR: Joyce Crosson, RSCC, USEPA, Region X

THRU: David Buecker, FIT-OM, E&E, Seattle

FROM: Patrick McGrath, Chemist, E&E, Seattle
Andrew Hafferty, Senior Chemist, E&E, Seattle

SUBJ: QA of Case 7719 (Organics)
Beker Industries

REF: F10-8702-08

CC: Gerald Muth, DPO, USEPA, Region X
John Anderson, ESD-PO, USEPA, Region X
Deborah Flood, HWD-SM, USEPA, Region X
Jeff Whidden, E&E, Seattle

The Quality Assurance review of seven samples, Case 7719, collected from Beker Industries, has been completed. Seven water samples were analyzed at low level for TCL Organics by Analytical Resources Incorporated of Seattle, Washington. The samples were numbered:

JC 101	JC 103	JC 105	JC 107
JC 102	JC 104	JC 106	

Data Qualifications

The following comments refer to the laboratory performance in meeting the Quality Control Specifications outlined in IFB WA 87J001, 2, 3.

1) Timeliness - Acceptable

2) Instrument Tuning - Acceptable

APPENDIX E

QUALITY ASSURANCE MEMORANDA

3) Initial Calibration - Acceptable

4) Continuing Calibrations - Acceptable

5) Instrument Detection Limits - Acceptable

Three compounds exceeded CRQL.

Compound	Fraction	Laboratory Detection Limit	CRQL
Acetone	Volatile	11.6 ug/L	10.0 ug/L
Arochlor 1242	Pesticide	.52 ug/L	.5 ug/L
Arochlor 1248	Pesticide	.51 ug/L	.5 ug/L

6) Blanks - Acceptable

7) Pesticide Standards

a) Linearity - Acceptable

b) DDT Retention Time - Acceptable

c) Retention Time Windows - Acceptable

d) Analytical Sequence - Acceptable

e) 4,4'-DDT/Endrin Degradation - Acceptable

f) Dibutylchlorendate Retention Time Shift - Acceptable

g) Standards Summary - Acceptable

8) Surrogate Recovery - Acceptable

9) Matrix Spike and Matrix Spike Duplicate - Acceptable

10) Sample Analysis

According to the laboratory, all the samples contained a pea size bubble in volatile sample vials. Samplers have indicated that this water may be naturally carbonated. No bubbles were noted in vials during collection.

Data Use

The usefulness of the data is based on the criteria outlined in the "Laboratory Data Validation Functional Guidelines for Evaluating Organics and Pesticides/PCB Analyses" (R-582-5-5-01).

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

Additional data packages associated with this project are expected from the EPA Region X Laboratory.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is an estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the CRQL.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

Q - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

B - The compound was found in the laboratory blank as well as the sample.

M - Mass spectral criteria for positive identification were not met. However, in the opinion of the laboratory, the identification is correct based on the analyst's professional judgement.

F - Concentration of this compound exceeds either the primary or secondary drinking water standard listed in the Safe Drinking Water Act of 1974.

APPENDIX F

SAMPLE DOCUMENTATION

No. 1
/87

SAMPLE TRACKING REPORT
Ecology and Environment, Inc.
Seattle, Washington
Contract No.: 68-01-7347

NAME	TDD NUMBER	CASE NUMBER	EPA SAMPLE NUMBER	LAB NUMBER	STORET NUMBER	SAMPLE DESCRIPTION	SAMPLE DATE	DATE SHIPPED	AIRBILL NUMBER	SAMPLE MATRIX	CONC	PRES	ANALYSES REQUESTED	LABORA
R	B702-08	7719	B7314450	N/A	N/A	MF WELL	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314451	N/A	N/A	TP	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314452	N/A	N/A	PROD WELL1	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314453	N/A	N/A	SIMPLOT#10	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314454	N/A	N/A	SIMPLOT#11	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314455	N/A	N/A	NELSON WEL	08/03/87	08/05/87	3505713293	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314456	N/A	N/A	TORGESEN W	08/03/87	08/05/87	3505713293	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314458	N/A	N/A	TAILINGS	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
R	B702-08	7719	B7314459	N/A	N/A	COOLING PD	07/28/87	07/29/87	4723598003	WATER	LOW	NONE	INORG/AN	EPA X
ER	B702-08	7719	B7314461	N/A	N/A	GYPSUM PND	07/28/87	07/29/87	4723598003	SOIL	LOW	NONE	INORG/AN	EPA X
ER	B702-08	7719	B7314462	N/A	N/A	COOLING PD	07/28/87	07/29/87	4723598003	SOIL	LOW	NONE	INORG/AN	EPA
ER	B702-08	7719	B7314463	N/A	N/A	TAILINGS	07/28/87	07/29/87	4723598003	SOIL	LOW	NONE	INORG/AN	EPA X
ER	B702-08	7719	B7314464	N/A	N/A	LF#1	08/03/87	08/05/87	3505713293	SOIL	LOW	NONE	ORGANICS	EPA
ER	B702-08	7719	B7314465	N/A	N/A	LF#2	08/03/87	08/05/87	3505713293	SOIL	LOW	NONE	ORGANICS	EPA
ER	B702-08	7719	B7314450	JC 101	N/A	MF WELL	07/28/87	07/29/87	4723597992	WATER	LOW	NONE	ORGANICS	ARI
ER	B702-08	7719	B7314451	JC 102	N/A	TP	07/28/87	07/29/87	4723597992	WATER	LOW	NONE	ORGANICS	ARI
ER	B702-08	7719	B7314452	JC 103	N/A	PROD WELL1	07/28/87	07/29/87	4723597992	WATER	LOW	NONE	ORGANICS	ARI
ER	B702-08	7719	B7314453	JC 104	N/A	SIMPLOT#10	07/28/87	07/29/87	4723597992	WATER	LOW	NONE	ORGANICS	AR
ER	B702-08	7719	B7314454	JC 105	N/A	SIMPLOT#11	07/28/87	07/29/87	4723597992	WATER	LOW	NONE	ORGANICS	AR
ER	B702-08	7719	B7314455	JC 106	N/A	NELSON WEL	08/04/87	08/05/87	3505713282	WATER	LOW	NONE	ORGANICS	ARI
ER	B702-08	7719	B7314456	JC 107	N/A	TORGESEN W	08/04/87	08/05/87	3505713282	WATER	LOW	NONE	ORGANICS	AR

APPENDIX G

PHOTOGRAPHIC DOCUMENTATION

PHOTO IDENTIFICATION SHEET

E OF CAMERA: CANON AE-1/3289855

E OF FILM: ED 135-20/KR 135-20

TDD NO.: F10-8702-08

SITE NAME: Nu-West Industries

rame No.	Roll No.	Date	Time	Taken By	Witnessed By	Description of Photo
1	1	03/24/87		Jeffrey Whidden	George Brooks	New cooling pond.
2	1	03/24/87		Jeffrey Whidden	George Brooks	Plant with cooling pond in foreground.
3	1	03/24/87		Jeffrey Whidden	George Brooks	Gypsum pond and drainage ditch.
4	1	03/24/87		Jeffrey Whidden	George Brooks	Gypsum stacks.
5	1	03/24/87		Jeffrey Whidden	George Brooks	Plant with gypsum stacks in foreground.
6	1	03/24/87		Jeffrey Whidden	George Brooks	Main gypsum stack.
7	1	03/24/87		Jeffrey Whidden	George Brooks	Plant overview.
8	1	03/24/87		Jeffrey Whidden	George Brooks	Calcining/ore processing facility.
9	1	03/24/87		Jeffrey Whidden	George Brooks	Tailings pond #3.
10	1	03/24/87		Jeffrey Whidden	George Brooks	Tailings ponds #1 and #4
11	1	03/24/87		Jeffrey Whidden	George Brooks	On-site landfill.
12	1	03/24/87		Jeffrey Whidden	George Brooks	On-site landfill.
13	1	03/24/87		Jeffrey Whidden	George Brooks	Salvage yard.
15	1	03/24/87		Jeffrey Whidden	George Brooks	Drum storage area.
16	1	03/24/87		Jeffrey Whidden	George Brooks	Sulfuric acid plant.
18	1	03/24/87		Jeffrey Whidden	George Brooks	Fertilizer storage.
3	2	07/29/87		Jeffrey Whidden	William Richards	Sample shipment preparation.
13	2	08/04/87		Jeffrey Whidden	William Richards	Field documentation.
15	2	08/04/87		Jeffrey Whidden	William Richards	New cooling pond.
24	2	08/04/87		Jeffrey Whidden	William Richards	Cooling pond.
30	2	08/04/87		Jeffrey Whidden	William Richards	EM Survey in new cooling pond.

APPENDIX A

Site Inspection Report for Nu-West Industries Conda Plant, Caribou, Idaho,
Ecology and Environment Inc., March 1988

Expanded Site Inspection Report
Nu-West Industries

EPA REGION X

Contract No. 68-W9-0046
Work Assignment No. 46-15-QJZZ
Document Control No. 4000-011-001-AADG
Work Order No. 4000-011-001-4401

September 1994

United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

Alaska
Idaho
Oregon
Washington

EPA

October 5, 1994

Reply to
Attn of: HW-114

Monty Johnson, Environmental Manager
NuWest Industries, Inc.
3010 Conda Road
Soda Springs, Idaho 83276

Re: Nu-West Industries, Inc. Site - Soda Springs, Idaho
Expanded Site Investigation (ESI) Report

Dear Mr. Johnson:

The U.S. Environmental Protection Agency (EPA), through its contractor, Roy F. Weston, Inc. (WESTON), has completed the expanded site investigation (ESI) of the above referenced site. A copy of the report is enclosed.

The ESI was conducted due to concerns regarding the potential impacts posed by the site to the surrounding environment, specifically to ground water. Ground water samples were collected from on-site production wells and from off-site domestic drinking water wells. A discussion of the sample results is presented in the enclosed report.

Based on the ESI report, no further action by the Federal Superfund Program is recommended at this site.

If you have any questions, I can be reached at (206) 553-0323.

Sincerely,

Monica Rolluda

Monica Rolluda
Site Assessment Manager
Superfund Response and Investigations Branch

cc: Lance Nielsen, IDHW
Mark Masarik/Fran Allans, EPA-IOO
Caribou County Environmental Health

EXPANDED SITE INSPECTION REPORT
NU-WEST INDUSTRIES

Prepared for

US Environmental Protection Agency
Region X
1200 Sixth Avenue
Seattle, Washington 98101

Document Control No. 4000-011-001-AADG
Work Order No. 4000-011-001-4401
Contract No. 46-W9-0046
Work Assignment No. 46-15-QJZZ

Prepared by

Roy F. Weston, Inc.
700 Fifth Avenue
Suite 5700
Seattle, Washington 98104-5057

ARCS QUALITY ASSURANCE CONCURRENCE

EXPANDED SITE INSPECTION REPORT
Nu-West Industries

Project Name:	ESI Report—Nu-West Industries
Contract Number:	68-W9-0046
Work Assignment Number:	46-15-QJZZ
Responsible Organization:	Roy F. Weston, Inc. 700 Fifth Avenue, Suite 5700 Seattle, Washington 98104

Concurrences:

Name: Steve Fuller, RG
Title: Project Manager, Roy F. Weston, Inc.
Signature: _____ Date: 12/20/94

Name: Daniel Handschin
Title: Deputy QA Manager, Roy F. Weston, Inc.
Signature: _____ Date: 20 SEPT 94

Name: Frank C. Monahan
Title: ARCS Program Manager, Roy F. Weston, Inc.
Signature: _____ Date: 9/20/94

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APPENDIX C—DATA TABLES
APPENDIX D—DATA VALIDATION MEMORANDA
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NUW 004617

SECTION 1

INTRODUCTION

The Nu-West Industries Conda Plant is located outside Soda Springs in Caribou County, Idaho. The United States Environmental Protection Agency (EPA) requires from this site inspection additional information to evaluate potential releases to groundwater. Roy F. Weston, Inc. (WESTON®) has been tasked by the EPA under Contract Number 68-W9-46 (Work Assignment 46-15-QJZZ) to conduct an expanded site inspection (ESI) of the property and the vicinity.

The original purpose of the Nu-West Industries Expanded Site Inspection (ESI) was to collect all data necessary to prepare a Hazard Ranking System (HRS) scoring package to assess site eligibility for inclusion on the National Priorities List (NPL). Prior to conducting the ESI sampling event, WESTON conducted a site reconnaissance. WESTON observed that potential emissions from the tailings ponds are minimal. It was found that the tailings are wet or under water at all times since all ponds are used as settling basins and water is recycled back to the process. Based on these findings and observations and due to the lack of pathway targets for the soil exposure and surface water pathways, the scope of the Nu-West ESI was limited to an assessment of groundwater quality in the vicinity of the site.

Groundwater samples were collected from on-site production wells and selected local domestic wells. Samples were analyzed for EPA Target Analyte List (TAL) metals and indicator parameters either specific to the phosphate ore processing industry or agricultural activities (phosphate, sulfate, fluoride, chloride, nitrate, ammonia, radium, and gross alpha and beta counts). This report characterizes the groundwater quality at and around the site by comparing concentrations of these analytes to federal drinking water standards and/or background concentrations.

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SECTION 2

SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The Nu-West facility is located approximately 5 miles northeast of Soda Springs, Idaho, near the abandoned town of Conda (Figure 2-1). The site covers about 1,600 acres in Sections 3, 4, 9, 10, 15, and 16 of Township 8 South, Range 42 East of the Boise Meridian at latitude 42 degrees 41 minutes North and longitude 111 degrees 32 minutes East. The site is located in a broad valley at the western base of the Aspen Range.

Since 24 July 1987, the site has been owned and operated by Nu-West Industries. Nu-West Industries produces phosphoric acid and diammonium phosphate. A wet acid process is employed for converting phosphate ore into phosphoric acid. Ore is transported to the site by rail car. The ore is then crushed and slurried with water, and the fine clay tailings from this process are pumped to the tailings ponds. The water from this process is recycled. The beneficiated ore is calcined and digested with sulfuric acid (sulfuric acid is produced on site by reaction of sulfur and air over a vanadium pentoxide catalyst) to form phosphoric acid and calcium sulfate (phosphogypsum) waste. The phosphogypsum waste is slurried with water and pumped to the gypsum ponds where the water is decanted to the cooling pond and recycled back to the process.

Diammonium phosphate is produced by direct reaction of phosphoric acid with ammonia. The facility originally produced ammonia on-site from natural gas and air. However, the ammonia plant has been decommissioned and ammonia is currently transported to the site in bulk containers.

The Union Pacific Railroad line used for transporting ore to the facility divides the site in half. The southeast portion contains office buildings, production facilities, and ore benefication and storage areas, while the northwest area contains tailings ponds, phosphogypsum (gypsum) ponds, and process water cooling ponds (Figure 2-2).

The arid land surrounding the site is sparsely populated and is used primarily for ranching and agriculture. The city of Soda Springs obtains its water supply from Formation Springs and Hooper Springs, located 3.5 miles south and 3 miles southwest, respectively, of the site. The Soda Point Reservoir, located on Soda Creek about 2.5 miles southwest of the site, is used for irrigation. Nine production wells were identified at the facility, though only five were in use during WESTON's site reconnaissance visit. Five domestic wells were identified within 2 miles of the facility located within a 1/4 mile of Highway 34. Approximately 13 people are supplied by these wells.

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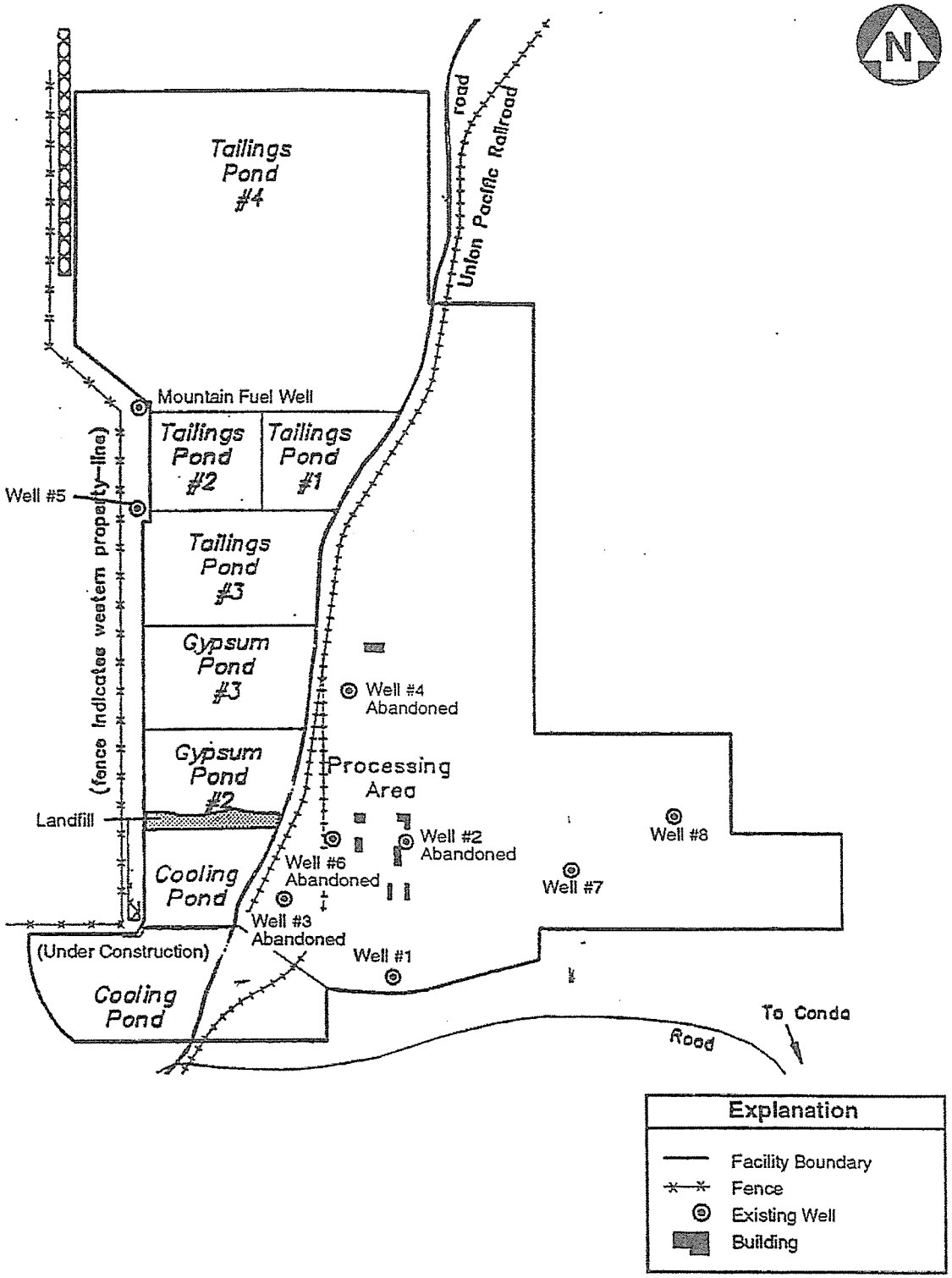

0 1000 2000 3000

Scale in Feet

WESTON

4000-11-01-3411 October 1993

Site Map with On-Site Well Locations Nu-West Industries, Soda Springs, Idaho

FIGURE 2-2

SECTION 3

FIELD INVESTIGATION

WESTON performed an expanded site inspection (ESI) to assess the potential impact from Nu-West Industries site activities on local groundwater quality in the vicinity. The objectives of this investigation were to:

- Determine the chemical composition of water in the cooling pond.
- Determine the presence and concentrations of EPA TAL metals, nitrate, and indicator parameters (phosphate, fluoride, chloride, sulfate, ammonia, radium 226, gross alpha and beta) in groundwater at the site and surrounding vicinity.
- Determine if any changes have occurred in groundwater composition from previous investigations.
- Determine if groundwater at the site poses a risk to public health.
- Determine if there is any need for emergency action at the site.

The following work elements were performed to achieve the objectives listed above:

- Collect water samples from the on-site cooling pond and tailings pond #4 and analyze as listed in Appendix A.
- Collect groundwater samples from existing, on-site, active production wells and analyze as listed in Appendix A.
- Collect groundwater samples from four existing off-site wells (two J.R. Simplot production and two domestic) and analyze according to Appendix A.
- Identify additional domestic or irrigation wells within 2 miles of the facility.

3.1 SAMPLE RATIONALE, NUMBERS AND ANALYSES

A total of nine (9) groundwater samples was collected: five (5) from on-site industrial production wells, two from off-site production wells, and two (2) from off-site domestic wells, Figure 3-1. Two (2) surface impoundment water samples collected; one each from tailings pond #4 and cooling pond #1. Quality control samples consisted of one duplicate sample collected from tailing pond #4 and an ambient blank collected at the cooling pond

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sample collection location. Table 3-1 outlines the sample locations and corresponding WESTON sample identification number and the sample location rationale.

Samples were analyzed for Target Analyte List (TAL) metals, anions (fluoride, chloride, sulfate, nitrate and phosphate), gross alpha and beta activity, and radium 226.

Table 3-1—Sample Rationale

WESTON Sample Number	Sample Location/Designation	Rationale
NW-1	Nu-West Well #1	assess downgradient water quality
NW-5	Nu-West Well #5	assess potential releases from tailings ponds
NW-7	Nu-West Well #7	assess upgradient water quality
NW-8	Nu-West Well #8	assess upgradient water quality
NW-MFW	Nu-West Mountain Fuel Well	assess potential releases from tailings ponds
NW-CP	Nu-West Cooling Pond #1	assess potential contaminant source
NW-TP-4	Nu-West Tailing Pond #4	assess potential contaminant source
NW-TP-4D	Nu-West Tailing Pond #4, duplicate	assess potential contaminant source
NW-AB-1	Nu-West Ambient Blank	QC
JRS-10	J.R. Simplot Well #10	downgradient water quality
JRS-11	J.R. Simplot Well #11	downgradient water quality
DURFEE-1	Durfee Domestic Well	downgradient water quality
TORGESEN-1	Torgesen Domestic Well	downgradient water quality to assess potential releases from tailings ponds to groundwater

3.2 SAMPLING METHODOLOGIES

3.2.1 Production Well Sample Collection

Groundwater samples were collected from the nearest collection point to the well head, i.e. before any holding tanks or filter systems. Prior to sample collection field parameters (pH, conductivity, temperature and reduction/oxidation potential) were measured and recorded. Since all production wells were in use at the time of sampling, it was not necessary to calculate purge volumes.

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SECTION 4

ESI RESULTS

This section summarizes the analytical results with respect to Drinking Water Regulations and Health Advisories (EPA; 1993). The following discussion focuses on parameters associated with the production of phosphoric acid and diammonium phosphate and any other parameters which exceed Drinking Water Standards or are "elevated" above background concentrations. The analytes associated with phosphoric acid and diammonium phosphate (analytes of concern) are: arsenic, cadmium, vanadium, ammonia, sulfate, fluoride, and phosphate. Sample results for these analytes from each sampled well and pond are shown in Table 4-1 of this report. Sample results that are elevated above background have been highlighted. Additionally, analyses for radium 226 and gross alpha and beta counts were performed. Due to their presence within the ore, analysis for these radioactive parameters are cited to further characterize groundwater gradients.

For purposes of this report, "significant" or "elevated" concentrations are defined, using Table 2-3 of the EPA Hazard Ranking System (HRS) model criteria for observed release (significant or elevated concentration), as follows:

- If the background concentrations equals or exceeds the detection limit, an observed release is established when the sample measurement is three times or more above the background concentration.

- If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit (SQL). For Routine Analytical Services (RAS) analyses performed under the EPA Contract Laboratory Program (CLP) or the EPA regional laboratory, the EPA contract required quantitation limit (CRQL) is used in place of the SQL.

Based on EPA Region 10 policy, aluminum, calcium, iron, magnesium, and potassium (common earth crust elements) generally are employed only in water mass tracing which is beyond the scope of this report. These elements will not be discussed further.

Based on previous findings that local groundwater flow direction is to the west-southwest, NW-8 and NW-7, upgradient production wells were sampled. Although both wells are located on-site, groundwater flow direction, well log information, and analytical results suggest that NW-8 can be used to establish background concentrations. For the purpose of this report, references made to a background well or background concentrations are to be associated with well NW-8. NW-1 is an on-site downgradient production well. Wells NW-5 and NW-MFW are located adjacent to and downgradient of the tailings ponds. JRS-10 and

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DOWNGRADIENT PRODUCTION WELLS		
Parameter	Concentration	Qualifier
JRS-10/J.R. Simplot Well Number 10		
Metals		
Arsenic	19.2	UJ
Cadmium	2.3	U
Vanadium	16.1	U
Anions		
Ammonia as Nitrogen	**13,600**	
Sulfate	**758,000**	
Fluoride	100	U
Phosphate	**17,900**	
NW-5/Nu-West Well Number 5		
Metals		
Arsenic	4.2	UJ
Cadmium	2.3	U
Vanadium	14.9	U
Anions		
Ammonia as Nitrogen	**8,830**	
Sulfate	**203,000**	
Fluoride	250	
Phosphate	**9,700**	

Bold values indicate concentrations elevated above background groundwater concentrations.

NUW 004624

DOWNGRADIENT DOMESTIC WELLS		
Parameter	Concentration	Qualifier
DURFEE-1/Durfee Domestic Well		
Metals		
Arsenic	6.7	UJ
Cadmium	2.3	U
Vanadium	10.4	U
Anions		
Ammonia as Nitrogen	1,000	U
Sulfate	**57,000**	
Fluoride	110	
Phosphate	590	U
TORGESEN-1/Torgensen Domestic Well		
Metals		
Arsenic	9.2	UJ
Cadmium	2.3	U
Vanadium	12.7	U
Anions		
Ammonia as Nitrogen	1,000	U
Sulfate	**72,800**	
Fluoride	260	
Phosphate	480	U

Bold values indicate concentrations elevated above background groundwater concentrations.

JRS-11 are off-site downgradient wells. The two off-site domestic wells, TORGESEN-1 and DURFEE-1, are located to the west and southwest of the site, respectively (Figure 3-1).

4.1 BACKGROUND WELL SAMPLING

Analytical results revealed concentrations of chloride, sulfate, fluoride and nitrate in well NW-8 at 10.8 mg/L, 10.2 mg/L, 0.11 mg/L and 1.43 mg/L, respectively. No other analytes were detected.

Gross alpha count and Radium 226 were not detected in well NW-8. The gross beta count was found to be 4.6 pCi/L.

4.2 SOURCE SAMPLING

Surface water samples were collected from the cooling pond and tailings pond #4. As reflected in Table 4-1, the analytes of concern were detected in high concentrations. In addition, all three radiochemistry parameters, namely; radium 226, gross alpha and gross beta, were detected in both source samples (Appendix C, pp 5 and 6).

4.3 PRODUCTION WELL SAMPLING

Wells NW-1, NW-5, and NW-MFW are the on-site production wells. Analytical results of samples collected from these wells are shown in Appendix C of this report. Concentrations of contaminants found to be elevated above background are highlighted in the tables contained in Appendix C.

The water sample collected from downgradient well, JRS-11, exhibited concentrations of analytes comparable to the background well concentrations. Because JRS-11 is located southeast of the facility and groundwater flow is to the west-southwest, it follows that this well appears not be impacted by Nu-West activities. The water sample collected from JRS-10, an off-site downgradient production well, revealed elevated concentrations of manganese, sodium, ammonia, chloride, sulfate, nitrate and phosphate. JRS-10 revealed activities of radiochemistry parameters i.e. gross beta counts elevated above background (Appendix C).

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SECTION 5

HISTORICAL COMPARISON OF ANALYTICAL RESULTS

Prior to the WESTON expanded site inspection, a site inspection (SI) was performed for EPA in July 1987 by Ecology & Environment, Inc. Table 5-1 lists the six wells sampled during both events and their results. Analytes that were detected during both events were compared by calculating the relative percent difference (RPD). Most analytes had greater than 20 percent RPD with JRS-10, TORGESEN-1 and DURFEE-1 having the greatest number of increased concentrations. JRS-10 showed percent increases generally greater than 50 percent.

Of the analytes of concern, apparent increases in the concentrations of sulfate (4 of 6 wells had increased detections) and phosphate (6 of 6 wells had increased detections) were observed.

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Table 5-1--Sample Results Comparison to Federal Drinking Water Standards (Continued)
(ug/L)

Parameter	Federal Drinking Water Standards	JRS-11 July 1987	JRS-11 March 1994	TORGESEN-1 July 1987	TORGESEN-1 March 1994	DURFEE-1 July 1987	DURFEE-1 March 1994
Metals							
Aluminum	50 to 200 **	50 U	36.8 U	50 U	55.0 J	50 U	53.4 J
Antimony	6.0 *	1 U	21.6 U	1 U	21.6 U	1 U	21.6 U
Arsenic	50 *	1 U	7.7 UJ	3	9.2 UJ	1	6.7 UJ
Barium	2.0 *	80	26.6 J	50 U	55.4 J	50 U	25.0 J
Beryllium	4.0 *	0.2 U	1.2 U	0.2 U	1.2 U	0.2 U	1.2 U
Cadmium	5.0 *	0.2 U	2.3 U	0.2 U	2.3 U	0.2 U	2.3 U
Calcium	--	95800	88,800	113100	126,000	49100	67,000
Chromium	100 *	1 U	3.0 U	1 U	3.0 U	1 U	3.0 U
Cobalt	--	NA	9.7 U	NA	9.7 U	NA	9.7 U
Copper	1.3 *	5	2.4 U	1 U	5.7 J	5	2.4 U
Iron	300 **	5 U	40.1 U	5 U	8.8 U	31	88.0 J
Lead	15.0 *	7	2.1 UJ	21	2.1 UJ	5 U	10.4 J
Magnesium	--	16400	15,300	55400	54,500	20300	23,800
Manganese	50 **	4	1.7 J	2	1.0 U	5	3.6 J
Mercury	2.0 *	0.05 U	0.20 U	0.06 U	0.20 U	0.06 U	0.20 U
Nickel	100 *	17	10.8 U	5 U	10.8 U	5 U	20.2 J
Potassium	--	1500	2,180 U	3500	4,610 J	3600	4,840 J
Selenium	50 *	14	23.6	4	7.1 J	2	4.9
Silver	100 **	0.2 U	2.6 U	0.2 U	2.6 U	0.2 U	2.6 U
Sodium	--	6900	5,740	14000	15,500	19500	20,300
Thallium	2.0 *	1 U	5.3 UJ	1 U	5.3 UJ	1 U	5.3 UJ
Vanadium	--	1 U	11.2 U	1 U	12.7 U	1 U	10.4 U
Zinc	5000 **	2	17.9 U	92	368	344	111
Chloride	250,000 **	11,100	10,900	28,200	36,400	40,000	55,500
Sulfate	250,000 **	58,400	53,800	69,900	72,800	37,700	57,000
Fluoride	4000 *	120	110	200	260	170	110
Phosphate		48	580	96	480 U	120	590 U

U - The analyte was not detected at the given quantitation limit.
J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
UJ - The analyte was not detected, the associated quantitation limit is an estimated value.
* - Primary standards are health-based benchmarks.
** - Secondary standards are set for taste, color, odor, and other aesthetic considerations which are not health related.
-- No standard currently exists or is proposed.

SECTION 6

DISCUSSION

6.1 CONCLUSION

Elevated concentrations of contaminants found in on-site and off-site production wells do not pose an immediate human health threat via the drinking water pathway as these wells are not used for drinking water purposes. However, based on analytical results, a trend in increased concentrations of contaminants seems to be developing in downgradient production wells. Based on sample results, activities at the Nu-West site are impacting the local groundwater quality, possibly by seepage from surface impoundments. Elevated concentrations of contaminants attributable to the Nu-West facility, i.e., chloride and sulfate, have been detected in downgradient domestic drinking water wells. The concentrations detected for these contaminants do not currently exceed the existing drinking water standards. However, due to the trend in increasing concentrations of contaminants found in wells downgradient of the tailings ponds (Table 5-1), the potential for source contaminants to adversely impact downgradient domestic wells does exist.

Analytical results from the sampled wells suggest that the elevated concentration of nitrate detected in the Torgesen well is not attributable to the Nu-West Industries site. A potential source of this contamination may be the cattle ranching and farming activities at or near the Torgesen ranch.

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SECTION 7

RECOMMENDATIONS

7.1 RECOMMENDATIONS

It is recommended that no further action be conducted at this site under CERCLA. No drinking water wells are located on site and concentrations of substances attributable to this site detected in off-site domestic drinking water wells are below the established federal drinking water standard for those substances.

It is, however, recommended that further evaluation of the potential health threat(s) posed by the elevated levels of nitrate detected in the off-site domestic drinking water wells (Torgesen and Durfee wells) be conducted by the appropriate authority. Measures to minimize the human health threat(s) posed by elevated levels of nitrate in these drinking water wells should be taken.

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REFERENCES

Ecology & Environment (E&E). 1988. *Site Inspection Report for Nu-West Industries Conda Plant, Caribou, Idaho*. March 1988.

U.S. Environmental Protection Agency (EPA). 1993. *Drinking Water Regulations and Health Advisories*. Office of Water, Washington, D.C. May 1993.

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APPENDIX A
ANALYTICAL PARAMETERS

EPA
TARGET ANALYTE LIST (CERCLA) METALS

1. Aluminum
2. Antimony
3. Arsenic
4. Barium
5. Beryllium
6. Cadmium
7. Calcium
8. Chromium
9. Cobalt
10. Copper
11. Iron
12. Lead
13. Magnesium
14. Manganese
15. Mercury
16. Nickel
17. Potassium
18. Selenium
19. Silver
20. Sodium
21. Thallium
22. Vanadium
23. Zinc

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INDICATOR PARAMETERS

Chloride
Fluoride
Nitrate
Phosphate
Sulfate
Ammonia
Radium 226
alpha and beta emitters

FIELD PARAMETERS

pH
Electrical Conductivity
Redox potential (Eh)
Temperature
Water level

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APPENDIX B
WELL SAMPLING DATA SHEETS

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Well No.: NW-1
Project Location: SODA SPRINGS
Sample No.: 94114420
Project No.: 4000-11-01-3521
Sampler Names(s): LOTTSFELDT / SNARSKI
Date/Time: 3-14-94 / 1130
Weather: SUNNY

Water Level Measurements

1,000 GPM 6 gal/ft. 16" 13

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
~250	~29	3-14 / 1134	221	1,326

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
1	1141	10,000	6.8	804	15.8	-46	CLEAR	
2	1143	12,000	7.0	777	10.6	-43	"	
3	1145	14000	7.1	773	9.5	-10	"	
4	1147	16,000	7.2	775	9.7	02	"	
5	1149	18,000	7.3	781	9.4	10	"	

Water Level Measurement Method: N/A

Well Evacuation Method: ACTIVE PRODUCTION WELL

Sample Method: DISCHARGE PORT

Sample Device Cleaning Method: N/A

Notes:

SAMPLE FOR ANIONS
TAL METALS
GROSS α / β @1145
AMMONIA
RADIUM

TRW MJM 281

Sampler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NVWEST
Well No.: NW-5
Project Location: SODA SPRINGS
Sample No.: 941144121
Project No.: 4000-11-01-3521
Sampler Names(s): LOTTSFELDT / SNARSKI
Date/Time: 3-14-94 / 1048
Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
	26.5			

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
✓	1047		5.9	712	12.2	145	CLEAR	

Water Level Measurement Method: WL PROBE
Well Evacuation Method: ALREVE PUMP
Sample Method: DISCHARGE PORT
Sample Device Cleaning Method: NA.

Notes:
SAMPLE FOR ANIONS
TAL METALS
GROSS α/β @ 1055
AMMONIA
RADIUM

TRH MTM 280

Sampler Signature: [signature]

GROUNDWATER SAMPLING RECORD

oject Name: NUWEST INP.
Well No.: MW-MFW.
roject Location: SODA SPRINGS
Sample No.: 94114424
oject No.: 4000-11-01-3521
Sampler Names(s): LOTTSFELDT/SNARSKI
ate/Time: 3-14-94
Weather: SUNNY

ater Level Measurements

epth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
	29.1			

ater Excavation/Field Parameters

ll Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
1	1001		6.3	600	12.7	-75	CLEAR	

ater Level Measurement Method: WL PROBE
ell Evacuation Method: ACTIVE PUMP
mple Method: DISCHARGE PORT.
ample Device Cleaning Method: N/A

otes:
SAMPLE FOR ANIONS
TAL METALS
GROSS α/β @ 1005
AMMONIA
RADIUM

TRY MJM279

npler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Well No.: NW-7
Project Location: SODA SPRINGS
Sample No.: 94114433
Project No.: 4000-11-01-3521
Sampler Names(s): LOTTSFELDT / SNARSKI
Date/Time: 3-24-94 / 1219
Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
	NA			

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	Conductivity (µS)	Temp. (°C)	Eh (mV)	Color/ Turbidity	
	1219		7.0	538	15.2	002	CLEAR	

Water Level Measurement Method: /
Well Evacuation Method: ALTENE PUMP
Sample Method: SAMPLE PORT
Sample Device Cleaning Method: N/A.

Notes:
SAMPLE FOR ANIONS
TAL METALS
GROSS α/β
AMMONIA
RADIUM
@ 1220

TRIP MJM 285

Sampler Signature: Lisa Lottsfeldt

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Well No.: NW-8
Project Location: SODA SPRINGS
Sample No.: 94114423
Project No.: 4000-11-01-3521
Sampler Names(s): LOTTSFELDT
Date/Time: 3-14-94 / 1255
Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
		1255		

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
1	1257		7.3	301	11.6	057	CLEAR	

Water Level Measurement Method: ~~WL PRO~~ N/A
Well Evacuation Method: ACTIVE PUMP
Sample Method: SAMPLE PORT
Sample Device Cleaning Method: N/A

Notes:
SAMPLE FOR ANIONS
TAL METALS
GROSS α/β @ 1300
AMMONIA
RADIUM

TRY MJM286

Sampler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Project Location: SODA SPRINGS
Project No.: 4000-11-01-3521
Date/Time: 3-15 / 825

Well No.: NW-TP-4
Sample No.: 94114426
Sampler Names(s): LOTTSFELDT / SNARSKI
Weather: SUNNY / COLD

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
/	/	3-15 / 830		

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	vs Conductivity	°C Temp.	✓ Eh	Color/ Turbidity	
	830	/	3.2	1049	4.7	220	CLEAR	

Water Level Measurement Method: WL PROBE
Well Evacuation Method: ACTIVE PUMP
Sample Method:
Sample Device Cleaning Method:

Notes:

SAMPLE FOR ANIONS
GROSS α / β
AMMONIA @ 835
METALS
RADIUM — TR # MJM287

~~TR #2~~

Sampler Signature: SR Lottsfeldt

NUW 004641

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Project Location: SODA SPRINGS
Project No.: 4000-11-01-3521
Date/Time: 3-15 / 905

Well No.: NW-TP-4D
Sample No.: 94114431
Sampler Names(s): LOTTSFELDT / ZNARSKI
Weather: SUNNY COLD

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
1	—	—	7.1	1051	5.2	77	CLEAR	

Water Level Measurement Method: NA
Well Evacuation Method: NA
Sample Method: DISCHARGE HOSE
Sample Device Cleaning Method: NA

Notes:

SAMPLE FOR ANIONS
GROSS α/β @ 855
AMMONIA
METALS — TR # MJM296
RADIUM

Sampler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Project Location: SODA SPRINGS
Project No.: 4000-11-01-3521
Date/Time: 3-15 / 950

Well No.: NW-CP
Sample No.: 94114425
Sampler Names(s): LOTTSFELDT / SNARSKI
Weather: SUNNY / COLD

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
	953	–	1.4	210,000	16.2	357	CLEAR	

Water Level Measurement Method: N/A
Well Evacuation Method: N/A
Sample Method: BAILER
Sample Device Cleaning Method: N/A

Notes:

SAMPLE FOR ANIONS
GROSS α/β @ 1000
AMMONIA
METALS – MJM 294
RADIUM

Sampler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST

Project Location: SODA SPRINGS / SAMPLOT

Project No.: 22 4000-11-01-3511

Date/Time: 3-15 / 1100

Well No.: # JRS-1D

Sample No.: 94114427

Sampler Names(s): LOTTSFELDT / SNARSILZ

Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	µS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
1			5.7	1271	8.0	-40	CLEAR	

Water Level Measurement Method: N/A

Well Evacuation Method: N/A

Sample Method: FROM OUTFALL

Sample Device Cleaning Method: N/A

Notes: SAMPLE FOR ANIONS
GROSS α/β
AMMONIA
METALS →
RADIUM

@ 1105 MTM 299

Sampler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NV WEST

Project Location: SODA SPRINGS / SIMPLOT

Project No.: 4000-11-01-3511

Date/Time: 3-15 / 1130

Well No.: JRS-11

Sample No.: 94114428

Sampler Names(s): LOTTSFELDT / SNARSKI

Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	uV Eh	Color/ Turbidity	
1	1135		7.2	459	11.5	57	CLEAR	

Water Level Measurement Method: N/A

Well Evacuation Method: N/A

Sample Method: SAMPLE PORT

Sample Device Cleaning Method: N/A

Notes: SAMPLE FOR ANIONS
GROSS α / β @ 1135
AMMONIA
METALS → MTM 291
RADIUM

Sampler Signature: E.A. Lottsfeldt

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST
Well No.: TORGESON-1
Project Location: SODA SPRINGS / TORGESON
Sample No.: 94114430
Project No.: 4000-11-01-3511
Sampler Names(s): LOTTSFELDT / SNARSKI
Date/Time: 3-15 / 1200
Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)

Water Excavation/Field Parameters

Well Volume No.	Time	Gallons	pH	uS Conductivity	°C Temp.	mV Eh	Color/ Turbidity	
1	1200	-	7.1	679	8.2	78	CLEAR	

Water Level Measurement Method: N/A
Well Evacuation Method: ACTIVE PUMP
Sample Method: SPIGOT
Sample Device Cleaning Method: N/A

Notes: SAMPLE FOR ANIONS
GROSS α / β
AMMONIA
METALS ~~292~~ MTM
RADIUM
@ 1205

Sampler Signature: [signature]

WESTON

GROUNDWATER SAMPLING RECORD

Project Name: NUWEST

Project Location: SODA SPRINGS / DURFEE

Project No.: 4000-11-01-3511

Date/Time: 3-15 / 1230

Well No.: DURFEE-1

Sample No.: 94114429

Sampler Names(s): LOTTSFELDT

Weather: SUNNY

Water Level Measurements

Depth of Well (TOC)	Depth to Water (TOC)	Date/Time	Feet of Water in Well	Gallons per Well Volume (2" dia.=0.163 gal/ft, 4" dia. = 0.653 gal/ft)
N/A	N/A			

Water Excavation/Field Parameters

5 gpm 630 1230

Well Volume No.	Time	Gallons	pH	Conductivity (uS)	Temp. (°C)	Eh	Color/ Turbidity	
1	1228	1800	7.2	431	8.6	027	CLEAR	
2	1232	20	7.0	430	8.7	038	"	

Water Level Measurement Method: N/A

Well Evacuation Method: ALTZVE PUMP

Sample Method: SPIGOT / HOSE

Sample Device Cleaning Method: N/A.

Notes: SAMPLE FOR ANIONS
GROSS α / β @ 1235
AMMONIA
METALS — MIM
RADIUM

Sampler Signature: Erik Lottsfeldt

APPENDIX C
DATA TABLES

WESTON SAMPLE NAME/LOCATION: NW-1/NU-WEST WELL NUMBER 1
EPA SAS SAMPLE NUMBER: 94114420
EPA RAS SAMPLE NUMBER: MJM281

Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier
Metals				**Anions**				**Radiochemistry**			
Aluminum	58.1	ug/L	J	Ammonia as Nitrogen	1,000	ug/L	U	Radium 226	3.0	pCi/L	U
Antimony	21.6	ug/L	U	Chloride	29,300	ug/L		Gross Alpha	3.0	pCi/L	U
Arsenic	11.3	ug/L	UJ	Sulfate	487,000	ug/L		Gross Beta	5.7	pCi/L	
Barium	45.1	ug/L	J	Fluoride	240	ug/L					
Beryllium	1.2	ug/L	U	Nitrate as Nitrogen	4,060	ug/L					
Cadmium	2.3	ug/L	U	Phosphate	980	ug/L					
Calcium	181,000	ug/L									
Chromium	11.7	ug/L	U								
Cobalt	10.4	ug/L	J								
Copper	6.0	ug/L	J								
Iron	160	ug/L									
Lead	2.1	ug/L	UJ								
Magnesium	50,400	ug/L						**Field Parameters**			
Manganese	47.4	ug/L						pH	7.3		
Mercury	0.20	ug/L	U					Conductivity	781	umhos	
Nickel	10.8	ug/L	U					Temperature	9.4	degrees Celsius	
Potassium	4,060	ug/L	U					Eh	10	millivolts	
Selenium	20.2	ug/L									
Silver	2.6	ug/L	U								
Sodium	48,800	ug/L									
Thallium	5.3	ug/L	UJ								
Vanadium	11.1	ug/L	U								
Zinc	17.9	ug/L	U								

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.
J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
UJ - The analyte was not detected, the associated quantitation limit is an estimated value.
R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

Bold values indicate concentrations elevated above background groundwater concentrations.

NUW 004649

WESTON SAMPLE NAME/LOCATION: NW-8/NU-WEST WELL NUMBER 8
EPA SAS SAMPLE NUMBER: 94114423
EPA RAS SAMPLE NUMBER: MJM286

Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier
Metals				**Anions**				**Radiochemistry**			
Aluminum	40.5	ug/L	J	Ammonia as Nitrogen	1,000	ug/L	U	Radium 226	3.0	pCi/L	U
Antimony	21.6	ug/L	U	Chloride	10,800	ug/L		Gross Alpha	3.0	pCi/L	U
Arsenic	4.2	ug/L	UJ	Sulfate	10,200	ug/L		Gross Beta	4.6	pCi/L	
Barium	107	ug/L	J	Fluoride	110	ug/L					
Beryllium	1.2	ug/L	U	Nitrate as Nitrogen	1,430	ug/L					
Cadmium	2.3	ug/L	U	Phosphate	670	ug/L	U				
Calcium	52,800	ug/L									
Chromium	10.0	ug/L	U								
Cobalt	9.7	ug/L	U								
Copper	2.4	ug/L	U								
Iron	52.5	ug/L	J								
Lead	2.1	ug/L	UJ								
Magnesium	15,400	ug/L									
Manganese	1.0	ug/L	U					**Field Parameters**			
Mercury	0.20	ug/L	U					pH	7.3		
Nickel	10.8	ug/L	U					Conductivity	301	umhos	
Potassium	4,500	ug/L	J					Temperature	11.6	degrees Celsius	
Selenium	4.0	ug/L	UJ					Eh	57	millivolts	
Silver	2.6	ug/L	U								
Sodium	7,990	ug/L									
Thallium	5.3	ug/L	UJ								
Vanadium	8.0	ug/L	U								
Zinc	17.9	ug/L	U								

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.

J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

UJ - The analyte was not detected, the associated quantitation limit is an estimated value.

R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

NUW 004650

WESTON SAMPLE NAME/LOCATION: NW-CP/NU-WEST COOLING POND NUMBER 1
EPA SAS SAMPLE NUMBER: 94114425
EPA RAS SAMPLE NUMBER: MJM294

Parameter	Concentration	Units	Qualifier
Metals			
Aluminum	141,000	ug/L	
Antimony	21.6	ug/L	UJ
Arsenic	1,820	ug/L	J
Barium	380	ug/L	J
Beryllium	31.4	ug/L	
Cadmium	2,580	ug/L	
Calcium	1,530,000	ug/L	
Chromium	6,450	ug/L	
Cobalt	37.8	ug/L	J
Copper	8490.0	ug/L	
Iron	74800.0	ug/L	
Lead	170	ug/L	J
Magnesium	131,000	ug/L	
Manganese	1,390	ug/L	J
Mercury	0.20	ug/L	U
Nickel	2,040	ug/L	J
Potassium	191,000	ug/L	
Selenium	44.1	ug/L	
Silver	2.6	ug/L	R
Sodium	626,000	ug/L	
Thallium	42.9	ug/L	J
Vanadium	11,000	ug/L	
Zinc	24,900	ug/L	J

Parameter	Concentration	Units	Qualifier
Anions			
Ammonia as Nitrogen	197,000	ug/L	
Chloride	92,600	ug/L	
Sulfate	5,510,000	ug/L	
Fluoride	10,700,000	ug/L	
Nitrate as Nitrogen	1,250	ug/L	U
Phosphate	3,400,000	ug/L	

Parameter	Concentration	Units	Qualifier
Radiochemistry			
Radium 226	73.2	pCi/L	
Gross Alpha	2970.0	pCi/L	
Gross Beta	3140.0	pCi/L	
Field Parameters			
pH	1.4		
Conductivity	>10,000	umhos	
Temperature	16.2	degrees Celsius	
Eh	357	millivolts	

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.
J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
UJ - The analyte was not detected, the associated quantitation limit is an estimated value.
R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

NUW 004651

WESTON SAMPLE NAME/LOCATION: NW-1/NU-WEST WELL NUMBER 1
WESTON SAMPLE NAME/LOCATION: JRS-10/J.R. SIMPLOT WELL NUMBER 10
EPA SAS SAMPLE NUMBER: 94114427
EPA RAS SAMPLE NUMBER: MJM299

Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier
Metals				**Anions**				**Radiochemistry**			
Aluminum	36.8	ug/L	U	Ammonia as Nitrogen	13,600	ug/L		Radium 226	3.0	pCi/L	U
Antimony	21.6	ug/L	U	Chloride	44,400	ug/L		Gross Alpha	4.0	pCi/L	U
Arsenic	19.2	ug/L	UJ	Sulfate	758,000	ug/L		Gross Beta	17.9	pCi/L	
Barium	157	ug/L	J	Fluoride	100	ug/L	U				
Beryllium	1.2	ug/L	U	Nitrate as Nitrogen	15,100	ug/L					
Cadmium	2.3	ug/L	U	Phosphate	17,900	ug/L					
Calcium	224,000	ug/L									
Chromium	3.0	ug/L	U								
Cobalt	9.7	ug/L	U								
Copper	2.4	ug/L	U								
Iron	4.5	ug/L	U								
Lead	2.1	ug/L	UJ								
Magnesium	92,000	ug/L									
Manganese	83.3	ug/L						**Field Parameters**			
Mercury	0.20	ug/L	U					pH	5.7		
Nickel	10.8	ug/L	U					Conductivity	1271	umhos	
Potassium	13,300	ug/L						Temperature	8.6	degrees Celsius	
Selenium	11.3	ug/L	J					Eh	-40	millivolts	
Silver	2.6	ug/L	U								
Sodium	105,000	ug/L									
Thallium	5.3	ug/L	UJ								
Vanadium	16.1	ug/L	U								
Zinc	17.9	ug/L	U								

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.
J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
UJ - The analyte was not detected, the associated quantitation limit is an estimated value.
R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

Bold values indicate concentrations elevated above background groundwater concentrations.

NUW 004652

WESTON SAMPLE NAME/LOCATION: NW-1/NU-WEST WELL NUMBER 1
WESTON SAMPLE NAME/LOCATION: DURFEE-1/DURFEE DOMESTIC WELL
EPA SAS SAMPLE NUMBER: 94114429
EPA RAS SAMPLE NUMBER: MJM293

Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier
Metals				**Anions**				**Radiochemistry**			
Aluminum	53.4	ug/L	J	Ammonia as Nitrogen	1,000	ug/L	U	Radium 226	3.0	pCi/L	U
Antimony	21.6	ug/L	U	Chloride	55,500	ug/L		Gross Alpha	4.0	pCi/L	
Arsenic	6.7	ug/L	UJ	Sulfate	57,000	ug/L		Gross Beta	6.4	pCi/L	
Barium	25.0	ug/L	J	Fluoride	110	ug/L					
Beryllium	1.2	ug/L	U	Nitrate as Nitrogen	9,820	ug/L					
Cadmium	2.3	ug/L	U	Phosphate	590	ug/L	U				
Calcium	67,000	ug/L									
Chromium	3.0	ug/L	U								
Cobalt	9.7	ug/L	U								
Copper	2.4	ug/L	U								
Iron	88.0	ug/L	J								
Lead	10.4	ug/L	J								
Magnesium	23,800	ug/L									
Manganese	3.6	ug/L	J					**Field Parameters**			
Mercury	0.20	ug/L	U					pH	7.0		
Nickel	20.2	ug/L	J					Conductivity	430	umhos	
Potassium	4,840	ug/L	J					Temperature	8.7	degrees Celsius	
Selenium	4.9	ug/L						Eh	38	millivolts	
Silver	2.6	ug/L	U								
Sodium	20,300	ug/L									
Thallium	5.3	ug/L	UJ								
Vanadium	10.4	ug/L	U								
Zinc	111	ug/L									

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.
J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
UJ - The analyte was not detected, the associated quantitation limit is an estimated value.
R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

Bold values indicate concentrations elevated above background groundwater concentrations.

NUW 004653

MEMORANDUM

DATE: 16 May 1994

TO: Monica Rolluda, SAM, U.S. EPA, Region X

FROM: Joanne Snarski, WESTON, Seattle
Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: SAS/Case Number 21764 (Inorganics)
SDG No: MJM 279
Nu-West Industries, Soda Springs, Idaho

DOC. CONTROL NO.: 4000-011-001-AACD

WORK ORDER NO.: 4000-011-001

cc: Laura Castrilli, RSCC, U.S. EPA, Region X
Bruce Woods, TPO, QA Branch, U.S. EPA, Region X
Kent Kitchingman, TPO, U.S. EPA, Region IX (memo only)
Steve Fuller, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 13 samples, Case 21764, collected from in and around Nu-West Industries has been completed. The water samples were analyzed at low level for inorganics by Associated Laboratories, of Orange, CA. The samples were numbered:

MJM279	MJM286	MJM294
MJM280	MJM287	MJM296
MJM281	MJM291	MJM298
MJM285	MJM292	MJM299
	MJM293	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications outlined in SOW ILM03.0, as described in the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses* (U.S. EPA, 1 July 1988).

1. Holding Times

   All samples met holding time criteria.

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APPENDIX D
DATA VALIDATION MEMORANDA

WESTON SAMPLE NAME/LOCATION: NW-7/NU-WEST WELL NUMBER 7
EPA SAS SAMPLE NUMBER: 94114433
EPA RAS SAMPLE NUMBER: MJM285

Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier
Metals				**Anions**				**Radiochemistry**			
Aluminum	36.8	ug/L	U	Ammonia as Nitrogen	1,000	ug/L	U	Radium 226	3.0	pCi/L	U
Antimony	21.6	ug/L	U	Chloride	17,000	ug/L		Gross Alpha	3.7	pCi/L	
Arsenic	4.2	ug/L	UJ	Sulfate	**103,000**	ug/L		Gross Beta	6.2	pCi/L	
Barium	147	ug/L	J	Fluoride	100	ug/L	U				
Beryllium	1.2	ug/L	U	Nitrate as Nitrogen	4,180	ug/L					
Cadmium	2.3	ug/L	U	Phosphate	510	ug/L	U				
Calcium	93,100	ug/L									
Chromium	3.0	ug/L	U								
Cobalt	9.7	ug/L	U								
Copper	2.4	ug/L	U								
Iron	41	ug/L	U								
Lead	2.1	ug/L	UJ								
Magnesium	27,700	ug/L						**Field Parameters**			
Manganese	1.0	ug/L	U					pH	7.0		
Mercury	0.20	ug/L	U					Conductivity	538	umhos	
Nickel	10.8	ug/L	U					Temperature	15.2	degrees Celsius	
Potassium	3,740	ug/L	U					Eh	2	millivolts	
Selenium	15.6	ug/L	J								
Silver	2.6	ug/L	U								
Sodium	11,600	ug/L									
Thallium	5.3	ug/L	UJ								
Vanadium	4.8	ug/L	U								
Zinc	17.9	ug/L	U								

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.

J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

UJ - The analyte was not detected, the associated quantitation limit is an estimated value.

R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

Bold values indicate concentrations elevated above background groundwater concentrations.

NUW 004656

WESTON SAMPLE NAME/LOCATION: NW-1/NU-WEST WELL NUMBER 1
WESTON SAMPLE NAME/LOCATION: NW-AB-1/NU-WEST AMBIENT BLANK
EPA SAS SAMPLE NUMBER: 94114432
EPA RAS SAMPLE NUMBER: MJM298

Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier	Parameter	Concentration	Units	Qualifier
Metals				**Anions**				**Radiochemistry**			
Aluminum	46.4	ug/L	J	Ammonia as Nitrogen	1,000	ug/L	U	Radium 226	3.0	pCi/L	U
Antimony	21.6	ug/L	U	Chloride	200	ug/L	U	Gross Alpha	3.0	pCi/L	U
Arsenic	6.4	ug/L	UJ	Sulfate	300	ug/L	U	Gross Beta	3.0	pCi/L	U
Barium	5.7	ug/L	U	Fluoride	100	ug/L	U				
Beryllium	1.2	ug/L	U	Nitrate as Nitrogen	50	ug/L	U				
Cadmium	2.3	ug/L	U	Phosphate	240	ug/L					
Calcium	505	ug/L	J								
Chromium	3.0	ug/L	U								
Cobalt	9.7	ug/L	U								
Copper	2.4	ug/L	U								
Iron	18.6	ug/L	U								
Lead	2.1	ug/L	UJ								
Magnesium	157	ug/L	U					**Field Parameters**			
Manganese	1.0	ug/L	U					pH	na		
Mercury	0.20	ug/L	U					Conductivity	na	umhos	
Nickel	10.8	ug/L	U					Temperature	na	degrees Celsius	
Potassium	725	ug/L	U					Eh	na	millivolts	
Selenium	4.0	ug/L	U								
Silver	2.6	ug/L	U								
Sodium	532	ug/L	J								
Thallium	5.3	ug/L	UJ								
Vanadium	5.6	ug/L	U								
Zinc	17.9	ug/L	U								

DATA QUALIFIER DEFINITIONS

U - The analyte was not detected at the given quantitation limit.

J - The analyte was positively identified and detected; however, the concentration is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

UJ - The analyte was not detected, the associated quantitation limit is an estimated value.

R - Additional sampling and analysis are required to determine the presence or absence of the analyte.

NUW 004657

MEMORANDUM

DATE: 16 May 1994

TO: Monica Rolluda, SAM, U.S. EPA, Region X

FROM: Joanne Snarski, WESTON, Seattle
Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: SAS/Case Number 8314-J-01 (Radiochemistry)
SDG No: 94114420
Nu-West, ESI

DOC. CONTROL NO.: 4000-011-001-AACI

WORK ORDER NO.: 4000-011-001

cc: Laura Castrilli, RSCC, U.S. EPA, Region X
Bruce Woods, TPO, QA Branch, U.S. EPA, Region X
Steve Fuller, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 13 samples, Case 8314-J-01, collected from in and around Nu-West Industries has been completed. The water samples were analyzed at low level for gross alpha, beta, and radium 226 by ARI of Seattle, Washington. The samples were numbered:

94114420	94114425	94114429
94114421	94114426	94114430
94114423	94114427	94114431
94114424	94114428	94114432

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the EPA special analytical services (SAS) request. The data review follows the format outlined in SOW ILM03.0, as described in the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses* (U.S. EPA, 1 July 1988).

1. Holding Times

   All samples met holding time criteria.

2. Calibration Verification

   All calibration standards met method frequency and requirements.

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MEMORANDUM

DATE: 16 May 1994

TO: Monica Rolluda, SAM, U.S. EPA, Region X

FROM: Joanne Snarski, WESTON, Seattle
Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: SAS/Case Number 21689 (Inorganics - Anions)
SDG No: 94114420
Nu-West Industries, Soda Springs, Idaho

DOC. CONTROL NO.: 4000-011-001-AACG

WORK ORDER NO.: 4000-011-001

cc: Laura Castrilli, RSCC, U.S. EPA, Region X
Bruce Woods, TPO, QA Branch, U.S., EPA, Region X
Steve Fuller, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 13 samples, Case 21764, collected from in and around Nu-West Industries has been completed. The water samples were analyzed at low level for anions by SVL Analytical, of Kellogg, Idaho. The samples were numbered:

94114420	94114425	94114429	94114433
94114421	94114426	94114430	
94114423	94114427	94114431	
94114424	94114428	94114432	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the EPA special analytical services (SAS) request. The data review follows the format outlined in SOW ILM03.0, as described in the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses* (U.S. EPA, 1 July 1988).

1. Holding Times

   All samples met holding time criteria.

2. Calibration Verification

   All anion results fell within the QC requirements of 75 to 125 percent recovery (%R) of the true values for both initial and continuing calibrations.

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APPENDIX E
SAMPLE DOCUMENTATION

703-557-2490 FTS 557-2490 (For Inorganic CLP Analysis)

1. Sample Description (Enter in Column A)	2. Preservative (Enter in Column D)	3. Region No.	Sampling Co.	5. Date Shipped	Carrier	7. Date Received -- Received by
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)	1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (Specify) N. Not preserved	22 / 10	R.F. WESTON	3/15/94	FED EX	
		Sampler (Name): J. SNARSKI		Airbill Number: 7837474304		Laboratory Contract Number / Unit Price
		Sampler Signature: [signature]		6. Ship To: [illegible] Inc, 806 N. BA AVIA, ORANGE, CA 92668, ATTN: JAMES MICAU		8. Transfer to / Date Received
		4. Type of Activity: Lead: SF, PRP, ST, FED; Pre-Remedial: PA, SSI, LSI; Remedial: RIFS, RD, RA, O&M, NPLD; Removal: CLEM, REMA, REM, OIL, UST				Received by
						Contract Number / Price

CLP Sample Numbers (from labels)	A Enter # from Box 1	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only: Nitrate/Nitrite	Low Conc. only: Fluoride	High only: pH	High only: Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Sample Condition on Receipt	L High Conc. Phases (Check below): Solids	Water - MIS Liq.	Non Water - Mis Liq.
MJM294	1	LOW	GRAB	2	X							94114925	NW-CP	3/15/94 1000	[initials]					
MJM287	1											94114926	NW-TP-4	835						
MJM299	2											94114927	JRS-10	1105						
MJM291												94114928	JRS-11	1135						
MJM293												94114929	DURFEE-1	1235						
MJM292												94114930	TORGESEN-1	1205						
MJM296												94114931	NW-TP-4D	855						
MJM298												94114932	NW-AB-1	935						

Shipment for Case complete? (Y/N)	Page 1 of 1	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
YES		94114925	[illegible]	

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	3/15/94 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature) ☐ Declined

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

DISTRIBUTION:
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NUW 004661

PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

& Chain of Custody Record
(For Inorganic CLP Analysis)

21764

1. Sample Description (Enter in Column A)	2. Preservative (Enter in Column D)	3. Region No.	Sampling Co.	5. Date Shipped	Carrier	7. Date Received -- Received by
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)	1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (Specify) N. Not preserved	10	RF WESTON	3/14/99	FED EX	
		Sampler (Name): J. SNARSKI		Airbill Number: 7837474293		Laboratory Contract Number / Unit Price
		Sampler Signature: J.M. Snarski		6. Ship To: Ass. Labs. Inc. 806 N. Batavia Orange, CA 92668 ATTN: James McCAIL		8. Transfer to / Date Received
		4. Type of Activity: Lead: SF, PRP, ST, FED; Pre-Remedial: PA, SSI, LSI; Remedial: RIFS, RD, RA, O&M, NPLD; Removal: CLEM, REMA, REM, OIL, UST				Received by
						Contract Number / Price

CLP Sample Numbers (from labels)	A Enter # from Box 1	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. only Nitrate/Nitrite	Low Conc. only Fluoride	High only pH	High only Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Sample Condition on Receipt	L High Conc. Phases (Check below): Solids	Water - MIS Liq.	Non Water - Mis Liq.
94114420	2	Low	Grab	2	X							MJM281	NW-1	3/14/99 1145	[illegible]					
94114421	↓	↓	↓	↓	X							MJM280	NW-5	1055	↓					
94114423	↓	↓	↓	↓	X							MJM286	NW-8	1300	↓					
94114424	↓	↓	↓	↓	X							MJM279	NW-MFW	1005	↓					
94114432	↓	↓	↓	↓	X							MJM285	NW-7	1220	↓					

[illegible] 3/14/99

Shipment for Case complete? (Y/N)	Page 1 of 1	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
N		94114420		~~9503327~~

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J.M. Snarski	3/14/99 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

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NUW 004662

703-557-2490 FTS 557-2490

Packing List/Chain of Custody 8514101

1. Sample Description (Enter in Column A)	2. Preservative (Enter in Column C)	2. Region No.	Sampling Co.	4. Date Shipped	Carrier	7. Date Received -- Received by
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (Specify)	1. HCl 2. HNO3 3. $NAHSO_4$ 4. H_2SO_4 5. NAOH 6. Other (SAS) (Specify) 7. Ice only N. Not preserved	10	R.F. WETON	3/14/94	FED-EX	
		Sampler (Name): J. SNARSKI		Airbill Number: 7837473341		Laboratory
		Sampler Signature: J.M. Snarski		5. Ship To: ARI 333 9th Ave N. SEATTE, WA 98109		8. Transfer to / Date Received
		3. Type of Activity: Lead / Pre-Remedial / Remedial / Removal SF / PRP / ST / FED / PA / SSI / LSI / RIFS / RD / RA / O&M / NPLD / CLEM / REMA / REM / OIL / UST				Received by Laboratory

Sample Numbers	A Matrix Enter from Box 1	B Conc Low Med High	C Preservative Used from Box 2	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Sample Condition On Receipt
1. 94114920	2	LOW	2	Rad 226/GROSS	✓	MJM281	NW-1	3/14/94 1145	[illegible]	
2. 94114921	2	LOW	↓	↓		MJM28D	NW-5	3/14/94 1055	↓	
3. 94114923	2	LOW	↓	↓		MJM286	NW-8	3/14/94 1300	↓	
4. 94114924	2	LOW	↓	↓		MJM279	NW-MFW	3/14/94 1005	↓	
5. 94114933	2	LOW	↓	↓		MJM285	NW-7	3/14/94 1220	↓	
6.										
7.										
8.										
9.										
10.										

Shipment for SAS complete? (Y/N)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J.M. Snarski	3/14/94 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Form

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NUW 004663

PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Packing List/Chain of Custody

21684

1. Sample Description (Enter in Column A)	2. Preservative (Enter in Column C)	2. Region No.	Sampling Co.	4. Date Shipped	Carrier	7. Date Received -- Received by
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (Specify) Sampling Rings	1. HCl 2. HNO3 3. $NAHSO_4$ 4. H_2SO_4 5. NAOH 6. Other, (SAS) (Specify) 7. Ice only N. Not preserved	10	R.F. WESTON	3/15/94	FEDEX	
		Sampler (Name): J. SNARSKI		Airbill Number: 8945029973		Laboratory
		Sampler Signature: J. Snarski		5. Ship To: SVL ANALYTICAL One Gov't Gulch Kellogg, ID 83837		8. Transfer to / Date Received
		8. Type of Activity: Lead / Pre-Remedial / Remedial / Removal SF / PRP / ST / FED / PA / SSI / LSI / RIFS / RD / RA / O&M / NPLD / CLEM / REMA / REM / OIL / UST				Received by
						Laboratory

Sample Numbers	A Matrix Enter from Box 1	B Conc Low Med High	C Preservative Used from Box 2	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Sample Condition On Receipt
1. 94114925	12	LOW	Ø / 4	Anions/Ammonia	✓	97818 / 96324 96338 / 96323	NW-CP	3/15/94 1000	JS	
2. 94114926	1					97812 / 96346	NW-TP-4	835		
3. 94114927	2					96341 / 96264	JRS-10	1105		
4. 94114928						97852 / 97823	JRS-11	1135		
5. 94114929						96486 / 96298	DURFEE-1	1235		
6. 94114930						96392 / 96395	TORGESEN-1	1205		
7. 94114931						96265 / 96302	NW-TP-4D	855		
8. 94114932						96336 / 96393	NW-AB-1	935		
9.										
10.										

Shipment for SAS complete? (Y/N) YES

ANIONS Cl, F, PO_4, SO_4, NO_3

X ADDITIONAL SAMPLER [illegible]

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J.M. Snarski	3/15/94 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

EPA Form

DISTRIBUTION:

Split Samples ☐ Accepted (Signature)

☐ Declined

NUW 004664

1. Sample Description (Enter in Column A)	2. Preservative (Enter in Column C)	2. Region No.	Sampling Co.	4. Date Shipped	Carrier	7. Date Received -- Received by
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (Specify)	1. HCl 2. HNO3 3. $NAHSO_4$ 4. H_2SO_4 5. NAOH 6. Other (SAS) (Specify) 7. Ice only N. Not preserved	10	R.F. WESTON	3/14/99	FED EX	
		Sampler (Name): J. SNARSKI		Airbill Number: 7837474330		Laboratory
		Sampler Signature: J.M. Snarski		5. Ship To: SVL Analytics One Gov't Gulch Kellogg, ID 83837		8. Transfer to / Date Received
		3. Type of Activity: Lead / Pre-Remedial / Remedial / Removal SF, PRP, ST, FED, PA, SSI, LSI, RIFS, RD, RA, O&M, NPLD, CLEM, REMA, REM, OIL, UST				Received by
						Laboratory

Sample Numbers	A Matrix Enter from Box 1	B Conc Low Med High	C Preservative Used from Box 2	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Sample Condition On Receipt
1. 99119920	2	LOW	Ø/4	Anions/Ammonia	✓	MJM281	NW-1	3/14/99 1145	[illegible]	
2. 99119921	↓	↓	↓	↓		MJM280	NW-5	1055	↓	
3. 99119923	↓	↓	↓	↓		MJM286	NW-8	1300	↓	
4. 99119924	↓	↓	↓	↓		MJM279	NW-MFW	1005	↓	
5. 99119933	↓	↓	↓	↓		MJM285	NW-7	1220	↓	
6.										
7.										
8.										
9.										
10.										

Shipment for SAS complete? (Y/N): Anions: Cl, F, PO_4, SO_4, NO_3

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J.M. Snarski	3/14/99 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature) ☐ Declined

EPA Form

DISTRIBUTION:
White - Region Copy Yellow - SMO Copy Gold - Lab Copy Pink - Lab Copy for Return to SMO

NUW 004665

703-557-2490 FTS 557-2490

Packing List/Chain of Custody

1. Sample Description (Enter in Column A)	2. Preservative (Enter in Column C)	2. Region No.	Sampling Co.	4. Date Shipped	Carrier	7. Date Received -- Received by
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (Specify)	1. HCl 2. HNO3 3. $NAHSO_4$ 4. H_2SO_4 5. NAOH 6. Other (SAS) (Specify) 7. Ice only N. Not preserved	10	R.F. WESTON	3/15/94	FED EX	
		Sampler (Name): J. SNARSKI		Airbill Number: 7837474326		Laboratory
		Sampler Signature: J. Snarski		5. Ship To: ARI 333 9th AVE N SEATTLE, WA 98109		8. Transfer to / Date Received
		3. Type of Activity: Lead / Pre-Remedial / Remedial / Removal SF / PRP / ST / FED / PA / SSI / LSI / RIFS / RD / RA / O&M / NPLD / CLEM / REMA / REM / OIL / UST				Received by Laboratory

Sample Numbers	A Matrix Enter from Box 1	B Conc Low Med High	C Preservative Used from Box 2	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Sample Condition On Receipt
1. 94114425	1	LOW	2	RAD226/GROSS	✓	96337 96321 96306 96325	NW-CP	3/15/94 1000		
2. 94114426	1					97839 97840	NW-TP-4	835		
3. 94114427	2					97853 96310	JRS-10	1105		
4. 94114428						97819 96317	JRS-11	1135		
5. 94114429						96320 96311	DURFEE-1	1235		
6. 94114430						96300 96313	TORGESEN-1	1205		
7. 94114431						96319 96263	NW-TP-4D	855		
8. 94114432						96344 97841	NW-AB-1	935		
9.										
10.										

Shipment for SAS complete? (Y/N) YES

X additional Sampler
Ek Torrefield

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J.M. Snarski	3/15/94 1430				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

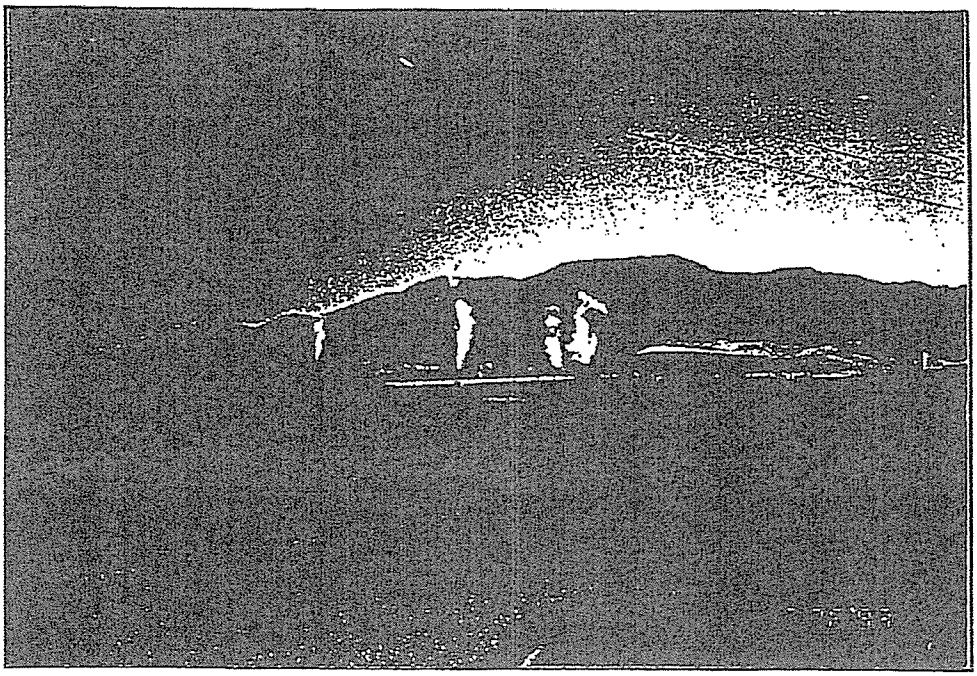
Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Form

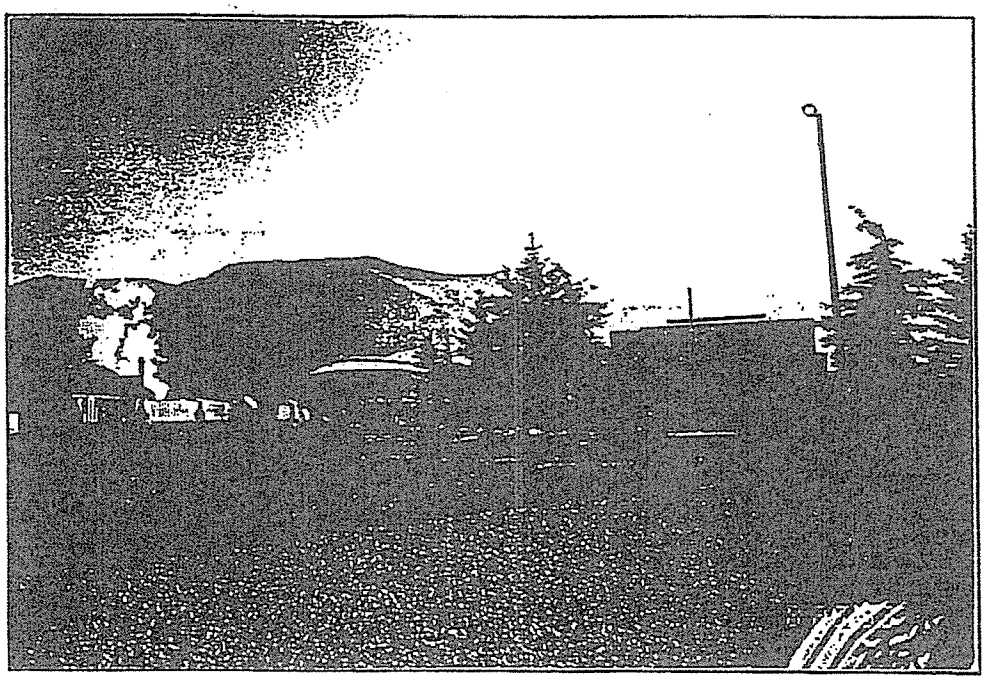
DISTRIBUTION:
White - Region Copy Yellow - SMO Copy Gold - Lab Copy Pink - Lab Copy for Return to SMO

NUW 004666

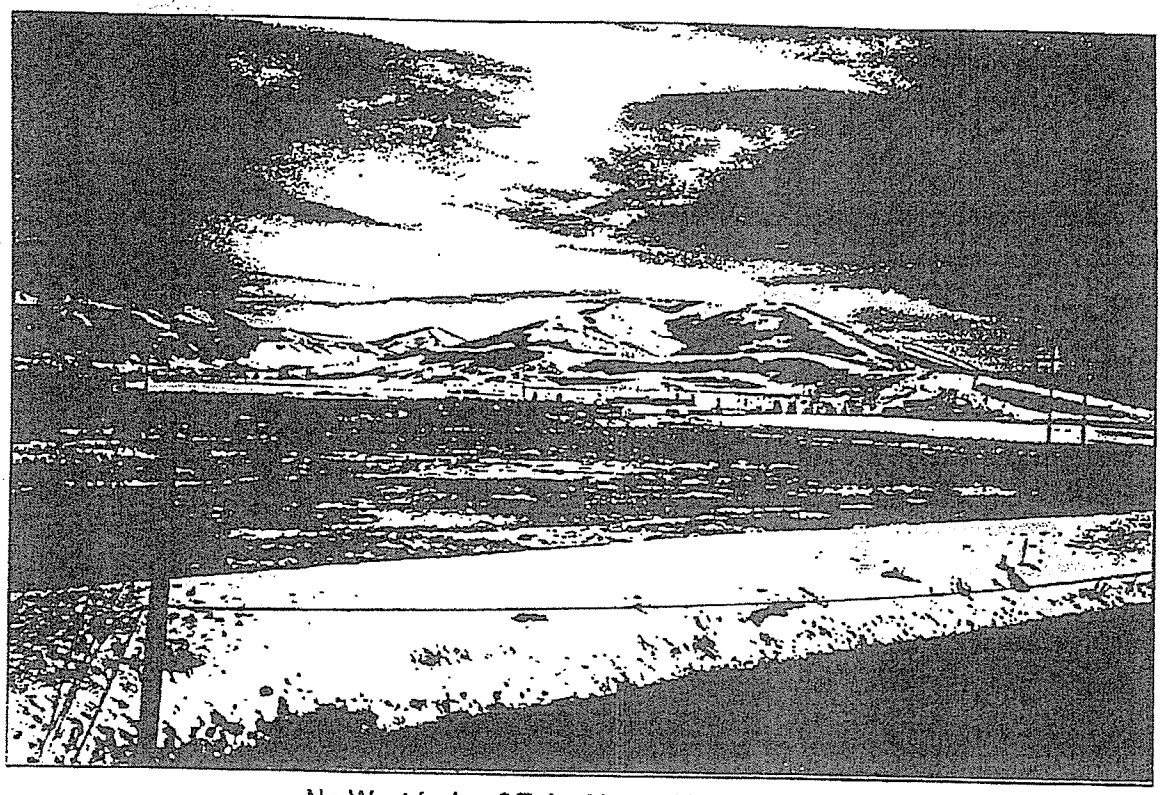
APPENDIX F
PHOTOGRAPHIC DOCUMENTATION



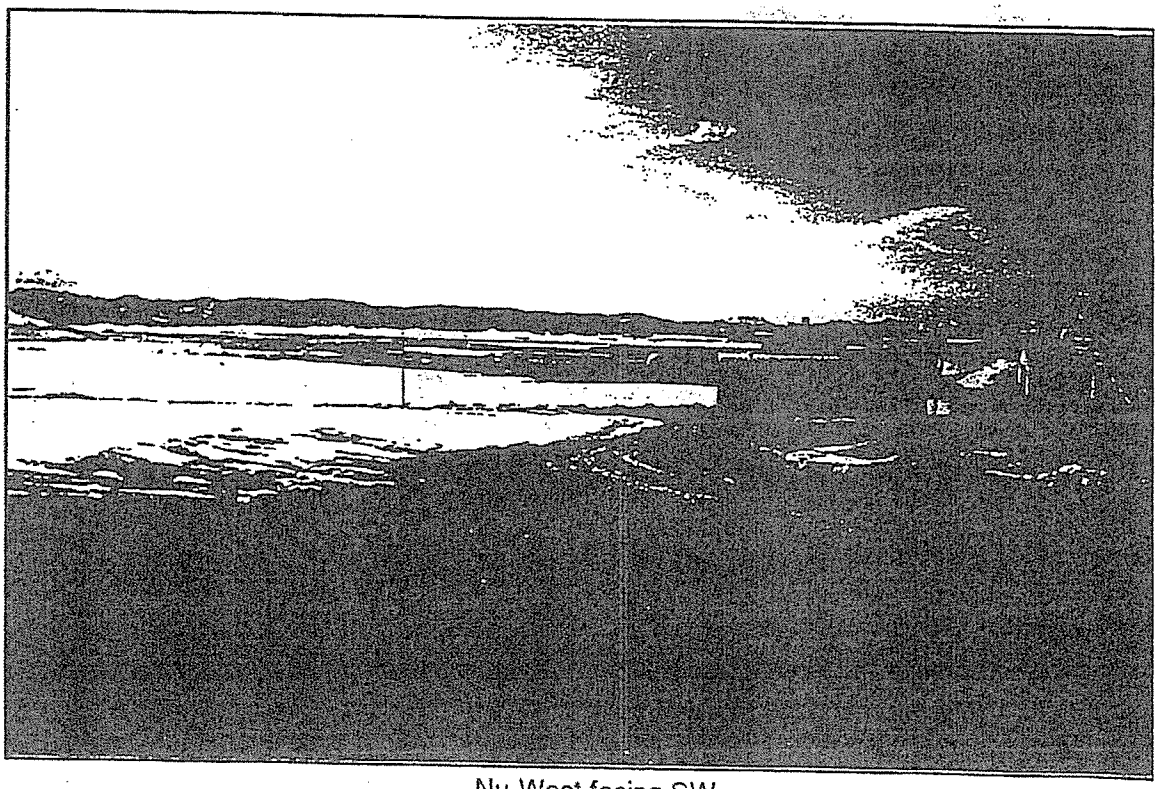
Nu-West facility looking east (phosphogypsum pile at left)



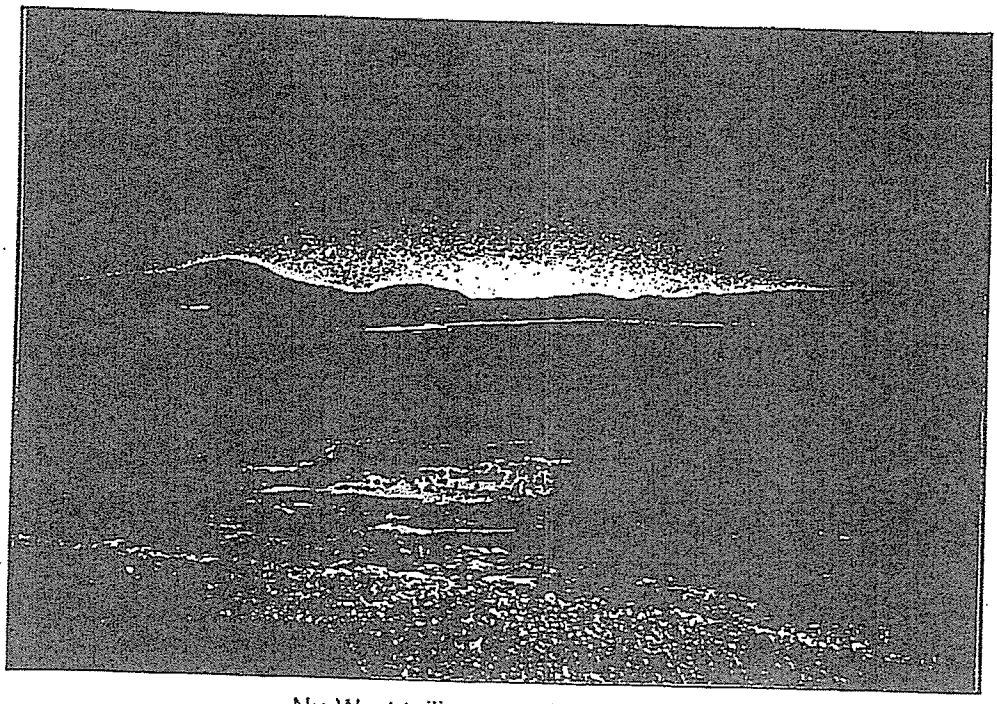
Nu-West entrance facing NE (Nu-West well #1 at right)



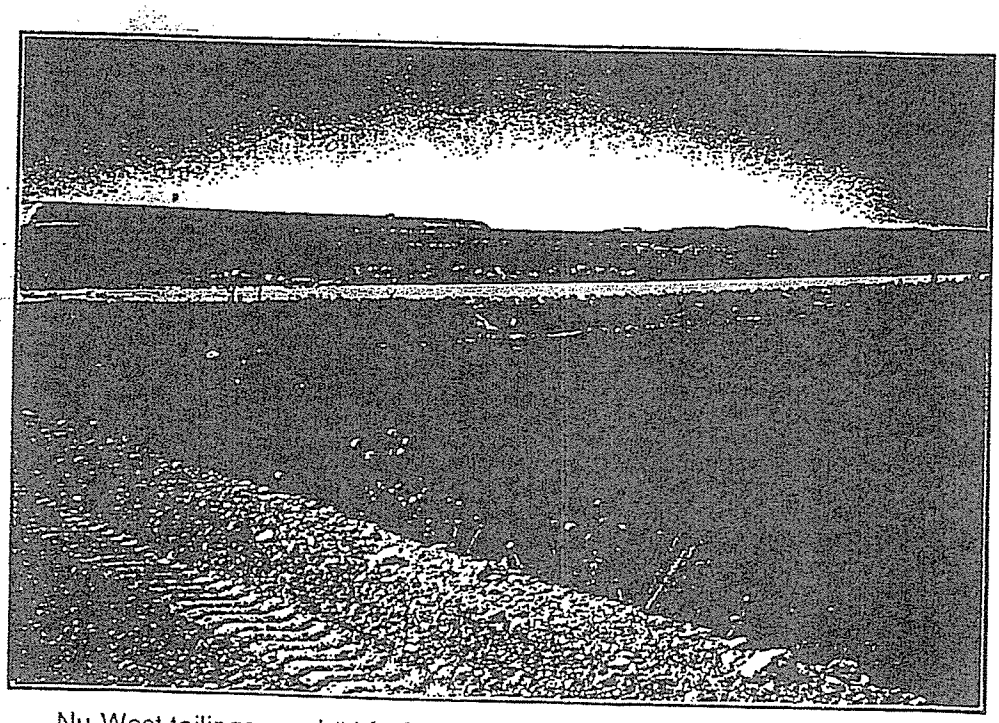
Nu-West facing SE, looking at Nu-West entrance



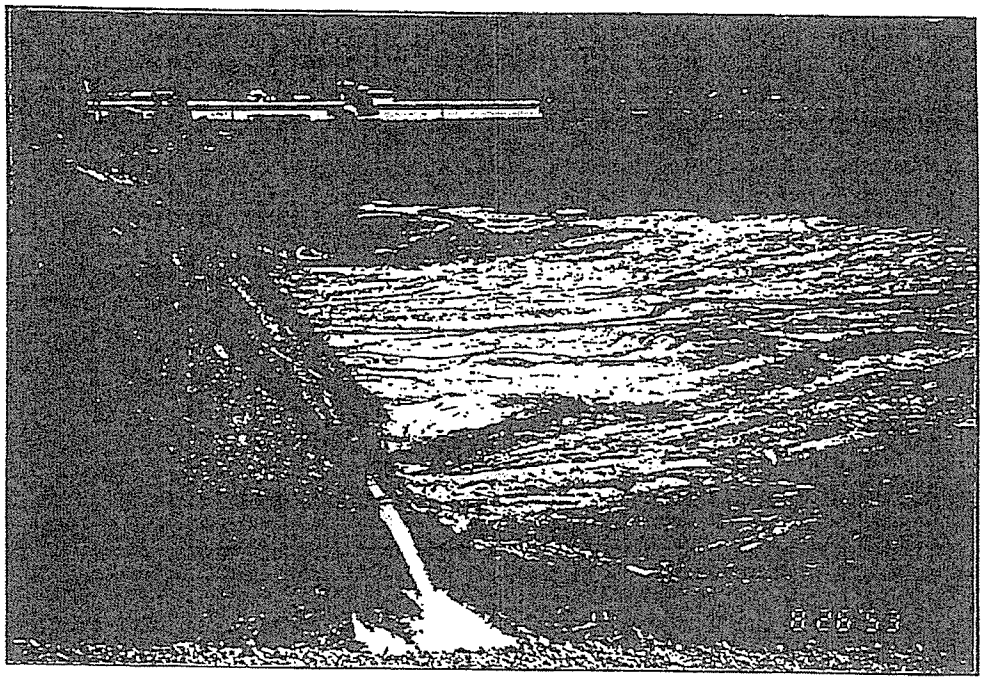
Nu-West facing SW



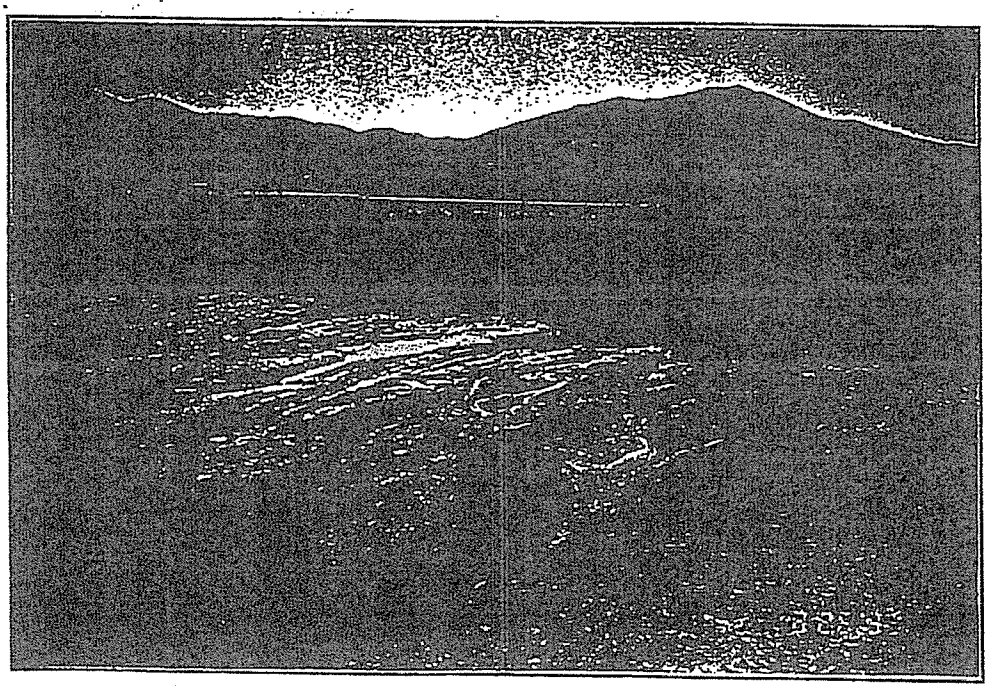
Nu-West tailings ponds facing NW



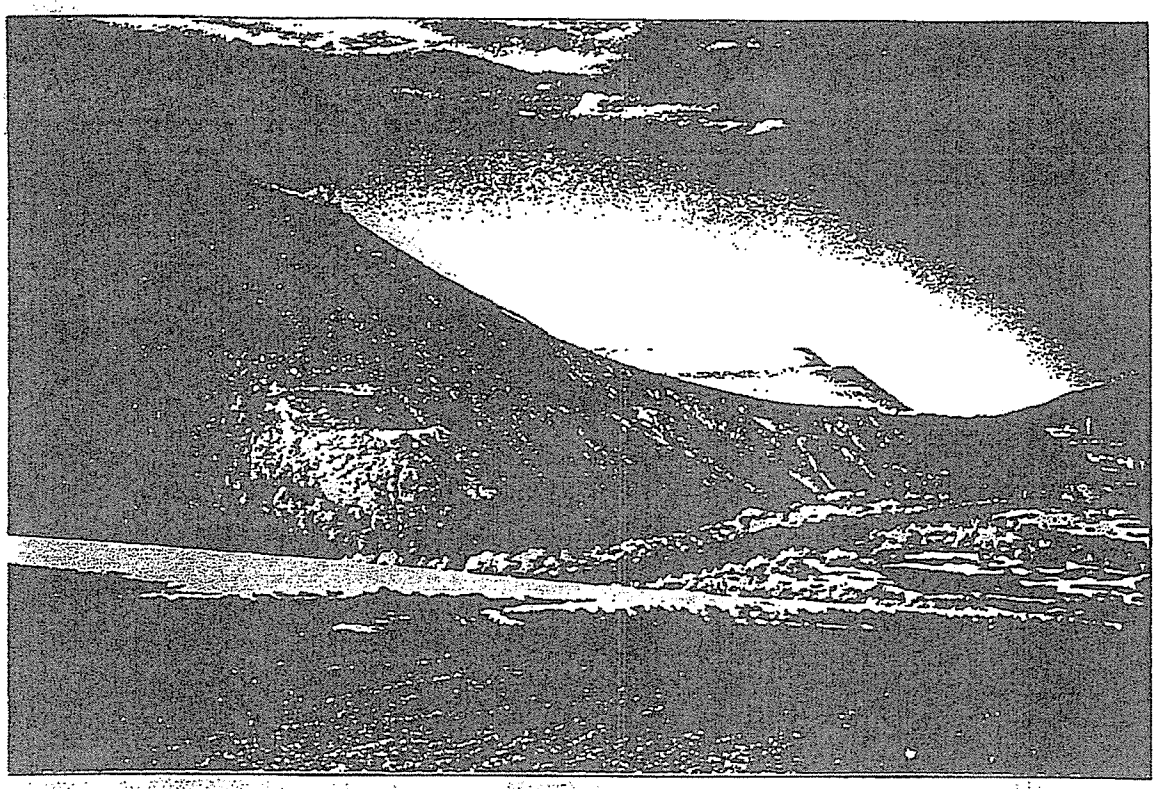
Nu-West tailings pond #4 facing SW (phosphogypsum plie in background)



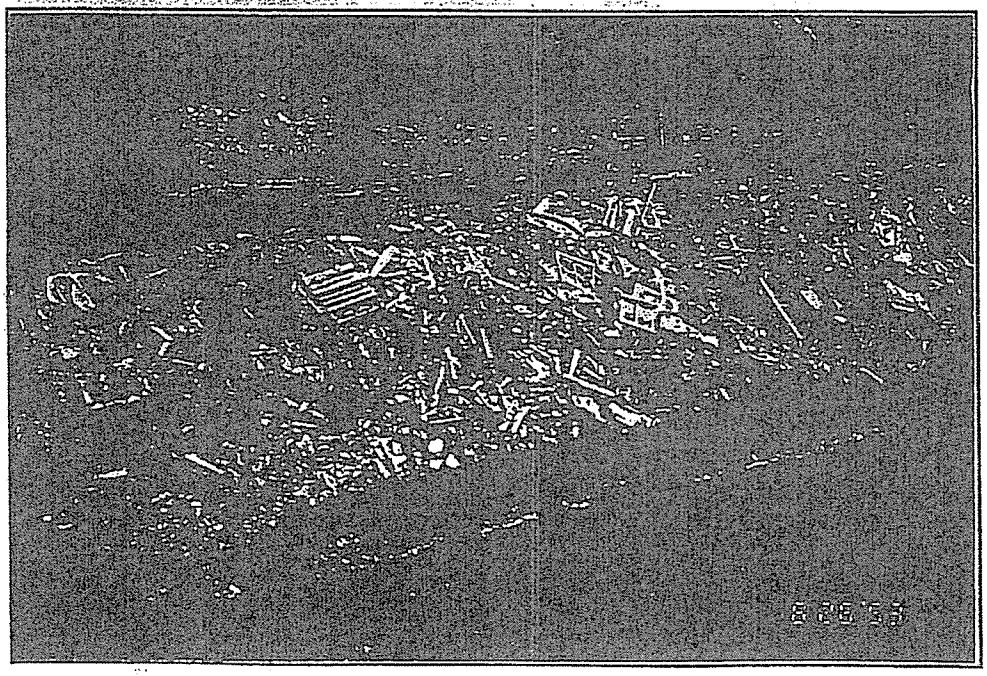
Nu-West cooling pond facing east



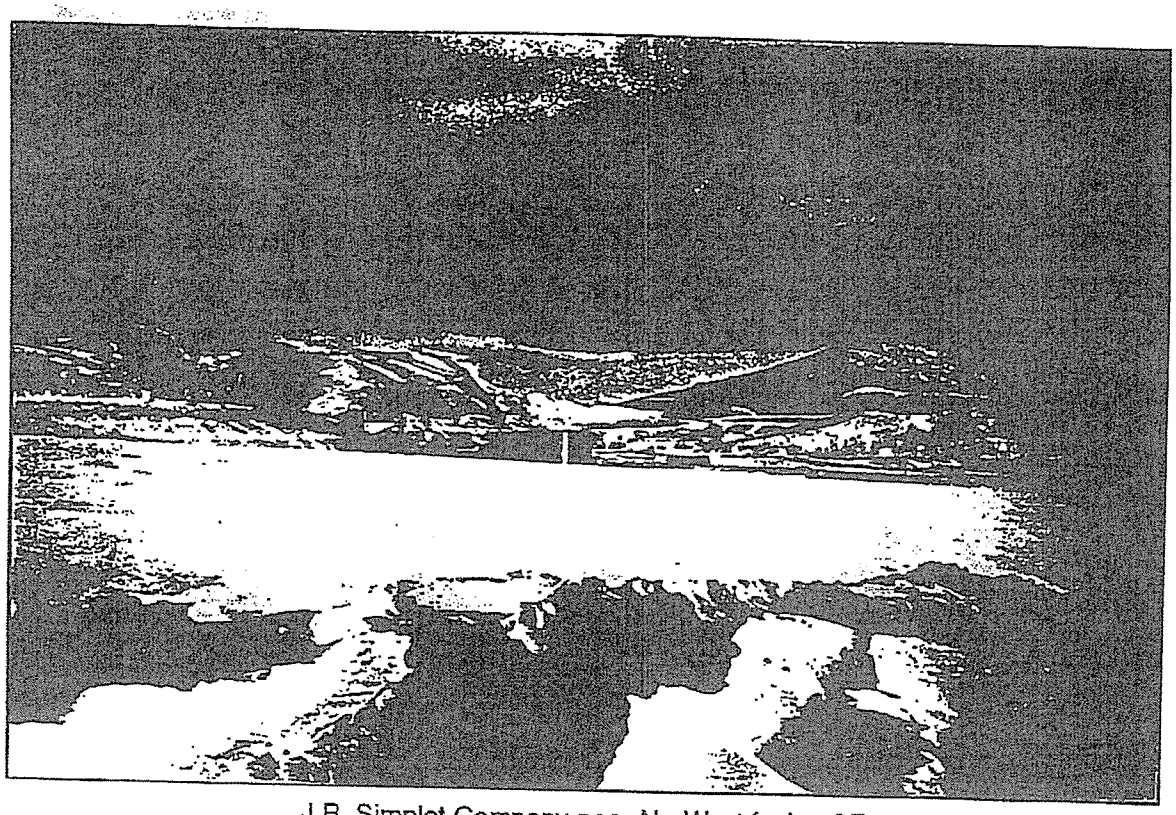
Nu-West cooling pond facing SE



Nu-West gypsum piles facing north



Nu-West landfill facing north (between cooling pond and #2 gypsum pond)



J.R. Simplot Company near Nu-West facing SE

J.R. Simplot Company, cooling pond (not used), facing south-SW