1993 ANNUAL RCRA GROUNDWATER MONITORING REPORT FOR REGULATED UNITS AT THE ROCKY FLATS PLANT

February 23, 1994

EG&G Rocky Flats, Inc.
Environmental Management Department

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EXECUTIVE SUMMARY

The 1993 Annual Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring Report presents the results for the 1993 interim-status quarterly groundwater monitoring for the three RCRA-regulated units at the Rocky Flats Plant (RFP). The three regulated units at RFP are the Solar Evaporation Ponds, the West Spray Field, and the Present Landfill. The RCRA groundwater monitoring-program at RFP is conducted in compliance with Colorado Hazardous Waste Act Regulations 6 CCR 1007-3, subpart F, section 265.90 for RCRA interim-status, waste-management units. The purpose of the RCRA groundwater-monitoring programs at RFP is to determine the impact of waste-management activities at the RCRA-regulated units on groundwater quality in the uppermost hydrostratigraphic unit beneath and hydraulically downgradient of the RCRA units.

This report consists of an assessment of the presence of hazardous waste or hazardous-waste constituents associated with each unit in groundwater-monitoring wells located hydraulically downgradient of the RCRA-regulated unit, as well as an evaluation of the nature and extent of hazardous waste or hazardous-waste constituents within the RCRA-regulated units. The presence of hazardous waste or hazardous-waste constituents in groundwater at each RCRA unit was assessed by statistically comparing groundwater-quality data from upgradient monitoring wells to data from downgradient monitoring wells. The methodology for statistical comparisons of groundwater-quality data is based on guidance from the U.S. Environmental Protection Agency (EPA, 1989, 1992a). The results of the statistical comparisons made for each RCRA unit are discussed throughout the report. The nature and extent of contamination was evaluated by assessing the spatial distribution of constituents associated with past waste-management practices at each RCRA unit. Where applicable, groundwater quality within each RCRA unit was also assessed by comparing analytical data with sitewide background values (defined as the mean plus two standard deviations) for the chemical parameters presented in the 1993 Background Geochemical Characterization Report (EG&G, 1993b).

The analytical data used to make the statistical comparisons and to evaluate of the nature and extent of contamination in groundwater were evaluated for conformance with EG&G and EPA quality assurance/quality control guidelines. The quality of the data was evaluated in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC parameters).

The Solar Evaporation Ponds area is currently undergoing groundwater assessment monitoring because it has been shown that leakage from the ponds has adversely impacted groundwater quality in the uppermost hydrostratigraphic unit. Review of potentiometric-head data collected in 1993 indicates that large areas of surficial materials are unsaturated, and, that groundwater in surficial materials flows northeast toward North Walnut Creek and east-southeast toward South Walnut Creek. Groundwater in weathered bedrock flows generally north-northeast from the Solar Evaporation Ponds. Groundwater-quality data from 1993 indicate that the solar ponds contribute inorganic analytes (primarily nitrate/nitrite), total dissolved solids, radionuclides, and volatile organic compounds (VOCs) to downgradient wells screened in surficial materials immediately east and southeast of the ponds. VOCs were also detected in surficial-material groundwater upgradient of the solar ponds indicating that other sources of VOCs were present. Nitrate/nitrite, radionuclides, VOCs, and inorganic parameters were also present at concentrations above background in weathered-bedrock groundwater, especially immediately north of the solar ponds and also downgradient of the Interceptor Trench System. The presence of these parameters in groundwater from both surficial materials and weathered bedrock downgradient of the Interceptor Trench System indicates that contaminants may have migrated despite the intercept system or that other sources of contamination may be present north or west of the intercept system.

An alternate groundwater-monitoring program is underway at the West Spray Field. Groundwater flow in the uppermost hydrostratigraphic unit is relatively uniform in an east-northeast direction. Groundwater elevations observed in 1992 were consistent with those reported in 1989, 1990, 1991, and 1992. Statistical evaluations of groundwater quality in upgradient versus downgradient wells indicate higher concentrations of metals and some inorganic parameters (bicarbonate, chloride, and fluoride) in downgradient groundwater.

Chloride and TDS concentrations were higher in groundwater from within the West Spray Field than in upgradient groundwater, and radionuclide activities within the spray field occasionally exceeded their mean activities in background groundwater. The infrequent presence of VOCs in groundwater from downgradient wells was not confirmed by subsequent analyses.

The Present Landfill is also undergoing alternate groundwater monitoring. Review of groundwater-elevation data collected for the landfill in 1993 indicates that groundwater flows from landfilled wastes generally east toward the East Landfill Pond. The groundwater-flow direction in surficial materials and weathered bedrock outside the landfill is also generally east, except in the vicinity of the East Landfill Pond, where groundwater flows northeast and southeast toward the pond. Potentiometric heads were generally lower inside the groundwater-intercept system than outside. However, potentiometric heads inside the landfill were lower on the south side than on the north side suggesting that the groundwater-diversion system performs more effectively along the southwest side of the landfill. Examination of chemical data collected during 1993 indicates that groundwater from the central portion of the landfill contains higher concentrations of some VOCs, radionuclides, some metals, and major inorganic ions typical of landfill leachate (TDS, chloride, sulfate) than groundwater from other areas in the vicinity of the landfill. Groundwater in surficial materials southeast of the landfill, adjacent to individual hazardous substance sites (IHSSs) 166.1, 166.2, and 166.3 also contained high concentrations of VOCs and radionuclides relative to groundwater upgradient of the landfill. Contaminants detected in monitoring wells southeast of the Present Landfill may be due to an inadequately functioning groundwater-intercept system in this area, emplacement of landfill wastes beyond the limit of the intercept system, or impacts associated with other IHSSs adjacent to the landfill. Groundwater quality in downgradient geologic materials appears unaffected by the RCRA unit with respect to VOCs, most metals (except calcium), and other inorganic parameters (excluding TDS and chloride).

1.0 INTRODUCTION

The 1993 Annual Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring Report presents the groundwater-monitoring data and evaluations for the three regulated, interim-status RCRA units at the Rocky Flats Plant (RFP). The three RCRA-regulated units at RFP are the Solar Evaporation Ponds, the Present Landfill, and the West Spray Field. Title 6 of the Code of Colorado Regulations (CCR), chapter 1007, article 3, part 265, subpart F requires groundwater monitoring at these units. This report is intended to satisfy the recordkeeping and reporting requirements of that regulation (sec. 265.94). This report describes 1993 groundwater-elevation and groundwater-quality data from 1993, as available on January 4, 1994. These data are discussed and included in Appendices A and B, respectively.

The following sections provide background information for the RCRA groundwater-monitoring program at RFP and describe the data-analysis methods used to evaluate groundwater flow and to identify impacts to groundwater quality at each of the three units. Section 1.1 summarizes the groundwater-monitoring requirements for interim-status RCRA facilities. Section 1.2 describes past groundwater-monitoring activities at RFP. Section 1.3 discusses the groundwater-monitoring approach and the interpretation of the uppermost "aquifer" for RCRA-regulated units at RFP. Section 1.4 describes the methods used to determine impacts to groundwater quality beneath each of the RCRA-regulated units.

1.1 RCRA Groundwater-Monitoring Requirements

The CCR requires implementation of a groundwater-monitoring program that is "capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility" [sec. 265.90(a)].

Groundwater-monitoring programs require a specific groundwater-monitoring system (sec. 265.91) and specify sampling and analysis, evaluation, and reporting methods (secs. 265.92 through 265.94, respectively). Under sec. 265.90(d), if the owner or operator assumes (or

knows) that groundwater monitoring in accordance with secs. 265.91 and 265.92 would show statistically significant increases in groundwater contamination when evaluated under sec. 265.93, the operator may install, operate, and maintain an alternate groundwater-monitoring system. Because previous evaluations established [in accordance with secs. 265.93(b) and 265.93(c)(2)] that the Solar Evaporation Pond area had affected groundwater quality downgradient of the unit, a groundwater-quality assessment program was developed and implemented at the Solar Evaporation Ponds to satisfy sec. 265.93(d). Because releases with potential impacts to downgradient water quality are assumed to have occurred at the West Spray Field and the Present Landfill, alternate groundwater-monitoring plans were developed and implemented for these two units. The requirements of assessment-type and alternate-type groundwater-monitoring programs are the same. Descriptions of the groundwater-monitoring programs developed for each unit are included in the Final Groundwater Assessment Plan (GWAP)(DOE, 1992a). The GWAP integrates the RCRA interim-status groundwater-monitoring requirements with the requirements of the Interagency Agreement (IAG). In accordance with sec. 265.90(b), interim-status groundwater monitoring at each RCRA-regulated unit at RFP will continue through the post-closure care period until final closure of the facility.

1.2 History of Groundwater Monitoring at the Rocky Flats Plant

Groundwater monitoring for radionuclides and other chemical constituents at RFP has been conducted since 1960. Fifty-six wells were installed at RFP between 1960 and 1985 and were routinely sampled for radionuclides. Beginning in 1985, the sampling and analysis routine was modified to include such additional analytes as volatile organic compounds (VOCs), metals, and major ions. Because well-completion details for wells installed prior to 1986 are either incomplete, of questionable accuracy, or do not exist, most wells installed before 1986 have been abandoned.

In late 1986, Phase I of a comprehensive program of site characterizations, remedial investigations, feasibility studies, and remedial/corrective actions began at RFP. These investigations were initiated pursuant to the U.S. Department of Energy (DOE) Comprehensive

Environmental Assessment and Response Program (CEARP) and a compliance agreement finalized by representatives of the DOE and the U.S. Environmental Protection Agency (EPA) on July 31, 1986. CEARP is now known as the Environmental Restoration Program.

Phase I investigations included

- Detailed characterization of groundwater flow and quality in the vicinity of the Solar Evaporation Ponds;
- Preparation of the groundwater-monitoring and protection section of the RFP RCRA part B permit application (Rockwell International, 1986);
- Preparation of closure plans for each of the three regulated, interim-status RCRA units; and
- Preparation of a RCRA post-closure care permit application for the RCRA-regulated units undergoing closure.

Seventy-one monitoring wells were installed in 1986 (Table 1-1) to characterize facility-wide hydrogeology and groundwater quality at RFP and to satisfy RCRA subpart F requirements. Twenty-eight of these wells were installed at RCRA units, 19 at the Solar Evaporation Ponds, 4 at the Present Landfill, and 5 at the West Spray Field. The work plan for well installation, groundwater sampling, and chemical analysis is presented in the Geological and Hydrological Site Characterization Draft Work Plan for RFP (Rockwell International, 1986b).

In 1987, 67 wells were installed at RFP to characterize groundwater quality and flow at various Individual Hazardous Substance Sites (IHSSs) and the three RCRA-regulated units. Twenty of these were installed at RCRA-regulated units, 4 at the Solar Evaporation Ponds, and 16 at the Present Landfill. The work plans for well installation, groundwater sampling, and chemical analysis are presented in the CEARP Installation Generic and Site Specific (Remedial Investigation) Work Plans (DOE, 1987a and 1987b).

During 1989, 163 wells and piezometers were installed at RFP. Of these, 58 were installed at RCRA units—37 at the Solar Evaporation Ponds, 8 at the West Spray Field, and 13 at the

Present Landfill. Additional RCRA monitoring wells were installed in 1992 and 1993—three at the West Spray Field in 1992 and four replacement wells at Solar Evaporation Ponds in 1993. Table 1-1 lists the number of wells installed at RFP and the number of RCRA wells installed each year since 1986.

Routine quarterly sampling of new monitoring wells at RFP begins as soon as wells are completed and developed. In general, the 1986, 1987, and 1989 RCRA wells were sampled once during the year they were installed, and then were sampled quarterly in subsequent years. Sampling of the RCRA wells installed at the West Spray Field in 1992 began in the fourth quarter of 1992. Wells installed at the Present Landfill during 1993 were sampled monthly for four consecutive months and were sampled quarterly with the rest of the existing wells at the landfill.

Groundwater at RFP has been analyzed for the EPA Contract Laboratory Program (CLP) Hazardous Substance List (HSL), Target Compound List (TCL), and Target Analyte List (TAL) parameters, as well as for other inorganic and radionuclide parameters (Table 1-2). During 1986, groundwater samples were analyzed for HSL VOCs, semi-volatile organic compounds (SVOCs), metals, major ions, and radionuclides. During the first three quarters of 1987, the list of VOCs was reduced to nine compounds previously detected in groundwater at RFP. These compounds were

- tetrachloroethene (PCE)
- trichloroethene (TCE)
- 1,1-dichloroethene (1,1-DCE)
- 1,2-dichloroethane (1,2-DCA)
- 1,2-dichloroethene (1,2-DCE)
- 1,1,1-trichloroethane (1,1,1-TCA)
- 1,1,2-trichloroethane (1,1,2-TCA)
- carbon tetrachloride (CCl_4)
- chloroform ($CHCl_3$)

In 1988, the TCL and TAL superseded the HSL. Other changes in the historical analytical program are identified below. An onsite Rockwell International laboratory performed the chemical analyses in 1987 and 1988. Offsite laboratories have been used for analyses since 1989. The analytical suite for groundwater samples has remained the same since 1991 and a complete list of parameters is provided in Table 1-3.

Because some wells produce little water for sampling, priorities for collection and analysis of groundwater have been established. In 1989, the priority list for sample collection, from highest priority to lowest priority, was

- VOCs
- Plutonium, uranium, and americium
- Nitrate
- Metals
- Other major ions
- Other radionuclides

During fourth quarter 1989, the priority for sample collection and analysis, from highest priority to lowest priority, was changed to

- VOCs
- Plutonium and uranium
- Major ions
- Nitrate
- Gross alpha and gross beta
- Metals
- Strontium
- Cesium
- Tritium
- Americium
- Cyanide

During first quarter 1990, the priority for sample collection and analysis, from highest priority to lowest priority, was changed to

- VOCs
- Inorganics
- Nitrate
- Gross alpha, gross beta, and uranium
- Dissolved metals
- Total Metals
- Plutonium and americium
- Tritium
- Cesium, radium, and strontium
- Cyanide
- Orthophosphate

The priority for sample collection and analysis has not changed since first quarter 1990.

Sampling and analysis records are maintained in accordance with sec. 265.94. Annual reports submitted each March since 1988, and quarterly reports submitted each quarter since first quarter 1991, describe groundwater elevations, groundwater flow rates, and the results of groundwater-quality analyses.

1.3 Groundwater-Monitoring Approach

The purpose of the RCRA groundwater-monitoring program at RFP is to determine the impact of regulated units on groundwater quality in the uppermost "aquifer" beneath the units and at the point of compliance. The "point of compliance" is a regulatory term referring to the boundary at which groundwater standards must be attained. The point of compliance, or compliance boundary, is a vertical surface that extends down into the uppermost aquifer at the downgradient limit of the waste-management area. If the facility contains more than one regulated unit, the waste-management area is described by an imaginary line circumscribing all

regulated units. At RFP, RCRA-regulated units are sufficiently far apart that groundwater monitoring at a compliance boundary encircling all units would not provide for immediate detection of releases from units hydraulically upgradient of other units. Therefore, each regulated unit has its own compliance boundary. The same hydrostratigraphic unit comprises the uppermost "aquifer" at each of the RCRA-regulated units. The uppermost "aquifer" is explained below.

1.3.1 Interpretation of the Uppermost Aquifer

The term aquifer is defined in 6 CCR 1007-2, sec. 1.2 as "any geologic formation or group of formations or portion of a formation capable of yielding significant and useable quantities of groundwater to wells or springs." Based on this definition, the upper hydrostratigraphic unit (UHSU) at RFP is not an aquifer because the yield of water to wells is typically low, and broad areas of the UHSU may become dry during fall and early winter. The interpretation of what constitutes the uppermost "aquifer" at RFP rests on hydrologic and geochemical data that demonstrate the hydraulic connection between the distinct lithostratigraphic units present at relatively shallow depths.

At least two discernable hydrostratigraphic units are present at RFP. These are generally referred to as the UHSU and lower hydrostratigraphic unit (LHSU). The UHSU comprises several distinct lithostratigraphic units: Quaternary alluvium, colluvium, valley-fill alluvium, weathered bedrock of the Arapahoe and Laramie Formations, and all sandstones within the Arapahoe and Laramie Formations that are in hydraulic connection with overlying unconsolidated deposits or the ground surface (EG&G, 1991a). The LHSU is composed of unweathered bedrock.

The alluvium, colluvium, and valley-fill alluvium of the UHSU best fit the RCRA definition of the uppermost "aquifer" based on their proximity to the groundwater surface and relatively high hydraulic conductivities ($1x10^{-3}$ to $1x10^{-4}$ cm/sec). These surficial deposits alone, however, do not make up the entire UHSU at RFP. Surficial deposits are in vertical hydraulic connection

with the underlying weathered bedrock. Hydraulic conductivities of weathered bedrock generally range from $1x10^{-4}$ to $1x10^{-6}$ cm/sec. Hydraulic conductivities of the underlying unweathered-bedrock claystone range from $1x10^{-7}$ to $1x10^{-8}$ cm/sec. The unweathered bedrock is interpreted to be an aquitard because of its consistently low hydraulic conductivity. Migration of groundwater among the distinct lithostratigraphic units of the UHSU can occur, whereas substantial migration of groundwater from the UHSU into the LHSU is prevented by this hydraulic barrier. The barrier exists because the hydraulic conductivities of the two units vary by more than two orders of magnitude (Freeze and Cherry, 1979).

Geochemical evidence also supports this interpretation of the units comprising the UHSU. Groundwater in surficial deposits and in weathered bedrock have similar chemical characteristics; that is, major-ion composition. Groundwater in the unweathered bedrock has different chemical characteristics from those in the UHSU. Groundwater in the UHSU is generally the calcium-bicarbonate type whereas groundwater in the LHSU exhibits a sodium-sulfate to sodium-bicarbonate chemistry (EG&G, 1993b). The comparable chemical characteristics of groundwater in surficial deposits and in weathered bedrock suggest that groundwater within these units is hydraulically connected. The contrasting chemical characteristics of groundwater in the UHSU and LHSU indicate that groundwater within these units is not hydraulically connected and the units are separate flow systems.

These lines of evidence support interpretation of the UHSU as a single, hydraulically connected, hydrostratigraphic unit composed of several lithostratigraphic units constituting the uppermost "aquifer" at RFP. To evaluate groundwater flow and quality, this report uses information from borehole logs, hydraulic conductivity tests, and geochemical data (such as Stiff plots) to determine the hydrostratigraphic unit screened by each well.

1.3.2 Conceptual Model for Groundwater Flow

The UHSU is the most laterally extensive water-bearing unit at Rocky Flats. In general, the UHSU ranges in thickness from 15 feet to more than 100 feet. UHSU thickness is dependent

on the thickness of surficial deposits and weathered bedrock. The weathered bedrock is commonly less than 15-feet thick but may extend to depths 60 feet below the top of bedrock (EG&G, 1993a). Unconfined groundwater flows through this unit (EG&G, 1991a), and water levels rise and fall regularly in direct response to recharge and groundwater discharge.

Recharge to the UHSU results from infiltration of precipitation and, to a lesser extent, from stream, pond, and ditch seepage. Discharge occurs via evapotranspiration; surface seeps; and streams, ditches, and ponds. Seasonal response of water levels to periods of increased or decreased precipitation is evident. The water table rises to a maximum elevation during the wet season (April, May, and June) and generally declines during the remainder of the year. Seasonal fluctuations are most pronounced in the central portion of the plant where large areas of surficial deposits become unsaturated during dry seasons (EG&G, 1993c). Unsaturated areas also occur where engineered structures have been installed to control groundwater flow at the Solar Evaporation Ponds and 881 Hillside (DOE, 1992a; DOE, 1993a).

Potentiometric-surface maps were used to determine the direction and relative magnitude of flow (EG&G, 1993a). Groundwater in the UHSU generally flows from west to east across RFP, following the regional topography, which slopes to the east. In the middle portion of the facility, the regional slope is incised by several stream drainages. This valley incision contributes to increased relief in the form of east-west trending ridges and east-draining valleys. The paleotopographic surface of the underlying bedrock has also been incised by these streams. Groundwater in the UHSU flows to the east along the tops of these ridges, flows generally north and south into the incised valleys, and continues to flow generally east once reaching the valley axes. The direction of groundwater flow is locally controlled by depressions and small channels in the bedrock surface that act as conduits for flow (EG&G, 1993a). Groundwater flow is more rapid in surficial deposits than in weathered bedrock due to the higher relative hydraulic conductivities of these deposits.

1.4 Methods for Data Analysis

The primary objectives of the data analysis component of this report are to verify

- The presence of hazardous waste or hazardous-waste constituents in groundwater;
- The rate and extent of migration of the hazardous waste or hazardous-waste constituents in groundwater; and
- The concentrations of hazardous waste or hazardous-waste constituents in groundwater [sec. 265.93(a)].

This report contains potentiometric-surface maps, analyte-distribution maps, concentration-isopleth maps, and the results of laboratory analyses and statistical comparisons. The maps and tables summarize the spatial and temporal variability of groundwater elevations and contaminant concentrations to the degree allowed by the existing database. The 1993 data were reviewed to determine whether significant changes in flow direction, flow velocity, contaminant concentrations, or contaminant distributions have occurred since 1992. Conservative estimates of contaminant migration rates were made using equations for non-reactive, advective transport in groundwater.

1.4.1 Potentiometric-Surface Maps

Groundwater potentiometric-surface maps were constructed for all four quarters of 1993 for the UHSU at each RCRA-regulated unit. These were used to determine hydraulic gradients (direction and magnitude), which in turn, were used to calculate groundwater-flow velocities and transport rates for non-reactive chemicals. For map construction, it was assumed that well-construction details, borehole logs, and depth-to-water measurements were accurate. When the measured depth to water was greater than the reported depth to the bottom of the well screen, the well was assumed to be dry. Because vertical hydraulic gradients may exist, groundwater-potentiometric data from wells screened across the water table—that is, wells screened in surficial deposits—were used whenever possible.

In contrast to the 1992 RCRA monitoring report, which presented groundwater potentiometric-surface maps for surficial materials at the West Spray Field and Present Landfill, this report presents groundwater potentiometric-surface maps for the UHSU. Maps constructed for the UHSU were based primarily on data from wells screened in surficial deposits. If these wells were dry and potentiometric-surface data were available from a nearby well screened in bedrock of the UHSU, data from the bedrock well were used to determine the potentiometric-surface elevation. Because borehole logs and well-construction details do not contain sufficient information to identify the depth to the bottom of the UHSU, it is not possible to determine whether the UHSU is unsaturated through its entire thickness. Therefore, areas of unsaturated alluvial materials present on the 1992 maps are not depicted on 1993 maps.

For the Solar Evaporation Ponds area, this report presents potentiometric-surface maps for both surficial deposits and bedrock of the UHSU. Potentiometric-surface maps for UHSU surficial deposits show unsaturated areas. These areas were identified from dry wells screened in alluvial deposits and from comparisons of the elevation of the top-of-bedrock surface to the elevation of the potentiometric surface. Because borehole logs and well-construction details do not contain sufficient information to identify the depth to the bottom of weathered bedrock, it is not possible to determine whether the weathered bedrock is unsaturated. Therefore, no areas of unsaturated UHSU bedrock are depicted on 1993 maps.

1.4.2 Vertical Hydraulic Gradients

Previous RCRA groundwater-monitoring reports presented calculated values for vertical-hydraulic gradients. These values are determined using water levels measured concurrently in wells located close to each other but screened across different depths. The equation used to calculate the vertical hydraulic gradient is

$$\frac{h_1 - h_2}{dl}$$

where

h_1 = the elevation of water in the upper well

h_2 = the elevation of water in the lower well

and

dl = the vertical distance between the centers of the screened intervals.

Using the elevation at the center of the well screens to calculate dl provides an estimate of the true vertical distance between the elevation measuring points. In addition, no corrections are made to dl when the measured depth to water is below the top of the well screen. As a result, calculated vertical gradients determined using these estimates of dl are estimated values. These results provide qualitative information to describe the direction of the hydraulic gradient but not the true magnitude of the gradient. Vertical hydraulic gradients have been calculated for well pairs at the three RCRA-regulated units.

1.4.3 Average Linear Flow Velocities

Average linear groundwater-flow velocities (Darcy velocities) were calculated at all RCRA-regulated units. This equation was used to calculate the Darcy velocity (v):

$$v = \frac{K}{n} (dh/dl)$$

where

K = hydraulic conductivity

n = effective porosity

dh/dl = hydraulic gradient.

The values for hydraulic gradients, hydraulic conductivities, and effective porosities used to calculate the Darcy velocities are presented in Sections 3.0, 4.0, and 5.0. Wherever possible, Darcy velocities were calculated for groundwater flow across areas both within the unit and

downgradient of the unit. Groundwater-flow velocities can be used as estimates of the maximum migration rates for conservative (non-reactive) constituents in groundwater. Because they do not consider the effects of dispersion and chemical reactions—volatilization, biodegradation, and adsorption, for example—on the concentration of constituents along a flow path, Darcy velocities approximate the maximum rate of migration for dissolved constituents in the groundwater. Attenuated, volatile, biodegradable, or redox-sensitive species would exhibit migration rates slower than the average linear velocity of groundwater flow.

1.4.4 Analysis of Water-Quality Data

Chemical-concentration isopleth maps were constructed for selected analytes that best illustrate the extent of contamination associated with each RCRA unit and for which sufficient data exist to construct reasonably accurate concentration contours. Because second-quarter analytical data were most complete, isopleth maps constructed using these data proved most representative of chemical distributions in groundwater. Only data for wells in the uppermost "aquifer" (i.e., UHSU) were considered.

Analyte-distribution maps were plotted for radionuclides and VOCs. These present all detections of radionuclides and VOCs in the UHSU during 1993 for each of the RCRA-regulated units. VOC data for all four quarters are presented on these maps. No radionuclide data were available for fourth-quarter samples; thus, the radionuclide distribution maps present only the radionuclide values for the first three quarters of 1993. Results reported below detection limit (BDL), including radionuclide results qualified by the laboratory as below detection limit, were shown as non-detects with no values given. In cases where the radionuclide result has no lab qualifier, the numerical result (positive or negative) is reported on the map. Reported concentrations exceeding the value of background (defined as the background mean plus two standard deviations) for the parameters listed on Table 1-4 were highlighted in red on these maps.

Several monitoring wells at the Present Landfill were installed in late 1992 or early 1993. These wells were initially sampled on a monthly basis, beginning in the late-first to early-second quarter of 1993. The data selected to construct concentration-isopleth and analyte-distribution maps are those that correspond most closely in sampling dates to data from other wells at the landfill which were sampled quarterly. By mapping geochemical conditions that represent a relatively brief instant in time, the nature and extent of contamination are more accurately depicted.

1.4.5 Time-Series Plots

Time-series plots showing the analyte concentration versus time were prepared for selected analytes in downgradient wells at each of the RCRA-regulated units. These plots are included in Appendix F. Analytes of interest were selected primarily on the basis of their association with historical waste-management practices within each unit and the number of quantified, or detectable, results. Time-series plots were used, as possible, in the interpretation of groundwater chemistry and solute migration.

In many cases, time-series plots were of limited value because

- The downgradient wells contained too few quantified results to construct meaningful time-series plots;
- Variable detection limits through time limited the number of comparable results available to evaluate trends;
- Variability in the concentrations of analytes prevented any reasonable interpretation of time trends;
- For some individual wells, analytes with similar geochemical behavior in groundwater displayed different trends in the time-series plots; and
- An apparent trend for an analyte in one well was inconsistent with or contradicted the trend observed for the same analyte in a nearby well.

1.4.6 Cumulative-Sum Control Charts

Cumulative-Sum (CUSUM) control charts were constructed for intrawell comparisons of selected analytes in upgradient and downgradient wells at each RCRA-regulated unit. Control charts are used to monitor inherent statistical variations of the analytical data collected from individual wells and to provide a visual tool for detecting both trends and abrupt changes in analyte concentrations. Detected analytes considered indicative of possible contamination were selected for control charts.

A minimum of eight consecutive quarters of results is required to estimate the target mean and variance for an individual well–analyte combination to construct the control chart. In addition, the well is assumed to be uncontaminated initially (see Interim Final Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities [EPA, 1989]). Data meeting the previous criteria were tested for normality and were log-transformed if necessary. If the data distributions could not be confidently identified as normal or log-normal, control charts were not constructed. Based on this approach, CUSUM control charts were constructed only for selected analytes (Appendix G).

CUSUM charts display cumulative sums of the deviations of individual measurements from a target value. Each CUSUM chart has four observations (one per quarter) for 1993. The upper control limit ($h = 5$) was selected based on recommendations made in the Interim Final Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (EPA, 1989). Individual points falling above the control limit indicate possible contamination from a source upgradient of the well.

1.4.7 Statistical Evaluations of Chemical Data

At each RCRA-regulated unit, groundwater-quality data from monitoring wells located hydraulically upgradient of the unit were compared to groundwater-quality data from monitoring wells located downgradient of the unit. This comparison provides a qualitative and quantitative

assessment of potential contaminants being released into the uppermost aquifer from the regulated unit. Each unit has at least one upgradient and three downgradient monitoring wells for use in statistical comparisons. Those used for the comparisons are discussed in the section for each respective unit.

1.4.7.1 *Statistical Methods*

Statistical methods used to compare upgradient to downgradient groundwater quality were based on procedures given in the Interim Final Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (EPA, 1989) and the Draft Addendum to Interim Final Guidance, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (EPA, 1992a). Figure 1-1 presents a flowchart for the procedure used to select appropriate statistical methods. The procedure was used for each analyte at each RCRA-regulated unit.

Chemical concentrations from upgradient and downgradient wells were compared using data from the UHSU. Sufficient data were available for comparing upgradient and downgradient bedrock wells for the Solar Evaporation Ponds and Present Landfill but not for the West Spray Field. Sufficient data were available for comparing concentrations in groundwater from upgradient and downgradient wells in UHSU surficial materials at the West Spray Field, but data were not available for such comparisons at the Solar Evaporation Ponds or the Present Landfill.

The proportion of detections (quantified results) and number of results from each well were determined for each analyte within each RCRA-regulated unit. Only wells with two or more results for an analyte were included in the statistical evaluation, and only analytes that were detected in more than 50 percent of the samples from the unit were included in the statistical evaluation. If the percentage of quantified results for a particular analyte was less than 50 percent, the detections of that analyte at downgradient wells were reported. If the proportion of detections for a particular analyte exceeded 50 percent, an analysis of variance (ANOVA) procedure was performed. Wells with at least two results for a particular analyte were included in the ANOVA procedure. Consistent with EPA guidance (EPA, 1989), non-detects in the data

were replaced with one-half the detection limit prior to performing the parametric ANOVA analysis.

ANOVA is the name given to a wide variety of statistical procedures that compare the means of different groups of observations to determine if significant differences exist between the them. Because of its flexibility and power, ANOVA is the preferred method of statistical analysis when groundwater monitoring is based on comparison of background- and compliance-well data (EPA, 1989). The null hypothesis for the parametric ANOVA assumes that the mean-analyte concentrations from all wells are equal.

Hypothesis tests with the parametric ANOVA assume that the errors (residuals) are normally distributed with equal variance. For analytes having greater than 85-percent detections, residuals were tested for normality using the Shapiro-Wilk test (EPA, 1992a), and for homogeneity of variance using Levene's test (EPA, 1992a). If the residuals of the original data did not meet both assumptions, data were transformed using natural logarithms. The Shapiro-Wilk and Levene tests were then performed on the residuals of the log-transformed data.

Analytes having 50 to 85 percent detections were not tested for normality or equality of variance. These analytes were tested using the nonparametric ANOVA Kruskal-Wallis test; analytes that were neither normally nor log-normally distributed, as indicated by the Shapiro-Wilk and Levene tests, were also evaluated using the nonparametric ANOVA Kruskal-Wallis test. The Kruskal-Wallis test uses the ranks of the data to determine if significant differences exist between group means. The null hypothesis for the Kruskal-Wallis test assumes that the mean concentrations for the wells are equal.

All ANOVA tests (parametric and nonparametric) were conducted at the 5-percent significance level (Type I error rate). The observed significance level (p-value) for a statistical test is the probability that differences in means as large as those observed could be attributed to random chance. Therefore, a significance level less than or equal to 5 percent strongly indicates that differences in the means between analyzed wells are not random.

For analytes with significant differences in mean concentrations, as indicated by a p-value of less than or equal to 0.05, multiple-comparison techniques were used to compare the mean concentrations at compliance wells with the mean concentrations at upgradient wells. These comparisons were used to determine which wells had detections significantly above mean-upgradient concentrations. This was accomplished by calculation of the Bonferroni t-statistic for analytes that were normally or log-normally distributed (EPA, 1989). Multiple comparisons for analytes tested using the nonparametric Kruskal-Wallis test were conducted by comparing differences in mean ranks of compliance and upgradient wells to calculated critical values following EPA guidance (EPA, 1989). Wells that had detections significantly elevated above the mean upgradient concentrations for a particular analyte, as indicated by the multiple-comparison tests, are reported in Sections 3.0, 4.0, and 5.0. Results of all statistical comparisons are included in Appendix C.

2.0 QUALITY OF ANALYTICAL DATA QUALITY

The RCRA groundwater-monitoring program was conducted in accordance with the Environmental Restoration Program Quality Assurance/Quality Control Plan (Rockwell International, 1989b) as amended by the Quality Assurance Project Plan (QAPjP) (EG&G, 1991b). The collection, storage, and shipping of water samples was conducted in accordance with the RFP Environmental Management Division (EMD) Operating Procedures Manual (EG&G, 1991c).

Analytical data were generated using EPA and other well-established analytical methods identified in the General Radiochemistry and Routine Analytical Services Procedures (GRRASP) (EG&G, 1991d). Most laboratory analyses for TAL metals and TCL organic compounds were performed by EPA CLP methods. Methods for non-CLP analytes, the major ions and radionuclides, were based on EPA and other published references.

2.1 Data Validation

EG&G's independent data-validation contractor uses EPA functional guidelines for data validation (EPA, 1988a and 1988b) to validate the results of metal and organic-compound analyses conducted using CLP methods. Non-CLP analytical data are validated using data-validation guidelines developed by the RFP Environmental Management Division because such guidelines have not been published by EPA (EG&G, 1991d). The 1993 RCRA groundwater-monitoring data were validated at EPA Level IV or the equivalent for non-CLP analyses. Validated data are classified by EMD in one of three ways: V = valid and usable without qualification; A = acceptable for use with qualification (also JA); and R = rejected or unacceptable for use. Rejected data are not used in the statistical computations, data analyses, or in the data-quality assessment. Data qualified as V, A, or JA are considered of equal utility, and are used in the data-quality assessment.

Not all data from 1993 have been validated. The status of data validation for the 1993 groundwater samples is summarized in Table 2-1. Of the total number of records (analytical results) in the data set, approximately 78 percent have been validated. The percentage validated varies by analyte group. The percentage of radionuclide results that have been validated is the lowest with 49 percent of the total-radionuclide and 59 percent of the dissolved-radionuclide results validated. Less than 2 percent of the validated records have been rejected. The percentage of data rejected also varies by analyte group with results for VOCs having the highest percentage of rejected results (1.8 percent).

2.2 Data-Quality Assessment

In this section, the quality of the analytical data is assessed in terms of five data-quality indicators: precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters (EPA, 1992b). This section summarizes the types of data available to assess the PARCC parameters, presents the results of data-quality evaluations for each analyte, and evaluates the overall quality of the groundwater-monitoring data for 1993.

Precision is a measure of the reproducibility of analytical results. Precision is expressed quantitatively by the relative percent difference (RPD) between results from duplicate field samples. The RPD is defined and comparison criteria for precision are specified in Section 2.2.1.

Accuracy is a measure of how closely an analytical result corresponds to the actual concentration in the sample. Accuracy is expressed quantitatively by the percent recovery obtained from spiked samples.

Representativeness is a qualitative measure of how data meet the goal of representing the media sampled. The only aspect of representativeness addressed in this section is the possible introduction of contamination into environmental samples during sample collection and handling.

This aspect is evaluated from field blanks, trip blanks, and equipment-rinsate samples. An evaluation of representativeness is presented in Section 2.2.3.

Completeness is a measure of how many usable data were derived from the sampling program. For analytical data, completeness is expressed by a statement of the percent of the data accepted during data validation (Section 2.1). The completeness of the sampling program is determined by accounting for the samples collected and identifying the number of samples missing from the data records.

Comparability expresses the extent to which data collected and analyzed using different methods can be considered to be equivalent. Comparability is assessed primarily by examining the precision and accuracy of data and determining whether variations in those parameters occurred over time.

2.2.1 Precision and Accuracy

Precision is assessed using the analytical results from field duplicate samples. Precision based on field duplicates is a measure of the reproducibility of the entire sampling and analytical process. Quantitative estimates of precision are made by calculating the RPD as defined by the equation

$$RPD = \frac{(S - D)}{(S + D)/2} * 100$$

where

S = result for real sample

D = result for duplicate sample

Data rejected during data validation were eliminated from the data set prior to calculating RPD values. Data that did not have a data-validation code were included and considered usable. The RPD was not calculated for duplicate samples for which the analytical result of either the sample

or duplicate was qualified as non detectable (lab qualifiers U, UC, UJ, UN, UW) or for results of metal analyses with concentrations less than the method-detection limit (lab qualifier B). These types of results have inherently poor reproducibility or precision. The acceptable limit on the RPD for duplicate water samples is specified as 20 percent in the QAPjP (EG&G, 1991b) and in GRRASP (EG&G, 1991d).

The complete results of the RPD calculations are included in Appendix D. The number of RPD values calculated for specific analytes was not sufficient to generate summary statistics describing the average precision by analyte. The RPD values are discussed below by analyte group.

2.2.1.1 Dissolved and Total Metals

In general, the RPD values calculated for duplicate analyses of dissolved and total metals are less than 20 percent. Precision is slightly better for the dissolved metals, with RPD values greater than 20 percent occurring less frequently and for a smaller list of metals than those for total-metal analyses. The metals having RPD values greater than 20 percent in both total and dissolved samples are iron, manganese, potassium, and zinc. In general, the analyses of metals with relatively high concentrations in water (dissolved barium, calcium, magnesium, silicon, sodium, and strontium) have the highest precision. For many of the metals, the results for all of the duplicate analyses were below the detection limit, and RPD values could not be calculated to estimate the precision.

2.2.1.2 Dissolved and Total Radionuclides

The precision of radionuclide analyses, as measured by the RPDs for duplicate samples, is generally poor. RPD values for all of the radionuclides analyzed are routinely above 20 percent, and often higher than 100 percent. The duplicate samples having the highest radionuclide activities show the highest precision (low RPD values). Gross alpha and gross beta have higher

measured activities than the other radionuclides and these measurements have the best precision overall.

The poor precision of radionuclide analyses of groundwater samples was noted previously (EG&G, 1993b and 1993c). The activities measured in groundwater samples are typically very low and often not detectable. The laboratories always report a numerical value for a nuclide activity and generally do not report a detection limit. Some of the activities reported are less than or equal to zero. In some cases, the laboratories qualify radionuclide results with a "U" qualifier. As expected, for measurements of activities near the detection limits, the counting errors are high, and the precision of results are low.

2.2.1.3 Volatile Organic Compounds

Because of the infrequent detection of VOCs in the duplicate samples, their RPD values were not calculated for most of these compounds. For those VOCs present at detectable levels in duplicates, the precision of the analysis appears to depend on the concentration of the compound in the samples. Higher concentrations result in lower RPD values and higher precision for the analysis. Relatively high RPD values were calculated for methylene chloride (100 percent, and 67 percent) using results qualified as "estimated values" (J lab qualifier indicating value near the detection limit). The RPDs calculated for TCE and 1,2-DCE were between 18 percent and 75 percent. No other VOCs were detected in duplicate samples.

2.2.1.4 Anions and Water-Quality Parameters

The precision for analyses of major anions and other water-quality parameters was generally good. Average RPD values were within 20 percent for all these analytes, except total suspended solids (TSS). The relatively poor precision for TSS may be due to the inhomogeneity of duplicate samples rather than poor analytical precision.

2.2.2 Representativeness

The representativeness of samples can be assessed using analyses of field blanks, trip blanks, and equipment-rinsate samples. If analyses of these sample types indicate the presence of potential contaminants on a consistent basis, the results of real-sample analyses may not be representative of the actual concentration of those parameters in groundwater. Field blanks, trip blanks, and equipment-rinsate samples are routinely collected and analyzed as part of the sitewide groundwater-monitoring program (EG&G, 1991b). The analytical results for field blanks and trip blanks were not included in the RCRA database and thus are not discussed below. The analytical results for equipment-rinsate samples were included in the RCRA database. These results are discussed below and presented in Appendix D.

The analytes detected in equipment-rinsate samples during the 1993 groundwater-monitoring program are listed in Table 2-2. Only six analytes were detected in more than 30 percent of the rinsate samples including calcium, manganese, sodium, zinc, ammonia, and bicarbonate. All of these parameters, with the exception of zinc and ammonia, are major-ion constituents of natural waters and may originate from the distilled water used to rinse sampling equipment. The mean concentrations of all six of these parameters are lower than their average concentrations in groundwater samples collected from background locations. Their presence in rinsate samples does not occur with the frequency or at the concentration levels that will affect the representativeness of groundwater samples.

Four organic compounds (4-methyl-2-pentanone, carbon tetrachloride, methylene chloride, and TCE) were infrequently (less than 10 percent) detected in rinsate samples. Toluene was detected in approximately 20 percent of rinsate samples.

2.2.3 Completeness

The acceptable limit (minimum) for completeness of a data set is 90 percent (EG&G, 1991b). The completeness of sampling and analysis activities in support of the RCRA groundwater-

monitoring program is summarized in Table 2-3. The table provides the status of each well at each RCRA-regulated unit in terms of the availability of data. For each quarter of 1993 the types of data available from each well location are shown. If data were not available on January 4, 1994, "No Data" is reported on the table. The completeness of RCRA sampling activities is 95 percent for the Solar Evaporation Ponds, 97 percent for the West Spray Field, and 96 percent for the Present Landfill. The current completeness of the analysis activities is less than 90 percent. The completeness of analytical data will be re-evaluated in the Addendum to the 1993 Annual RCRA Groundwater Monitoring Report when all laboratory analyses are received.

In general, the majority of the requested analytical data are available. However, radionuclide data from samples collected during the fourth quarter are not available, and third-quarter data for radionuclides and VOCs remain incomplete. In more than 90 percent of cases when sample results are not available from a well, the well was dry and could not be sampled.

2.2.4 Comparability

Groundwater samples collected using the EPA-approved methods detailed in the EMD Operating Procedures Manual are considered comparable. As required by the GRRASP (EG&G, 1991d), identical analytical methods are used for each groundwater analysis so that results reported for each group of analytes are also comparable.

Additional data are available to describe the comparability of radionuclide analyses performed at different laboratories. During 1993, replicate samples were collected for analysis by different laboratories. The RPD for real/replicate pairs was calculated using the same equation as for the real/duplicate pairs. The results of the real/replicate comparisons are also included in Appendix D.

The comparability of activity measurements from different laboratories appears better than the internal precision at any laboratory. The RPD values for the replicate analyses are generally lower than RPD values for analyses of duplicate samples. The reason for this remains unclear

although the replicate samples have consistently higher activities than most of the duplicate samples. The higher activities probably result in better analytical precision, as reflected in these results.

3.0 GROUNDWATER MONITORING AT THE SOLAR EVAPORATION PONDS

The Solar Evaporation Ponds are located in the central portion of RFP on the northeast side of the Protected Area (Plate 1-1). The Solar Evaporation Ponds Waste Management Unit (also referred to as IHSS 101) encompasses the five surface impoundments: Pond 207-A, 207-B North, 207-B Center, 207-B South, and 207-C. The major features associated with the unit are the five existing ponds, the Original Pond (no longer present), and the Interceptor Trench System (Figure 3-1).

The following operational history of the Solar Evaporation Ponds originated in part from the GWAP (DOE, 1992a). Detailed descriptions of the purpose, construction, and operation of the ponds and Interceptor Trench System can be found in the Closure Plan for the Solar Evaporation Ponds (DOE, 1988), the Draft Final Phase I RFI/RI Work Plan for the Solar Evaporation Ponds (DOE, 1991a), and the Sampling and Analysis of Solar Pond Water and Sludge—Final Report (Weston, 1991).

The Solar Evaporation Ponds were constructed to store low-level radioactive process wastes containing high concentrations of nitrates. At various times during their use (1953–1986), these ponds received wastes such as sanitary sewage sludge, lithium metal, sodium nitrate, ferric chloride, lithium chloride, sulfuric acid, ammonium persulfates, hydrochloric acid, nitric acid, hexavalent chromium, and cyanide solutions (Rockwell International, 1988). Solvents and other organics were not routinely discharged to the ponds; however, low concentrations of solvents may have been present as minor constituents in liquid wastes.

The Original Pond was constructed in 1953 and used continuously until 1956, when its regular use was discontinued. Pond 207-A began service in August 1956. Liquids stored in Pond 207-A previously contained high concentrations of nitrates, aluminum, chromium, copper, iron, potassium, sodium, nickel, tin, plutonium, americium, uranium, and tritium. Pond 207-A liquids were generally more contaminated than Pond 207-C liquids, except for plutonium and americium. Pond 207-A liquids had particularly high concentrations of chromium and nickel,

and an alkaline pH ranging from 8.3 to 11.0. Analyses of Pond 207-A sludges showed high concentrations of nitrates, metals, and radionuclides, similar to the pond liquids. In addition to the high concentrations of these analytes found in the liquid, high concentrations of calcium and magnesium were detected in the Pond 207-A sludges (DOE, 1988). Pond 207-A is nearly dry, and contains only a small volume of intercepted pond seepage and groundwater collected by the Interceptor Trench System.

Ponds 207-B North, 207-B Center, and 207-B South began service in June 1960 and contained process wastes until 1977, when the ponds were cleaned and the linings replaced. Since 1977, these ponds have held treated sanitary effluent, treated water from the reverse osmosis facility, backwash brine from the reverse-osmosis facility, and groundwater collected and pumped back from the Interceptor Trench System. Ponds 207-B North and 207-B Center generally have low concentrations of nitrates, metals, and radionuclides. Metal concentrations in Pond 207-B liquids were at or below drinking-water standards at the time of sampling (DOE, 1988). All 207-B ponds are currently used to store intercepted groundwater collected by the Interceptor Trench System.

Pond 207-C was constructed in 1970 to provide additional storage capacity and to enable the transfer and storage of liquids from the other ponds while the latter were being repaired. Contaminant concentrations in Pond 207-C liquids are approximately two orders of magnitude higher than in Pond 207-B North and 207-B Center for nitrate, metals, and radionuclides. The liquid in Pond 207-C is generally less contaminated than liquids from Pond 207-A, except for plutonium and americium. Plutonium and americium concentrations are approximately 10 times higher in Pond 207-C. Pond 207-C is currently used to store and treat process waste water.

In the early 1970s, nitrite contamination was detected in North Walnut Creek. In response to this detection, a series of trenches and sumps were installed between 1971 and 1974 on the hillside north of the Solar Evaporation Ponds to prevent natural groundwater seepage and pond leakage from entering North Walnut Creek. The trenches and sumps collected pond seepage and groundwater, and were in operation until the 1980s when they were replaced by the more

extensive Interceptor Trench System. Currently water collected by the Interceptor Trench System (approximately 4-million gallons per year) is pumped into Pond 207-B North.

Routine placement of process wastes into the Solar Evaporation Ponds ceased in 1986. The Solar Evaporation Ponds are being closed through the Interim Measure/Interim Remedial Action (IM/IRA) process in accordance with the IAG and applicable Colorado hazardous-waste regulations. Post-closure inspection, maintenance, and monitoring of the Solar Evaporation Ponds will be conducted in compliance with 6 CCR 1007-3 part 265, subpart G (DOE, 1993a).

3.1 Summary of Previous Investigations

3.1.1 Assessment Groundwater-Monitoring Program

In accordance with sec. 265.93(d), a groundwater-quality assessment program is being conducted at the Solar Evaporation Ponds because it has been established that analyses performed under sec. 265.93(c)(2) confirm the significant increase (or pH decrease) of contaminants. The GWAP (DOE, 1992a) summarizes the history of previous site-specific hydrogeological investigations, the initial groundwater monitoring-well network and subsequent well-installation programs, sampling and analysis procedures, and methods of evaluation used to assess the groundwater-monitoring program at the Solar Evaporation Ponds area. The GWAP also includes procedures for sample collection, preservation, and shipping, and laboratory analysis procedures and chain-of-custody control. Changes to the groundwater-quality assessment program for the Solar Evaporation Ponds were described in the 1991 and 1992 Annual RCRA Groundwater Monitoring reports.

3.1.2 Previous Nature and Extent of Groundwater Contamination

Previous hydrogeologic investigations of the Solar Evaporation Ponds have shown that the leakage from the ponds has adversely impacted groundwater migrating through alluvium to the north, northeast, and southeast into the Walnut Creek drainages.

Downgradient contaminants north and east of the Solar Evaporation Ponds include total dissolved solids (TDS), nitrate/nitrite, sulfate, sodium, radionuclides (including uranium and tritium), VOCs, dissolved metals, TSS, and inorganics. These contaminants, with the exception of TSS, were also found at elevated levels upgradient of the Solar Evaporation Ponds. High concentrations of nitrate/nitrite, radionuclides, organics, and other analytes in downgradient alluvial and bedrock wells located east and north of the Solar Evaporation Ponds and Interceptor Trench System suggest that the containment system may not completely prevent contaminant migration north of the ponds. Groundwater in the unconfined bedrock also appears impacted by the ponds. Subcropping sandstones occur in the area; however, the extent of these sandstones and the groundwater quality within them are not fully characterized at this time (DOE, 1990a, 1991a, 1992b).

Results of statistical comparisons of groundwater quality upgradient of the Solar Evaporation Ponds to groundwater quality downgradient and at the compliance boundary of the unit show that the UHSU has been affected by leakage from the Solar Evaporation Ponds (DOE, 1993a). In 1992, the VOCs detected in groundwater from surficial materials included 1,2-DCE, CCl_4, $CHCl_3$, TCE, 1,2-DCA, acetone, 1,1-DCA, 1,1,1-TCA, 1,1,2-TCA, and vinyl chloride. The VOCs detected in weathered bedrock include 1,1-DCE, CCl_4, $CHCl_3$, 1,2-DCE, PCE, TCE, methylene chloride, ethylbenzene, carbon disulfide, toluene, and total xylenes. Higher concentrations of VOCs were typically found in groundwater from wells immediately adjacent to Pond 207-C. Nitrate/nitrite, and to a lesser extent sulfate and fluoride, were frequently present at high concentrations in groundwater from both surficial materials and weathered bedrock. Concentrations of these analytes were typically highest in monitoring wells located north of the ponds. Activities of gross alpha, gross beta, tritium, uranium-235, uranium-233,234, radium-226, radium-228, and uranium-238 were typically highest in UHSU wells adjacent to the ponds and in groundwater along North Walnut Creek surficial materials.

3.2 Current Groundwater-Monitoring Program for the Solar Evaporation Ponds

The uppermost "aquifer" at the Solar Evaporation Ponds is equivalent to the UHSU, which is composed of surficial deposits and weathered bedrock and sandstones in hydraulic connection with the surficial deposits. Wells screened in bedrock were assigned to a hydrostratigraphic unit based on the major-ion composition of waters from those wells, hydraulic conductivity measurements (when available), and information on borehole logs. Confined hydrostratigraphic units consisting of unweathered claystone and sandstone are not considered part of the uppermost "aquifer".

The 78 groundwater-monitoring wells (71 active, 1 inactive, and 6 abandoned) located at or near the Solar Evaporation Ponds area are listed on Table 3-1, and their locations are shown on Figure 3-1. Fifty eight of these wells are RCRA wells being sampled quarterly as part of the RCRA groundwater-quality assessment program for the Solar Evaporation Ponds. Of the 71 active wells in the vicinity of the Solar Evaporation Ponds, 61 are screened in the UHSU (34 wells screened in surficial materials and 27 wells screened in bedrock) and 10 wells are screened in the LHSU (see Table 3-1). Wells 2086, 2886, 3787, P207489, P209989, and P210289 (RCRA wells discussed in previous reports) were abandoned in 1993. Wells 02691, 75892, 75992, 76192, and 76292 were installed during 1992 as part of the investigation of Operable Unit (OU) 6 (Walnut Creek Drainage). Wells 05093, 05193, 05293, and 05393 were installed in 1993 as replacement wells for 2886, 3787, P207489, and P210289, respectively.

Groundwater elevations are measured at least quarterly and groundwater samples are collected quarterly. The samples are analyzed for the parameters listed in Table 1-3. The sampling and analysis records are maintained in compliance with sec. 265.94(b).

3.3 Groundwater Flow

Recent interpretations of groundwater flow in the vicinity of the Solar Evaporation Ponds (EG&G, 1993a, and DOE, 1993a) suggest that the saturated thickness and the flow directions

within surficial materials are controlled by the topography of the underlying bedrock surface. The top of the bedrock surface is relatively flat to gently east-sloping immediately below the Solar Evaporation Ponds. East of the ponds, the bedrock surface forms an east-trending ridge (EG&G, 1991a). North of the ponds, the bedrock surface slopes northward toward North Walnut Creek. The thickness of saturated surficial materials is highly variable and appears controlled primarily by the underlying topography of the bedrock surface. The maximum thickness of saturated surficial material typically occurs at the same locations as topographic depressions in the bedrock surface or in the immediate vicinity of the ponds themselves. Thicker sections of saturated surficial material (relative to other areas near the Solar Evaporation Ponds) also occur in the vicinity of leaking water lines and drainage culverts. For example, saturated surficial materials at Well B208089, located adjacent to the Interceptor Trench System, were approximately 0.5 feet to 3 feet in thickness throughout 1992 (DOE, 1993a).

The groundwater-flow direction within weathered bedrock (UHSU) underlying the Solar Evaporation Ponds has not been fully characterized. Characterization of the flow direction will be performed as part of the Phase II RFI/RI Work Plan for Operable Unit No. 4—Solar Evaporation Ponds. At present, the general flow direction in weathered bedrock is assumed to be consistent with the predominantly eastward flow observed on a regional scale by Robson et al. (1981).

3.3.1 Potentiometric Surfaces

Groundwater potentiometric-head data calculated from depth-to-water measurements are presented in Appendix A. In general, potentiometric heads at the Solar Evaporation Ponds in 1993 are very similar to the potentiometric heads in 1992. However, potentiometric heads for the second quarter of 1993 were approximately one foot lower than in second quarter 1992. Larger variations in heads from 1993 to 1992 occur infrequently, are not consistent with concurrent measurements from nearby wells, and are the probable result of inaccurate depth-to-water measurements.

During 1993, potentiometric heads within any single well generally fluctuated less than a few feet, although in a few of the wells the potentiometric-surface elevation fluctuated as much as 9 feet. In Well 2386, potentiometric head varied by 15.57 feet during 1993. However, an anomalously low second-quarter value is the probable result of an inaccurate depth-to-water measurement at Well 2386.

Potentiometric-surface maps for both surficial materials and bedrock of the UHSU were constructed for four quarters of 1993. Potentiometric-surface maps for surficial materials in the Solar Evaporation Ponds area (Figures 3-2 to 3-5) indicate that groundwater flows in two directions from the southwest corner of Pond 207-A toward the north and toward the east-southeast. Surficial deposits are unsaturated across a large area immediately downgradient of the Interceptor Trench System and along the axis of a ridge trending east-northeast from the ponds area. Unsaturated areas also occur around individual dry wells but their size and shape are not well defined. Water is routinely present in Well B209089, which is located next to the Interceptor Trench System and is surrounded by unsaturated surficial materials. Discharge from a drainage culvert upgradient of the well may be the source of this water. The thickness of saturated surficial materials is highly variable and appears controlled primarily by the underlying topography of the bedrock surface. The maximum thicknesses of saturated material typically occurs at topographic depressions in the bedrock surface, and in the immediate vicinity of the Solar Evaporation Ponds.

Potentiometric-surface maps of groundwater in bedrock of the UHSU (Figures 3-6 to 3-9) are similar to those for groundwater in surficial materials of the UHSU except that no areas of unsaturated bedrock have been shown. The depth to the bottom of the UHSU is not known at most well locations. Therefore, even though a well screened in the upper portion of the UHSU bedrock section is dry, the UHSU bedrock may not be unsaturated through its entire thickness. The potentiometric surface in UHSU bedrock differs slightly from the surficial materials in that it has a relatively flat slope beneath the solar ponds and a steep slope immediately north of the solar ponds.

3.3.2 Vertical Hydraulic Gradients

Table 3-2 presents the vertical hydraulic gradients calculated for 14 well pairs at the Solar Evaporation Ponds. Wells with overlapping screen intervals were not used to calculate vertical hydraulic gradients. Vertical gradient is the quotient of the difference in water levels measured during equivalent months and the vertical distance between those measuring points. With the exception of well pairs P207489/P207389 (second quarter), 05293/P207389 (third and fourth quarters), P207589/2586 (first quarter), and B208689/1686 (all four quarters), calculated vertical hydraulic gradients were directed downward during 1993. These results indicate that within the UHSU the potential for downward vertical flow from surficial materials into the weathered bedrock is high.

3.3.3 Average Linear Flow Velocities

Average linear groundwater-flow velocities at and downgradient of the Solar Evaporation Ponds are presented in Table 3-3. These velocities were calculated for flow along 29 linear-flow paths in the vicinity of the Solar Evaporation Ponds. Fourteen of the flow paths are within UHSU surficial materials. Eleven of the flow paths are in bedrock of the UHSU and four of the flow paths are in bedrock of the LHSU. Well pairs P209089/P207989 and P209089/P207789 were used to calculate flow rates within the RCRA-regulated unit. All other well pairs were used to calculate flow rates downgradient of the RCRA unit. The geometric mean of hydraulic conductivity values (K) from EG&G's database of hydraulic conductivities for Rocky Flats Alluvium in the vicinity of the Solar Evaporation Ponds (Jaunarajs, 1993) is 5.19×10^{-5} cm/sec. The geometric mean of the hydraulic conductivity values calculated at Wells 1486, 1686, 2786, 3486, 2287, and P208889 is 1.03×10^{-6} cm/sec. The assumed effective porosity used for all lithostratigraphic units is 0.1 as used in calculations from previous groundwater-monitoring reports.

The calculated groundwater-flow velocities at or near the Solar Evaporation Ponds ranged from approximately 0.0 feet to 39 feet per year (Table 3-3). The highest linear-flow velocities

(approximately 17 feet to 39 feet per year) were calculated for flow paths within UHSU surficial deposits downgradient of the Solar Evaporation Ponds. Velocities in alluvium (UHSU) in the North Walnut Creek drainage were approximately 17 feet to 28 feet per year. In bedrock of the UHSU, average linear flow velocities were much slower, ranging from approximately 0.03 feet to 0.2 feet per year within the Solar Evaporation Ponds area and from approximately 0.8 feet to 1.7 feet per year downgradient of the area. These average flow velocities are similar to those presented in the 1992 Annual RCRA Groundwater Monitoring Report (DOE, 1993a).

3.4 Groundwater Quality at the Solar Evaporation Ponds

Groundwater-quality data from 1993 for surficial materials and bedrock of the UHSU are presented on computer disk in Appendix B. The following sections summarize statistical evaluations of downgradient groundwater quality relative to unit-specific upgradient groundwater quality and describe the distribution of analytes within and adjacent to the Solar Evaporation Ponds.

3.4.1 Statistical Evaluation of Downgradient Groundwater Quality with Respect to Upgradient Groundwater Quality

Groundwater-quality data from monitoring wells located upgradient of the Solar Evaporation Ponds were compared to groundwater-quality data from monitoring wells located at the compliance boundary to assess contaminant releases from the RCRA-regulated unit into the uppermost "aquifer." The comparisons were made using the statistical methodology discussed in Section 1.4.7. Statistical comparisons were performed on groundwater-quality data from the upgradient and downgradient UHSU wells listed in Table 3-4. Separate statistical comparisons were also performed for bedrock wells in the UHSU. Data available from upgradient and downgradient wells in UHSU surficial materials were not sufficient to perform the statistical comparisons. Statistical calculations are presented on computer disk in Appendix C and summarized in Tables 3-5 through 3-7.

No statistical comparisons were performed for analytes with less than 50-percent quantifiable results. The detectable concentrations of these analytes in groundwater downgradient of the RCRA unit are reported in Table 3-5. In the UHSU, a large number of metals and VOCs are present downgradient of the Solar Evaporation Ponds. As shown in Table 3-5, these parameters are detectable in groundwater infrequently, or they are detected consistently in only a few downgradient wells. The infrequently detected VOCs typically present in downgradient groundwater include benzene, toluene, $CHCl_3$, methylene chloride, PCE, TCE, and 1,2-DCE.

For analytes with greater than 50-percent quantifiable results, ANOVA testing indicated statistically significant differences (at the 5-percent significance level) in upgradient versus downgradient groundwater quality in the UHSU for radionuclides (gross alpha, gross beta, radium-226, uranium-233,234, uranium-235, uranium-238, and tritium), dissolved metals (calcium, lithium, magnesium, manganese, sodium, and strontium), inorganic analytes (bicarbonate, chloride, fluoride, nitrate/nitrite, sulfate, and TDS), and VOCs (carbon tetrachloride).

In the bedrock of the UHSU, ANOVA testing demonstrated statistically significant differences (at the 5-percent significance level) in upgradient versus downgradient radionuclide activities (gross alpha, and tritium), and concentrations of dissolved metals (calcium, lithium, magnesium, manganese, potassium, sodium, and strontium), inorganic analytes (chloride, fluoride, nitrate/nitrite, sulfate, and total dissolved solids), and two VOCs (carbon tetrachloride, $CHCl_3$). Results of the statistical comparisons for weathered bedrock groundwater quality are presented in Table 3-7.

At the Solar Evaporation Ponds, methylene chloride and acetone occurred infrequently in groundwater. However, the presence of these compounds in groundwater may not be due to a release from the Solar Evaporation Ponds area. The occurrence of methylene chloride and acetone may result from an upgradient source.

3.4.2 Groundwater Quality in the Solar Evaporation Ponds Area

Chemical data describing groundwater quality in surficial materials and bedrock of the UHSU at the Solar Evaporation Ponds are presented on a computer disk in Appendix B. Selected analytes are depicted on concentration-isopleth maps and analyte-distribution maps in Figures 3-10 to 3-27. Analytes were selected for mapping based on the history of the waste operations at the unit, the occurrence of the analyte in downgradient wells during 1993, and the frequency of detections during 1993.

Radionuclides were detected in groundwater from both surficial materials and bedrock of the UHSU. Radionuclides detected in groundwater from surficial materials (Figures 3-10, 3-12, 3-14, and 3-16) include gross alpha, gross beta, tritium, radium-226, radium-228, uranium-233,234, uranium-235, uranium-238, americium-241, plutonium-239,240, and strontium-89,90. The same radionuclides were detected in groundwater from UHSU bedrock (Figures 3-11, 3-13, 3-15, and 3-17). Each of these radionuclides was detected at least once at activities above the sitewide background activities (background mean plus two deviations as presented in Table 1-4) in UHSU surficial materials and, with the exception of strontium-89,90 in UHSU bedrock. In general, higher activities of radionuclides were found in groundwater from wells located immediately north, east, and occasionally southeast of the ponds than in groundwater from other areas in the vicinity of the ponds. In areas along the north and east sides of the Solar Evaporation Ponds, tritium activities ranged from 300 to 4,800 pCi/L in surficial-materials groundwater and typically from 700 to 7,200 pCi/L in the UHSU-bedrock groundwater. Typical activities of uranium-235 ranged from 0.5 to 0.91 pCi/L in surficial materials and were as high as 6.3 pCi/L and 8.3 pCi/L in Wells 05193 and 05093, respectively. Uranium-235 activities were also high in UHSU-bedrock groundwater, ranging from 1.6 to 5.6 pCi/L. Total plutonium-239,240 activities were generally higher in surficial-materials groundwater, where they reached 4.82 pCi/L at Well 2286, than in UHSU-bedrock groundwater where the highest activity was 0.51 pCi/L at Well P209189. Radionuclide activities were also occasionally above background activities in groundwater from wells along North Walnut Creek but activities at these

locations were typically one to two orders of magnitude lower than in groundwater adjacent to the Solar Evaporation Ponds.

The activity ratios of uranium isotopes have been used to distinguish between natural and man-made (i.e., enriched or depleted) uranium in surface water and groundwater at Rocky Flats (EG&G, 1992 and 1993b). Ratios of uranium-233,234/238 that are between 1.0 and 3.0 are typical of natural uranium in groundwater (EG&G, 1993b). Uranium-233,234/238 ratios were calculated for groundwater samples from the UHSU at the Solar Evaporation Ponds. These ratios are included with the data presented on Figures 3-12 and 3-13. The uranium ratios ranged from 1.13 to 2.85 in surficial materials and from 0.93 to 3.46 in UHSU bedrock. Ratios higher than 3.0 may indicate that a component of man-made, enriched uranium was present in the sample; ratios lower than 1.0 may be indicative of depleted uranium.

In 1993, VOCs were detected in groundwater from 10 wells screened in surficial materials (Figure 3-18) and from 11 wells screened in bedrock of the UHSU (Figure 3-19). VOCs detected in groundwater from UHSU surficial materials include 1,1,1-TCA; 1,1-DCA; 1,1-DCE; 1,2-DCE; cis 1,2-DCE; PCE; TCE; 4-methyl-2-pentanone; vinyl chloride; methylene chloride; CCl_4; $CHCl_3$; acetone; and benzene. Reported concentrations ranged from 0.1 μg/L benzene and cis 1,2-dichloroethene to 200 μg/L vinyl chloride. The highest concentrations of VOCs detected in surficial materials were detected at Wells 2286, 5687, and 3586. Well 2286, located south of pond 207-C, reported VOC concentrations as high as 35 μg/L for 1,2-DCE; 29 μg/L for CCl_4; 170 μg/L for $CHCl_3$; 5 μg/L for PCE; and 25 μg/L for TCE. Well 3586, located southeast of the Solar Evaporation Ponds, reported 3 to 6 μg/L of 1,1,1-TCA; 41 to 52 μg/L of 1,1-DCA; 7 to 10 μg/L of 1,2-DCE; and 200 μg/L of vinyl chloride.

VOCs detected in groundwater from UHSU bedrock include 1,1,1-TCA; 1,1-DCA; 1,1-DCE; 1,2-DCE; cis 1,2-DCE; PCE; TCE; 4-methyl-2-pentanone; 2-hexanone; vinyl chloride; methylene chloride; CCl_4; $CHCl_3$; carbon disulfide; acetone; and benzene. Reported concentrations ranged from 0.2 μg/L for $CHCl_3$ and methylene chloride to 660 μg/L for CCl_4. The highest reported concentrations of VOCs within bedrock of the UHSU were measured in

Well P210189, which is located south of Pond 207-C. In 1992, the highest VOC concentrations in groundwater from the solar ponds area were also from this well (DOE, 1993a). Concentrations as high as 7 μg/L PCE, 380 μg/L TCE, 7 μg/L 1,1-DCE, 100 μg/L 1,2-DCE, 660 μg/L CCl_4, and 380 μg/L $CHCl_3$ were reported from Well P210189.

Groundwater from some upgradient wells also contained detectable levels of VOCs as shown on the VOC-distribution maps (Figures 3-18 and 3-19). Analytes that were detected in upgradient UHSU-bedrock Well P209389 include 1,1-DCE, CCl_4, $CHCl_3$, PCE, 1,1,1-TCA, and 1,1-DCA. Other wells located upgradient of the ponds, such as Well 5687 which is screened in alluvium, also showed evidence for contamination of the groundwater by VOCs. Continuing investigations of groundwater quality within the industrial area will help to identify the sources of these and other contaminants that are frequently present in upgradient groundwater.

High concentrations of nitrate/nitrite were reported in groundwater from both surficial materials and UHSU bedrock. Nitrate/nitrite concentrations were in many cases higher than the mean values for background. As noted previously (DOE, 1993a), nitrate/nitrite appears to be a reasonable indicator of contaminant distribution and migration at the Solar Evaporation Ponds because of its historical presence in the Solar Evaporation Ponds and in downgradient groundwaters, and its high mobility in groundwater. The distribution of nitrate/nitrite displayed on Figures 3-20 and 3-21 is similar to that presented and discussed in the 1992 RCRA Report (DOE, 1993a). Within UHSU surficial materials, concentrations of nitrate/nitrite in groundwater were highest in areas along the eastern and southern edges of the Solar Evaporation Ponds and along North Walnut Creek, where concentrations reached 850 mg/L and 470 mg/L, respectively. Concentrations of nitrate/nitrite were significantly higher in UHSU bedrock than in UHSU surficial materials. Nitrate/nitrite concentrations were highest along the northern edge of the Solar Evaporation Ponds due south of the Interceptor Trench System, where they reached 3,300 mg/L in UHSU bedrock Well P209589. The patterns of fluoride and sulfate distribution in groundwater were similar to the distribution of nitrate/nitrite.

Concentration-isopleth maps of TDS (Figures 3-23 and 3-24), lithium (Figures 3-25 and 3-26) and uranium-233,234 (Figures 3-27 and 3-28) are similar to those of nitrate/nitrite. In groundwater from both surficial materials and bedrock of the UHSU, these analytes had concentrations that exceeded mean concentrations in background groundwater. Concentrations of TDS and lithium were higher in UHSU bedrock than within UHSU surficial materials. However, activities of dissolved uranium-233,234 were higher in UHSU surficial materials than in UHSU bedrock, and relatively high uranium-233,234 activities had a more restricted distribution than nitrate/nitrite, TDS, and lithium.

For these inorganic parameters, the contaminant plumes in UHSU surficial materials and the plumes in UHSU bedrock shown on the concentration-isopleth maps do not completely overlap. For example, the highest TDS concentrations in surficial-materials groundwater occurred east of the ponds, whereas highest concentrations of TDS in UHSU-bedrock groundwater occurred due north of the ponds. The observed offset in contaminant distribution may be due to different directions of groundwater flow in the UHSU surficial materials (predominantly eastward) and in the UHSU bedrock (predominantly northeastward) in the vicinity of the ponds.

Time-series plots compiled for nitrate/nitrite and TDS show that there is no concentration trend through time for these analytes in UHSU groundwater downgradient of the Solar Evaporation Ponds. However, the time-series plot and CUSUM chart for lithium both show trends toward increasing lithium concentrations at Well P209889 located to the north of the solar ponds.

3.5 Conclusions

Statistical comparisons of groundwater quality upgradient of the Solar Evaporation Ponds to groundwater quality downgradient and at the compliance boundary indicates that the uppermost "aquifer," the UHSU, has been adversely impacted by leakage from the ponds. VOCs detected in groundwater in the UHSU during 1993 include 1,1,1-TCA; 1,1-DCA; 1,1-DCE; 1,2-DCE; cis 1,2-DCE; PCE; TCE; 4-methyl-2-pentanone; 2-hexanone; vinyl chloride; methylene chloride; CCl_4; $CHCl_3$; carbon disulfide; acetone; and benzene. The concentrations of CCl_4, calcium,

lithium, magnesium, strontium, bicarbonate, chloride, fluoride, nitrate/nitrite, sulfate, TDS, gross alpha, gross beta, radium-226, uranium-235, uranium-238, and tritium were significantly higher in UHSU groundwater downgradient of the Solar Evaporation Ponds than upgradient. Statistical tests were not performed for most VOCs because they are only infrequently detected in the upgradient groundwater. However, a number of VOCs were detected in downgradient groundwater, including acetone, benzene, toluene, methylene chloride, CCl_4, $CHCl_3$, PCE, TCE, 1,2-DCE, CIS 1,2-DCE, 4-methyl-2-pentanone, and 2-hexanone.

Of the inorganic parameters, nitrate/nitrite had the highest concentration in UHSU groundwater at the Solar Evaporation Ponds relative to its mean concentration in background groundwater. Nitrate/nitrite concentrations were high in both surficial materials and bedrock of the UHSU. Lithium, TDS, sulfate, and fluoride concentrations were also high in the UHSU, and distribution patterns for these parameters in groundwater were similar to the distribution of nitrate/nitrite. The concentrations of these inorganic parameters were typically highest in wells immediately north and east of the ponds.

Contaminant distributions shown on concentration-isopleth maps are distinct in surficial-material groundwater and UHSU-bedrock groundwater. The apparent distinction may be the result of different groundwater-flow directions in the two units or it may be an artifact of the spatial distribution of wells within these two units. No wells screened in surficial materials are present immediately north of the Solar Evaporation Ponds.

4.0 GROUNDWATER MONITORING AT THE WEST SPRAY FIELD

The West Spray Field is located in the western portion of the RFP buffer zone and covers an area of approximately 105 acres (Figure 4-1). The West Spray Field was identified as a regulated waste-management unit because liquids contaminated with RCRA-listed hazardous wastes were sprayed over the area.

The unit was operated from April 1982 to October 1985. During operation, excess liquids from Solar Ponds 207-B North and 207-B Center were periodically pumped via pipeline to the West Spray Field for spray application. The liquids pumped to the spray field consisted of treated sanitary effluent and groundwater from the Interceptor Trench System, both of which contained some hazardous constituents (DOE, 1988). Based on total monthly volumes of liquids applied to the West Spray Field, the maximum total application is 190 inches per unit area during the four years of operation (DOE, 1992c).

Spray irrigation is no longer conducted at the West Spray Field. A closure plan has been developed through the IM/IRA process in accordance with the IAG and applicable Colorado hazardous-waste regulations. Coordination between the Operable Unit No. 11-West Spray Field project manager and RCRA groundwater-monitoring program manager will be made regarding post-closure activities. Post-closure inspection, maintenance, and monitoring of the West Spray Field will be performed in accordance with 6 CCR 1007-3, part 265.

4.1 Summary of Previous Investigations

Previous investigations include implementation of an alternate groundwater-monitoring program, descriptions of site hydrogeology, and evaluation of groundwater quality. Additional information can be found in the West Spray Field Hydrogeologic Characterization Report (DOE, 1988) and the Annual RCRA Groundwater Monitoring Reports (DOE, 1990a, 1991a, 1992b, 1993).

4.1.1 Alternate Groundwater-Monitoring Program

An "alternate" groundwater-monitoring program has been implemented for the West Spray Field area in accordance with sec. 265.90(d) of 6 CCR 1007-3, because it has been assumed that "groundwater monitoring of indicator parameters in accordance with secs. 265.91 and 265.92 would show statistically significant increases (or decreases in the case of pH) when evaluated under sec. 265.93(b)." The GWAP summarizes the history of previous site-specific hydrogeologic investigations, monitoring-well installation programs, sampling and analysis programs, and evaluation procedures for the alternate groundwater-monitoring system at the West Spray Field. The plan also includes procedures for sample collection, preservation, and shipment, and laboratory analysis procedures and chain-of-custody control.

4.1.2 Previous Nature and Extent of Groundwater Contamination

Evaluation of groundwater-quality data from 1989 (DOE, 1990a) indicated that alluvial groundwater had been impacted by operations at the West Spray Field. These conclusions were based on comparisons of contaminant concentrations in groundwater from the West Spray Field to contaminant concentrations in groundwater from background locations as reported in the 1990 Background Geochemical Characterization Report (EG&G, 1990b). Inorganic constituents, metals, VOCs (including PCE and methylene chloride), and some radionuclides were detected in groundwater from the West Spray Field. Methylene chloride was frequently detected in field-blank samples at concentrations greater than or equal to concentrations in groundwater. The occurrence of methylene chloride in groundwater samples was considered to represent laboratory contamination rather than actual groundwater contamination.

Groundwater-quality data from 1990 are similar to groundwater-quality data from 1989. Nitrate/nitrite, TDS, uranium-233,234, and some metals were detected in alluvial groundwater in 1990. Nitrate/nitrite was detected upgradient and in the eastern portion of the West Spray Field at concentrations close to sitewide background levels. TDS was consistently detected above sitewide background concentrations upgradient, within, and downgradient of the West

Spray Field. Uranium-233,234 activity was greater than sitewide background activity in groundwater from Wells B410589 and B110989 in first quarter 1990. Uranium-233,234 activity was greater than sitewide background activity in groundwater from Wells 4986 and B410589 in fourth quarter 1990. Plutonium-239,240 (dissolved), tritium, americium-241 (dissolved), and cesium-137 (dissolved) activities were above sitewide background in 1989, but were not above sitewide background in 1990. Uranium-233,234 was not analyzed for in 1989. Manganese and, to a lesser degree, iron were consistently detected above sitewide background concentrations. Manganese was detected in groundwater from wells in the western portion of the West Spray Field and along the eastern border of the site.

Statistical evaluation of 1991 groundwater-quality data indicated groundwater in surficial materials was impacted by past operations at the West Spray Field. Uranium-233,234, dissolved metals (sodium, magnesium, strontium, iron, manganese, and zinc), and inorganic parameters (bicarbonate, nitrate/nitrite, chloride, fluoride, and TSS) were detected in groundwater from surficial materials. However, occasional detections of VOCs were not verified during subsequent analyses. Past operations at the West Spray Field do not appear to have impacted groundwater quality in bedrock.

Groundwater-quality data from 1992 are similar to groundwater-quality data from 1991. Radionuclides (gross alpha and uranium-233,234); dissolved metals (calcium, sodium, and vanadium); and chloride, fluoride, and silicon were detected at significantly higher activities/ concentrations in groundwater from downgradient wells than in groundwater from upgradient wells. Xylenes were detected during fourth quarter 1992 at downgradient Well B110889. Concentrations of nitrate/nitrite were significantly higher in groundwater upgradient of the West Spray Field (Well 5186) than in groundwater within the unit (Wells 4986 and B410789).

4.2 Current Groundwater-Monitoring Program for the West Spray Field

Groundwater-monitoring wells at or near the West Spray Field are listed in Table 4-1 and shown in Figure 4-1. There are 40 active monitoring wells. Of these, 16 were installed as RCRA

wells and are currently sampled quarterly as part of the RCRA groundwater-monitoring program. The remaining 24 active wells are also sampled quarterly. Nine wells installed prior to 1986 (0166, 0881, 0981, 1081, 0382, 0482, 0582, 0682, and 0782) had incomplete or missing well-construction documentation and were abandoned. Wells 4586 (damaged) and P115189 (not usable due to nearby building construction) were abandoned in 1993.

The uppermost "aquifer" in the West Spray Field area is equivalent to the UHSU and comprises Rocky Flats Alluvium, valley-fill alluvium, and weathered bedrock, including claystones and subcropping sandstones. Wells screened in bedrock were assigned to a hydrostratigraphic unit based on the major-ion composition of waters from those wells, hydraulic conductivity measurements (when available), and information on borehole logs. Thirty-eight active wells (35 wells screened in alluvium and 3 wells screened in bedrock) at the West Spray Field monitor groundwater in the UHSU. Bedrock wells were assigned to a hydrostratigraphic unit based on geochemical data, hydraulic conductivity measurements (when available), and information from borehole logs. Well 5286 was previously interpreted as being screened in unweathered bedrock of the LHSU but is now interpreted as being screened in the UHSU. Wells P416959 and 46392 are also screened in UHSU bedrock.

Two active wells (4686 and 4886) are screened in unweathered siltstone and claystone and monitor groundwater in the LHSU. Groundwater-quality data from these wells are not presented in this report because groundwater in unweathered bedrock or the LHSU is not considered to have been impacted by past operations at the West Spray Field based on data from 1990, 1991, and 1992 (DOE, 1991, 1992, 1993). No VOCs were detected in these wells during 1991 and 1992. Concentrations of metals and inorganic constituents were below sitewide background values.

Groundwater elevations are measured at least quarterly, and groundwater samples are collected quarterly. In 1993, groundwater samples were analyzed for the parameters listed in Table 1-3. Records of the laboratory analyses and statistical evaluations are maintained in compliance with 6 CCR 1007-3 Section 265.94(b), and results are presented in this report.

4.3 Groundwater Flow

As with the Solar Evaporation Ponds area, the thickness of saturated surficial materials and the direction of groundwater flow within them appear to be controlled by the paleotopographic surface. An east-trending bedrock ridge (EG&G, 1991a) appears to act as a groundwater divide. Groundwater in the UHSU north of the ridge flows generally northeast toward Walnut Creek, whereas groundwater in the UHSU south of the ridge flows toward Woman Creek.

4.3.1 Potentiometric Surface

Groundwater potentiometric-head data calculated from depth-to-water measurements are presented in Appendix A. In general, potentiometric heads at the West Spray Field were very similar in 1993 to potentiometric heads in 1992. However, potentiometric heads for the latter part of 1993 were approximately 1 foot lower than during the corresponding period of 1992. A few anomalous differences between 1992 and 1993 heads are not consistent with concurrent data from surrounding wells and are probably the result of inaccurate depth-to-water measurements.

During 1993, potentiometric heads east of the West Spray Field near the industrialized area and the intersection of Walnut Creek and the McKay Bypass Canal generally fluctuated over a wider range than potentiometric heads within the West Spray Field. Potentiometric heads within any single well at the West Spray Field generally fluctuated less than a few feet each quarter, although the potentiometric head in a few wells fluctuated as much as 26 feet. The groundwater elevation in Well 5286 (a UHSU bedrock well located upgradient of the West Spray Field) fluctuated 8.26 feet. Groundwater elevations in Wells 4886 and 4686 (both screened LHSU bedrock) fluctuated 26.40 feet and 7.37 feet, respectively. The large fluctuations calculated for Wells 5286, 4886, and 4686 result from one anomalous groundwater elevation at each of the wells, are not consistent with previously observed seasonal fluctuations, and therefore, may be the result of inaccurate depth-to-water measurements.

Figures 4-2 through 4-5 present groundwater potentiometric-surface maps of the UHSU at the West Spray Field for four quarters of 1993. Groundwater generally flows to the east-northeast toward the Walnut Creek drainage. The potentiometric surface resembles the paleotopographic surface more closely than the ground surface (EG&G, 1993b). Based on the potentiometric-surface contours, it appears that the groundwater divide between Woman Creek and Walnut Creek lies along the southern boundary of the RCRA unit and trends eastward.

4.3.2 Vertical Hydraulic Gradients

Vertical hydraulic gradients were calculated at two well pairs in the West Spray Field (see Table 4-2). Downward vertical gradients were present in these well pairs during 1993. As discussed in Section 1.4, the magnitude of the vertical hydraulic gradients calculated using an estimate for dl may not be accurate.

4.3.3 Average Linear Flow Velocities

The average linear velocity of groundwater flow in the UHSU was calculated for six flow paths in the vicinity of the West Spray Field. Flow velocities were calculated for UHSU alluvium using a mean hydraulic-conductivity value of 4.57×10^{-4} cm/sec for Rocky Flats Alluvium near the West Spray Field (DOE, 1993a). Flow velocities were calculated for UHSU bedrock using mean hydraulic-conductivity value of 1.16×10^{-5} cm/sec measured at Well 5286. The assumed effective porosity is 0.1 for both alluvium and bedrock in the UHSU, as used in previous groundwater-monitoring reports.

Average linear flow velocities calculated (using 1993 data) for groundwater in alluvial materials using 1993 data ranged from approximately 60 to 70 feet per year (Table 4-3). Flow velocities for alluvium downgradient of the West Spray Field typically ranged from 25 to 75 feet per year (see Figure 4-6). The highest calculated flow velocity (108 feet per year) occurs along a linear path from the West Spray Field toward Woman Creek along a steep hydraulic gradient. Flow velocities calculated for UHSU bedrock are approximately 1.5 feet per year. Migration rates

for conservative dissolved constituents could equal the average linear groundwater-flow velocity; however, attenuated, volatile, biodegradable, or redox-sensitive species would exhibit migration rates less than the average linear groundwater-flow velocity.

4.4 Groundwater Quality

Groundwater-quality data for surficial materials at the West Spray Field are presented on computer disk in Appendix B. The following sections summarize statistical comparisons of upgradient/downgradient groundwater quality and describe the distribution of analytes in the vicinity of the West Spray Field.

4.4.1 Statistical Comparison of Downgradient Groundwater Quality with Respect to Upgradient Groundwater Quality

Groundwater-quality data from monitoring wells located upgradient of the West Spray Field were compared statistically to groundwater-quality data from compliance-boundary monitoring wells located downgradient of the West Spray Field to assess potential contaminant releases from the RCRA-regulated unit into the uppermost "aquifer". The upgradient and downgradient wells used in the comparison are listed on Table 4-4. Statistical comparisons were made using the methodology discussed in Section 1.4.7. Statistical calculations are presented on computer disk in Appendix C and the results are discussed below.

Statistical comparisons were made using 1993 groundwater-quality data from the entire UHSU and the surficial materials of the UHSU in the upgradient and downgradient wells listed in Table 4-4. Groundwater-quality data from UHSU bedrock wells were not sufficient in number to conduct statistical comparisons.

No statistical comparisons were performed for analytes with less than 50-percent quantifiable results. The detectable concentrations of these parameters in groundwater downgradient of the RCRA unit are reported in Table 4-5. Dissolved aluminum, cadmium, cesium, chromium, cobalt, copper, iron, lead, manganese, nickel, tin, and vanadium were infrequently detected in

UHSU groundwater downgradient of the West Spray Field. Cesium, iron, manganese, and vanadium were most consistently present at detectable concentrations. Methylene chloride was detected once in two downgradient wells and acetone was detected once. Unless verified by subsequent analyses, these infrequently detected VOCs are not considered indicative of contamination.

Summaries of statistical comparisons of upgradient groundwater quality to downgradient groundwater quality are shown in Tables 4-6 and 4-7. For analytes with greater than 50-percent quantifiable results (Table 4-6), ANOVA testing indicated a statistically significant difference at the 5-percent significance level in upgradient versus downgradient groundwater quality in the UHSU for dissolved metals (calcium, magnesium, potassium, sodium, and strontium) and inorganic parameters (bicarbonate, chloride, and fluoride). Concentrations of radionuclides and VOCs were not statistically different (at the 5-percent significance level) in upgradient groundwater versus downgradient groundwater in the UHSU.

In UHSU surficial materials, ANOVA testing demonstrated statistically significant differences at the 5-percent significance level in upgradient versus downgradient groundwater quality for dissolved metals (calcium, magnesium, silicon, sodium, and strontium) and inorganic parameters (bicarbonate and fluoride). Results of the statistical comparisons for surficial materials are presented in Table 4-7. Concentrations of radionuclides were not statistically different (at the 5-percent significance level) in upgradient groundwater versus downgradient groundwater in UHSU surficial materials.

4.4.2 Groundwater Quality Within and Adjacent to the West Spray Field Area

Radionuclides were detected in groundwater from both UHSU surficial materials and UHSU bedrock within the RCRA-unit (Figures 4-6 to 4-9). Radionuclides detected in groundwater from surficial materials include gross alpha; gross beta; tritium; radium-226; radium-228; uranium-233,234; uranium-235; uranium-238; americium-241; plutonium-239,240; and strontium-89,90. Gross beta, radium-226, and radium-228 exceeded mean activities of

background within UHSU surficial materials. Radionuclides detected in groundwater from UHSU bedrock include radium-226; radium-228; plutonium-239,240; and strontium-89,90. On one occasion, radium-228 exceeded the mean activity of background groundwater.

VOCs were detected in groundwater from monitoring wells upgradient, within, and downgradient of the RCRA-unit. VOCs were detected more frequently in 1993 than in previous years (Figure 4-10). The analytes most frequently detected were methylene chloride and $CHCl_3$. Detections of methylene chloride occurred only in second quarter 1993. Methylene chloride was detected in groundwater from upgradient Wells 46192 (0.5 μg/L) and 5186 (3 μg/L); RCRA-unit Wells 5086 (1 μg/L), B410689 (2 μg/L), and 46292 (0.3 μg/L); and downgradient UHSU-bedrock Well 46492 (0.3 μg/L). Acetone was detected in third quarter 1993 in groundwater from Well B410789 (7 μg/L). Additional VOCs (1,1,2,2 PCA; 1,1,2 TCA; 4-methyl-2-pentanone; bromoform; carbon disulfide; and toluene) were detected in first quarter 1993 in groundwater from upgradient Well 5186. These detections were not repeated in subsequent quarters of 1993 and are not considered indicative of contamination. At one downgradient well in UHSU bedrock (Well 46392), $CHCl_3$ was detected in the first three quarters of 1993 with concentrations ranging from 1 to 3 μg/L; hexachlorobutadiene was detected at the same location in third quarter 1993 at 0.1 μg/L (Figure 4-10). Hexachlorobutadiene has not been detected in groundwater from the West Spray Field in previous years and its presence has not yet been confirmed by subsequent analyses and detections.

Inorganic parameters and major ions most frequently detected include bicarbonate, calcium, chloride, fluoride, magnesium, nitrate/nitrite, silicon, sodium, sulfate, and TDS. Only calcium, magnesium, potassium, sodium, strontium, bicarbonate, chloride, and fluoride occur at significantly greater concentrations in the downgradient monitoring wells. Sulfate, nitrate/nitrite, and TSS all occur at higher concentrations in the upgradient monitoring Well 5186 than in downgradient monitoring wells. Within the West Spray Field, Wells 4986 and B410789 consistently show higher concentrations of nitrate/nitrite (3.0 to 5.1 mg/L), chloride (8.3 to 22 mg/L), and TDS (160 to 300 mg/L) than other West Spray Field wells. Along the southern

boundary of the unit, near the West Access Road, Wells 5086 and B410589 also typically produce waters with higher chloride and TDS than other wells at the West Spray Field.

Time-series plots (Appendix F), compiled for chloride; nitrate/nitrite; TDS; calcium; plutonium-239,240; americium-241; and uranium-233,234 show no trends in concentration or activity levels for these parameters through time (1990-1993). CUSUM control charts (Appendix G) compiled for nitrate/nitrite and TDS concentrations in downgradient Wells B110889 and B110989 show one anomalous value at each well but no trends.

4.5 Conclusions

For analytes with greater than 50-percent quantifiable results, ANOVA testing indicated a statistically significant difference at the 5-percent significance level in upgradient versus downgradient groundwater quality in the UHSU. Downgradient concentrations were greater than upgradient concentrations in the entire UHSU for some metals (calcium, magnesium, potassium, sodium, and strontium) and inorganic parameters (bicarbonate, chloride, and fluoride). Downgradient concentrations were greater than upgradient concentrations in UHSU surficial materials for some metals (calcium, magnesium, silicon, sodium, and strontium), and inorganic parameters (bicarbonate and fluoride).

Other analytes detected at the West Spray Field are portrayed on analyte-distribution maps. Radionuclide activities rarely exceeded the mean activities of background for gross beta, radium-226, and radium-228. VOCs detected in groundwater from UHSU surficial materials downgradient of the West Spray Field include methylene chloride and acetone. VOCs detected in groundwater from UHSU bedrock include $CHCl_3$ and hexachlorobutadiene. The highest concentrations of nitrate/nitrite occurred in groundwater from Well 5186 (located upgradient of the West Spray Field) and Wells 4986 and B410789 (located within the RCRA unit). Upgradient monitoring Well 5186 also produced groundwater with high concentrations of sulfate and TSS relative to concentrations in groundwater from within the spray field. Chloride and TDS were

present at highest concentrations in groundwater from Wells 4986, 5086, B410589, and B410789, located within the RCRA unit.

5.0 GROUNDWATER MONITORING AT THE PRESENT LANDFILL

The Present Landfill began operating August 14, 1968, for the disposal of RFP solid waste. Currently the landfill is accepting only nonhazardous solid waste. However, records indicate that some hazardous waste was disposed at the landfill, making it a RCRA-regulated unit. Disposal of hazardous constituents in the landfill was halted in November 1986. Details about the construction, operation, regulatory history, and site characterization of the Present Landfill are presented in the Phase I RFI/RI Work Plan for Operable Unit No. 7—Present Landfill (DOE, 1991b).

In September 1973, tritium was detected in leachate draining from the landfill. In response to this detection, a sampling program was initiated to determine the location of the tritium source, radiation monitoring of waste prior to burial was initiated to prevent further disposal of radioactive material, and interim response measures were undertaken to control the generation and migration of landfill leachate.

Interim response measures included the construction of two ponds (Pond No. 1 and No. 2, also known as the West Landfill Pond and East Landfill Pond, respectively) immediately east of the landfill, a subsurface leachate-collection system, a subsurface intercept system for diverting groundwater around the landfill, and ditches for surface water control. The influence of the groundwater diversion and leachate-collection system on groundwater flow around the landfill is discussed further in Section 5.3.

The West Landfill Pond (Pond No. 1) embankment was constructed approximately 500 feet east of the 1974 position of the advancing face of the landfill. The East Landfill Pond (Pond No.2) embankment was constructed approximately 1,000 feet east of the West Landfill Pond embankment. A cutoff wall, set in bedrock, was constructed in the East Landfill Pond embankment to reduce seepage through the embankment foundation. The embankments and ponds were built to collect and evaporate groundwater, surface water, and leachate collected by a subsurface drainage-control system installed around the perimeter of the landfill in 1974.

The leachate-collection system and groundwater-intercept/diversion system were constructed around the west, north, and south perimeters of the landfill. The leachate-collection system provides a perimeter drain for landfill leachate to prevent migration of leachate and to reduce water levels in the landfill. The groundwater-intercept/diversion system was constructed along the outside edge of the collection system to prevent groundwater from entering the landfill area. Groundwater is diverted from the landfill toward the East Landfill Pond.

The west embankment and West Landfill Pond were removed in 1981 to allow eastward expansion of the landfill. Between 1977 and 1981, the leachate-collection system was covered with waste as the landfill expanded beyond the limits of the system. Two slurry walls were constructed in 1981 extending from the ends of the north and south groundwater-interceptor ditches. These slurry walls range in depth from 10 feet to 25 feet and were designed to be seated in bedrock.

Sometime after the Present Landfill went into operation in 1968, excess water from the landfill pond was sprayed onto a ridge south of the East Landfill Pond. The sprayed water collected on the roadway and flowed into North Walnut Creek. When this was discovered, the spraying activities were moved north of the landfill pond adjacent to an irrigation ditch. Because the subsequent spray water then collected in local drainage channels and flowed around the landfill pond to the main drainage, the spraying activities were again moved. The final location was south of the west end of the landfill pond adjacent to the pond. The excess spray water flowed back into the East Landfill Pond.

The landfill currently operates under interim-status RCRA regulations and accepts only nonhazardous solid waste. In the spring of 1993, the landfilled wastes covered an area of approximately 18 acres and had a volume of approximately 400,000 cubic yards. A closure plan will be developed through the IM/IRA decision document, in accordance with the IAG and applicable Colorado hazardous-waste regulations. Post-closure inspection, maintenance, and monitoring of the Present Landfill will be performed in accordance with 6 CCR 1007-3 Part 264 (40 CFR Part 264).

5.1 Summary of Previous Investigations

5.1.1 Alternate Groundwater-Monitoring Program

An "alternate" groundwater-monitoring program is being implemented at the Present Landfill in accordance with secs. 265.91 and 265.92 because it has been assumed that groundwater monitoring of indicator parameters would show statistically significant increases (or decreases in the case of pH) when evaluated under sec. 265.93(b). The GWAP summarizes the history of previous site-specific hydrogeologic investigations, monitoring-well installation programs, sampling and analysis programs, and evaluation procedures for the alternate groundwater-monitoring system at the Present Landfill. The plan also includes procedures for sample collection, preservation, and shipment, and laboratory analysis and chain-of-custody control.

Annual RCRA Groundwater Monitoring Reports from 1987 through 1992 describe groundwater elevations, flow rates, and the results of the groundwater analyses. Groundwater samples were analyzed for parameters listed in Table 1-3, and the sampling and analysis records were maintained in compliance with 6 CCR 1007-3 and 40 CFR 265.94 (b). The Phase I RFI/RI Work Plan for Operable Unit No. 7—Present Landfill (DOE, 1992d) presents additional information.

5.1.2 Previous Nature and Extent of Groundwater Contamination

The nature and extent of groundwater contamination was most recently evaluated in the 1992 Annual RCRA Groundwater Monitoring Report (DOE, 1993a). In 1992, the concentrations of major inorganic ions (bicarbonate, calcium, chloride, magnesium, nitrate/nitrite, sodium, sulfate, and TDS), dissolved metals (chromium, lithium, potassium, and strontium), radionuclides, and VOCs were elevated relative to background concentrations in groundwater from surficial deposits within and around the Present Landfill. The dissolved radionuclides present included americium-241; plutonium-239,240; uranium-233,234; uranium-238; and radium-226. During 1992, VOCs were detected sporadically and infrequently in wells screened in surficial materials. Verified

detections in 1991 included 1,1,1-TCA; 1,1-DCE; 1,2-DCE; PCE, CCl_4; chloroethane; vinyl chloride; and TCE.

Elevated concentrations of major ions (bicarbonate, chloride, sulfate, TDS, and nitrate/nitrite) were also found in groundwater from UHSU bedrock. Concentrations of dissolved metals and radionuclides are only rarely greater than sitewide background concentrations. VOCs were detected in two UHSU-bedrock wells during 1992. Methylene chloride, acetone, and toluene were detected once. The infrequent occurrence of VOCs in the UHSU bedrock indicated that the Present Landfill has not adversely impacted groundwater in bedrock, even though some contamination of groundwater has occurred in surficial materials overlying the bedrock.

Concentrations of major ions observed in groundwater from UHSU and LHSU bedrock wells were typically higher than concentrations seen in groundwater within the landfill. Thus, bedrock-groundwater quality has been considered to be influenced primarily by mineral dissolution within the sandstone and claystone units (DOE, 1990a).

Results of hydrogeologic investigations of the Present Landfill suggest that the groundwater-intercept system may not completely isolate the landfill from the surrounding groundwater. Hydraulic assessments for specific areas on the west, north, and south sides of the groundwater-intercept system indicate that groundwater may flow into the landfill on the west or northwest and may be exiting the landfill near the southwest boundary at some times during the year.

5.2 Current Groundwater-Monitoring Program for the Present Landfill

The 55 groundwater-monitoring wells (49 active and 6 abandoned) located at and near the Present Landfill are listed in Table 4-1 and shown in Figure 4-1. Twenty seven were installed as RCRA wells and are currently sampled quarterly as part of the RCRA groundwater-monitoring program for the Present Landfill. Six damaged RCRA-characterization wells (Wells 5987, 6387, 6787, B206189, B206389, and B207189) were abandoned in 1993. Three additional characterization wells (Wells 76792, 76992, and 77392) were installed and sampled

in 1993 as part of the remedial investigation of Operable Unit No. 6, and 16 additional wells were installed and sampled in 1993 as part of the remedial investigation of Operable Unit No. 7. Data from these wells are described in this report.

The uppermost "aquifer" in the Present Landfill area is equivalent to the UHSU and is composed of saturated surficial materials and weathered bedrock. Rocky Flats Alluvium and artificial fill (landfilled wastes and soil-cover materials) are present upgradient of and within the landfill, respectively; colluvium and valley-fill alluvium are present downgradient of the Present Landfill. Weathered claystones and weathered sandstones in direct contact with the overlying surficial materials are considered part of the uppermost "aquifer." Unweathered claystones are not considered part of the uppermost "aquifer." Bedrock wells were assigned to a hydrostratigraphic unit based on geochemical data from the well, hydraulic conductivity measurements (where available), and information from borehole logs. Of the 49 active wells, 43 wells (33 wells screened in alluvium or fill materials and 10 wells screened in bedrock) monitor groundwater in the UHSU or the uppermost "aquifer." Six of the active bedrock wells are screened in the LHSU.

Groundwater elevations are measured at least quarterly, and groundwater samples are collected quarterly. The samples are analyzed for the constituents listed in Table 1-3. The records of analyses and evaluations are maintained in compliance with sec. 265.94(b).

5.3 Groundwater Flow

Groundwater is present in surficial deposits (Rocky Flats Alluvium, colluvium, valley-fill alluvium, and artificial fill) and in bedrock sandstones and claystones in the area of the Present Landfill. Within landfill wastes, groundwater flows toward the center of the landfill, then flows east toward the face of the landfill. Outside the landfill, groundwater generally flows eastward in saturated UHSU surficial deposits toward the landfill pond. Near the East Landfill Pond, however, groundwater flows from the north, west, and south toward the pond.

To control fluid flow in and around the landfill, a leachate-collection and surface-water/groundwater-diversion system was constructed in 1974 (Figure 5-1). This system was designed to collect leachate generated in the landfill and to divert surface water and groundwater around the perimeter of the landfill. The surface-water/groundwater-diversion portion of the system is located outside the leachate-collection system and is separated from the leachate-collection system by a 4.5-foot-wide zone of clayey soil. It consists of a surface-water-intercept ditch that diverts surface water north and south of the landfill and a drain system to dewater surficial materials between the interceptor ditch and the clay barrier. In theory, landfill leachate is contained within the landfill wastes and underlying materials by the clay barrier and migrates toward the East Landfill Pond. Additional details about the configuration of the leachate-collection and surface-water/groundwater-diversion system are presented in the Phase I RFI/RI Work Plan for Operable Unit No. 7—Present Landfill (DOE, 1991c). Slurry walls added at the eastern end of the landfill divert groundwater from landfill materials placed outside the pre-existing leachate-collection system and contain possible leachate generated by these materials.

The following conclusions about the impact of the leachate-collection and groundwater-intercept systems on groundwater flow are based on water-level and groundwater-quality data (DOE, 1988 and 1991c):

- The groundwater-intercept system diverts groundwater from the west end of the landfill.

- The groundwater-intercept system does not divert all groundwater from the north and south sides of the landfill.

- The clay barrier is an effective barrier to groundwater flow in the landfill along the west and north sides.

- The clay barrier does not appear completely effective on the south side of the landfill and may allow groundwater to enter the landfill at times.

- The groundwater-intercept system appears to function intermittently on the north side of the landfill.

Previous reports indicate that the landfill wastes bury and extend beyond the leachate-collection system. Therefore, leachate generated outside the leachate-collection system could be collected by the groundwater-diversion system. In addition, the clay cutoff wall no longer extends to the surface of the landfill; this would allow groundwater to flow across the clay cutoff wall if the water table were to rise sufficiently. Landfill wastes do not extend to the surface-water-interceptor ditch.

At present, intercepted groundwater is discharged into the East Landfill Pond. After intercepted groundwater and groundwater/leachate from the landfill discharges to the landfill pond, it is retained within the pond where it evaporates either directly from the pond or from spray irrigation onto the hillsides adjacent to the pond. Groundwater originating upgradient from the landfill could reach the valley fill east of the pond by recharging the groundwater-intercept system which, through a system of valves and piping, can discharge to the unnamed tributary directly east of the East Landfill Pond. No groundwater-flow rates for valley-fill alluvium in the unnamed tributary have been calculated.

5.3.1 Potentiometric Surface

Groundwater potentiometric-head data calculated from depth-to-water measurements are presented in Appendix A. In general, the potentiometric surface at the Present Landfill was similar in first quarter 1993 to the first quarter of 1992. Water-table elevations were generally lower in the second, third, and fourth quarters of 1993 than in corresponding quarters of 1992. During the second quarter of 1993, potentiometric heads were approximately 5- to 7-feet lower outside the groundwater-intercept system than in 1992. Inside the groundwater-intercept system, potentiometric heads were approximately 2- to 4-feet lower in 1993 than in 1992. Potentiometric heads downgradient of the landfill were similar in 1993 to 1992. In general, greater differences

in potentiometric head occurred outside the groundwater-intercept system, although in both areas potentiometric heads were generally lower during 1993 than in 1992.

Seasonal fluctuation in potentiometric head within any single well at the Present Landfill was generally less than 3 feet. Isolated changes in potentiometric head greater than 3 feet were observed. The greatest fluctuations occurred in newly installed wells and deeper wells set in LHSU bedrock. In general, potentiometric heads in surficial deposits, including fill materials, were highest during the second quarter (April) and lowest during the fourth quarter (October).

Potentiometric-surface maps, Figures 5-2 through 5-5, for the UHSU at the Present Landfill indicate that the principal component of groundwater flow is downgradient toward the East Landfill Pond. Based on examination of potentiometric-surface contours, the East Landfill Pond dam appears to prevent migration of groundwater to the downgradient wells screened in the UHSU. Under the RCRA Facility Investigation (RFI) of Operable Unit No. 7, studies are underway to examine more closely the effectiveness of the dam.

In 1993, six wells were installed inside the landfill and two wells along the perimeter. These wells provide additional potentiometric data regarding the effectiveness of the groundwater-intercept/diversion system. The more detailed potentiometric-surface maps constructed for 1993 show higher water-table elevations in the northern part of the landfill along the groundwater-intercept system. The intercept system does not appear to function as effectively on the northwest side of the landfill as along the southwest side; groundwater appears to migrate into the landfill along the north side.

5.3.2 Vertical Hydraulic Gradients

Vertical gradients were calculated at the 12 well pairs listed in Table 5-2. Wells with overlapping screen intervals were not used to calculate vertical hydraulic gradients. Vertical gradient is the quotient of the differences in water levels measured concurrently in the two wells and the vertical distance between the two measuring points.

With one exception—well pair 72393/72093 in the center of the landfill—the calculated vertical gradients were all directed downward. The calculated vertical gradient at 72393/72093 was approximately 0.2 to 0.3 upward. Vertical gradients at the Present Landfill fluctuate during the year in response to seasonal changes in the potentiometric head in surficial materials. Vertical gradients ranging from 0.42 to 1.14 downward have been calculated for Wells 70493 and 70593. Vertical gradients ranging from 0.31 to 0.53 downward were calculated in Wells 6487 and B2016189 during 1993. The magnitudes of these gradients are similar to those calculated for 1992.

5.3.3 Average Linear Flow Velocities

Table 5-3 presents the calculated, average linear velocities of groundwater flow during the four quarters of 1993. The average linear groundwater-flow velocity was calculated for three flow paths in UHSU surficial materials, three flow paths in UHSU bedrock, and two flow paths in LHSU bedrock in the vicinity of the Present Landfill. Migration rates for conservative, dissolved constituents approximate the average linear groundwater-flow velocity; however, attenuated, volatile, biodegradable, or redox-sensitive species probably exhibit migration rates less than the average linear groundwater-flow velocity.

The values of hydraulic conductivity used for alluvial materials and bedrock of the UHSU, and bedrock of the LHSU, are the geometric means of hydraulic-conductivity values for each unit at the Present Landfill, and include results of recent slug tests. The value of hydraulic conductivity used for alluvial material (including landfill wastes) is 1.1×10^{-4} cm/sec. Previous flow-velocity calculations have used a hydraulic-conductivity value of 3.1 to 3.8×10^{-4} cm/sec. The value of hydraulic conductivity used for bedrock of the UHSU is 5.33×10^{-7} cm/sec, which is also slightly lower than the value used in previous reports (8.9×10^{-7} cm/sec). The value of hydraulic conductivity used for bedrock of the LHSU is 2.07×10^{-7} cm/sec. The assumed effective porosity for all units is 0.1 as used in previous reports. Calculated flow velocities for UHSU surficial materials in 1993 are slightly lower than previous years due to use of a lower value for hydraulic conductivity when calculating the 1993 flow velocities.

Calculated average linear-flow velocities in fill materials ranged from approximately 4 feet per year at the west end of the landfill to approximately 150 feet per year at the advancing face of the landfill. Calculated average linear-flow velocities in bedrock of the UHSU at the Present Landfill ranged from approximately 0.18 feet to 0.21 feet per year beneath the landfill to approximately 0.08 feet to 0.42 feet per year downgradient of the landfill. Calculated groundwater-flow velocities for UHSU bedrock in 1993 are also slower than 1992 average velocities for 1992. Calculated groundwater-flow velocities in bedrock of the LHSU at the Present Landfill ranged from approximately 0.00 feet to 0.08 feet per year beneath the landfill to approximately 0.08 feet per year downgradient of the landfill.

5.4 Groundwater Quality

Groundwater-quality data for surficial materials and bedrock of the UHSU are presented on computer disk in Appendix B. The following sections describe the statistical evaluation of downgradient groundwater quality with respect to upgradient groundwater quality, and the distribution of chemical parameters in groundwater in the vicinity of the Present Landfill.

5.4.1 Statistical Evaluation of Downgradient Groundwater Quality with Respect to Upgradient Groundwater Quality

Groundwater-quality data from monitoring wells located upgradient of the Present Landfill were compared to groundwater-quality data from monitoring wells located downgradient of the Present Landfill to assess potential contaminant releases to the uppermost aquifer from the RCRA-regulated unit. The comparisons between upgradient and downgradient groundwater quality were made using the statistical methodology discussed in Section 1.4.7. Statistical calculations using 1993 data from the Present Landfill are presented on computer disk in Appendix C and discussed below.

At the Present Landfill, seven wells (1086, 5887, 70093, 70193, 70393, 70493, and 70693) monitor upgradient groundwater-quality data in the UHSU immediately upgradient of the Present

Landfill. Of these wells, five are completed in surficial materials (Wells 1086, 5887, 70093, 70393, and 70693), and two (Wells 70193 and 70493) are completed in UHSU bedrock.

Three wells located east of the East Landfill Pond embankment monitor downgradient groundwater quality in the UHSU. These three wells are not located at the compliance boundary. However, their locations are consistent with the EPA amendment to 40 CFR 265.91 that allows alternate placement of monitoring wells downgradient of an interim-status facility where existing physical obstacles prevent installation of wells at the compliance boundary. Downgradient of the Present Landfill, three wells provide groundwater-quality data for the UHSU (Wells 4087, B206989, and B207089). Wells B206989 and B207089 monitor groundwater in the UHSU bedrock and Well 4087 monitors groundwater quality in UHSU surficial materials. However, because the East Landfill Pond dam depresses the potentiometric surface to the east, Well 4087 is frequently dry.

Statistical comparisons were made using 1993 groundwater-quality data from the entire UHSU and UHSU bedrock in the upgradient and downgradient wells listed in Table 5-4. Groundwater-quality data from downgradient UHSU surficial materials were not sufficient in number to conduct statistical tests.

No statistical comparisons were performed for analytes with less than 50-percent quantifiable results. The detectable concentrations of these parameters in groundwater downgradient of the RCRA unit are reported in Table 5-5. Dissolved copper and lead, and methylene chloride were each detected once; ammonia was detected twice in downgradient Well B207089. The concentration of these infrequently detected analytes is reported in Table 5-5. Unless verified by subsequent analyses, these infrequently detected analytes are not considered to indicate contamination.

Summaries of statistical comparisons of upgradient groundwater quality to downgradient groundwater quality are shown in Tables 5-6 and 5-7. For analytes with greater than 50-percent quantifiable results (Table 5-6), ANOVA testing indicated statistically significant differences at

the 5-percent significance level in upgradient versus downgradient groundwater quality in the UHSU for dissolved metals (calcium, lithium, magnesium, potassium, sodium, and strontium) and inorganic parameters (chloride and sulfate). In the UHSU bedrock (Table 5-7), ANOVA testing demonstrated statistically significant differences at the 5-percent significance level in upgradient versus downgradient groundwater quality for dissolved metals (calcium, lithium, magnesium, potassium, sodium, and strontium) and inorganic parameters (chloride and sulfate). Concentrations of radionuclides were not statistically different (at the 5-percent significance level) in upgradient versus downgradient groundwater from the entire UHSU or from UHSU bedrock. These results indicate that concentrations of some dissolved metals (calcium, lithium, magnesium, potassium, sodium, and strontium) and inorganic parameters (chloride and sulfate) are higher in groundwater downgradient of the landfill. Only one detection of a VOC (methylene chloride) occurred in UHSU groundwater downgradient of the Present Landfill.

5.4.2 Groundwater Quality in the Present Landfill Area

Water-quality data from the UHSU at the Present Landfill are presented on a computer disk in Appendix B. Selected analytes are depicted on concentration-isopleth maps and analyte-distribution maps in Figures 5-6 through 5-18. Analytes were selected for mapping based on the history of the waste operations at the unit, the occurrence of the analyte in downgradient wells during 1993, and the frequency of detections during 1993.

Radionuclides were detected in groundwater from both surficial materials and bedrock of the UHSU upgradient and downgradient of the Present Landfill. Radionuclides were also detected in groundwater within landfill wastes. Species detected in groundwater from UHSU surficial materials and landfill wastes include gross alpha; gross beta; tritium; cesium-137; radium-226; radium-228; strontium-89,89; uranium-233,234; uranium-235; uranium-238; americium-241; and plutonium-239,240. With the exception of cesium-137, these radionuclides were also detected in groundwater from bedrock of the UHSU. The mean activities of background gross beta; tritium; radium-226; strontium-89,90; americium-241; and plutonium-239,240 were exceeded

in groundwater from both UHSU surficial materials and landfill wastes. The mean activities of background radium-226 and radium-228 were exceeded in groundwater from UHSU bedrock.

The highest activities of radionuclides were found in the central portion of the landfill, most notably at Wells 72093 and 72393. These wells are located approximately 10 feet apart and both are screened in landfill wastes. Radionuclide activities of groundwater from these two wells were as much as 16 pCi/L for gross alpha; 8 to 15 pCi/L for gross beta; 2,620 to 3,500 pCi/L for tritium; 0.82 to 1.9 pCi/L for radium-226; 0.45 to 3.83 pCi/L for strontium-89,90; 0.055 to 0.34 pCi/L for americium-241; and 0.28 to 1.2 pCi/L for plutonium-239,240.

VOCs were detected in UHSU groundwater within and adjacent to the Present Landfill. The VOCs detected include 1,1-DCA; 1,1-DCE; 1,2-DCE; 1,1-TCA; 1,1,1-TCA; 1,1,2-TCA; TCE; PCE; chloroethane; 2-butanone; 2-hexanone; 4-methyl-2-pentanone; 1,2-dichloropropane; bromodichloromethane; CCl_4; methylene chloride; vinyl chloride; benzene; ethylbenzene; cholorobenzene; acetone; toluene; total xylenes; and carbon disulfide. The maximum concentrations of VOCs in UHSU groundwater at the Present Landfill occurred within landfill materials and south of the landfill adjacent to IHSSs Nos. 166.1, 166.2, and 166.3 as shown in Figures 5-14 and 5-15. VOCs were also most frequently detected in these areas. The downgradient well screened in UHSU surficial materials is often dry and, therefore, rarely sampled. No VOC data were available from this well.

VOCs were detected infrequently and at low concentrations in groundwater from UHSU bedrock. Methylene chloride was detected in Wells 70493 (3 μg/L), B206289 (2 μg/L), and B207089 (2 μg/L). In addition, 4-methyl-2-pentanone, acetone, and CCl_4 were each detected once. The only VOC detection reported in UHSU-bedrock groundwater downgradient of the landfill was methylene chloride, which was detected once at Well B207089.

VOCs were also detected in groundwater upgradient of the landfill. Wells 5887 and 70393, both screened in surficial materials, and Well 70493 screened in bedrock of the UHSU all reported detections of VOCs, including TCE; PCE; 1,1,1-TCA; 1,1-DCA; and methylene chloride.

Concentrations ranged from below 1 μg/L to 47 μg/L. These results indicate that an upgradient source of VOC contamination may be present.

Concentration-isopleth maps showing the distribution of TDS, chloride, and calcium at the Present Landfill are presented in Figures 5-16, 5-17, and 5-18, respectively. These maps indicate that the maximum concentrations of these major inorganic parameters were present in groundwater within the central portion of the landfill. Concentrations at Well 72293, located at the center of the east face of the landfill, ranged from 210 to 285 mg/L chloride, 1,700 to 3,700 mg/L TDS, and 236 to 566 mg/L calcium. Concentrations of chloride and TDS were also elevated with respect to background concentrations at the downgradient Wells B206889 and B207089 located east of the East Landfill Pond. Statistical tests show that the concentrations of TDS and calcium were significantly greater (at the 5-percent significance level) downgradient of the Present Landfill relative to upgradient concentrations.

Time-series plots compiled for plutonium-239,240; methylene chloride; chloride; TDS; and sulfate show no trends in the concentrations of these parameters through time (1990-1993) in UHSU groundwater downgradient of the landfill. The time-series plot and CUSUM control chart for calcium at Well B206789 (a UHSU-bedrock well) both show a trend toward increasing calcium concentrations through time.

5.5 Conclusions

Potentiometric-surface maps of the Present Landfill vicinity show that the elevation of the water table was lower inside the groundwater-intercept/diversion system than outside during 1993. Within the landfill, groundwater elevations were higher on the north side than on the south side of the landfill, suggesting that the groundwater-diversion system performs more effectively on the southwest side of the landfill than on the northwest side.

Statistical comparisons of upgradient versus downgradient UHSU groundwater at the Present Landfill indicate statistically significant increases in downgradient concentrations of calcium,

lithium, magnesium, potassium, sodium, strontium, chloride, and sulfate. None of the radionuclides or VOCs show a statistically significant difference in upgradient versus downgradient concentrations.

Radionuclide activities and concentrations of VOCs, metals, and inorganic parameters were notably highest within the landfill and in the area adjacent to IHSSs located southeast of the landfill relative to other areas in the vicinity of the Present Landfill. Concentrations of VOCs and radionuclides were higher in the central portion of the landfill than in other areas within the landfill. VOCs were detected infrequently in groundwater from UHSU bedrock beneath and downgradient of the landfill, but radionuclides were present at activities higher than background in UHSU-bedrock groundwater.

Conditions at the Present Landfill in 1993 appear generally consistent with those of 1992. However, in 1993, fewer metals and inorganic parameters, and no radionuclides, displayed statistically significant increases in concentration downgradient of the RCRA-regulated unit. This may be the result of different data populations being available for statistical analysis. The groundwater-intercept system appears effective in limiting the downgradient transport of contaminants. Contaminants detected in monitoring wells southeast of the Present Landfill may be due to an inadequately functioning groundwater-intercept system in this area, emplacement of wastes beyond the limit of the intercept system, or impacts associated with other IHSSs adjacent to the landfill.

6.0 GROUNDWATER-MONITORING ACTIVITIES ASSESSMENT

Groundwater monitoring at the three RCRA-regulated units at RFP continues under interim-status guidelines for compliance monitoring. Groundwater-monitoring activities at the regulated units will be evaluated further as more hydrologic and analytical data become available and if there are changes in the nature, extent, and migration characteristics of contaminants. The purpose of this portion of the RCRA Groundwater Monitoring Report is to evaluate the effectiveness of the monitoring program and to provide a mechanism for establishing recommendations for future monitoring activities at RCRA-regulated units. Recommendations made in this report, and those that will be made in subsequent RCRA Groundwater Monitoring reports, are based on interpretations of the data contained in the annual RCRA reports. As pertinent information becomes available through other investigations, additional recommendations may be made in the 1993 RCRA Groundwater Monitoring Report Addendum and other reports.

The methodology used to assess groundwater-monitoring activities includes the following appraisal of existing monitoring wells:

- Appropriateness of location to fulfill required purpose: either monitoring of upgradient groundwater quality, monitoring of groundwater quality at the compliance boundary, monitoring of the nature and extent of contamination, or characterization of hydrogeologic/aquifer characteristics.

- Hydrostratigraphic unit in which the monitoring well is screened.

- Completeness of well-construction record.

- Physical condition of the monitoring well.

- Usefulness of the analyte concentrations determined at each well location. The analyte suite should meet regulatory requirements, reflect the history and past

activities at the regulated unit, and be based on both needs in light of data from previous geochemical investigations.

- The sampling frequency at each well and its relevance to the monitoring program at that regulated unit.

6.1 Results of the 1993 Well Evaluation Project

A well-evaluation project was recently undertaken at RFP. The project has a three-phase approach for the evaluation of existing wells and the removal of unnecessary wells. All wells at RFP, including RCRA wells, are to be evaluated as part of this project.

Phases I and II of the well evaluation have been implemented. The result of the first two phases was abandonment of wells having physical damage, incomplete well-construction details, insufficient yield for sampling water, high pH associated with improper well construction, and wells that are redundant with other wells. Twelve RCRA wells (six at the Solar Evaporation Ponds and Six at the Present Landfill) were abandoned in 1993 based on these criteria. Four of the six wells abandoned at the Solar Evaporation Ponds were replaced with new wells at the same locations. Maintenance, abandonment, and replacement of monitoring wells are performed under DOE's well abandonment and replacement program (WARP). A list of the wells abandoned under WARP was provided in the 1993 Well Evaluation Report (EG&G, 1993a).

Phase III was initiated in 1993 to determine whether the existing groundwater-monitoring program at RFP met regulatory requirements and sitewide programmatic goals. One conclusion of this evaluation was that the existing monitoring program meets the regulatory requirements for groundwater monitoring at the three RCRA-regulated units. The Well Evaluation Report (EG&G, 1993a) presented recommendations for the design of a sitewide monitoring program and for additional geologic, hydrologic, and geochemical characterization activities.

Recommendations include:

- Monitoring water levels in most wells on a quarterly basis and monitoring water levels in a select number of wells (95) on a monthly basis.

- Collection of groundwater samples from 142 existing wells on a semiannual basis, and collection of groundwater samples from 158 existing wells on a quarterly basis. Wells recommended for semiannual sampling will provide data to detect contaminant releases, monitor predicted contaminant-migration pathways, delineate the nature and extent of groundwater contamination, and quantify contaminant migration rates. Included in the wells recommended for quarterly sampling are wells required for compliance with RCRA at the three RCRA-regulated units and additional characterization wells at RCRA units. Quarterly sampling of the RCRA wells is required by secs. 265.94(a) and 265.94(b).

- Samples collected quarterly from RCRA-regulated units would be analyzed for a slightly reduced suite of chemicals compared to the existing analytical suite. The proposed analyte list is identical to the list currently in use except that radium, strontium, and cesium radionuclides are not included.

Additional site-characterization and data-evaluation activities were also recommended. Recommendations that apply to groundwater monitoring at RCRA-regulated units are:

- Further characterize the bedrock paleotopographic surface to determine its effect on groundwater flow.

- Determine the ranges of hydraulic conductivities and calculate the average hydraulic parameters for lithostratigraphic units to characterize the upper hydrostratigraphic unit (UHSU) at RFP.

- Further characterize vertical hydraulic gradients.

- Further evaluate contaminant concentrations in groundwater upgradient and downgradient of the Interceptor Trench System at the Solar Evaporation Ponds to assess its performance.

- Initiate a program to analyze select groundwater samples for Appendix IX constituents to determine the presence or absence of contaminants and thus better define an appropriate analytical suite for groundwater samples.

- Evaluate the adequacy of the EMD Operating Procedure for water-level measurements (EMD Operating Procedure GW.01—Water Level Measurements in Wells and Piezometers; EG&G, 1991c) to ensure that water levels in low-yield wells have fully recovered after sampling before new water-level measurements are obtained and to verify that water retained in well sumps is not misinterpreted as representing actual groundwater elevations.

6.2 Recommendations

Additional recommendations concerning all three RCRA-regulated units include:

- Update geologic, hydrologic, and geochemical data available at locations of RCRA-monitoring wells and classify each well by hydrostratigraphic unit. Continue to monitor groundwater flow and groundwater quality within the UHSU.

- Reduce the number of analytes used to perform comparisons of upgradient groundwater to downgradient groundwater quality to those analytes that can be used as indicators of contaminant releases from the RCRA-regulated unit. This approach is consistent with current EPA guidance for groundwater monitoring at RCRA facilities (EPA, 1992a).

Recommendations specific to groundwater monitoring at the individual RCRA units follow.

6.2.1 Monitoring at the Solar Evaporation Ponds

Recommendations for changes to the RCRA groundwater monitoring for the Solar Evaporation Ponds include the following:

- Install additional groundwater-monitoring well(s) in surficial materials upgradient of the ponds to collect groundwater-quality data for statistical comparisons.

- Install groundwater-monitoring well(s) within and immediately downgradient of the Interceptor Trench System for sampling groundwater in UHSU bedrock. The wells would provide data used to evaluate contaminant transport within the UHSU from the Solar Evaporation Ponds toward North Walnut Creek.

- Install piezometer(s) in surficial materials between the ponds and the Interceptor Trench System. The piezometers would provide groundwater-elevation data to describe the extent and direction of saturated flow in surficial materials adjacent to the Solar Evaporation Ponds.

6.2.2 Monitoring at the West Spray Field

Recommendations for changes to RCRA groundwater monitoring for the West Spray Field include:

- Install additional well(s) further west (upgradient) of the existing upgradient wells to confirm the presence or absence of upgradient sources of nitrate/nitrite and uranium.

- Install nested wells (or well clusters) at discrete depths upgradient of the West Spray Field. Data from these wells would be used to identify vertical concentration gradients in groundwater, if present.

6.2.3 Monitoring at the Present Landfill

Recommendations for changes to RCRA groundwater monitoring for the Present Landfill include:

- Replace abandoned Well 6387 and continue monitoring depth to water and groundwater quality at this location. The replacement well would provide additional data used to assess the effectiveness of the groundwater-intercept system.

- Evaluate effectiveness of groundwater-intercept system and slurry wall in the area southeast of the landfill adjacent to IHSSs 166.1, 166.2, and 166.3. If the intercept system and slurry wall are effective in preventing migration of contaminants from the landfill, then the IHSSs east of the landfill may be the source of contaminants in groundwater southeast of the landfill.

7.0 REFERENCES

Abbreviations

DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency

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TABLES

Table 1-1 Installation of Monitoring Wells at the Rocky Flats Plant

Year	Total Number of Wells Installed	Number of RCRA Wells Installed		
		Solar Evaporation Ponds	West Spray Field	Present Landfill
1986	71	19	5	4
1987	67	4	-	16
1988	-	-	-	-
1989	163	37	8	13
1990	17	-	-	-
1991	143	-	-	-
1992	38	-	3	-
1993	42	4	-	-

Table 1-2 Comparison of Hazardous Substance List (HSL) and Target Compound List (TCL)

	HSL	TCL
VOLATILE ORGANIC COMPOUNDS		
Chloromethane/Methyl chloride	x	x
Bromomethane/Methyl bromide	x	x
Vinyl chloride	x	x
Chloroethane/Ethyl chloride	x	x
Methylene chloride/Dichloromethane	x	x
Acetone	x	x
Carbon disulfide	x	x
1,1-Dichloroethene/1,1-Dichloroethylene	x	x
1,1-Dichloroethane/Ethylene dichloride	x	x
1,2-Dichloroethene (total)	x	x
Chloroform	x	x
1,2-Dichloroethane/Ethylene dichloride	x	x
2-Butanone/Methyl ethyl ketone/MEK	x	x
1,1,1-Trichloroethane/Methyl chloroform	x	x
Carbon tetrachloride	x	x
Vinyl acetate	x	x
Bromodichloromethane	x	x
1,2-Dichloropropane	x	x
cis-1,3-Dichloropropene	x	x
Trichloroethene/Trichloroethylene	x	x
Dibromochloromethane/Chlorodibromomethane	x	x
1,1,2-Trichloroethane	x	x
Benzene	x	x
trans-1,3-Dichloropropene	x	x
2-Chloroethyl vinyl ether	x	
Bromoform/Tribromomethane	x	x
4-Methyl-2-pentanone/MIBK	x	x
2-Hexanone	x	x
Tetrachloroethene/PCE/Tetrachloroethylene	x	x
1,1,2,2-Tetrachloroethane	x	x
Toluene	x	x
Chlorobenzene	x	x
Ethylbenzene	x	x
Styrene	x	x
Xylene (total)	x	x
SEMI-VOLATILE ORGANIC COMPOUNDS		
Phenol	x	x
bis-(2-Chloroethyl) ether	x	x
2-Chlorophenol/o-Chlorophenol	x	x
1,3-Dichlorobenzene/m-Dichlorobenzene	x	x
1,4-Dichlorobenzene/p-Dichlorobenzene	x	x

Table 1-2 Comparison of Hazardous Substance List (HSL) and Target Compound List (TCL) (continued)

	HSL	TCL
Benzyl alcohol	x	x
1,2-Dichlorobenzene/o-Dichlorobenzene	x	x
2-Methylphenol/o-Cresol	x	x
bis (2-Chloroisopropyl) ether	x	x
4-Methylphenol/p-Cresol	x	x
N-Nitroso-di-n-propylamine	x	x
Hexachloroethane	x	x
Nitrobenzene	x	x
Isophorone	x	x
2-Nitrophenol/o-Nitrophenol	x	x
2,4-Dimethylphenol	x	x
Benzoic Acid	x	x
bis(2-Chloroethoxy)methane	x	x
2,4-Dichlorophenol	x	x
1,2,4-Trichlorobenzene	x	x
Naphthalene	x	x
4-Chloroaniline/p-Chloroaniline	x	x
Hexachlorobutadiene	x	x
4-Chloro-3-methylphenol/p-Chloro-m-cresol	x	x
2-Methylnaphthalene	x	x
Hexachlorocyclopentadiene	x	x
2,4,6-Trichlorophenol	x	x
2,4,5-Trichlorophenol	x	x
2-Chloronaphthalene	x	x
2-Nitroaniline/o-Nitroaniline	x	x
Dimethylphthalate	x	x
Acenaphthylene	x	x
2,6-Dinitrotoluene	x	x
3-Nitroaniline/m-Nitroaniline	x	x
4-Nitrophenol/p-Nitroaniline	x	x
4-Nitrophenol/p-Nitrophenol	x	x
Dibenzofuran	x	x
2,4-Dinitrotoluene	x	x
Diethylphthalate	x	x
4-Chlorophenyl-phenylether	x	x
Fluorene	x	x
4-Nitroaniline/p-Nitroaniline	x	x
4,6-Dinitro-2-methylphenol	x	x
N-Nitrosodiphenylamine	x	x
4-Bromophenyl-phenylether	x	x
Hexachlorobenzene	x	x
Pentachlorophenol	x	x
Phenanthrene	x	x
Anthracene	x	x
Di-n-Butylphthalate	x	x

Table 1-2 Comparison of Hazardous Substance List (HSL) and Target Compound List (TCL) (continued)

	HSL	TCL
Floranthene	x	x
Benzidiene	x	
Pyrene	x	x
Butylbenzylphthalate	x	x
3,3'-Dichlorobenzidine	x	x
Benzo [a] anthracene/1,2-Benzanthracene	x	x
Chrysene	x	x
bis (2-Ethylhexyl) phthalate	x	x
Di-n-octylphthalate	x	x
Benzo [b] fluoranthene	x	x
Benzo [k] fluoranthene	x	x
Benzo [a] pyrene	x	x
Ideno [1,2,3-cd] pyrene	x	x
Dibenz [a,h] anthracene	x	x
Benzo [ghi] perylene	x	x
PESTICIDE/PCBs		
alpha-BHC	x	x
beta-BHC	x	x
delta-BHC	x	x
gamma-BHC/Lindane	x	x
Heptachlor	x	x
Aldrin	x	x
Heptachlor epoxide	x	x
Endosulfan I	x	x
Dieldrin	x	x
4,4'-DDE	x	x
Endrin	x	x
Endosulfan II	x	x
4,4'-DDD	x	x
Endosulfan sulfate	x	x
4,4'-DDT	x	x
Methoxychlor	x	x
Endrin ketone	x	x
alpha-Chlordane (shown as total on Appendix IX and HSL)		x
gamma-Chlordane (shown as total on Appendix IX and HSL)		x
Toxaphene/Camphechlor	x	x
Aroclor-1016 (shown as total on Appendix IX)	x	x
Aroclor-1221 (shown as total on Appendix IX)	x	x
Aroclor-1232 (shown as total on Appendix IX)	x	x
Aroclor-1242 (shown as total on Appendix IX)	x	x
Aroclor-1248 (shown as total on Appendix IX)	x	x

Table 1-2 Comparison of Hazardous Substance List (HSL) and Target Compound List (TCL) (continued)

	HSL	TCL
Aroclor-1254 (shown as total on Appendix IX)	x	x
Aroclor-1260 (shown as total on Appendix IX)	x	x
Endrin aldehyde	x	
TAL METALS[1]		
Aluminum	x	x
Antimony	x	x
Arsenic	x	x
Barium	x	x
Beryllium	x	x
Cadmium	x	x
Calcium	x	x
Chromium	x	x
Cobalt	x	x
Copper	x	x
Iron	x	x
Lead	x	x
Magnesium	x	x
Manganese	x	x
Mercury	x	x
Nickel	x	x
Potassium	x	x
Selenium	x	x
Silver	x	x
Sodium	x	x
Thallium	x	x
Tin	x	
Vanadium	x	x
Zinc	x	x
Cyanide		x
Sulfide		

[1]Current analytical program includes cesium, chromium (VI), lithium, molybdenum, and strontium which are non-Appendix IX and non-Target Analyte List (TAL) constituents. It also includes analysis for tin, a non-TAL constituent.

Table 1-3 Chemical Constituents Monitored in Groundwater During 1993

FIELD PARAMETERS

pH
Specific Conductance
Temperature
Dissolved Oxygen
Alkalinity

INDICATORS

Total Dissolved Solids (TDS)
Total Suspended Solids (TSS)
pH[1]

METALS

Target Analyte List
- Aluminum (Al)
- Antimony (Sb)
- Arsenic (As)
- Barium (Ba)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)[2]
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Mercury (Hg)
- Nickel (Ni)
- Potassium (K)
- Selenium (Se)
- Silver (Ag)
- Sodium (Na)
- Thallium (Tl)
- Vanadium (V)
- Zinc (Zn)

Cesium (Cs)
Lithium (Li)[3]
Molybdenum (Mo)
Strontium (Sr)
Tin (Sn)[1]

Table 1-3 Chemical Constituents Monitored in Groundwater During 1993 (continued)

ANIONS

Carbonate (CO_3)
Bicarbonate (HCO_3)
Chloride (Cl)
Fluoride (F)
Sulfate (SO_4)
Nitrate/Nitrite (NO_2/NO_3)
Cyanide (as N) [4]

VOLATILE ORGANIC COMPOUNDS[5]

Target Compound List - Volatiles:

- Chloromethane (CH_3CL)
- Bromomethane (CH_3Br)
- Vinyl Chloride (C_2H_3CL)
- Chloroethane (C_2H_5Cl)
- Methylene Chloride (CH_2CL_2)
- Acetone
- Carbon Disulfide
- 1,1-Dichloroethane (1,1-DCA)
- 1,1,-Dichloroethene (1,1-DCE)
- trans-1,2-Dichloroethene
- 1,2-Dichloroethene (total) (total 1,2-DCE)
- Chloroform ($CHCl_3$)
- 1,2-Dichloroethane (1,2-DCA)
- 2-Butanone (MEK)
- 1,1,1-Trichloroethane (1,1,1-TCA)
- Carbon Tetrachloride (CCL_4)
- Vinyl Acetate
- Bromodichloromethane
- 1,1,2,2-Tetrachloroethane
- 1,2-Dichloropropane (1,2-DCP)
- trans-1,3-Dichloropropene
- Trichloroethylene (TCE)
- Dibromochloromethane
- 1,1,2-Trichloroethane
- Benzene
- cis-1,3-Dichloropropene
- Bromoform(CBr_4)
- 2-Hexanone
- 4-Methyl-2-pentanone
- Tetrachloroethene (PCE)
- Toluene (C_7H_8)
- Chlorobenzene (C_6H_5CL)
- Ethyl Benzene
- Styrene
- Xylenes (Total)

Table 1-3 Chemical Constituents Monitored in Groundwater During 1993 (continued)

RADIONUCLIDES[6]
Gross Alpha
Gross Beta
Uranium 233+234; 234; 235; and 238 (U-233,234, 235, and 238) - dissolved
Americium 241 (Am-241) - total
Plutonium 239+240 (Pu-239,240) - total
Strontium 89+90[7] (Sr-89,90)[8] - dissolved
Cesium 137 (Cs-137) - total
Tritium
Radium 226; 228 (Ra-226,228) - dissolved

[1]Not analyzed prior to 1989.
[2]Analyses in 1990 are for total chromium. Chromium (IV) was analyzed during fourth quarter 1987 only.
[3]Prior to 1989, lithium was only analyzed during fourth quarter 1987 and first quarter 1988.
[4]Cyanide was not analyzed during fourth quarter 1987.
[5]Not analyzed in background samples in 1989.
[6]Dissolved radionuclides replaced total radionuclides (except tritium) beginning with the third quarter 1987. During 1991 and 1992, total concentrations of Am-241, Pu-239,240, and tritium were analyzed.
[7]Strontium 89+90 was not analyzed during first quarter 1988.
[8]Not analyzed prior to 1989 and only analyzed if gross alpha exceeds 5 pCi/l.

Table 1-4 Background Groundwater Quality in the Upper Hydrostratigraphic Unit

	Analyte	Dissolved (D) or Total (T)	Mean Background Concentration	Standard Deviation	Units	Sample Size, n
METALS						
	Aluminum	D	59.52	87.29	µg/L	246
	Antimony	D	17.34	11.10	µg/L	248
	Arsenic	D	1.63	1.84	µg/L	220
	Barium	D	83.42	34.56	µg/L	256
	Beryllium	D	1.01	0.83	µg/L	212
	Cadmium	D	1.73	1.26	µg/L	240
	Calcium	D	55,414.55	32,564.11	µg/L	256
	Cesium	D	202.20	285.69	µg/L	211
	Chromium	D	4.84	3.80	µg/L	250
	Cobalt	D	6.60	9.04	µg/L	231
	Copper	D	5.01	4.42	µg/L	248
	Cyanide	D	5.83	3.82	µg/L	3
	Iron	D	56.26	113.44	µg/L	255
	Lead	D	1.59	4.71	µg/L	251
	Lithium	D	33.95	54.30	µg/L	250
	Magnesium	D	10,038.28	8,309.40	µg/L	253
	Manganese	D	27.47	67.43	µg/L	255
	Mercury	D	0.11	0.07	µg/L	207
	Molybdenum	D	19.64	33.94	µg/L	241
	Nickel	D	7.01	7.18	µg/L	236
	Phosphorus	D	167.00	52.43	µg/L	8
	Potassium	D	1,371.50	1,069.01	µg/L	252
	Selenium	D	5.58	19.07	µg/L	219
	Silver	D	2.84	2.12	µg/L	235
	Sodium	D	32,012.98	43,667.67	µg/L	254
	Strontium	D	323.60	303.58	µg/L	252
	Thallium	D	1.64	1.63	µg/L	212
	Tin	D	30.96	37.34	µg/L	235
	Vanadium	D	7.92	8.73	µg/L	249
	Zinc	D	14.03	17.87	µg/L	256
RADIONUCLIDES						
	Gross Alpha	D	8.35	32.32	pCi/L	213
	Gross Beta	D	4.89	12.23	pCi/L	196
	Radium-226	D	0.26	0.11	pCi/L	36
	Radium-228	D	2.12	0.52	pCi/L	6
	Strontium-89,90	D	0.34	0.31	pCi/L	180
	Uranium-233,234	D	6.23	23.94	pCi/L	205
	Uranium-235	D	0.20	0.64	pCi/L	207
	Uranium-238	D	4.77	17.71	pCi/L	176
	Americium-241	T	0.01	0.01	pCi/L	183
	Cesium-137	T	0.12	0.33	pCi/L	156
	Plutonium-239,240	T	0.00	0.02	pCi/L	194
	Tritium	T	162.14	225.49	pCi/L	83
WATER QUALITY						
	Alkalinity as $CaCO_3$	T	156,900.00	158,643.41	µg/L	3
	Bicarbonate	T	223,807.08	151,717.58	µg/L	311
	Carbonate	T	1,824.96	3,479.53	µg/L	300

Table 1-4 Background Groundwater Quality in the Upper Hydrostratigraphic Unit (continued)

Analyte	Dissolved (D) or Total (T)	Mean Background Concentration	Standard Deviation	Units	Sample Size, n
Chloride	T	12,241.67	12,930.51	µg/L	257
Cyanide	T	7.94	5.01	µg/L	66
Fluoride	T	611.07	472.04	µg/L	300
Nitrate/Nitrite	T	1,048.34	1,807.86	µg/L	305
Nitrite	T	27.94	38.25	µg/L	54
Orthophosphate	T	15.05	17.47	µg/L	191
pH	T	7.17	0.46	pH	3
Phosphorus	T	39.45	41.60	µg/L	56
Silica	T	14,082.92	8,075.96	µg/L	274
Sodium Nitrite	T	20.00	-	µg/L	1
Sulfate	T	86,370.14	174,613.96	µg/L	278
Total Suspended Solids	T	133,396.64	429,323.86	µg/L	301
Total Dissolved Solids	T	355,495.44	312,010.29	µg/L	310
Total Solids	T	24,025.00	36,789.98	µg/L	4

Notes: Data obtained from Background Geochemical Characterization Report (EG&G, 1993).

Table 2-1 Data-Validation Summary

Analyte Group	Total Number of Results	Number Validated	(Number Rejected)	Percent Validated	(Percent Rejected)
Dissolved Metals	8,398	7,006	(57)	83.4	(0.7)
Total Metals	3,468	2,975	(30)	85.8	(0.9)
Dissolved Radionuclides	2,190	1,293	(11)	59.0	(0.5)
Total Radionuclides	970	470	(13)	48.5	(1.3)
Volatile Organic Compounds	3,596	3,120	(9)	86.8	(0.3)
Water Quality Parameters and Anions	22,538	17,118	(400)	76.0	(1.8)
TOTAL	41,160	31,982	(520)	78.0	(1.3)

Table 2-2 Analytes Detected in Rinsate Samples

	Parameter	Frequency Detected[2]	Mean Result (μg/L)
METALS			
	Aluminum	3/24	72
	Arsenic	2/24	4
	Cadmium	1/24	2
	Calcium[1]	10/24	947
	Copper	3/24	9
	Iron	5/24	40
	Lead	1/23	1
	Magnesium	1/24	1591
	Manganese[1]	10/24	3
	Potassium	1/24	1920
	Silicon	4/24	53
	Silver	1/24	4
	Sodium[1]	11/24	970
	Strontium	1/24	67
	Zinc[1]	13/24	75
VOLATILE ORGANIC COMPOUNDS			
	4-methyl-2-pentanone	1/19	5
	Carbon Tetrachloride	1/22	2
	Methylene Chloride	2/22	2
	Toluene	4/22	2
	Trichloroethene	1/22	2
WATER QUALITY PARAMETERS AND MAJOR IONS			
	Ammonia[1]	5/9	129
	Bicarbonate as $CaCO_3$[1]	12/19	4000
	Carbonate	1/19	1868
	Nitrate/Nitrite	5/18	44
	Sulfide	1/3	8333
	Total Dissolved Solids	3/19	8158
	Total Organic Carbon	1/17	529
	Total Suspended Solids	3/20	3475

[1]Detected in more than 30% of the rinsate samples
[2]Presented as number of detections/number of samples

Table 2-3 Summary of Data Accountability for 1993 RCRA Groundwater Monitoring Program

SOLAR EVAPORATION PONDS

Stratigraphic			Groundwater Potentiometric Heads				Metals				Radionuclides				VOCs				Inorganics				
Well ID	Unit[1]		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	COMMENTS
1386	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	✓	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
1486	B/L	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
1586	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
1686	B/L	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	ND	✓	
1786	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
1886	A/U	RCRA Regulatory Well	DRY	✓	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2086	A/U	RCRA Regulatory Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 4/26/93
2286	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	ND	
2386	B/L	RCRA Characterization Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
2486	A/U	RCRA Regulatory Well	DRY	✓	DRY	DRY	ND	ND	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	
2586	B/L	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
2686	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
2786	B/L	RCRA Characterization Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
2886	AB	RCRA Regulatory Well	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 4/27/93
2986	A/U	RCRA Regulatory Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
3086	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	ND	
3186	B/U	RCRA Regulatory Well	DRY	ND	DRY	DRY	ND 5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
3286	B/L	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
3386	A/U	RCRA Regulatory Well	ND	✓	✓	DRY	ND	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	ND	ND	✓	ND	ND	
3486	B/L	CERCLA Characterization Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
3586	A/U	CERCLA Characterization Well	✓	✓	✓	✓	ND	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
3686	A/U	CERCLA Characterization Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	ND	ND	ND	✓	ND	ND	
2187	A/U	CERCLA Characterization Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	✓	ND	✓	✓	ND	ND	
2287	B/L	CERCLA Characterization Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	ND	ND	
3787	A/U	RCRA Regulatory Well	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 4/27/93
3887	A/U	RCRA Regulatory Well	✓	✓	DRY	DRY	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	
3987	B/L	RCRA Characterization Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	
5687	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P207389	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
P207489	A/U	RCRA Regulatory Well	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 5/11/93
P207589	B/U	RCRA Regulatory Well	✓	DRY	DRY	DRY	ND	ND	ND	ND	✓	ND	ND	ND	✓	✓	ND	✓	✓	ND	ND	ND	
P207689	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
P207789	B/U	RCRA Regulatory Well	✓	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	
P207889	A/U	RCRA Regulatory Well	✓	✓	✓	DRY	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
P207989	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
B208089	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	✓	ND	ND	ND	✓	✓	✓	ND	✓	✓	✓	
B208189	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	✓	
B208289	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	ND	ND	ND	ND	
B208389	B/U	RCRA Regulatory Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
B208489	B/U	RCRA Regulatory Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
B208589	A/U	RCRA Regulatory Well	✓	✓	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
B208689	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	ND	
B208789	A/U	RCRA Regulatory Well	DRY	DRY	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P208889	B/L	RCRA Characterization Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P208989	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	✓	
P209089	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	ND	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P209189	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	
P209289	A/U	RCRA Regulatory Well	DRY	✓	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	
P209389	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
P209489	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P209589	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
P209689	B/U	RCRA Regulatory Well	✓	DRY	DRY	DRY	ND	ND	ND	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	ND	ND	ND	
P209789	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P209889	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P209989	A/U	RCRA Regulatory Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned
P210089	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	✓	ND	✓	ND	✓	ND	✓	ND	✓	✓	✓	ND	✓	ND	
P210189	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	✓	
P210289	B/U	RCRA Regulatory Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 4/27/93
B210389	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	
B210489	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
P213789	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P213889	B/U	RCRA Regulatory Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P213989	A/U	RCRA Regulatory Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P218089	A/U	Special Purpose Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	
P218389	A/U	RCRA Regulatory Well	✓	✓	✓	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P219089	A/U - B/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	inactive well
P219189	A/U	Special Purpose Well	✓	✓	DRY	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P219489	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P219589	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
75892	A/U	CERCLA Characterization Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
75992	A/U	CERCLA Characterization Well	ND	✓	✓	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	ND	ND	ND	ND	ND	
76192	A/U	CERCLA Characterization Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
76292	B/U	CERCLA Characterization Well	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	ND	
05093	A/U	RCRA Regulatory Well	ND	ND	✓	✓	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	✓	✓	ND	✓	ND	ND	
05193	A/U	RCRA Regulatory Well	ND	ND	✓	✓	ND	ND	ND	ND	ND	✓	ND	ND	ND	✓	✓	✓	ND	✓	ND	ND	
05293	A/U	RCRA Regulatory Well	ND	ND	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
05393	B/U	RCRA Regulatory Well	ND	ND	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

ND = No data available January 4, 1994

[1] A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

Table 2-3 Summary of Data Accountability for 1993 RCRA Groundwater Monitoring Program

WEST SPRAY FIELD

Stratigraphic			Groundwater Potentiometric Heads				Metals				Radionuclides				VOCs				Inorganics				
Well ID	Unit[1]		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	COMMENTS
4586	A/U	CERCLA Characterization Well	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 6/7/93
4686	B/L	Special Purpose Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	ND	ND	
4786	A/U	Special Purpose Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
4886	B/L	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	ND	ND	
4986	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
5086	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	✓	
5186	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
5286	B/U	RCRA Characterization Well	✓	✓	✓	✓	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	
5686	A/U	CERCLA Characterization Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	ND	
B110889	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
B110989	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	ND	✓	ND	✓	✓	✓	ND	
B111189	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P114389	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P114489	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P114589	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P114989	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P115089	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P115189	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
B402689	A/U	Background Characterization Well	DRY	✓	DRY	DRY	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	
B410589	A/U	RCRA Regulatory Well	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	
B410689	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
B410789	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	✓	
B411289	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
B411389	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
P415889	A/U	Special Purpose Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P415989	A/U	Special Purpose Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	
P416089	A/U	Special Purpose Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	
P416189	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P416289	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P416389	A/U	Special Purpose Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	
P416489	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P416589	A/U	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
P416989	B/L	Special Purpose Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
0190	A/U	Special Purpose Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
0390	A/U	Special Purpose Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
1490	A/U	Special Purpose Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
03092	A/U	Special Purpose Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
03192	A/U	Special Purpose Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
46192	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
46292	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
46392	B/U	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	ND	ND	
46492	A/U	CERCLA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	ND	ND	

ND = No data available January 4, 1994

[1] A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

Table 2-3 Summary of Data Accountability for 1993 RCRA Groundwater Monitoring Program

PRESENT LANDFILL

Stratigraphic			Groundwater Potentiometric Heads				Metals				Radionuclides				VOCs				Inorganics				
Well ID	Unit[1]		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	COMMENTS
0586	A/U	CERCLA Characterization Well	✓	✓	✓	✓	ND	✓	ND	ND	ND	✓	ND	ND	✓	✓	✓	ND	ND	✓	ND	ND	
0686	A/U	Special Purpose Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
0786	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
0886	B/L	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
0986	B/L	RCRA Characterization Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
1086	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	ND	
4087	A/U	RCRA Regulatory Well	DRY	✓	✓	DRY	ND	ND	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	
4187	B/L	RCRA Characterization Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	✓	✓	ND	✓	✓	✓	✓	ND	✓	ND	✓	
4287	A/U	CERCLA Characterization Well	✓	✓	✓	DRY	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	
5887	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	✓	
5987	A/U	RCRA Regulatory Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 6/9/93
6087	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
6187	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
6287	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
6387	A/U	RCRA Regulatory Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 6/8/93
6487	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	✓	
6587	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
6687	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	✓	
6787	A/U	RCRA Regulatory Well	✓	✓	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 6/8/93
6887	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
7087	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	✓	ND	✓	ND	✓	✓	✓	✓	✓	✓	ND	ND	
7187	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
7287	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	ND	✓	
B106089	A/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	✓	ND	ND	ND	✓	ND	ND	✓	✓	✓	✓	✓	ND	ND	✓	
B206189	B/U	RCRA Regulatory Well	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 6/9/93
B206289	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	ND	ND	
B206389	A/U	RCRA Regulatory Well	✓	✓	✓	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	abandoned 9/2/93
B206489	A/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	ND	
B206589	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	✓	✓	✓	✓	✓	
B206689	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	✓	ND	ND	✓	ND	✓	ND	✓	✓	✓	✓	✓	✓	ND	ND	
B206789	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	ND	ND	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
B206889	B/U	RCRA Regulatory Well	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	✓	✓	✓	✓	ND	✓	ND	ND	
B206989	B/U	RCRA Regulatory Well	✓	DRY	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	✓	✓	✓	✓	✓	ND	ND	ND	
B207089	B/U	RCRA Regulatory Well	✓	✓	✓	✓	✓	✓	✓	ND	✓	✓	ND	ND	✓	✓	✓	✓	✓	✓	✓	ND	
B207189	B/L	RCRA Characterization Well	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	abandoned 6/18/93
B207289	B/U	RCRA Regulatory Well	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
76792	A/U	CERCLA Characterization Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
76992	A/U	CERCLA Characterization Well	DRY	DRY	✓	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
77392	A/U	CERCLA Characterization Well	DRY	DRY	DRY	DRY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
70093	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
70193	B/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
70293	B/L	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
70393	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
70493	B/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
70593	B/L	CERCLA Characterization Well	ND	✓	✓	✓	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	
70693	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	ND	ND	
70893	B/L	CERCLA Characterization Well	ND	DRY	✓	✓	ND	ND	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	ND	✓	✓	ND	
71193	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
71493	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
71693	A/U	CERCLA Characterization Well	ND	DRY	DRY	✓	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	ND	✓	ND	ND	
71893	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
72093	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
72293	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	✓	ND	
72393	A/U	CERCLA Characterization Well	ND	✓	✓	✓	✓	✓	ND	ND	✓	✓	✓	ND	✓	✓	✓	ND	✓	✓	ND	ND	
72493	A/U	CERCLA Characterization Well	ND	DRY	DRY	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

ND = No data available January 4, 1994

[1] A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

Table 3-1 Groundwater Monitoring Wells at or near the Solar Evaporation Ponds

Well ID	Screened Unit[1]	Hydrostratigraphic Unit[2]	Well Status[3]	Well Classification
1386	Qc	A/U	Active	RCRA Regulatory Well
1486	Kss/Ksclst	B/L	Active	RCRA Characterization Well
1586	Qc	A/U	Active	RCRA Regulatory Well
1686	Ksltss	B/L	Active	RCRA Characterization Well
1786	Qc	A/U	Active	RCRA Regulatory Well
1886	Qc	A/U	Active	RCRA Regulatory Well
2086	fill	A/U	Abandoned	RCRA Regulatory Well
2286	Qrf	A/U	Active	RCRA Regulatory Well
2386	Kslt/Ksltclst	B/L	Active	RCRA Characterization Well
2486	Qrf	A/U	Active	RCRA Regulatory Well
2586	Ksltclst/Kclst	B/L	Active	RCRA Characterization Well
2686	Qrf	A/U	Active	RCRA Regulatory Well
2786	Ksslt/Ksclst	B/L	Active	RCRA Characterization Well
2886	Qrf	A/U	Abandoned	RCRA Regulatory Well
2986	Qrf	A/U	Active	RCRA Regulatory Well
3086	Kclst	B/U	Active	RCRA Regulatory Well
3186	Kss/Kslt	B/U	Active	RCRA Regulatory Well
3286	Kss/Ksltss	B/L	Active	RCRA Characterization Well
3386	Qrf	A/U	Active	RCRA Regulatory Well
3486	Kcslt	B/L	Active	CERCLA Characterization Well
3586	Qc	A/U	Active	CERCLA Characterization Well
3686	Qc	A/U	Active	CERCLA Characterization Well
2187	Qc	A/U	Active	CERCLA Characterization Well
2287	Kss/Kslt	B/L	Active	CERCLA Characterization Well
3787	Qrf	A/U	Abandoned	RCRA Regulatory Well
3887	Qrf	A/U	Active	RCRA Regulatory Well
3987	Ksslt/Kclst	B/L	Active	RCRA Characterization Well
5687	Qrf	A/U	Active	RCRA Regulatory Well
P207389	Kss/Kclst	B/U	Active	RCRA Regulatory Well
P207489	Qrf	A/U	Abandoned	RCRA Regulatory Well
P207589	Ksltclst	B/U	Active	RCRA Regulatory Well
P207689	Qrf	A/U	Active	RCRA Regulatory Well
P207789	Ksltclst	B/U	Active	RCRA Regulatory Well
P207889	Qrf	A/U	Active	RCRA Regulatory Well
P207989	Kclst	B/U	Active	RCRA Regulatory Well
B208089	Qc	A/U	Active	RCRA Regulatory Well
B208189	Kclst	B/U	Active	RCRA Regulatory Well
B208289	Ksltclst/Kclst	B/U	Active	RCRA Regulatory Well
B208389	Ksclst/Kclst	B/U	Active	RCRA Regulatory Well
B208489	Kclst	B/U	Active	RCRA Regulatory Well
B208589	Qc	A/U	Active	RCRA Regulatory Well
B208689	Ksltclst	B/U	Active	RCRA Regulatory Well
B208789	Qc	A/U	Active	RCRA Regulatory Well
P208889	Ksltclst	B/L	Active	RCRA Characterization Well
P208989	Ksltss/Ksltclst	B/U	Active	RCRA Regulatory Well
P209089	Ksltclst	B/U	Active	RCRA Regulatory Well
P209189	Kss/Ksltclst	B/U	Active	RCRA Regulatory Well
P209289	Qrf	A/U	Active	RCRA Regulatory Well
P209389	Kss/Ksltss/Kcss	B/U	Active	RCRA Regulatory Well

Table 3-1 Groundwater Monitoring Wells at or near the Solar Evaporation Ponds (continued)

Well ID	Screened Unit[1]	Hydrostratigraphic Unit[2]	Well Status[3]	Well Classification
P209489	Kss/Ksltss	B/U	Active	RCRA Regulatory Well
P209589	Ksltclst/Ksclst	B/U	Active	RCRA Regulatory Well
P209689	Ksltclst	B/U	Active	RCRA Regulatory Well
P209789	Qrf	A/U	Active	RCRA Regulatory Well
P209889	Ksltclst	B/U	Active	RCRA Regulatory Well
P209989	Qc	A/U	Abandoned	RCRA Regulatory Well
P210089	Ksltclst	B/U	Active	RCRA Regulatory Well
P210189	Ksltss/Ksclst	B/U	Active	RCRA Regulatory Well
P210289	Ksltclst	B/U	Abandoned	RCRA Regulatory Well
B210389	Ksltclst	B/U	Active	RCRA Regulatory Well
B210489	Qc	A/U	Active	RCRA Regulatory Well
P213789	Qc	A/U	Active	Special Purpose Well
P213889	Kss/Kcss	B/U	Active	RCRA Regulatory Well
P213989	Qrf	A/U	Active	RCRA Regulatory Well
P218089	Qrf	A/U	Active	Special Purpose Well
P218389	Qrf	A/U	Active	RCRA Regulatory Well
P219089	Qc/Kclst/Ksltclst	A/U - B/U	Inactive	Special Purpose Well
P219189	Qc	A/U	Active	Special Purpose Well
P219489	Qrf	A/U	Active	RCRA Regulatory Well
P219589	Kclst/Ksclst	B/U	Active	RCRA Regulatory Well
02691	Ksltss/Ksltclst	B/U	Active	CERCLA Characterization Well
75892	Qrf	A/U	Active	CERCLA Characterization Well
75992	Qc	A/U	Active	CERCLA Characterization Well
76192	Qrf	A/U	Active	CERCLA Characterization Well
76292	Kcss	B/U	Active	CERCLA Characterization Well
05093	Qrf	A/U	Active	RCRA Regulatory Well
05193	Qrf	A/U	Active	RCRA Regulatory Well
05293	Qrf	A/U	Active	RCRA Regulatory Well
05393	Ksclst/Ksslt	B/U	Active	RCRA Regulatory Well

[1]From EG&G's database of well-construction details

Qc = Quaternary colluvium
Qrf = Quaternary Rocky Flats Alluvium
Kss = Cretaceous sandstone
Ksclt = Cretaceous sandy claystone
Ksltss = Cretaceous silty sandstone
Kslt = Cretaceous siltstone
Ksltclst = Cretaceous silty claystone
Kclst = Cretaceous claystone
Ksslt = Cretaceous sandy siltstone
Kcslt = Cretaceous clayey siltstone
Kcss = Cretaceous clayey sandstone

[2]A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

[3]Active = Well is currently being sampled
Inactive = Well is intact, but not currently being sampled
Abandoned = Well was abandoned in 1993 and is no longer sampled

Table 3-2 Vertical Hydraulic Gradients at or near the Solar Evaporation Ponds

Well Pair[1]	Quarter	Vertical Hydraulic Gradient[2] (dh/dl)	
P209289/P209389	1st Qtr	ND	
(A/U to B/U)	2nd Qtr	0.270	downward gradient
	3rd Qtr	ND	
	4th Qtr	ND	
2286/P210189	1st Qtr	0.061	downward gradient
(A/U to B/U)	2nd Qtr	0.113	downward gradient
	3rd Qtr	0.048	downward gradient
	4th Qtr	0.050	downward gradient
2486/2386	1st Qtr	ND	
(A/U to B/L)	2nd Qtr	0.815	downward gradient
	3rd Qtr	0.723	downward gradient
	4th Qtr	ND	
P207489/P207389	1st Qtr	0.000	no gradient
(A/U to B/U)	2nd Qtr	-0.006	upward gradient
	3rd Qtr	ND	
	4th Qtr	ND	
05293/P207389	1st Qtr	ND	
(A/U to B/U)	2nd Qtr	ND	
	3rd Qtr	-0.300	upward gradient
	4th Qtr	-0.379	upward gradient
2686/P207589	1st Qtr	1.019	downward gradient
(A/U to B/U)	2nd Qtr	ND	
	3rd Qtr	ND	
	4th Qtr	1.015	downward gradient
P207589/2586	1st Qtr	-0.002	upward gradient
(B/U to B/L)	2nd Qtr	ND	
	3rd Qtr	ND	
	4th Qtr	0.031	downward gradient
05093/2786	1st Qtr	ND	
(A/U to B/L)	2nd Qtr	ND	
	3rd Qtr	0.590	downward gradient
	4th Qtr	0.586	downward gradient
B208089/B208189	1st Qtr	0.743	downward gradient
(A/U to B/U)	2nd Qtr	0.847	downward gradient
	3rd Qtr	0.818	downward gradient
	4th Qtr	0.828	downward gradient

Table 3-2 Vertical Hydraulic Gradients at or near the Solar Evaporation Ponds (continued)

Well Pair[1]	Quarter	Vertical Hydraulic Gradient[2] (dh/dl)	
P207889/P207989	1st Qtr	0.759	downward gradient
(A/U to B/U)	2nd Qtr	1.124	downward gradient
	3rd Qtr	0.971	downward gradient
	4th Qtr	ND	
P207689/P207789	1st Qtr	1.171	downward gradient
(A/U to B/U)	2nd Qtr	ND	
	3rd Qtr	ND	
	4th Qtr	ND	
1586/1486	1st Qtr	0.167	downward gradient
(A/U to B/L)	2nd Qtr	0.197	downward gradient
	3rd Qtr	0.199	downward gradient
	4th Qtr	0.196	downward gradient
B208689/1686	1st Qtr	-0.369	upward gradient
(B/U to B/L)	2nd Qtr	-0.564	upward gradient
	3rd Qtr	-0.427	upward gradient
	4th Qtr	-0.398	upward gradient

[1]A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

[2]ND = no data, value cannot be calculated due to insufficient data

FIGURES

Figure 1-1 Method for Performing Statistical Evaluations

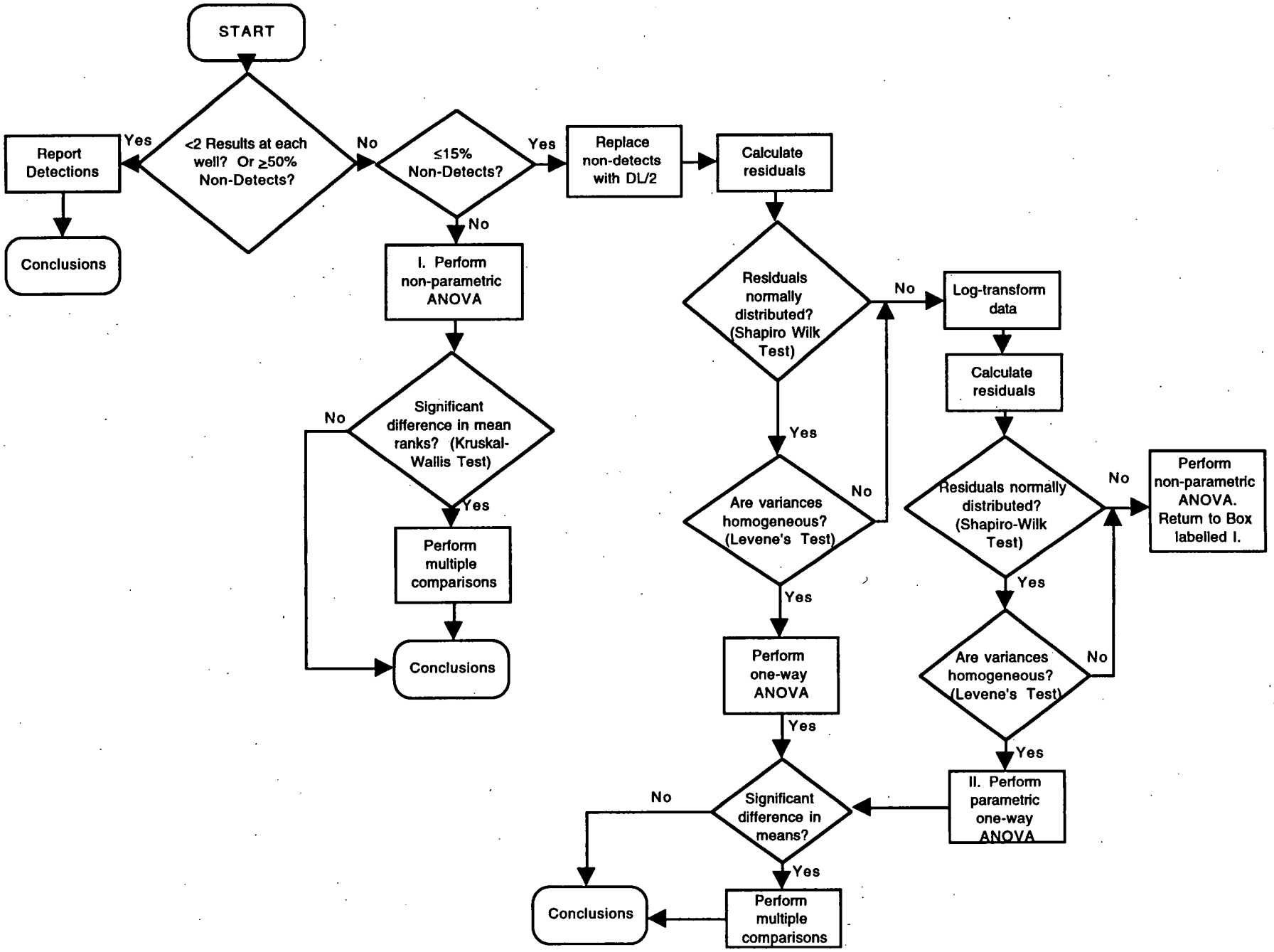

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Table 3-3 Average Linear Flow Velocities at or near the Solar Evaporation Ponds

Well Pairs	Quarter	dh/dl[1]	K (in cm/sec)[2]	n[3]	v (in cm/sec)[1,4]	v (in ft/yr)[1,4]
Solar Evaporation Ponds						
Bedrock of the UHSU						
P209089/P207989	1st Qtr	0.007	$1.03x10^{-6}$	0.1	$6.98x10^{-8}$	0.07
	2nd Qtr	0.005	$1.03x10^{-6}$	0.1	$5.01x10^{-8}$	0.05
	3rd Qtr	0.003	$1.03x10^{-6}$	0.1	$3.06x10^{-8}$	0.03
	4th Qtr	0.007	$1.03x10^{-6}$	0.1	$7.50x10^{-8}$	0.08
P209089/P207789	1st Qtr	0.024	$1.03x10^{-6}$	0.1	$2.47x10^{-7}$	0.26
	2nd Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
	3rd Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
	4th Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
Downgradient Velocities						
Alluvium						
B208789/1786	1st Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
	2nd Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
	3rd Qtr	0.051	$5.19x10^{-5}$	0.1	$2.65x10^{-5}$	27.84
	4th Qtr	0.049	$5.19x10^{-5}$	0.1	$2.52x10^{-5}$	26.48
1786/1386	1st Qtr	0.031	$5.19x10^{-5}$	0.1	$1.63x10^{-5}$	17.13
	2nd Qtr	0.032	$5.19x10^{-5}$	0.1	$1.64x10^{-5}$	17.25
	3rd Qtr	0.033	$5.19x10^{-5}$	0.1	$1.70x10^{-5}$	17.87
	4th Qtr	0.035	$5.19x10^{-5}$	0.1	$1.79x10^{-5}$	18.86
P207889/P218389	1st Qtr	0.039	$5.19x10^{-5}$	0.1	$2.04x10^{-5}$	21.43
	2nd Qtr	0.044	$5.19x10^{-5}$	0.1	$2.27x10^{-5}$	23.91
	3rd Qtr	0.038	$5.19x10^{-5}$	0.1	$1.97x10^{-5}$	20.67
	4th Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
3787/P219489	1st Qtr	0.028	$5.19x10^{-5}$	0.1	$1.48x10^{-5}$	15.54
	2nd Qtr	0.032	$5.19x10^{-5}$	0.1	$1.66x10^{-5}$	17.42
	3rd Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
	4th Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
P219489/3586	1st Qtr	0.070	$5.19x10^{-5}$	0.1	$3.63x10^{-5}$	38.18
	2nd Qtr	0.066	$5.19x10^{-5}$	0.1	$3.42x10^{-5}$	35.94
	3rd Qtr	0.072	$5.19x10^{-5}$	0.1	$3.72x10^{-5}$	39.12
	4th Qtr	0.071	$5.19x10^{-5}$	0.1	$3.70x10^{-5}$	38.84
P219489/2187	1st Qtr	0.056	$5.19x10^{-5}$	0.1	$2.91x10^{-5}$	30.64
	2nd Qtr	0.055	$5.19x10^{-5}$	0.1	$2.84x10^{-5}$	29.88
	3rd Qtr	0.053	$5.19x10^{-5}$	0.1	$2.77x10^{-5}$	29.11
	4th Qtr	0.055	$5.19x10^{-5}$	0.1	$2.88x10^{-5}$	30.26

Table 3-3 Average Linear Flow Velocities at or near the Solar Evaporation Ponds (continued)

Well Pairs	Quarter	dh/dl[1]	K (in cm/sec)[2]	n[3]	v (in cm/sec)[1,4]	v (in ft/yr)[1,4]
P207689/P219589	1st Qtr	0.062	$5.19x10^{-5}$	0.1	$3.19x10^{-5}$	33.56
	2nd Qtr	0.045	$5.19x10^{-5}$	0.1	$2.32x10^{-5}$	24.35
	3rd Qtr	0.057	$5.19x10^{-5}$	0.1	$2.96x10^{-5}$	31.13
	4th Qtr	0.052	$5.19x10^{-5}$	0.1	$2.71x10^{-5}$	28.53
P219589/2187	1st Qtr	0.058	$5.19x10^{-5}$	0.1	$3.01x10^{-5}$	31.61
	2nd Qtr	0.058	$5.19x10^{-5}$	0.1	$3.01x10^{-5}$	31.63
	3rd Qtr	0.058	$5.19x10^{-5}$	0.1	$3.01x10^{-5}$	31.67
	4th Qtr	0.062	$5.19x10^{-5}$	0.1	$3.22x10^{-5}$	33.85
P207489/3386	1st Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
	2nd Qtr	0.051	$5.19x10^{-5}$	0.1	$2.67x10^{-5}$	28.06
	3rd Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
	4th Qtr	ND	$5.19x10^{-5}$	0.1	ND	ND
Bedrock of the UHSU						
3086/B210389	1st Qtr	0.152	$1.03x10^{-6}$	0.1	$1.57x10^{-6}$	1.65
	2nd Qtr	0.158	$1.03x10^{-6}$	0.1	$1.63x10^{-6}$	1.71
	3rd Qtr	0.153	$1.03x10^{-6}$	0.1	$1.58x10^{-6}$	1.66
	4th Qtr	0.148	$1.03x10^{-6}$	0.1	$1.53x10^{-6}$	1.61
P209589/B208689	1st Qtr	0.115	$1.03x10^{-6}$	0.1	$1.18x10^{-6}$	1.24
	2nd Qtr	0.119	$1.03x10^{-6}$	0.1	$1.23x10^{-6}$	1.29
	3rd Qtr	0.119	$1.03x10^{-6}$	0.1	$1.22x10^{-6}$	1.29
	4th Qtr	0.117	$1.03x10^{-6}$	0.1	$1.21x10^{-6}$	1.27
P207989/76292	1st Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
	2nd Qtr	0.007	$1.03x10^{-6}$	0.1	$7.21x10^{-8}$	0.08
	3rd Qtr	0.011	$1.03x10^{-6}$	0.1	$1.14x10^{-7}$	0.12
	4th Qtr	0.016	$1.03x10^{-6}$	0.1	$1.62x10^{-7}$	0.17
76292/B208189	1st Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
	2nd Qtr	0.069	$1.03x10^{-6}$	0.1	$7.10x10^{-7}$	0.75
	3rd Qtr	0.067	$1.03x10^{-6}$	0.1	$6.93x10^{-7}$	0.73
	4th Qtr	0.062	$1.03x10^{-6}$	0.1	$6.39x10^{-7}$	0.67
B208189/B208289	1st Qtr	0.110	$1.03x10^{-6}$	0.1	$1.14x10^{-6}$	1.19
	2nd Qtr	0.108	$1.03x10^{-6}$	0.1	$1.11x10^{-6}$	1.17
	3rd Qtr	0.095	$1.03x10^{-6}$	0.1	$9.79x10^{-7}$	1.03
	4th Qtr	0.108	$1.03x10^{-6}$	0.1	$1.11x10^{-6}$	1.17
P207989/P209689	1st Qtr	0.047	$1.03x10^{-6}$	0.1	$4.81x10^{-7}$	0.51
	2nd Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
	3rd Qtr	ND	$1.03x10^{-6}$	0.1	ND	ND
	4th Qtr	0.043	$1.03x10^{-6}$	0.1	$4.41x10^{-7}$	0.46

Table 3-3 Average Linear Flow Velocities at or near the Solar Evaporation Ponds (continued)

Well Pairs	Quarter	dh/dl[1]	K (in cm/sec)[2]	n[3]	v (in cm/sec)[1,4]	v (in ft/yr)[1,4]
Bedrock of the LHSU						
1686/1486	1st Qtr	0.046	7.55×10^{-7}	0.1	3.50×10^{-7}	0.37
	2nd Qtr	0.047	7.55×10^{-7}	0.1	3.52×10^{-7}	0.37
	3rd Qtr	0.046	7.55×10^{-7}	0.1	3.50×10^{-7}	0.37
	4th Qtr	0.046	7.55×10^{-7}	0.1	3.50×10^{-7}	0.37
2786/3486	1st Qtr	-0.0004	7.55×10^{-7}	0.1	-3.05×10^{-9}	-0.003
	2nd Qtr	-0.007	7.55×10^{-7}	0.1	-5.47×10^{-8}	-0.06
	3rd Qtr	-0.007	7.55×10^{-7}	0.1	-5.65×10^{-8}	-0.06
	4th Qtr	-0.008	7.55×10^{-7}	0.1	-5.80×10^{-8}	-0.06
2786/2287	1st Qtr	0.038	7.55×10^{-7}	0.1	2.89×10^{-7}	0.30
	2nd Qtr	0.031	7.55×10^{-7}	0.1	2.34×10^{-7}	0.25
	3rd Qtr	0.031	7.55×10^{-7}	0.1	2.30×10^{-7}	0.24
	4th Qtr	0.030	7.55×10^{-7}	0.1	2.27×10^{-7}	0.24

[1]ND = no data, value cannot be calculated due to insufficient information

[2]K = the geometric mean of hydraulic conductivity values at Solar Evaporation Ponds (EG&G, 1993)

[3]n = assumed effective porosity (EG&G, 1993)

[4] v = Darcy velocity (average linear groundwater-flow velocity)

Table 3-4 Wells Used for Statistical Comparisons at the Solar Evaporation Ponds

Upgradient Upper Hydrostratigraphic Unit	Downgradient Upper Hydrostratigraphic Unit
2486	2686
P207389	2886
P207489	3086
P209289	3186
P209389	3787
0593	3887
	P207589
	P207689
	P207789
	P207889
	P207989
	P208989
	P209489
	P209589
	P209689
	P209789
	05093
	05193

Upgradient UHSU Bedrock	Downgradient UHSU Bedrock
P207389	3086
P209389	3186
	P207589
	P207789
	P207989
	P208989
	P209489
	P209589
	P209689

Table 3-5 Infrequently Detected Analytes (less than 50% Quantifiable Results) in UHSU Groundwater at the Solar Evaporation Ponds

VOCs in UHSU Groundwater			
Well	Date	Analyte	Result
05093	08/03/93	Benzene	0.1 µg/L
05093	10/18/93	Benzene	0.2 µg/L
P209489	10/15/93	Carbon Tetrachloride	46 µg/L
P209489	02/19/93	Carbon Tetrachloride	48 µg/L
P209489	07/22/93	Carbon Tetrachloride	57 µg/L
P209489	04/07/93	Carbon Tetrachloride	75 µg/L
P207589	04/12/93	Carbon Disulfide	2 µg/L
05093	08/03/93	Chloroform	0.5 µg/L
05093	06/15/93	Chloroform	0.2 µg/L
05093	10/18/93	Chloroform	0.6 µg/L
05193	08/02/93	Chloroform	0.3 µg/L
05193	06/16/93	Chloroform	0.3 µg/L
05193	10/18/93	Chloroform	0.3 µg/L
P209489	02/19/93	Chloroform	21 µg/L
P209489	10/15/93	Chloroform	21 µg/L
P209489	04/07/93	Chloroform	25 µg/L
P209689	07/20/93	2-Hexanone	11 µg/L
05093	10/18/93	Methylene Chloride	1 µg/L
05193	08/02/93	Methylene Chloride	0.3 µg/L
05193	06/16/93	Methylene Chloride	2 µg/L
3086	10/20/93	Methylene Chloride	8 µg/L
P207689	04/12/93	Methylene Chloride	2 µg/L
P207789	10/14/93	Methylene Chloride	3 µg/L
P208989	10/22/93	Methylene Chloride	4 µg/L
05093	08/03/93	Tetrachloroethene	0.5 µg/L
05093	06/15/93	Tetrachloroethene	0.2 µg/L
05093	10/18/93	Tetrachloroethene	0.5 µg/L
05193	06/16/93	Tetrachloroethene	11 µg/L
05193	08/02/93	Tetrachloroethene	11 µg/L
05193	10/18/93	Tetrachloroethene	13 µg/L
3086	02/04/93	Tetrachloroethene	2 µg/L
P208989	02/10/93	Tetrachloroethene	1 µg/L
P208989	04/23/93	Tetrachloroethene	1 µg/L
P208989	10/22/93	Tetrachloroethene	1 µg/L
P209489	02/19/93	Tetrachloroethene	4 µg/L
P209489	10/15/93	Tetrachloroethene	4 µg/L
P209489	04/07/93	Tetrachloroethene	5 µg/L
P209489	07/22/93	Tetrachloroethene	5 µg/L
P209789	04/06/93	Tetrachloroethene	2 µg/L
P209789	02/09/93	Tetrachloroethene	3 µg/L
P209789	10/15/93	Tetrachloroethene	3 µg/L
05093	10/18/93	Toluene	0.3 µg/L
05093	06/15/93	Trichloroethene	0.3 µg/L
05093	08/03/93	Trichloroethene	1 µg/L
05093	10/18/93	Trichloroethene	1 µg/L
05193	06/16/93	Trichloroethene	15 µg/L
05193	10/18/93	Trichloroethene	16 µg/L

Table 3-5 Infrequently Detected Analytes (less than 50% Quantifiable Results) in UHSU Groundwater at the Solar Evaporation Ponds (continued)

VOCs in UHSU Groundwater (continued)			
Well	Date	Analyte	Result
05193	08/02/93	Trichloroethene	18 µg/L
2686	04/12/93	Trichloroethene	2 µg/L
2686	04/12/93	Trichloroethene	3 µg/L
2686	07/30/93	Trichloroethene	3 µg/L
2686	10/11/93	Trichloroethene	6 µg/L
P209489	10/15/93	Trichloroethene	70 µg/L
P209489	02/19/93	Trichloroethene	72 µg/L
P209489	07/22/93	Trichloroethene	75 µg/L
P209489	04/07/93	Trichloroethene	84 µg/L
P209789	02/09/93	Trichloroethene	2 µg/L
P209789	04/06/93	Trichloroethene	2 µg/L
P209789	10/15/93	Trichloroethene	4 µg/L
P209489	02/19/93	1,2 Dichloroethene	10 µg/L
P209489	07/22/93	1,2 Dichloroethene	10 µg/L
P209489	10/15/93	1,2 Dichloroethene	11 µg/L

Dissolved Metals in UHSU Groundwater			
Well	Date	Analyte	Result
P207889	02/09/93	Aluminum	82.6 µg/L
P208989	10/22/93	Aluminum	25.8 µg/L
P209789	07/16/93	Antimony	22.3 µg/L
3086	02/04/93	Arsenic	1 µg/L
P208989	10/22/93	Arsenic	1.0 µg/L
P208989	02/10/93	Arsenic	14 µg/L
P209489	02/19/93	Arsenic	1 µg/L
P209789	07/16/93	Arsenic	1.2 µg/L
P208989	02/10/93	Beryllium	4.1 µg/L
05193	06/16/93	Cadmium	2.4 µg/L
P208989	02/10/93	Cadmium	2.8 µg/L
P209489	07/22/93	Cadmium	2.8 µg/L
P208989	04/23/93	Cesium	60.0 µg/L
P208989	10/22/93	Cesium	80.0 µg/L
P209489	10/15/93	Cesium	90.0 µg/L
P209789	07/16/93	Cesium	100 µg/L
P209789	10/15/93	Cesium	130 µg/L
05093	06/15/93	Cobalt	6.7 µg/L
3086	02/04/93	Cobalt	3.3 µg/L
P208989	10/22/93	Cobalt	4.1 µg/L
P208989	04/23/93	Cobalt	4.2 µg/L
P209789	10/15/93	Cobalt	3.1 µg/L
05093	04/21/93	Copper	2.4 µg/L
3086	02/04/93	Copper	3.6 µg/L
3086	04/21/93	Copper	5.6 µg/L
P209489	02/19/93	Copper	2.6 µg/L
P209789	07/16/93	Copper	2.2 µg/L
P207889	02/09/93	Mercury	0.35 µg/L

Table 3-5 Infrequently Detected Analytes (less than 50% Quantifiable Results) in UHSU Groundwater at the Solar Evaporation Ponds (continued)

Dissolved Metals in UHSU Groundwater (continued)			
Well	Date	Analyte	Result
P208989	02/10/93	Mercury	0.23 µg/L
P209489	07/22/93	Mercury	0.26 µg/L
P209789	10/15/93	Molybdenum	9.5 µg/L
05193	06/16/93	Molybdenum	23.9 µg/L
05093	06/15/93	Nickel	31.8 µg/L
05193	06/16/93	Nickel	22.1 µg/L
3086	04/21/93	Nickel	16.1 µg/L
3086	02/04/93	Nickel	18.4 µg/L
P207689	02/10/93	Nickel	8.9 µg/L
P208989	04/23/93	Nickel	7.8 µg/L
P209489	02/19/93	Nickel	9.7 µg/L
P207689	02/10/93	Iron	62.1 µg/L
P207889	02/09/93	Iron	97.5 µg/L
05193	06/16/93	Tin	78.8 µg/L
2686	04/12/93	Tin	32.8 µg/L
3086	04/21/93	Tin	32 µg/L
P207889	07/20/93	Tin	46.6 µg/L
P209489	04/07/93	Tin	40.7 µg/L
P209789	07/16/93	Tin	21.5 µg/L
P209789	02/09/93	Tin	35.8 µg/L
3086	02/04/93	Vanadium	5.8 µg/L
P207889	07/20/93	Vanadium	5.7 µg/L
P208989	10/22/93	Vanadium	5.9 µg/L
P209489	10/15/93	Vanadium	20.6 µg/L
P209789	10/15/93	Vanadium	16.7 µg/L

Inorganic Parameters			
Well	Date	Analyte	Result
2686	04/12/93	Cyanide	11 µg/L
3086	04/21/93	Cyanide	13 µg/L
P209689	02/10/93	Cyanide	4.4 µg/L
P207689	07/30/93	Cyanide	2.1 µg/L
2686	02/05/93	Orthophosphate	30.0 µg/L
2606	07/30/93	Orthophosphate	40.0 µg/L
P207689	07/30/93	Orthophosphate	20.0 µg/L
P209489	02/19/93	Orthophosphate	10.0 µg/L
P209789	10/15/93	Orthophosphate	10.0 µg/L

Table 3-6 Comparative Statistics for the Solar Evaporation Ponds - UHSU

	Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Dissolved					
	Barium	N.P.	0.0018	#	
	Calcium	N.P.	0.0050	*	Pool - 3086, P208989, P209489
	Gross Alpha	N.P.	0.0055	*	Pool - 5193, 2686, 3086, P209489
	Gross Beta	N.P.	0.0059	*	Pool - 5193, 3086, P209489
	Lithium	N.P.	0.0028	*	Pool - 3086, P208989, P209489
	Magnesium	N.P.	0.0015	*	Pool - P207689, P207889, P208989
	Manganese	N.P.	0.0001	*	Pool - P209489
	Potassium	N.P.	0.0069	*	Pool - P209489
	Radium 226	N.P.	0.0492	*	Pool - P208989
	Sodium	L.N.	0.0001	*	Pool - 3086, P208989, P209489, P207889, P207689, P209789
	Silicon	N.P.	0.0028	#	
	Strontium	L.N.	0.0001	*	Pool - P208989, P207689, 3086, P207889, P209789
	Strontium - 89, 90	N.P..	0.5150	**	
	Uranium - 233,234	N.P.	0.0174	*	Pool - 5193, 2686, P208989, P209489
	Uranium - 235	N.P.	0.0225	*	Pool - 5193, 2686, P209489
	Uranium - 238	N.P.	0.0218	*	Pool - 5193, 2686, P209489
	Total Radio-Cesium	N.P.	0.9665	**	
	Zinc	N.P.	0.2568	**	
Totals					
	Americium - 241	N.P.	0.0768	**	
	Bicarbonate as $CaCO_3$	N.P.	0.0124	*	Pool - 2686, 3086, P207689
	Carbon Tetrachloride	N.	0.0013	*	Pool - P209489
	Chloride	N.P.	0.0032	*	Pool - P207989, P209589
	Chloroform	N.P.	0.0216	#	
	Fluoride	N.P.	0.0007	*	Pool - 2686, P207689,P207989
	Nitrate/Nitrite	N.P.	0.0003	*	Pool - 3086, P208989, P209489, P209589
	Plutonium - 239/240	N.P.	0.3699	**	
	Sulfate	N.P.	0.0042	*	Pool - P207889, P207989

Table 3-6 Comparative Statistics for the Solar Evaporation Ponds - UHSU (continued)

Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Total Dissolved Solids	N.P.	0.0007	*	Pool - 3086, P208989, P209489, P209589
Total Suspended Solids	N.P.	0.1611	**	
Tritium	L.N.	0.0001	*	Pool - 05193, 3086, P208989

[1]N. = Data were normally distributed and analyzed using parametric ANOVA methods.
L.N. = Data were transformed using natural logarithms prior to parametric ANOVA analysis.
N.P = Data were analyzed using distribution-free nonparametric ANOVA methods.

Identifies a statistically significant difference between some locations. However, no statistical difference exists between the mean upgradient concentration and the concentration in compliance wells.

* Indicates that the analyte concentrations in the downgradient wells are statistically greater than the mean upgradient concentration.

** Indicates that no statistical difference exists between upgradient and downgradient analyte concentrations at the 0.05 significance level.

Table 3-7 Comparative Statistics for the Solar Evaporation Ponds - UHSU Bedrock

	Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Dissolved					
	Barium	N.P.	0.0122	#	
	Calcium	N.P.	0.0098	*	Pool - 3086, P208989
	Gross Alpha	N.P.	0.0243	*	Pool - 3086
	Gross Beta	N.P.	0.0289	*	Pool - 3086, P209489
	Lithium	N.P.	0.0208	*	Pool - 3086, P208989
	Magnesium	L.N.	0.0001	*	Pool - P208989,3086, P209489
	Manganese	L.N.	0.0001	*	Pool - P209489, P208989
	Potassium	N.P.	0.0113	*	Pool - P209489
	Radium - 226	N.P.	0.0567	**	
	Silicon	N.	0.0001	#	
	Sodium	N.P.	0.0094	*	Pool - 3086, P208989
	Strontium	L.N.	0.0001	*	Pool - P208989, 3086, P209489
	Strontium -89, 90	N.P.	0.5726	**	
	Total Radiocesium	N.P.	0.6823	**	
	Uranium - 233, 234	N.P.	0.0547	**	
	Uranium 235	N.P.	0.1207	**	
	Uranium 238	N.P.	0.1279	**	
	Zinc	N.P.	0.5127	**	
Totals					
	Americium - 241	N.P.	0.0719	**	
	Bicarbonate as $CaCO_3$	N.P.	0.1096	**	
	Carbon Tetrachloride	N.	0.0013	*	Pool - P209489
	Chloride	N.P.	0.0121	*	Pool - P207989, P209589
	Chloroform	N.	0.0015	*	Pool - P209489
	Fluoride	L.N.	0.0001	*	Pool - P207989,3086
	Nitrate/Nitrite	L.N.	0.0001	*	Pool - P209589, P209489, P208989, 3086, P207989
	Plutonium - 239/240	N.P.	0.8470	**	
	Sulfate	N.P.	0.0170	*	Pool - P207989
	Total Dissolved Solids	L.N.	0.0001	*	Pool - P209589, P208989, 3086, P207989, P209489
	Total Suspended Solids	N.P.	0.2541	**	
	Tritium	N.	0.0001	*	Pool - 3086, P208989

[1]N. = Data were normally distributed and analyzed using parametric ANOVA methods.
L.N. = Data were transformed using natural logarithms prior to parametric ANOVA analysis.
N.P = Data were analyzed using distribution-free nonparametric ANOVA methods.

Identifies a statistically significant difference between some locations. However, no statistical difference exists between the mean upgradient concentration and the concentration in compliance wells.

* Indicates that the analyte concentrations in the downgradient wells are statistically greater than the mean upgradient concentration.

** Indicates that no statistical difference exists between upgradient and downgradient analyte concentrations at the 0.05 significance level.

Table 4-1 Groundwater Monitoring Wells at or near the West Spray Field

Well ID	Screened Lithology[1]	Hydrostratigraphic Unit[2]	Well Status[3]	Well Classification
4586	Qrf	A/U	Abandoned	CERCLA Characterization Well
4686	Kslt/Kcslt	B/L	Active	Special Purpose Well
4786	Qrf	A/U	Active	Special Purpose Well
4886	Ksslt/Kcslt	B/L	Active	RCRA Characterization Well
4986	Qrf	A/U	Active	RCRA Regulatory Well
5086	Qrf	A/U	Active	RCRA Regulatory Well
5186	Qrf	A/U	Active	RCRA Regulatory Well
5286	Kss/Ksltclst	B/U	Active	RCRA Characterization Well
5686	Qc	A/U	Active	CERCLA Characterization Well
B110889	Qrf	A/U	Active	RCRA Regulatory Well
B110989	Qrf	A/U	Active	RCRA Regulatory Well
B111189	Qrf	A/U	Active	RCRA Regulatory Well
P114389	Qrf	A/U	Active	Special Purpose Well
P114489	Qrf	A/U	Active	Special Purpose Well
P114589	Qrf	A/U	Active	Special Purpose Well
P114989	Qrf	A/U	Active	Special Purpose Well
P115089	Qrf	A/U	Active	Special Purpose Well
P115189	Qrf	A/U	Abandoned	Special Purpose Well
B402689	Qrf	A/U	Active	Background Characterization Well
B410589	Qrf	A/U	Active	RCRA Regulatory Well
B410689	Qrf	A/U	Active	RCRA Regulatory Well
B410789	Qrf	A/U	Active	RCRA Regulatory Well
B411289	Qrf	A/U	Active	RCRA Regulatory Well
B411389	Qrf	A/U	Active	RCRA Regulatory Well
P415889	Qrf	A/U	Active	Special Purpose Well
P415989	Qrf	A/U	Active	Special Purpose Well
P416089	Qrf	A/U	Active	Special Purpose Well
P416189	Qrf	A/U	Active	Special Purpose Well
P416289	Qrf	A/U	Active	Special Purpose Well
P416389	Qrf	A/U	Active	Special Purpose Well
P416489	Qrf	A/U	Active	Special Purpose Well
P416589	Qrf	A/U	Active	Special Purpose Well
P416989	Ksslt/Kslt	B/U	Active	Special Purpose Well
0190	Qrf	A/U	Active	Special Purpose Well
0390	Qrf	A/U	Active	Special Purpose Well
1490	Qrf	A/U	Active	Special Purpose Well
03092	Qrf	A/U	Active	Special Purpose Well
03192	Qrf	A/U	Active	Special Purpose Well
46192	Qrf	A/U	Active	RCRA Regulatory Well
46292	Qrf	A/U	Active	RCRA Regulatory Well
46392	Kclst	B/U	Active	RCRA Characterization Well
46492	Qrf	A/U	Active	CERCLA Regulatory Well

Table 4-1 Groundwater Monitoring Wells at or near the West Spray Field (continued)

[1]From EG&G's database of well construction details

Qrf = Quaternary Rocky Flats Alluvium
Kslt = Cretaceous siltstone
Kcslt = Cretaceous clayey siltstone
Ksslt = Cretaceous sandy siltstone
Kss = Cretaceous sandstone
Ksltclst = Cretaceous silty claystone
Kclst = Cretaceous claystone

[2]A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

[3]Active = Well is currently being sampled
Abandoned = Well was abandoned in 1993 and is no longer sampled

Table 4-2 1993 Vertical Hydraulic Gradients at the West Spray Field

Well Pair[1]	Quarter	Vertical Hydraulic Gradient (dh/dl)[2]	
5186/5286	1st Qtr	0.154	downward gradient
(A/U to B/U)	2nd Qtr	0.158	upward gradient
	3rd Qtr	0.216	downward gradient
	4th Qtr	0.200	downward gradient
4986/4886	1st Qtr	0.061	downward gradient
(A/U to B/L)	2nd Qtr	0.062	downward gradient
	3rd Qtr	0.252	downward gradient
	4th Qtr	0.080	downward gradient

[1] A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

[2] dh/dl = hydraulic gradient

Table 4-3 Average Linear Flow Velocities at or near the West Spray Field

Well Pair	Quarter	dh/dl[1]	K (in cm/sec)[2]	n[3]	v (in cm/sec)[1,4]	v (in ft/yr)[1,4]
West Spray Field						
Alluvium						
5186/B110989	1st Qtr	0.015	4.57×10^{-4}	0.1	6.71×10^{-5}	70.54
	2nd Qtr	0.015	4.57×10^{-4}	0.1	6.81×10^{-5}	71.63
	3rd Qtr	0.015	4.57×10^{-4}	0.1	7.02×10^{-5}	73.76
	4th Qtr	0.015	4.57×10^{-4}	0.1	6.95×10^{-5}	73.08
5086/B410789	1st Qtr	0.013	4.57×10^{-4}	0.1	5.91×10^{-5}	62.10
	2nd Qtr	0.013	4.57×10^{-4}	0.1	5.89×10^{-5}	61.90
	3rd Qtr	0.012	4.57×10^{-4}	0.1	5.56×10^{-5}	58.42
	4th Qtr	0.013	4.57×10^{-4}	0.1	5.75×10^{-5}	60.45
Bedrock of the UHSU						
5286/46392	1st Qtr	0.011	1.16×10^{-5}	0.1	1.27×10^{-6}	1.34
	2nd Qtr	0.013	1.16×10^{-5}	0.1	1.28×10^{-6}	1.34
	3rd Qtr	0.013	1.16×10^{-5}	0.1	1.23×10^{-6}	1.29
	4th Qtr	0.013	1.16×10^{-5}	0.1	1.26×10^{-6}	1.32
Downgradient Velocities						
Alluvium						
B410689/P415889	1st Qtr	0.007	4.57×10^{-4}	0.1	3.10×10^{-5}	32.64
	2nd Qtr	0.005	4.57×10^{-4}	0.1	2.40×10^{-5}	25.26
	3rd Qtr	0.006	4.57×10^{-4}	0.1	2.67×10^{-5}	28.08
	4th Qtr	0.007	4.57×10^{-4}	0.1	3.29×10^{-5}	34.62
B110889/46492	1st Qtr	0.012	4.57×10^{-4}	0.1	5.50×10^{-5}	57.77
	2nd Qtr	0.012	4.57×10^{-4}	0.1	5.41×10^{-5}	56.90
	3rd Qtr	0.010	4.57×10^{-4}	0.1	4.59×10^{-5}	48.28
	4th Qtr	0.012	4.57×10^{-4}	0.1	5.47×10^{-5}	57.45
B410589/B402689	1st Qtr	ND	4.57×10^{-4}	0.1	ND	ND
	2nd Qtr	0.023	4.57×10^{-4}	0.1	1.03×10^{-4}	108.27
	3rd Qtr	ND	4.57×10^{-4}	0.1	ND	ND
	4th Qtr	ND	4.57×10^{-4}	0.1	ND	ND

[1]ND = no data, value cannot be calculated due to insufficient information
dh/dl = hydraulic gradient

[2]K = the geometric mean of hydraulic conductivity values at the West Spray Field (EG&G, 1993)

[3]n = assumed effective porosity (EG&G, 1993)

[4] v = Darcy velocity (average linear groundwater-flow velocity)

Table 4-4 Wells Used for Statistical Comparisons at the West Spray Field

Upgradient Upper Hydrostratigraphic Unit	Downgradient Upper Hydrostratigraphic Unit
5186	B110889
5286	B110989
46192	B111189
	B410589
	B410689
	B410789
	5086

Upgradient UHSU Surficial Materials	Downgradient UHSU Surficial Materials
5186	B110889
46192	B110989
	B111189
	B410589
	B410689
	B410789
	5086

Table 4-5 Infrequently Detected Analytes (less than 50% Quantifiable Results) in UHSU Groundwater at the West Spray Field

VOCs in UHSU Groundwater			
Well	Date	Analyte	Result
5086	04/14/93	Methylene Chloride	1 µg/L
B410689	04/12/93	Methylene Chloride	2 µg/L
B401789	07/26/93	Acetone	7 µg/L

Dissolved Metals in UHSU Groundwater			
Well	Date	Analyte	Result
5086	08/03/93	Aluminum	18.20 µg/L
B110889	07/23/93	Aluminum	358 µg/L
B111189	07/23/93	Aluminum	122 µg/L
B410689	07/22/93	Aluminum	50.8 µg/L
5086	11/05/93	Cesium	130.0 µg/L
B110889	11/05/93	Cesium	110.0 µg/L
B110889	07/23/93	Cesium	120 µg/L
B111189	07/23/93	Cesium	110 µg/L
B111189	11/04/93	Cesium	70.0 µg/L
B410689	07/22/93	Cesium	120 µg/L
B410789	11/05/93	Cesium	110.0 µg/L
B110889	11/05/93	Arsenic	1.2 µg/L
B410689	04/12/93	Cadmium	2.2 µg/L
5086	08/03/93	Copper	3.8 µg/L
B110889	01/25/93	Copper	7.2 µg/L
B111189	01/26/93	Copper	5 µg/L
B410789	01/26/93	Copper	13.4 µg/L
5086	02/03/93	Iron	120 µg/L
5086	11/05/93	Iron	4.2 µg/L
B110889	11/05/93	Iron	22.3 µg/L
B110889	07/23/93	Iron	294 µg/L
B111189	11/04/93	Iron	13.4 µg/L
B111189	07/23/93	Iron	64.7 µg/L
B410689	04/12/93	Iron	15.7 µg/L
B410689	07/22/93	Iron	32.7 µg/L
B410689	01/25/93	Lead	1.6 µg/L
5086	08/03/93	Manganese	2.3 µg/L
B110889	04/09/93	Manganese	1.2 µg/L
B110889	07/23/93	Manganese	5 µg/L
B110989	05/15/93	Manganese	1.2 µg/L
B111189	07/23/93	Manganese	1 µg/L
B410689	07/22/93	Manganese	1.9 µg/L
B410689	07/22/93	Molybdenum	6.7 µg/L
B111189	04/13/93	Selenium	1.8 µg/L
B410689	07/22/93	Tin	20.3 µg/L
5086	08/03/93	Vanadium	27.0 µg/L
B110889	04/09/93	Vanadium	2.4 µg/L
B110889	07/23/93	Vanadium	23 µg/L
B410589	04/08/93	Vanadium	2.2 µg/L
B410689	07/22/93	Vanadium	16.9 µg/L

Table 4-5 Infrequently Detected Analytes (less than 50% Quantifiable Results) in UHSU Groundwater at the West Spray Field (continued)

Inorganic Parameters in UHSU Groundwater			
Well	Date	Analyte	Result
B110989	01/25/93	Cyanide	12.0 µg/L
B410689	01/25/93	Cyanide	49.0 µg/L
B410689	01/26/93	Cyanide	37.0 µg/L
5086	04/14/93	Orthophosphate	10.0 µg/L
5086	08/03/93	Orthophosphate	10.0 µg/L
B110889	04/09/93	Orthophosphate	10.0 µg/L
B110989	04/15/93	Orthophosphate	10.0 µg/L
B111189	04/13/93	Orthophosphate	10.0 µg/L
B111189	07/23/93	Orthophosphate	10.0 µg/L
B111189	11/04/93	Orthophosphate	10.0 µg/L
B410589	01/27/93	Orthophosphate	10.0 µg/L
B410589	04/08/93	Orthophosphate	20.0 µg/L

Table 4-6 Comparative Statistics for the West Spray Field - UHSU

	Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Dissolved					
	Barium	N.	0.0001	#	
	Calcium	L.N.	0.0001	*	Pool - B410789, B410589, B410689, 5086, B110889
	Gross Alpha	N.P.	0.0328	#	
	Gross Beta	N.P.	0.2592	**	
	Lithium	N.P.	0.7393	**	
	Magnesium	L.N.	0.0001	*	Pool - B410589, B410789, B110889, B410689, 5086
	Potassium	N.P.	0.0354	#	
	Silicon	L.N.	0.0006	#	
	Sodium	N.	0.0001	*	Pool - B111189, B110989, B110889, B410789, B410689
	Strontium	N.	0.0001	*	Pool - B410789, B410589, B110889, B410689, 5086
	Strontium - 89,90	N.	0.1796	**	
	Total Radiocesium	N.P.	0.1979	**	
	Uranium - 233,234	N.P.	0.0393	#	
	Uranium - 235	N.	0.3272	**	
	Uranium - 238	N.P.	0.3313	**	
	Zinc	N.	0.1951	**	
Totals					
	Americium - 241	N.	0.0512	**	
	Bicarbonate as $CaCO_3$	N.P.	0.0008	*	Pool - B110889, B410589, B410689, B410789
	Chloride	N.P.	0.0005	*	Pool - 5086, B110889, B410589, B410789
	Fluoride	N.	0.0001	*	Pool - B410589, B410689, B410889
	Nitrate/Nitrite	N.P.	0.0229	#	
	Plutonium - 239, 240	N.P.	0.1240	**	
	Sulfate	N.P.	0.0005	#	
	Total Dissolved Solids	N.P.	0.1941	**	
	Total Suspended Solids	L.N.	0.0238	#	
	Tritium	N.	0.4159	**	

[1]N. = Data were normally distributed and analyzed using parametric ANOVA methods.
L.N. = Data were transformed using natural logarithms prior to parametric ANOVA analysis.
N.P = Data were analyzed using distribution-free nonparametric ANOVA methods.

Identifies a statistically significant difference between some locations. However, no statistical difference exists between the mean upgradient concentration and the concentration in compliance wells.

* Indicates that the analyte concentrations in the downgradient wells are statistically greater than the mean upgradient concentration.

** Indicates that no statistical difference exists between upgradient and downgradient analyte concentrations at the 0.05 significance level.

Table 4-7 Comparative Statistics for the West Spray Field - UHSU Surficial Materials

	Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Dissolved					
	Barium	N.	0.0001	#	
	Calcium	N.P.	0.0004	*	Pool - B410589, B410789
	Gross Alpha	N.P.	0.0328	#	
	Gross Beta	N.P.	0.2592	**	
	Lithium	N.P.	0.3624	**	
	Magnesium	N.P.	0.0003	*	Pool - B410589, B410789
	Potassium	N.	0.0004	#	
	Silicon	N.P.	0.0255	#	
	Sodium	N.	0.0001	*	Pool - B111189, B110989, B110889, B410789, B410689
	Strontium	N.	0.001	*	Pool - B410789, B410589, B110889, B410689, 5086
	Strontium -89, 90	N.	0.1796	**	
	Total Radiocesium	N.P.	0.1979	**	
	Uranium - 233, 234	L.N.	0.1053	**	
	Uranium 235	N.	0.3272	**	
	Uranium 238	N.P.	0.3313	**	
	Zinc	N.	0.1951	**	
Totals					
	Americium - 241	N.	0.0512	**	
	Chloride	N.P.	0.0005		Pool - 5086, B110889, B410589, B410789
	Bicarbonate as $CaCO_3$	N.P.	0.0008	*	Pool - B110889, B410589, B410689, B410789
	Fluoride	N.	0.0001	*	Pool - B410589, B410689, B110889
	Nitrate/Nitrite	N.P.	0.0229	#	
	Plutonium - 239/240	N.P.	0.1240	**	
	Sulfate	N.P.	0.0005	#	
	Total Dissolved Solids	L.N.	0.2271	**	
	Total Suspended Solids	N.P.	0.1194	**	
	Tritium	N.	0.4159	**	

[1]N. = Data were normally distributed and analyzed using parametric ANOVA methods.
L.N. = Data were transformed using natural logarithms prior to parametric ANOVA analysis.
N.P = Data were analyzed using distribution-free nonparametric ANOVA methods.

Identifies a statistically significant difference between some locations. However, no statistical difference exists between the mean upgradient concentration and the concentration in compliance wells.

* Indicates that the analyte concentrations in the downgradient wells are statistically greater than the mean upgradient concentration.

** Indicates that no statistical difference exists between upgradient and downgradient analyte concentrations at the 0.05 significance level.

Table 5-1 Groundwater Monitoring Wells at or near the Present Landfill

Well ID	Screened Unit[1]	Hydrostratigraphic Unit[2]	Well Status[3]	Well Classification
0586	Qc?	A/U	Active	CERCLA Characterization Well
0686	Qc	A/U	Active	Special Purpose Well
0786	Qc	A/U	Active	RCRA Regulatory Well
0886	Ksslt	B/L	Active	RCRA Regulatory Well
0986	Kss/Ksslt	B/L	Active	RCRA Characterization Well
1086	Qrf	A/U	Active	RCRA Regulatory Well
4087	Qc	A/U	Active	RCRA Regulatory Well
4187	Ksltss	B/L	Active	RCRA Characterization Well
4287	Qc	A/U	Active	CERCLA Characterization Well
5887	Qrf	A/U	Active	RCRA Regulatory Well
5987	Qrf	A/U	Abandoned	RCRA Regulatory Well
6087	Qrf	A/U	Active	RCRA Regulatory Well
6187	Qrf	A/U	Active	RCRA Regulatory Well
6287	Qaf	A/U	Active	RCRA Regulatory Well
6387	Qaf	A/U	Abandoned	RCRA Regulatory Well
6487	Qaf	A/U	Active	RCRA Regulatory Well
6587	Qaf/Kclst	A/U	Active	RCRA Regulatory Well
6687	Qrf	A/U	Active	RCRA Regulatory Well
6787	Qaf	A/U	Abandoned	RCRA Regulatory Well
6887	Qaf	A/U	Active	RCRA Regulatory Well
7087	Qrf	A/U	Active	RCRA Regulatory Well
7187	Qrf	A/U	Active	RCRA Regulatory Well
7287	Qrf	A/U	Active	RCRA Regulatory Well
B106089	Qaf	A/U	Active	RCRA Regulatory Well
B206189	Qaf/Kclst	B/U	Abandoned	RCRA Regulatory Well
B206289	Ksltclst/Kclst	B/U	Active	RCRA Regulatory Well
B206389	Qaf/Qrf	A/U	Abandoned	RCRA Regulatory Well
B206489	Qrf/Ksltclst	A/U	Active	RCRA Regulatory Well
B206589	Kclst	B/U	Active	RCRA Regulatory Well
B206689	Ksltclst	B/U	Active	RCRA Regulatory Well
B206789	Kclst	B/U	Active	RCRA Regulatory Well
B206889	Ksltclst	B/U	Active	RCRA Regulatory Well
B206989	Ksclst	B/U	Active	RCRA Regulatory Well
B207089	Ksclst/Ksltclst	B/U	Active	RCRA Regulatory Well
B207189	Ksltclst/Kclst	B/L	Abandoned	RCRA Characterization Well
B207289	Ksltclst	B/U	Active	RCRA Regulatory Well
76792	Qc	A/U	Active	CERCLA Characterization Well
76992	Qrf	A/U	Active	CERCLA Characterization Well
77392	Qrf	A/U	Active	CERCLA Characterization Well
70093	Qrf	A/U	Active	CERCLA Characterization Well
70193	Kcslt/Kslt/Ksltss	B/U	Active	CERCLA Characterization Well
70293	Kss/Kslt/Ksslt	B/L	Active	CERCLA Characterization Well
70393	Qrf	A/U	Active	CERCLA Characterization Well
70493	Ksltclst/Kclst	B/U	Active	CERCLA Characterization Well
70593	Kslt	B/L	Active	CERCLA Characterization Well
70693	Qrf	A/U	Active	CERCLA Characterization Well
70893	Kslt/Kcslst	B/L	Active	CERCLA Characterization Well
71193	Qaf	A/U	Active	CERCLA Characterization Well
71493	Qaf	A/U	Active	CERCLA Characterization Well

Table 5-1 Groundwater Monitoring Wells at or near the Present Landfill (continued)

Well ID	Screened Unit[1]	Hydrostratigraphic Unit[2]	Well Status[3]	Well Classification
71693	Qaf	A/U	Active	CERCLA Characterization Well
71893	Qaf	A/U	Active	CERCLA Characterization Well
72093	Qaf	A/U	Active	CERCLA Characterization Well
72293	Qaf	A/U	Active	CERCLA Characterization Well
72393	Qaf	A/U	Active	CERCLA Characterization Well
72493	Qaf	A/U	Active	CERCLA Characterization Well

[1]From EG&G's database of well construction details

QC = Quaternary colluvium
Qrf = Quaternary Rocky Flats Alluvium
Qaf = Quaternary artificial fill (including trash)
Ksslt = Cretaceous sandy siltstone
KSS = Cretaceous sandstone
Ksltss = Cretaceous silty sandstone
Kclst = Cretaceous claystone
Ksltclst = Cretaceous silty claystone
Ksclst = Cretaceous sandy claystone
Kslt = Cretaceous siltstone
Kcslt = Cretaceous clayey siltstone
Ksslt = Cretaceous sandy siltstone

[2]A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

[3]Active = Well is currently being sampled
Abandoned = Well was abandoned in 1993 and is no longer sampled

Table 5-2 Vertical Hydraulic Gradients at the Present Landfill

Well Pair[1]	Quarter	Vertical Hydraulic Gradient[2] (dh/dl)	
70093/70193	1st Qtr	ND	
(A/U to B/U)	2nd Qtr	0.090	downward gradient
	3rd Qtr	0.030	downward gradient
	4th Qtr	0.024	downward gradient
70193/70293	1st Qtr	ND	
(B/U to B/L)	2nd Qtr	0.957	downward gradient
	3rd Qtr	0.278	downward gradient
	4th Qtr	0.151	downward gradient
70493/70593	1st Qtr	ND	
(B/U to B/L)	2nd Qtr	1.107	downward gradient
	3rd Qtr	0.683	downward gradient
	4th Qtr	0.419	downward gradient
70693/70893	1st Qtr	ND	
(A/U to B/L)	2nd Qtr	1.169	downward gradient
	3rd Qtr	1.076	downward gradient
	4th Qtr	0.932	downward gradient
72393/72093	1st Qtr	ND	
(A/U to A/U)	2nd Qtr	-0.025	upward gradient
	3rd Qtr	-0.040	upward gradient
	4th Qtr	-0.034	upward gradient
1086/0986	1st Qtr	0.265	downward gradient
(A/U to B/L)	2nd Qtr	0.341	downward gradient
	3rd Qtr	0.317	downward gradient
	4th Qtr	0.291	downward gradient
6487/B206189	1st Qtr	0.429	downward gradient
(A/U to B/U)	2nd Qtr	0.072	downward gradient
	3rd Qtr	ND	
	4th Qtr	ND	
0786/0886	1st Qtr	0.559	downward gradient
(A/U to B/L)	2nd Qtr	0.739	downward gradient
	3rd Qtr	0.631	downward gradient
	4th Qtr	0.685	downward gradient
B206989/B207089	1st Qtr	0.075	downward gradient
(B/U to B/U)	2nd Qtr	ND	
	3rd Qtr	0.098	downward gradient
	4th Qtr	0.122	downward gradient

1 A/U = alluvium/upper hydrostratigraphic unit
B/U = bedrock/upper hydrostratigraphic unit
B/L = bedrock/lower hydrostratigraphic unit

2 ND = no data - value cannot be calculated due to insufficient data
dh/dl = hydraulic gradient

Table 5-3 Average Linear Flow Velocities at or near the Present Landfill

Well Pair	Quarter	dh/dl[1]	K (in cm/sec)[2]	n[3]	v (in cm/sec)[1,4]	v (in ft/yr)[1,4]
Landfill						
Alluvium						
B106089/72393	1st Qtr	ND	1.10×10^{-4}	0.1	ND	ND
	2nd Qtr	0.003	1.10×10^{-4}	0.1	3.71×10^{-6}	3.90
	3rd Qtr	0.003	1.10×10^{-4}	0.1	3.84×10^{-6}	4.04
	4th Qtr	0.011	1.10×10^{-4}	0.1	1.16×10^{-5}	12.21
72393 / 72293	1st Qtr	ND	1.10×10^{-4}	0.1	ND	ND
	2nd Qtr	0.042	1.10×10^{-4}	0.1	4.57×10^{-5}	48.03
	3rd Qtr	0.042	1.10×10^{-4}	0.1	4.57×10^{-5}	48.01
	4th Qtr	0.035	1.10×10^{-4}	0.1	3.80×10^{-5}	39.91
72293/0786	1st Qtr	ND	1.10×10^{-4}	0.1	ND	ND
	2nd Qtr	0.121	1.10×10^{-4}	0.1	1.34×10^{-4}	140.40
	3rd Qtr	0.127	1.10×10^{-4}	0.1	1.39×10^{-4}	146.28
	4th Qtr	0.131	1.10×10^{-4}	0.1	1.44×10^{-4}	151.40
Bedrock of the UHSU						
70493/B206789	1st Qtr	ND	5.33×10^{-7}	0.1	ND	ND
	2nd Qtr	0.032	5.33×10^{-7}	0.1	1.73×10^{-7}	0.18
	3rd Qtr	0.036	5.33×10^{-7}	0.1	1.90×10^{-7}	0.20
	4th Qtr	0.037	5.33×10^{-7}	0.1	2.00×10^{-7}	0.21
Bedrock of the LHSU						
70593/0886	1st Qtr	ND	2.07×10^{-7}	0.1	ND	ND
	2nd Qtr	-0.005	2.07×10^{-7}	0.1	-9.86×10^{-9}	-0.01
	3rd Qtr	0.021	2.07×10^{-7}	0.1	4.35×10^{-8}	0.05
	4th Qtr	0.037	2.07×10^{-7}	0.1	7.65×10^{-8}	0.08
Downgradient Velocities						
Bedrock of the UHSU						
B206789/B206989	1st Qtr	0.074	5.33×10^{-7}	0.1	3.96×10^{-7}	0.42
	2nd Qtr	ND	5.33×10^{-7}	0.1	ND	ND
	3rd Qtr	0.076	5.33×10^{-7}	0.1	4.03×10^{-7}	0.42
	4th Qtr	0.071	5.33×10^{-7}	0.1	3.79×10^{-7}	0.40
B206989/4287	1st Qtr	0.014	5.33×10^{-7}	0.1	7.66×10^{-8}	0.08
	2nd Qtr	ND	5.33×10^{-7}	0.1	ND	ND
	3rd Qtr	0.019	5.33×10^{-7}	0.1	1.01×10^{-7}	0.11
	4th Qtr	ND	5.33×10^{-7}	0.1	ND	ND

Table 5-3 Average Linear Flow Velocities at or near the Present Landfill (continued)

Well Pair	Quarter	dh/dl[1]	K (in cm/sec)[2]	n[3]	v (in cm/sec)[1,4]	v (in ft/yr)[1,4]
Bedrock of the LHSU						
0886/B207189	1st Qtr	0.035	2.07×10^{-7}	0.1	7.33×10^{-8}	0.08
	2nd Qtr	ND	2.07×10^{-7}	0.1	ND	ND
	3rd Qtr	ND	2.07×10^{-7}	0.1	ND	ND
	4th Qtr	ND	2.07×10^{-7}	0.1	ND	ND

[1]ND = no data, value cannot be calculated due to insufficient information.

[2]Geometric mean of hydraulic conductivity values measured at the Present Landfill (preliminary results of OU7 RFI/RI)

[3]n = assumed effective porosity (EG&G, 1993)

[4] v = Darcy velocity (average linear groundwater-flow velocity)

Table 5-4 Wells Used for Statistical Comparisons at the Present Landfill

Upgradient Upper Hydrostratigraphic Unit	Downgradient Upper Hydrostratigraphic Unit
1086	4087
5887	B206989
70093	B207089
70193	
70393	
70493	
70693	

Upgradient UHSU Bedrock	Downgradient UHSU Bedrock
70193	B206989
70493	B207089

Table 5-5 Infrequently Detected Analytes (less than 50% Quantifiable Results) in UHSU Groundwater at the Present Landfill

VOCs in the UHSU Groundwater			
Well	Date	Analyte	Result
B207089	08/23/93	Methylene Chloride	2 µg/L

Dissolved Metals in UHSU Groundwater			
Well	Date	Analyte	Result
B207089	03/02/93	Copper	7.4 µg/L
B207089	03/02/93	Lead	1.3 µg/L

Inorganic Parameters in UHSU Groundwater			
Well	Date	Analyte	Result
B207089	03/02/93	Ammonia	180.00 µg/L
B207089	04/20/93	Ammonia	90.00 µg/L

Table 5-6 Comparative Statistics for the Present Landfill - UHSU

	Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Dissolved					
	Barium	N.P.	0.0142	#	
	Calcium	L.N.	0.0001	*	Pool - B207089
	Lithium	N.P.	0.0102	*	Pool - B207089
	Manganese	N.P.	0.0090	#	
	Magnesium	L.N.	0.001	*	Pool - B207089
	Potassium	N.P.	0.0157	*	Pool - B207089
	Silicon	N.P.	0.0649		
	Sodium	N.P.	0.0105	*	Pool - B207089
	Strontium	L.N.	0.0001	*	Pool - B207089
	Uranium - 233,234	N.	0.0169	#	
	Uranium 235	N.	0.2306	**	
	Uranium 238	N.	0.0003	#	
Totals					
	Americium - 241	N.P.	0.1494	**	
	Bicarbonate	N.P.	0.0578	**	
	Chloride	N.P.	0.0102	*	Pool - B207089
	Fluoride	N.P.	0.0180	#	
	Nitrate/Nitrite	N.P.	0.1412	**	
	Plutonium	N.P.	0.3688	**	
	Sulfate	N.P.	0.0122	*	Pool - B207089
	Total Dissolved Solids	N.P.	0.0664	#	
	Total Suspended Solids	N.P.	0.0180	#	

[1]N. = Data were normally distributed and analyzed using parametric ANOVA methods.
L.N. = Data were transformed using natural logarithms prior to parametric ANOVA analysis.
N.P = Data were analyzed using distribution-free nonparametric ANOVA methods.

Identifies a statistically significant difference between some locations. However, no statistical difference exists between the mean upgradient concentration and the concentration in compliance wells.

* Indicates that the analyte concentrations in the downgradient wells are statistically greater than the mean upgradient concentration.

** Indicates that no statistical difference exists between upgradient and downgradient analyte concentrations at the 0.05 significance level.

Table 5-7 Comparitive Statistics for the Present Landfill - UHSU Bedrock

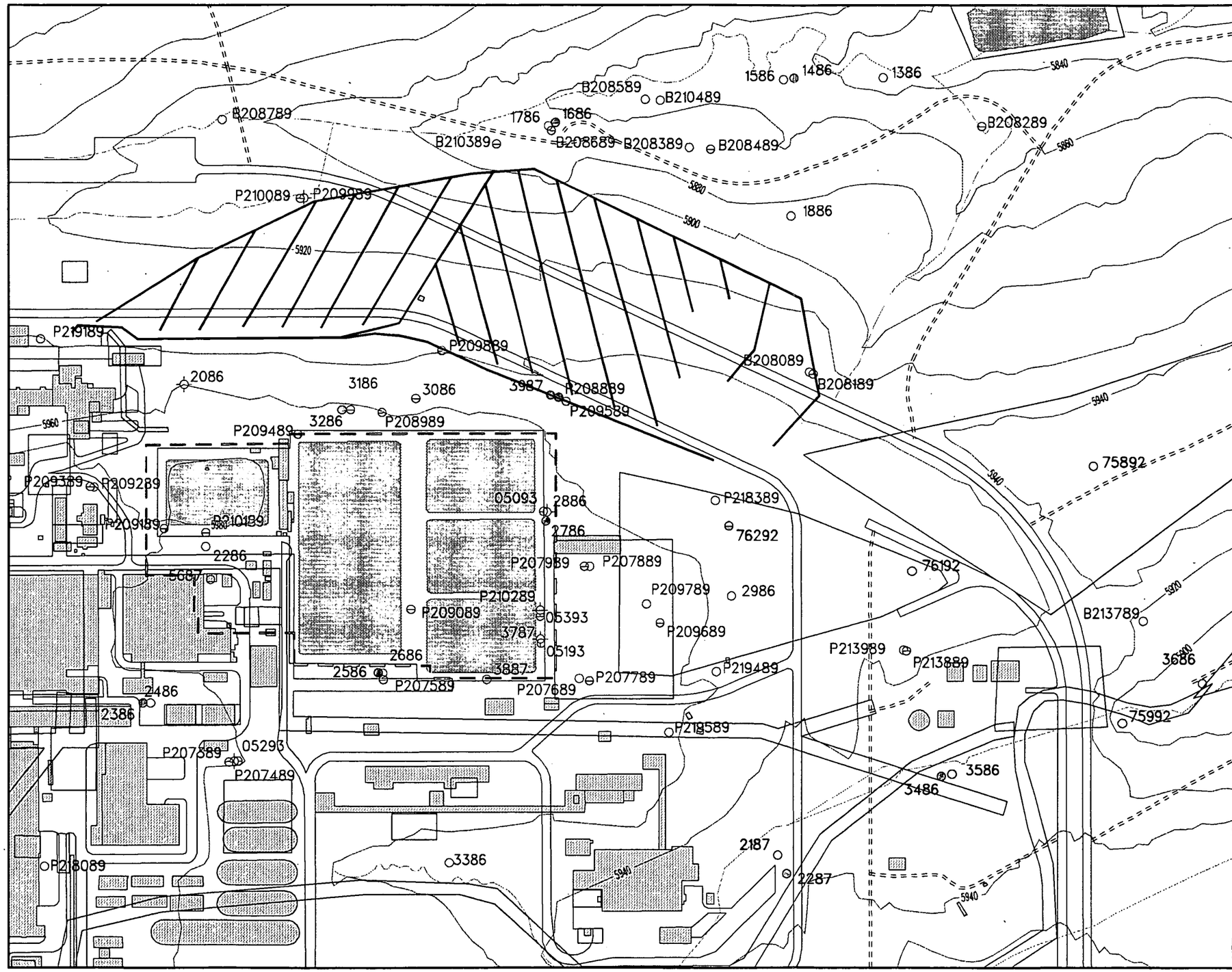
	Analyte	ANOVA Method[1]	Probability Value		Well Comparison
Dissolved					
	Barium	N.P.	0.0273	#	
	Calcium	L.N.	0.0001	*	Pool - B207089
	Lithium	N.	0.0001	*	Pool - B207089
	Magnesium	L.N.	0.0001	*	Pool - B207089
	Manganese	L.N.	0.0087	#	
	Potassium	N.	0.0003	*	Pool - B207089
	Silicon	L.N.	0.0001	#	
	Sodium	L.N.	0.001	*	Pool - B207089
	Strontium	N.	0.0001	*	Pool - B207089
	Uranium - 233, 234	N.	0.1186	**	
	Uranium - 235	N.	0.1387	**	
	Uranium - 238	N.	0.0138	#	
	Zinc	N.	0.4863	**	
Totals					
	Americium - 241	N.P.	0.1561	**	
	Bicarbonate as $CaCO_3$	N.P.	0.2982	**	
	Chloride	N.P.	0.0241	*	Pool - B207089
	Fluoride	L.N.	0.0591	**	
	Plutonium - 239/240	N.	0.4865	**	
	Sulfate	N.P.	0.0257	*	Pool - B207089
	Total Dissolved Solids	N.P.	0.0591	**	
	Total Suspended Solids	N.P.	0.0390	#	
	Tritium	N.	0.6033	**	

[1]N. = Data were normally distributed and analyzed using parametric ANOVA methods.
L.N. = Data were transformed using natural logarithms prior to parametric ANOVA analysis.
N.P = Data were analyzed using distribution-free nonparametric ANOVA methods.

Identifies a statistically significant difference between some locations. However, no statistical difference exists between the mean upgradient concentration and the concentration in compliance wells.

* Indicates that the analyte concentrations in the downgradient wells are statistically greater than the mean upgradient concentration.

** Indicates that no statistical difference exists between upgradient and downgradient analyte concentrations at the 0.05 significance level.



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

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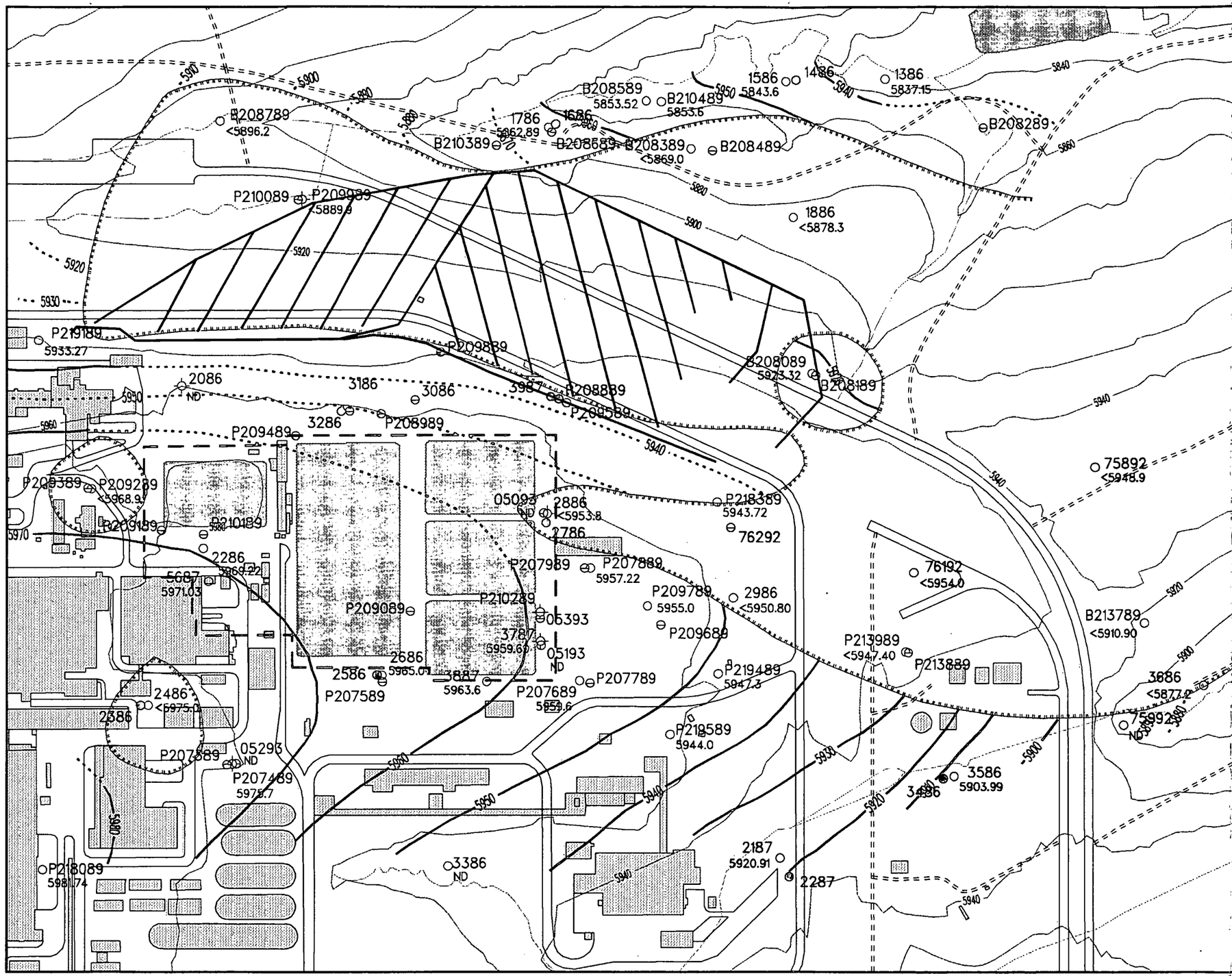
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Waste Management Area and
Monitoring Well Locations
1993

Figure 3-1



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- Areas of Unsaturated Surficial Materials
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

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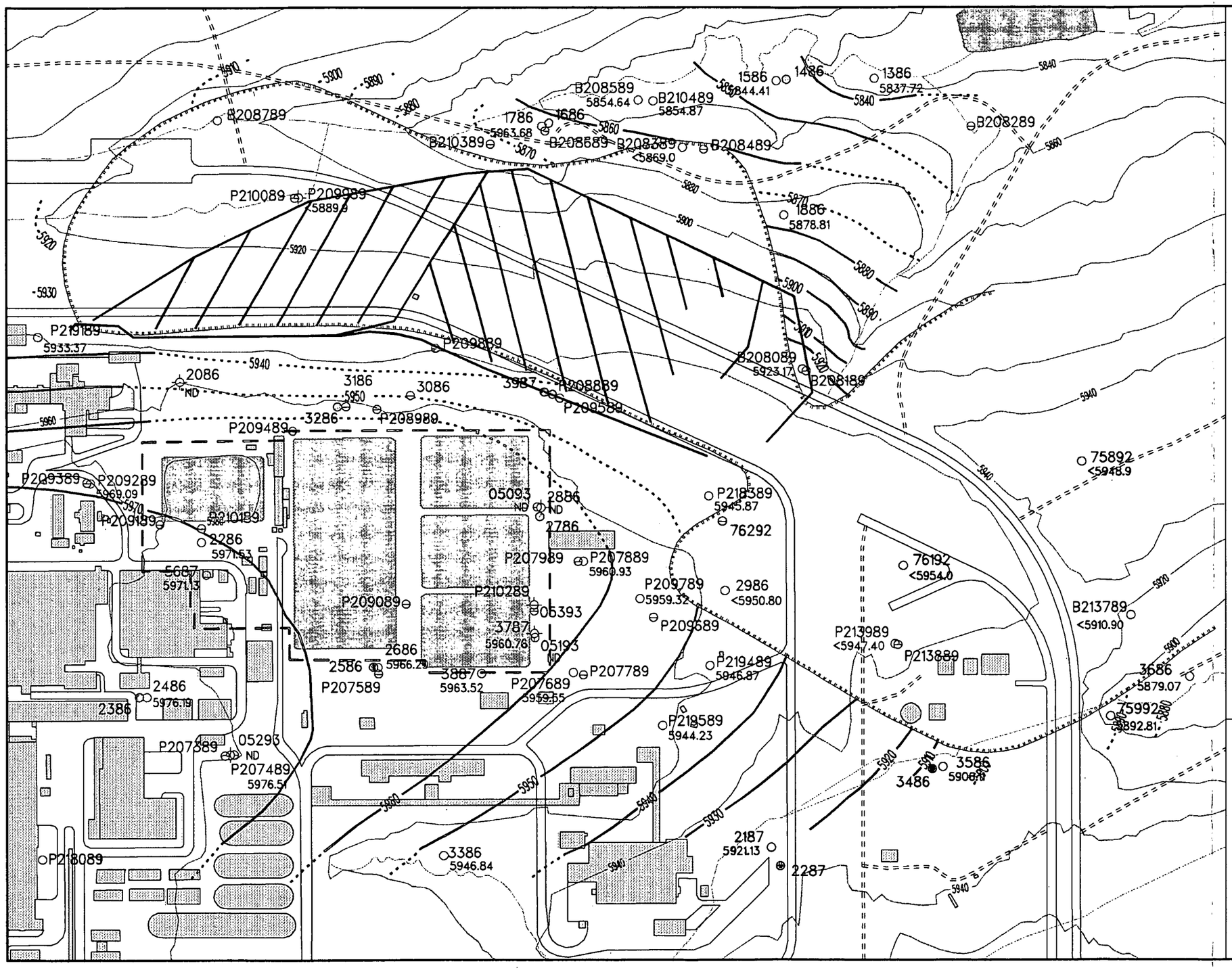
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Surficial Materials
First Quarter (January) 1993

Figure 3-2



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- Areas of Unsaturated Surficial Materials
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

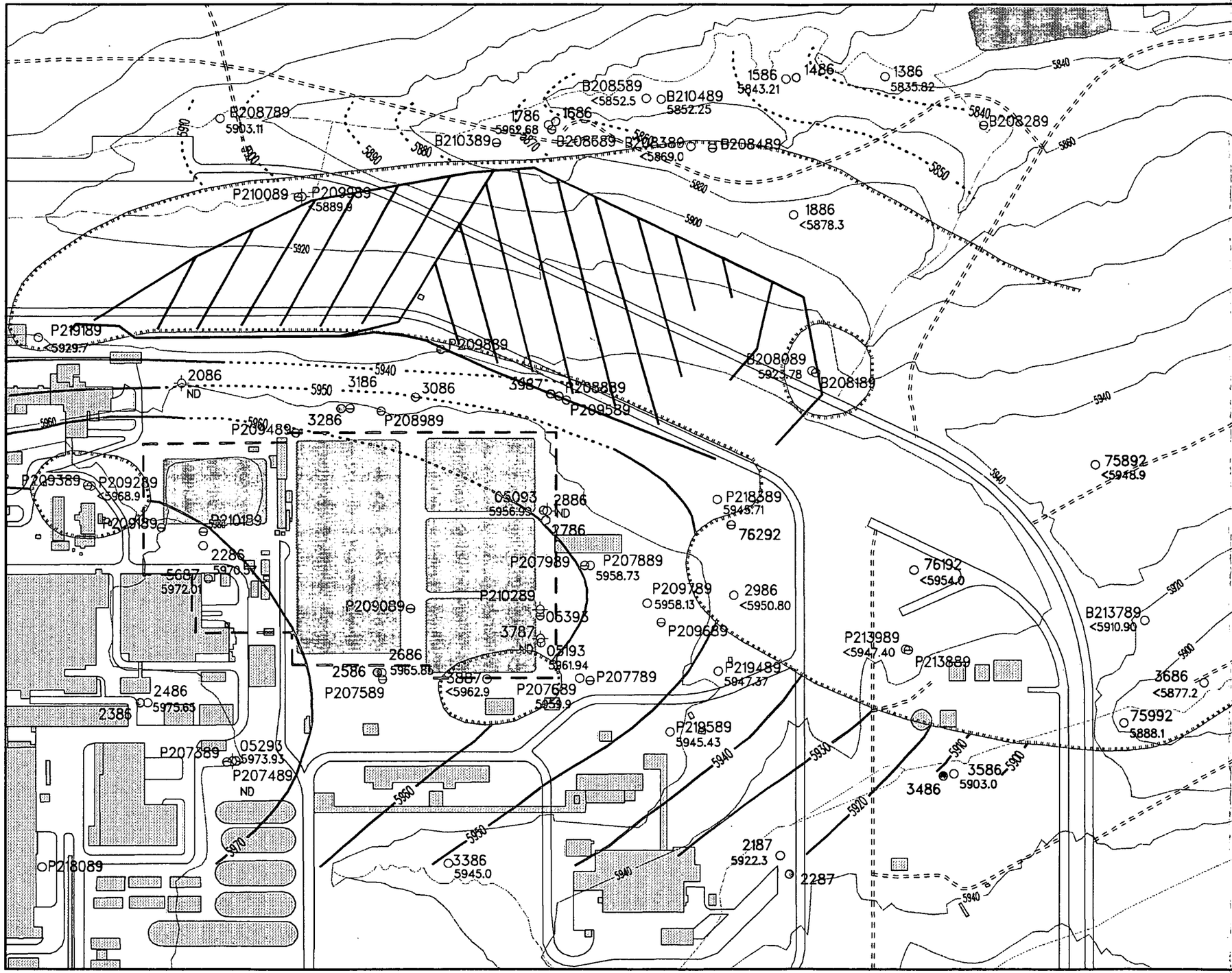
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Surficial Materials
Second Quarter (April) 1993

Figure 3-3



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- Areas of Unsaturated Surficial Materials
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

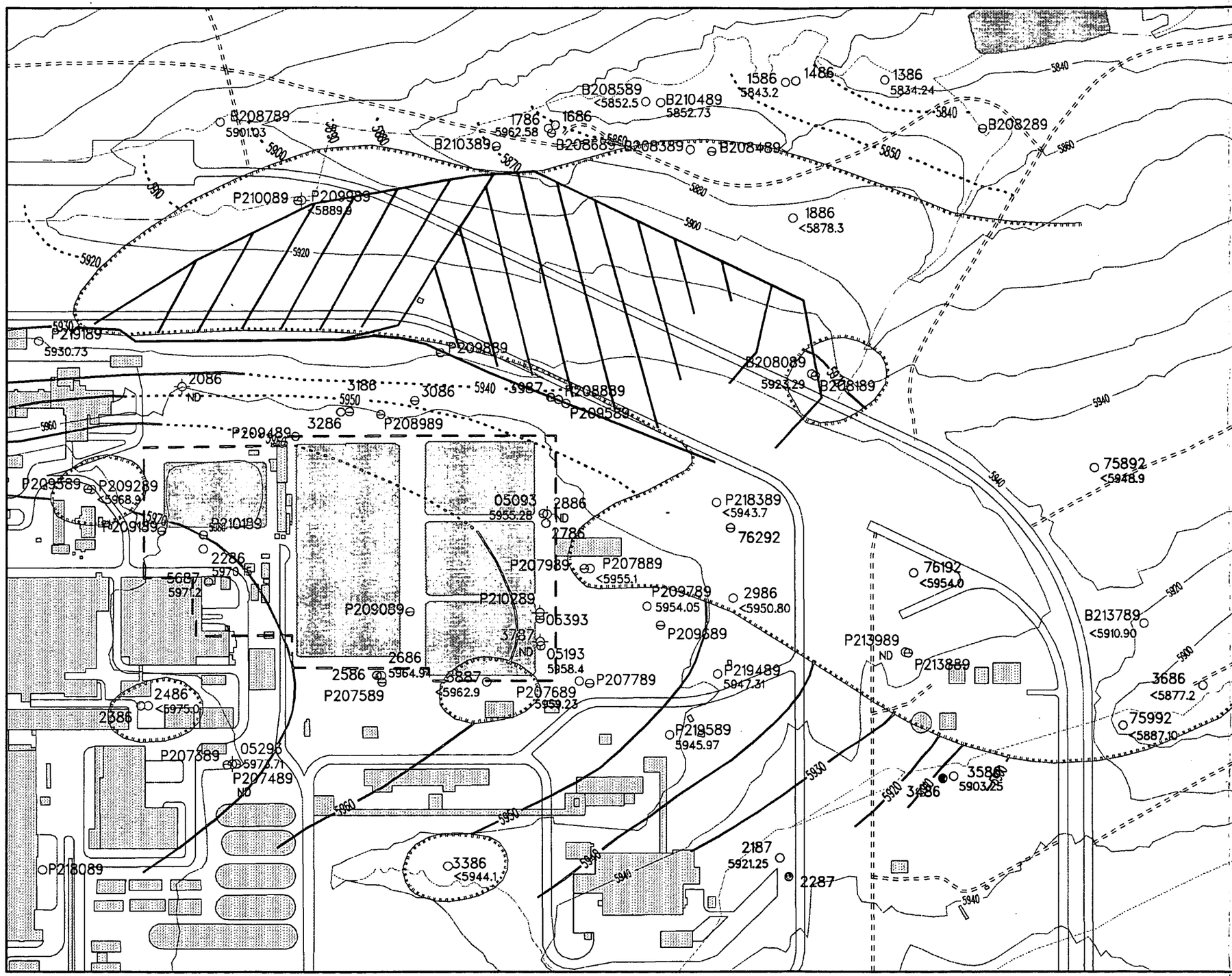
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Surficial Materials
Third Quarter (July) 1993

Figure 3-4



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
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- Areas of Unsaturated Surficial Materials
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

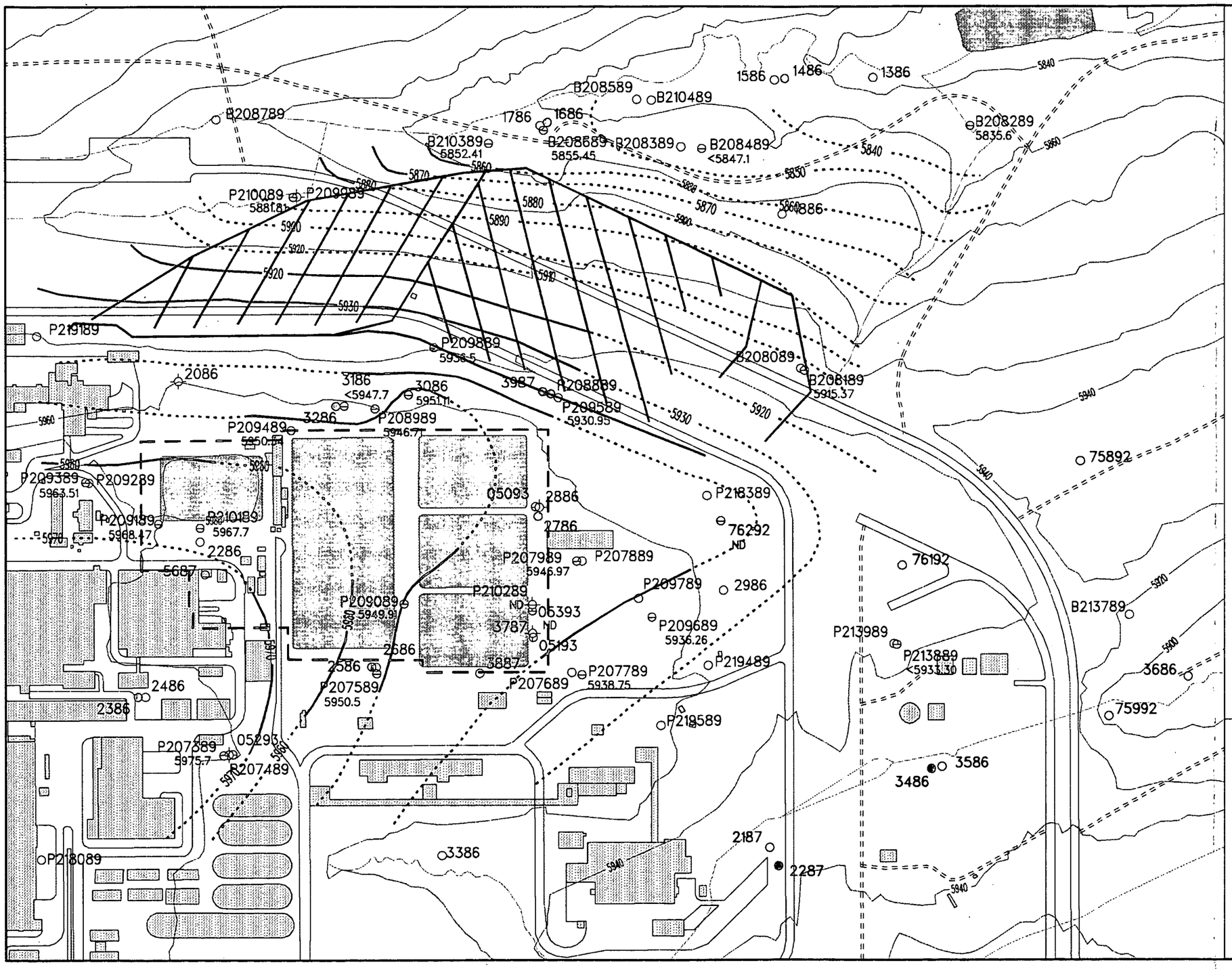
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Surficial Materials
Fourth Quarter (October) 1993

Figure 3-5



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
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- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
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- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

0 feet 250 500

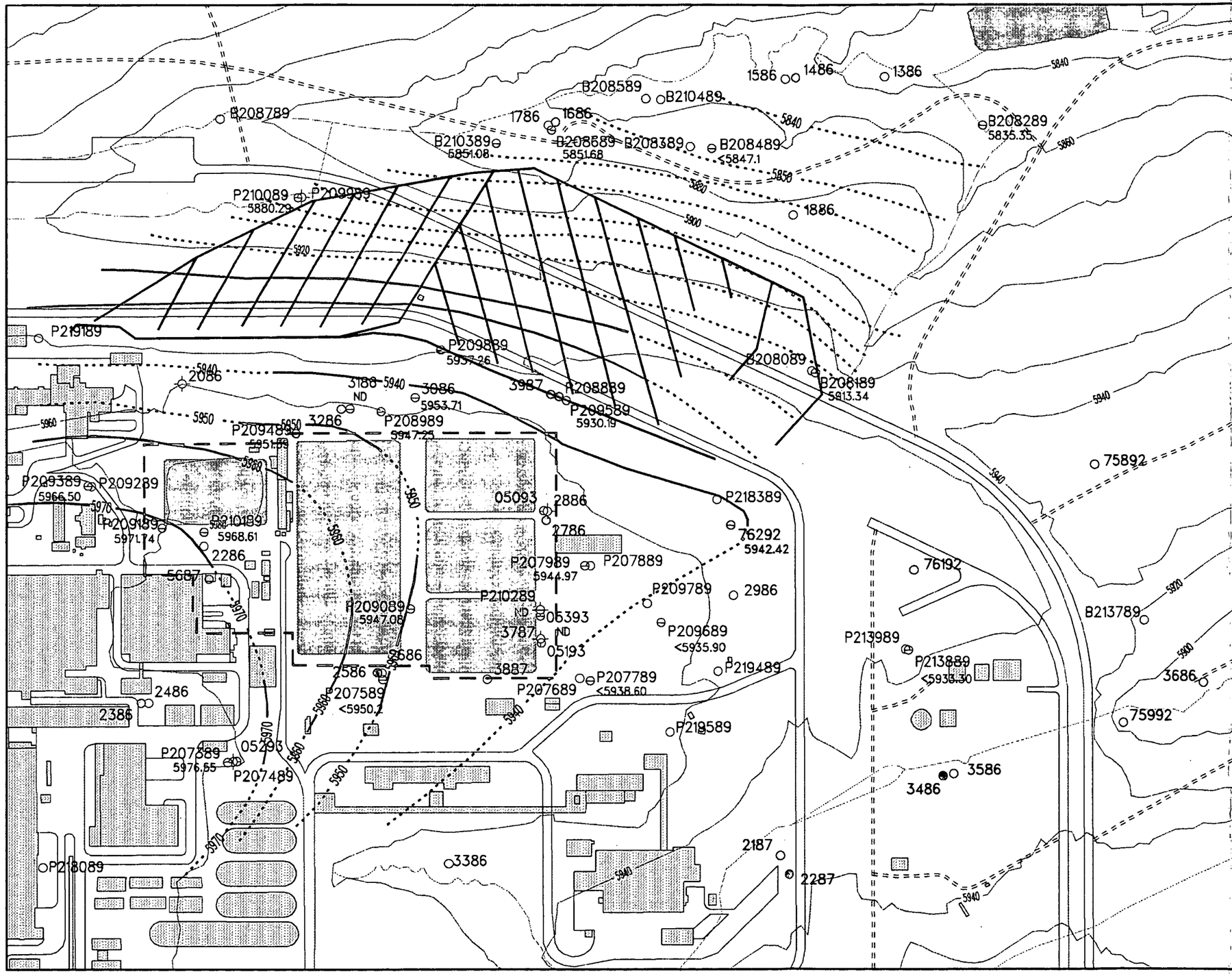
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Bedrock
First Quarter (January) 1993

Figure 3-6



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
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- Buildings
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

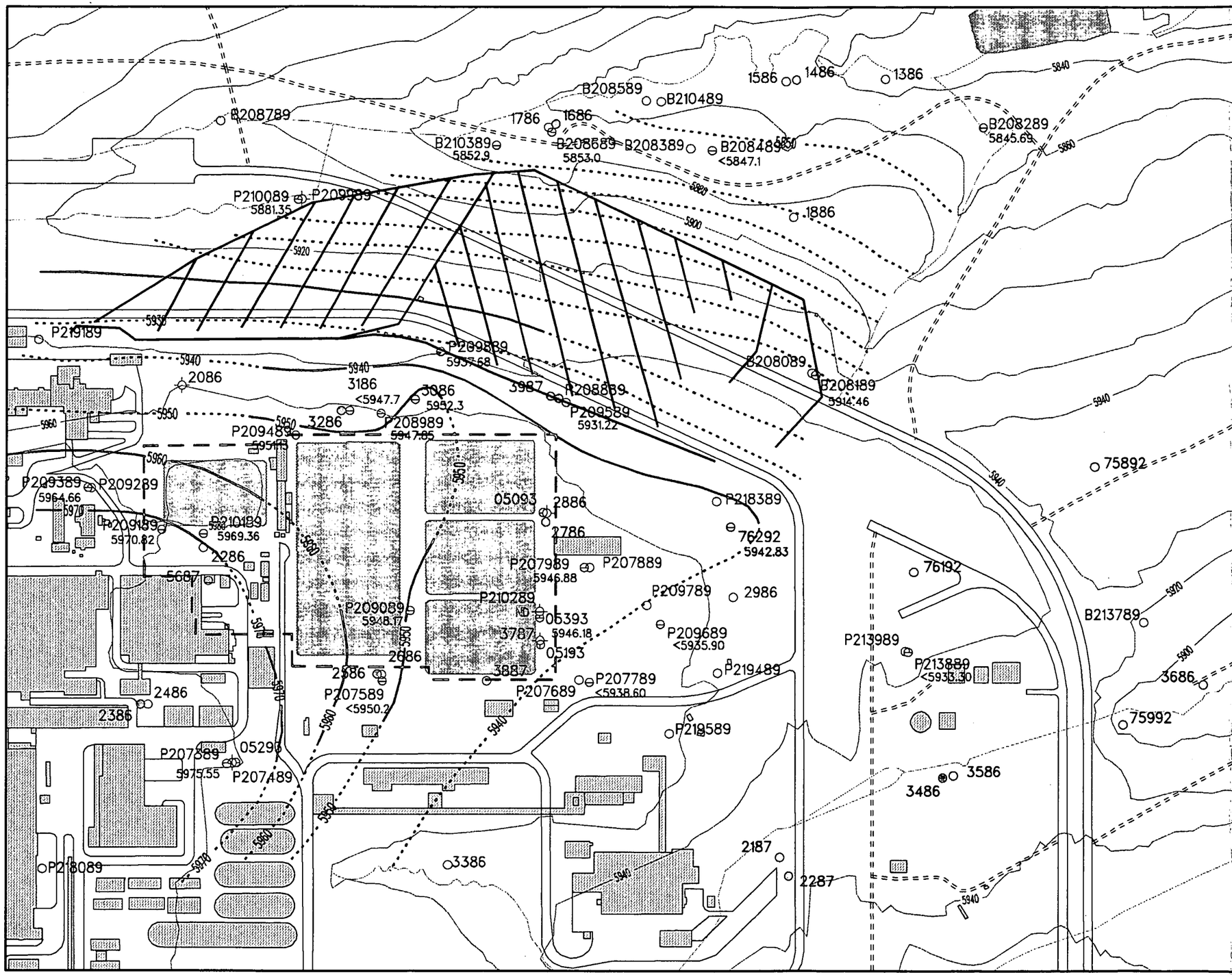
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Bedrock
Second Quarter (April) 1993

Figure 3-7



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

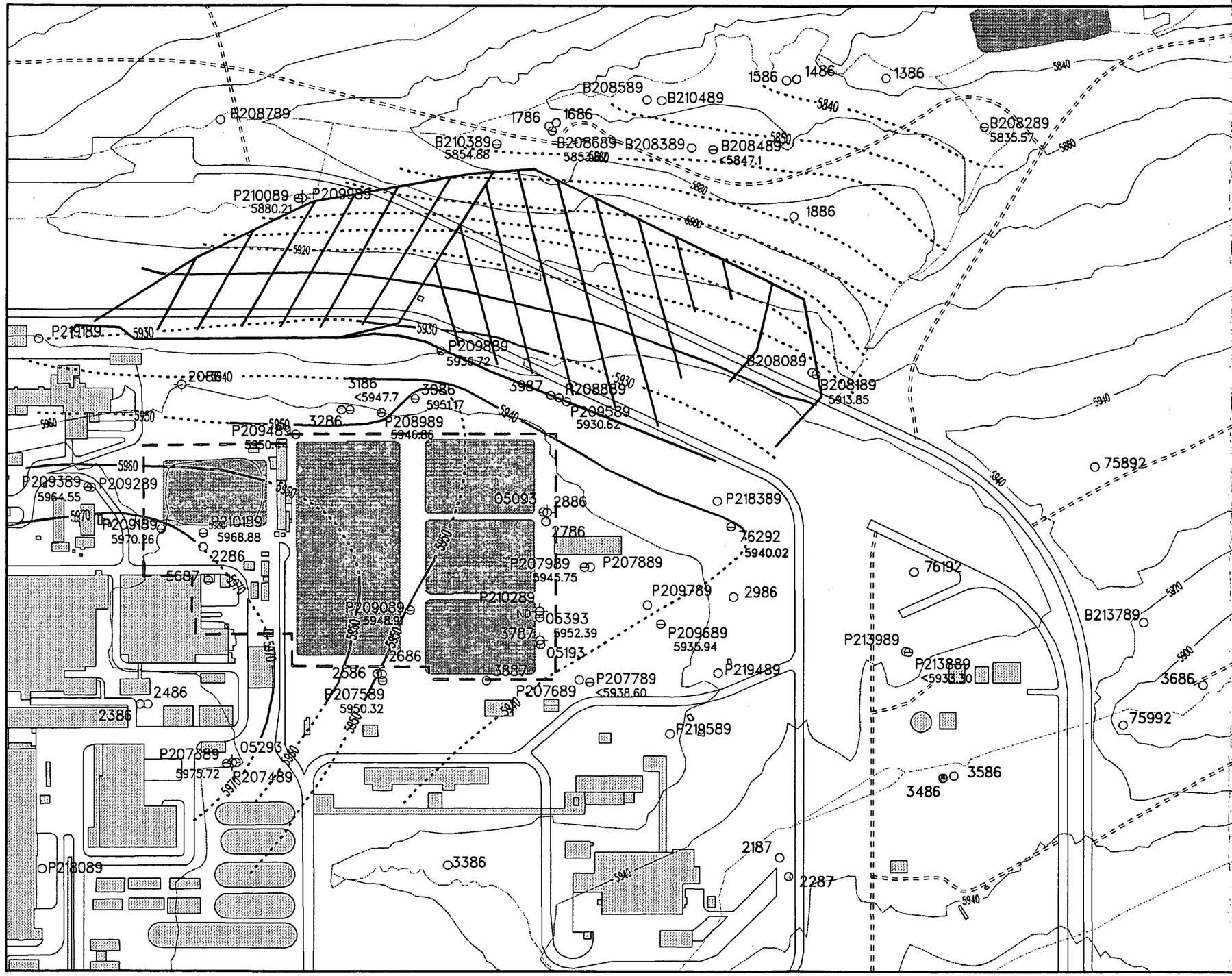
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Bedrock
Third Quarter (July) 1993

Figure 3-8



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
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- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
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- ND No Data
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- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

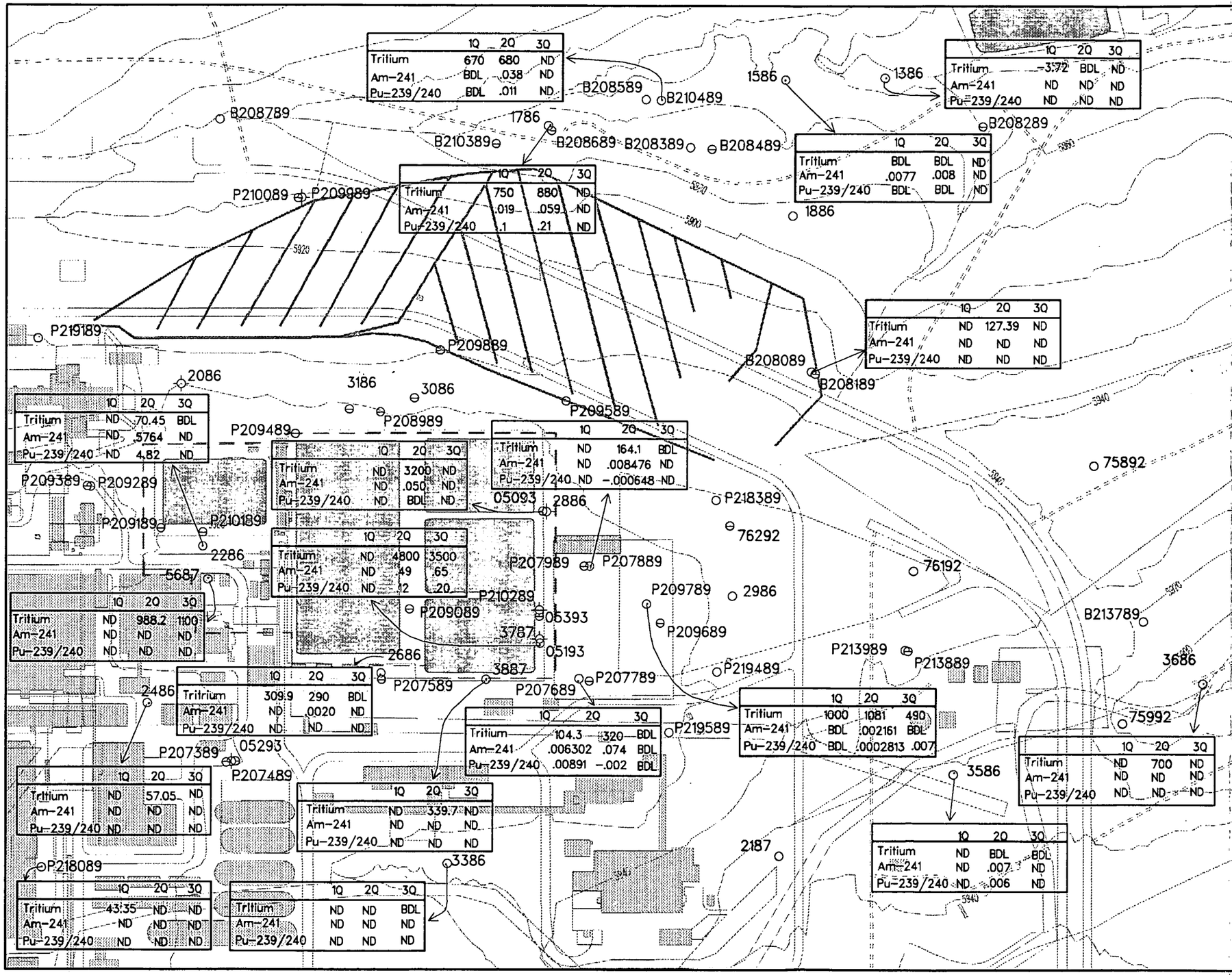
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
UHSU Bedrock
Fourth Quarter (October) 1993

Figure 3-9



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Intercepter Trench System
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

0 feet 250 500

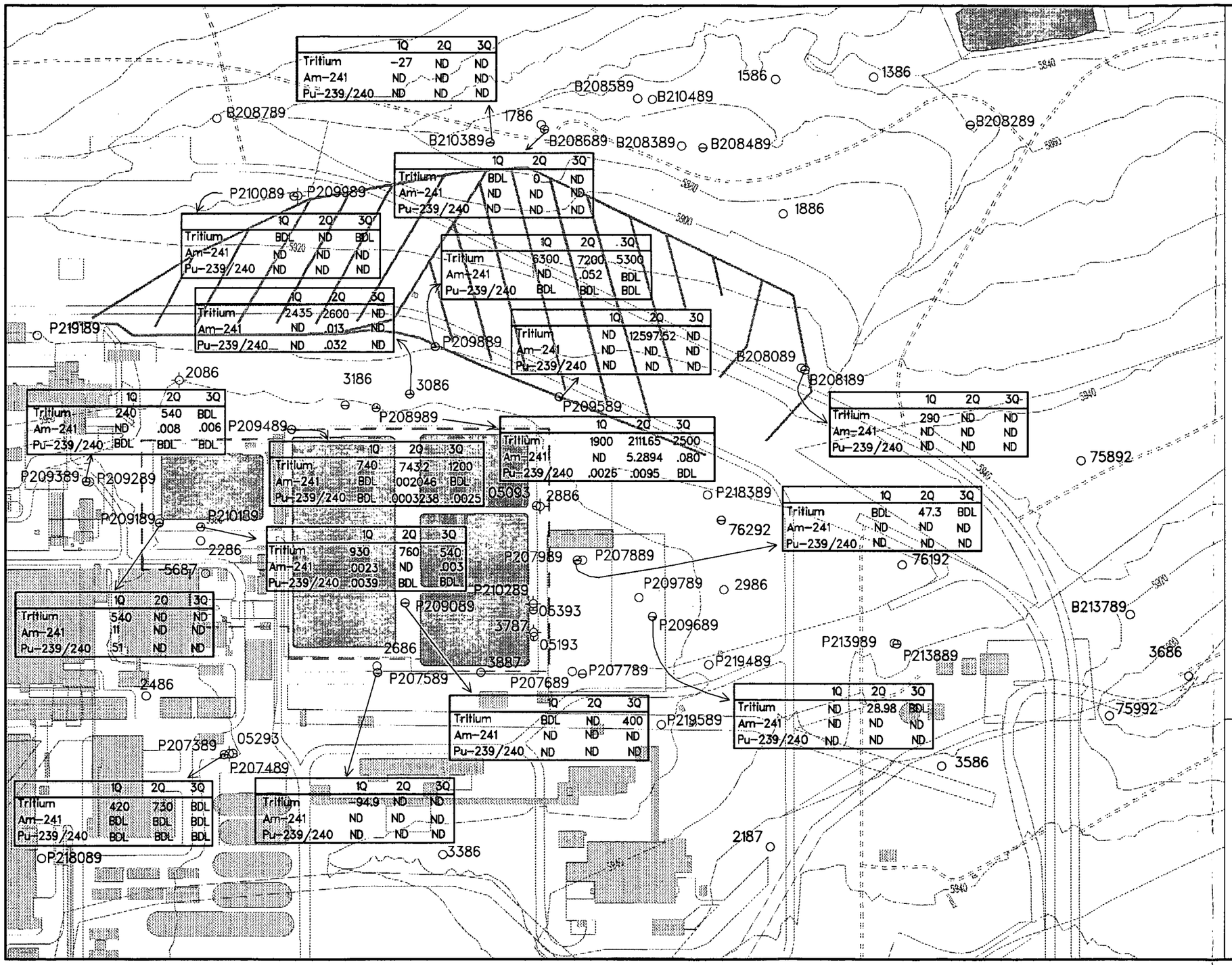
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Tritium, Am-241, and Pu-239/240 (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 3-10



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- IHSS Boundary
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- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Intercepter Trench System
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

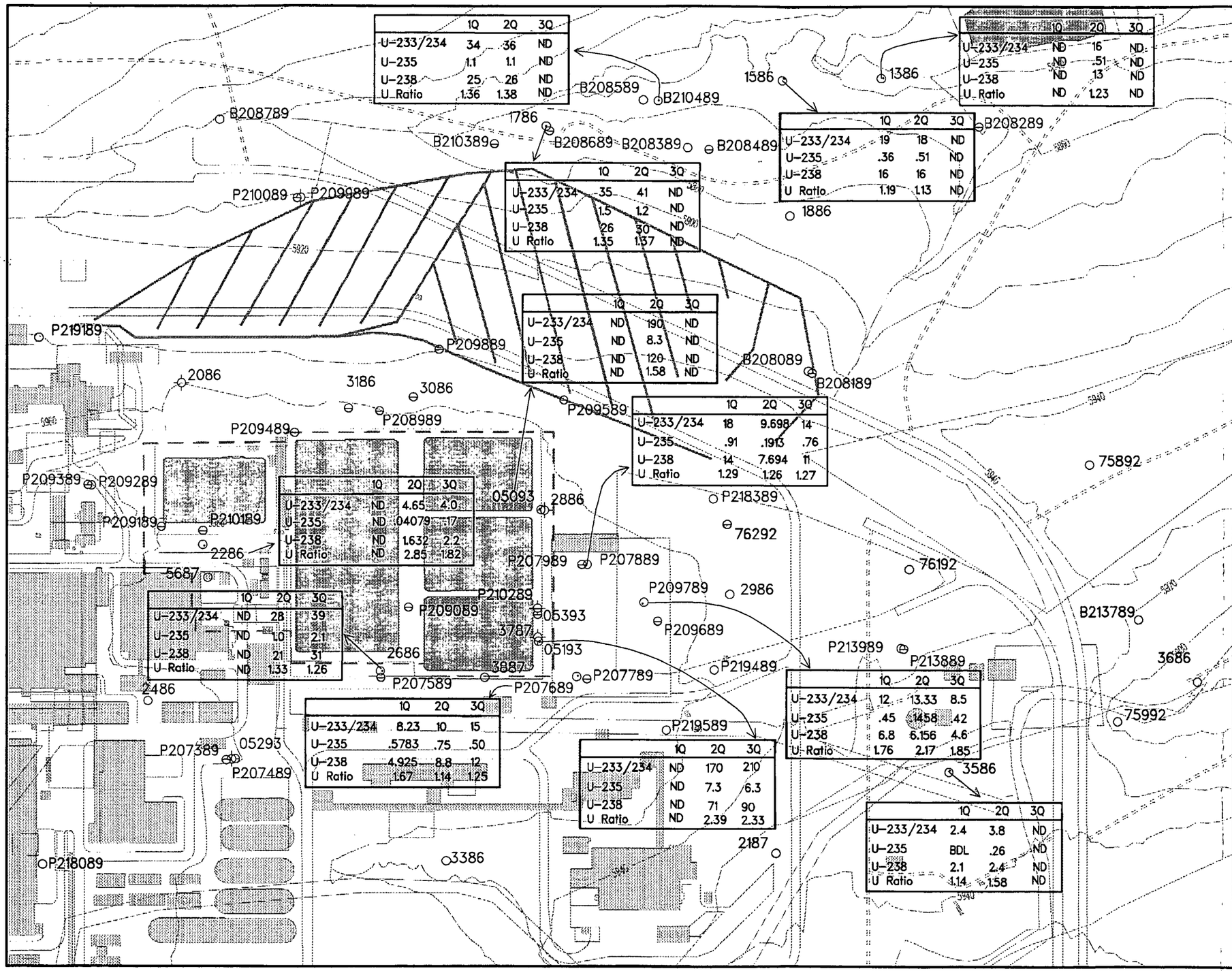
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Tritium, Am-241, and Pu-239/240 (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 3-11



	1Q	2Q	3Q
U-233/234	34	36	ND
U-235	1.1	1.1	ND
U-238	25	26	ND
U_Ratio	1.36	1.38	ND

	1Q	2Q	3Q
U-233/234	ND	16	ND
U-235	ND	.51	ND
U-238	ND	13	ND
U_Ratio	ND	1.23	ND

	1Q	2Q	3Q
U-233/234	19	18	ND
U-235	.36	.51	ND
U-238	16	16	ND
U Ratio	1.19	1.13	ND

	1Q	2Q	3Q
U-233/234	35	41	ND
U-235	1.5	1.2	ND
U-238	26	30	ND
U Ratio	1.35	1.37	ND

	1Q	2Q	3Q
U-233/234	ND	190	ND
U-235	ND	8.3	ND
U-238	ND	120	ND
U-Ratio	ND	1.58	ND

	1Q	2Q	3Q
U-233/234	18	9.698	14
U-235	.91	.1913	.76
U-238	14	7.694	11
U_Ratio	1.29	1.26	1.27

	1Q	2Q	3Q
U-233/234	ND	4.65	4.0
U-235	ND	.04079	.17
U-238	ND	1.632	2.2
U Ratio	ND	2.85	1.82

	1Q	2Q	3Q
U-233/234	ND	28	39
U-235	ND	1.0	2.1
U-238	ND	21	31
U-Ratio	ND	1.33	1.26

	1Q	2Q	3Q
U-233/234	8.23	10	15
U-235	.5783	.75	.50
U-238	4.925	8.8	12
U Ratio	1.67	1.14	1.25

	1Q	2Q	3Q
U-233/234	ND	170	210
U-235	ND	7.3	6.3
U-238	ND	71	90
U Ratio	ND	2.39	2.33

	1Q	2Q	3Q
U-233/234	12	13.33	8.5
U-235	.45	.1458	.42
U-238	6.8	6.156	4.6
U-Ratio	1.76	2.17	1.85

	1Q	2Q	3Q
U-233/234	2.4	3.8	ND
U-235	BDL	.26	ND
U-238	2.1	2.4	ND
U Ratio	1.14	1.58	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
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- ND Data Not Available
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- Buildings
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

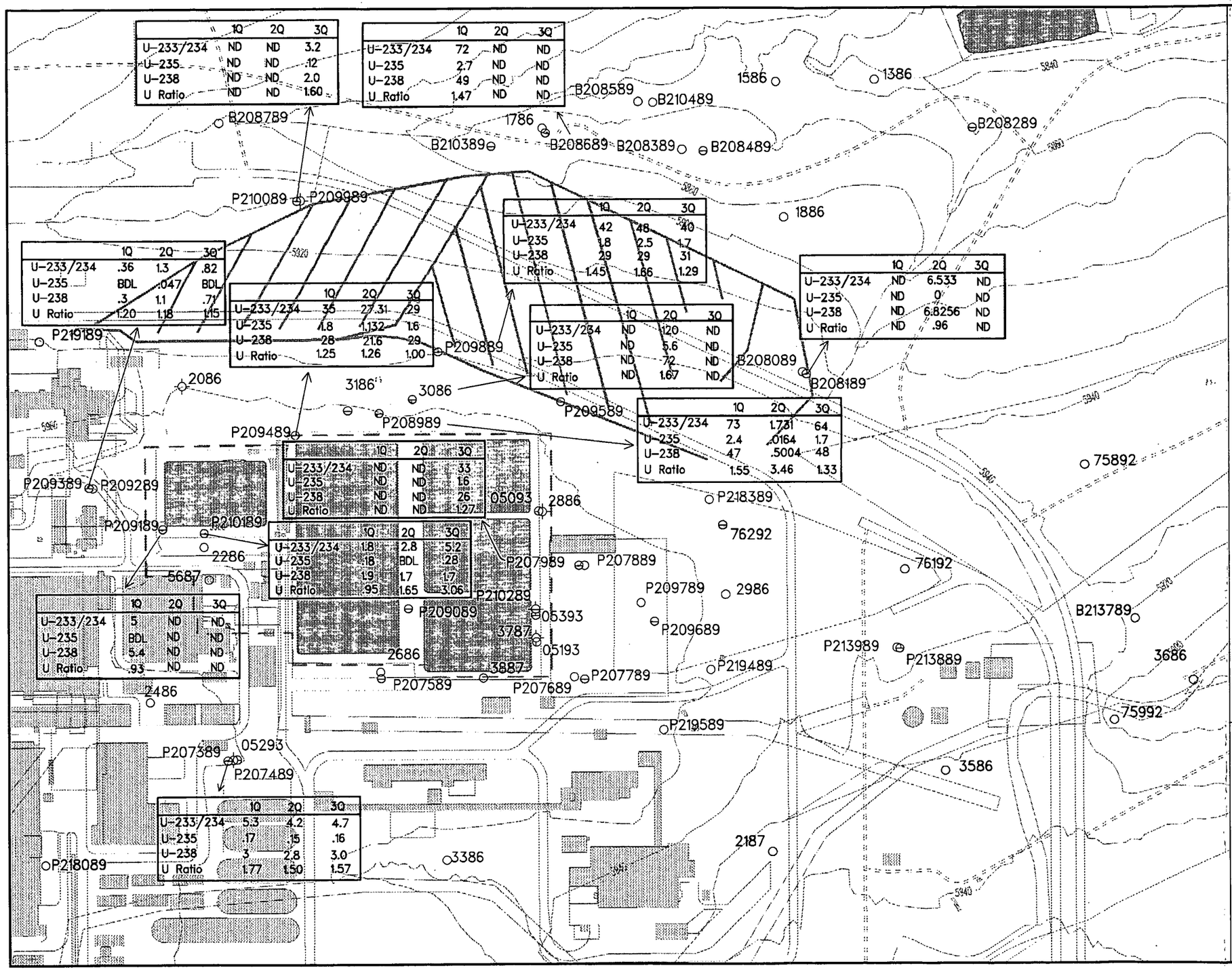
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

U-233/234, U-235, and U-238 (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 3-12



	1Q	2Q	3Q
U-233/234	ND	ND	3.2
U-235	ND	ND	.12
U-238	ND	ND	2.0
U Ratio	ND	ND	1.60

	1Q	2Q	3Q
U-233/234	72	ND	ND
U-235	2.7	ND	ND
U-238	49	ND	ND
U Ratio	1.47	ND	ND

	1Q	2Q	3Q
U-233/234	.36	1.3	.82
U-235	BDL	.047	BDL
U-238	.3	1.1	.71
U Ratio	1.20	1.18	1.15

	1Q	2Q	3Q
U-233/234	35	27.31	29
U-235	1.8	1.132	1.6
U-238	28	21.6	29
U Ratio	1.25	1.26	1.00

	1Q	2Q	3Q
U-233/234	42	48	40
U-235	1.8	2.5	1.7
U-238	29	29	31
U Ratio	1.45	1.66	1.29

	1Q	2Q	3Q
U-233/234	ND	120	ND
U-235	ND	5.6	ND
U-238	ND	72	ND
U Ratio	ND	1.67	ND

	1Q	2Q	3Q
U-233/234	ND	6.533	ND
U-235	ND	0	ND
U-238	ND	6.8256	ND
U Ratio	ND	.96	ND

	1Q	2Q	3Q
U-233/234	73	1.731	64
U-235	2.4	.0164	1.7
U-238	47	.5004	48
U Ratio	1.55	3.46	1.33

	1Q	2Q	3Q
U-233/234	ND	ND	33
U-235	ND	ND	1.6
U-238	ND	ND	26
U Ratio	ND	ND	1.27

	1Q	2Q	3Q
U-233/234	1.8	2.8	5.2
U-235	.18	BDL	.28
U-238	1.9	1.7	1.7
U Ratio	.95	1.65	3.06

	1Q	2Q	3Q
U-233/234	5	ND	ND
U-235	BDL	ND	ND
U-238	5.4	ND	ND
U Ratio	.93	ND	ND

	1Q	2Q	3Q
U-233/234	5.3	4.2	4.7
U-235	.17	.15	.16
U-238	3	2.8	3.0
U Ratio	1.77	1.50	1.57

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
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- BDL Below Detection Limit
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- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

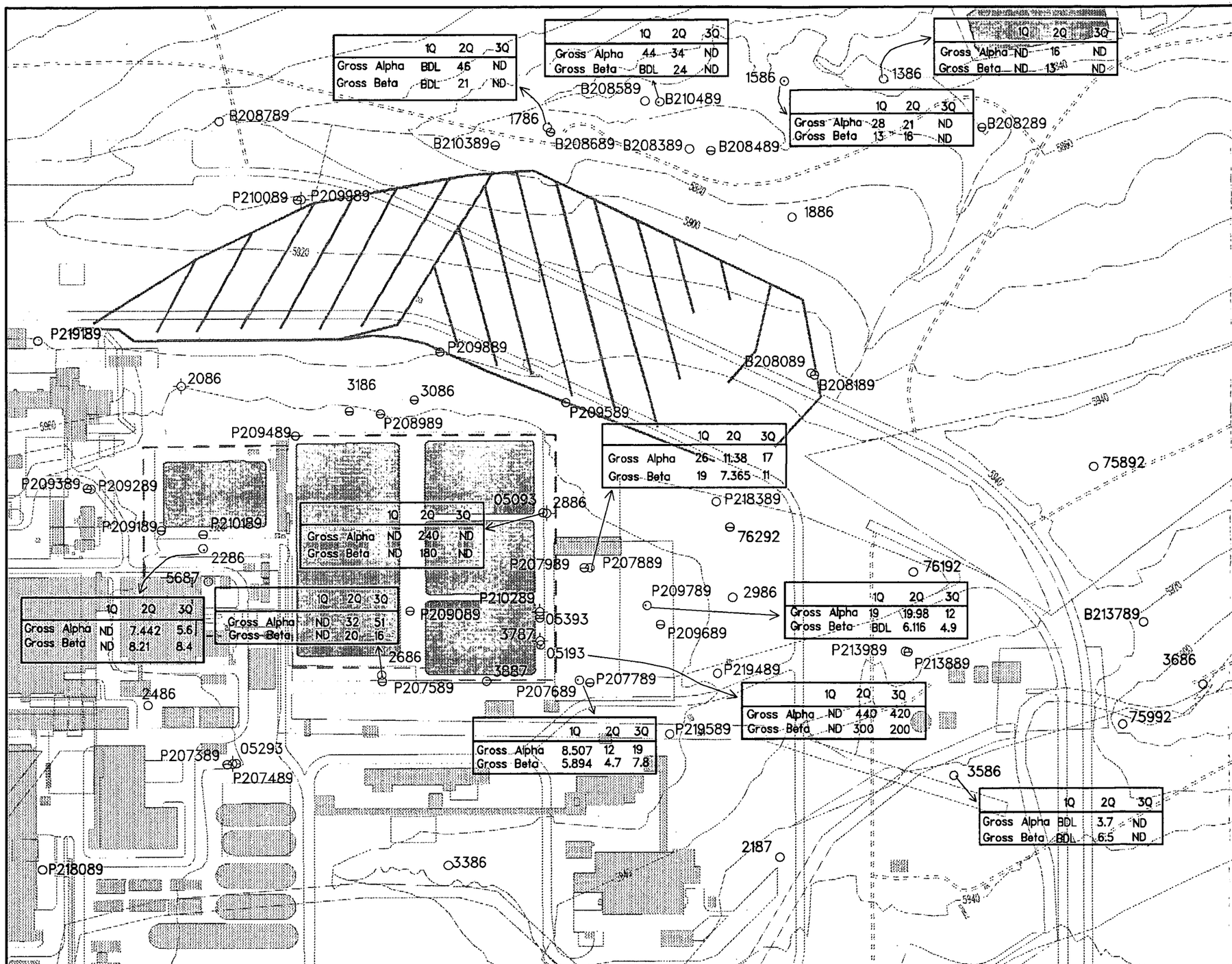
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

U-233/234, U-235, and U-238 (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 3-13



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
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- Abandoned Well (Bedrock, UHSU)
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

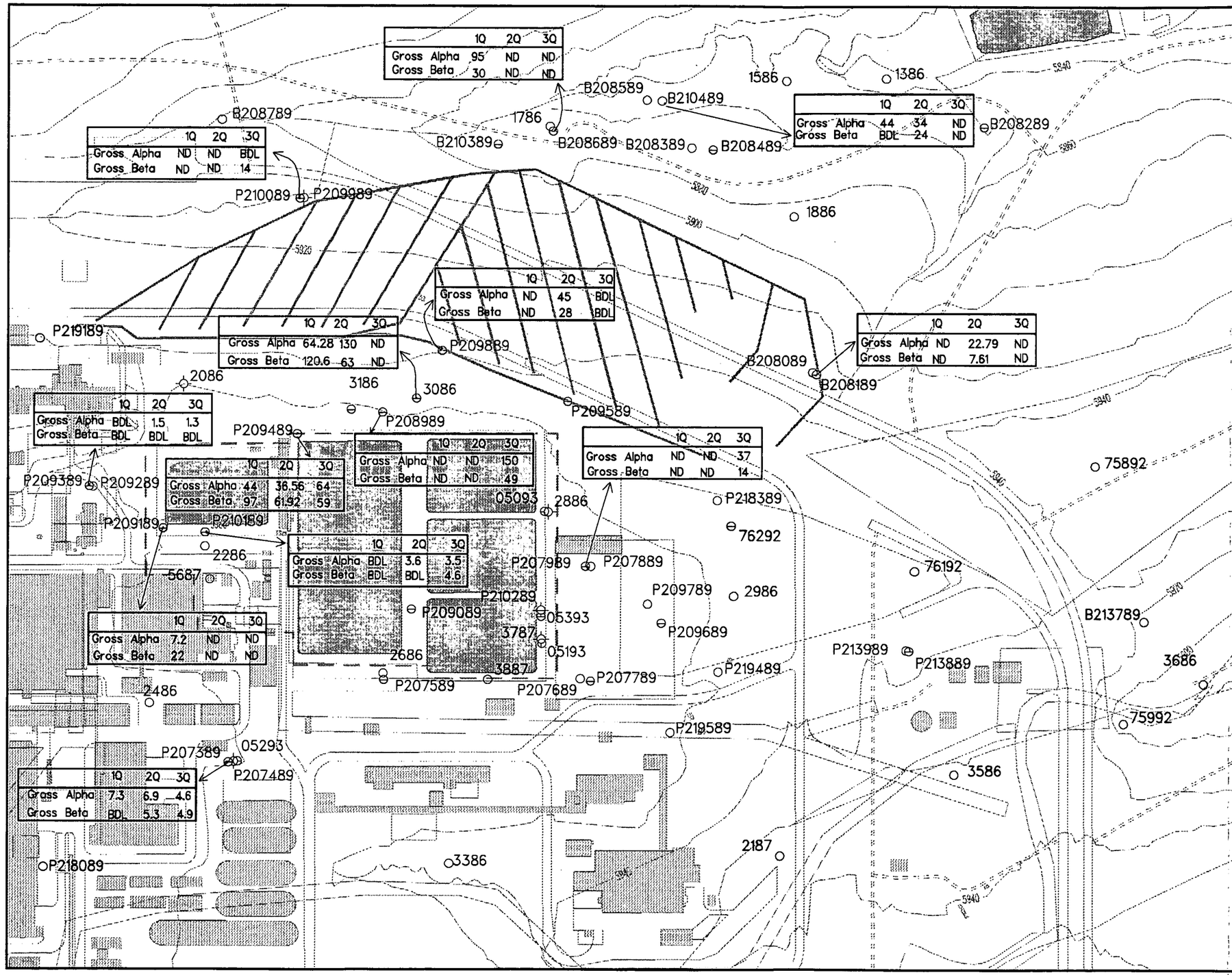
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Gross Alpha and Gross Beta (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 3-14



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
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0 feet 250 500

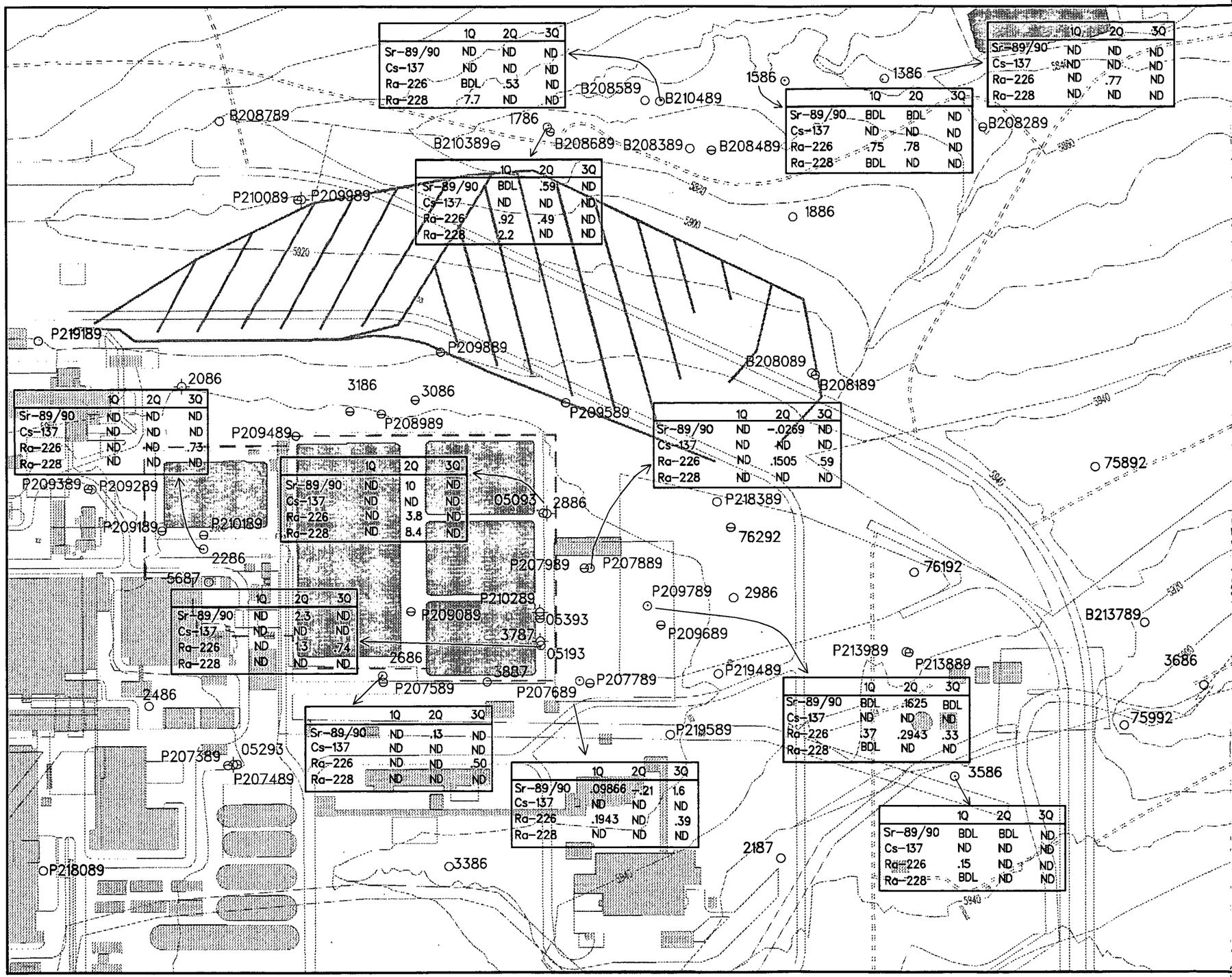
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Gross Alpha and Gross Beta (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 3-15



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
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- Paved Roads
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- Topographic Contours (feet above MSL)
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

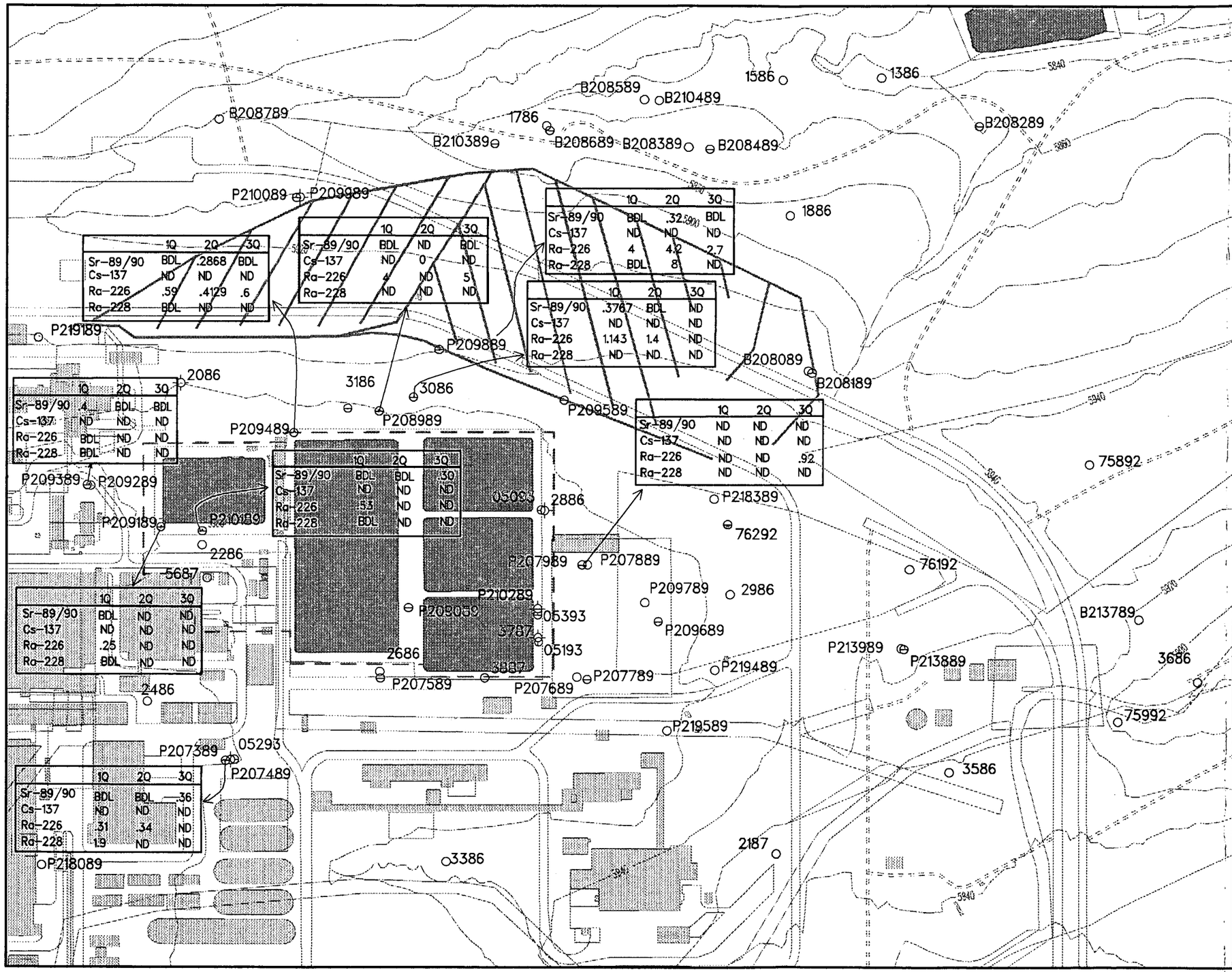
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Sr-89/90, Cs-137, Ra-226, and Ra-228 (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 3-16



	1Q	2Q	3Q
Sr-89/90	BDL	.2868	BDL
Cs-137	ND	ND	ND
Ra-226	.59	.4129	.6
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	ND	BDL
Cs-137	ND	0	ND
Ra-226	4	ND	5
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	.32	BDL
Cs-137	ND	ND	ND
Ra-226	4	4.2	2.7
Ra-228	BDL	8	ND

	1Q	2Q	3Q
Sr-89/90	.3767	BDL	ND
Cs-137	ND	ND	ND
Ra-226	1.143	1.4	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	4	BDL	BDL
Cs-137	ND	ND	ND
Ra-226	BDL	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	ND
Cs-137	ND	ND	ND
Ra-226	ND	ND	.92
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	BDL	.30
Cs-137	ND	ND	ND
Ra-226	5.3	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	ND	ND
Cs-137	ND	ND	ND
Ra-226	.25	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	BDL	.36
Cs-137	ND	ND	ND
Ra-226	.31	.34	ND
Ra-228	1.9	ND	ND

EXPLANATION

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- Abandoned Well (Bedrock, UHSU)
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- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

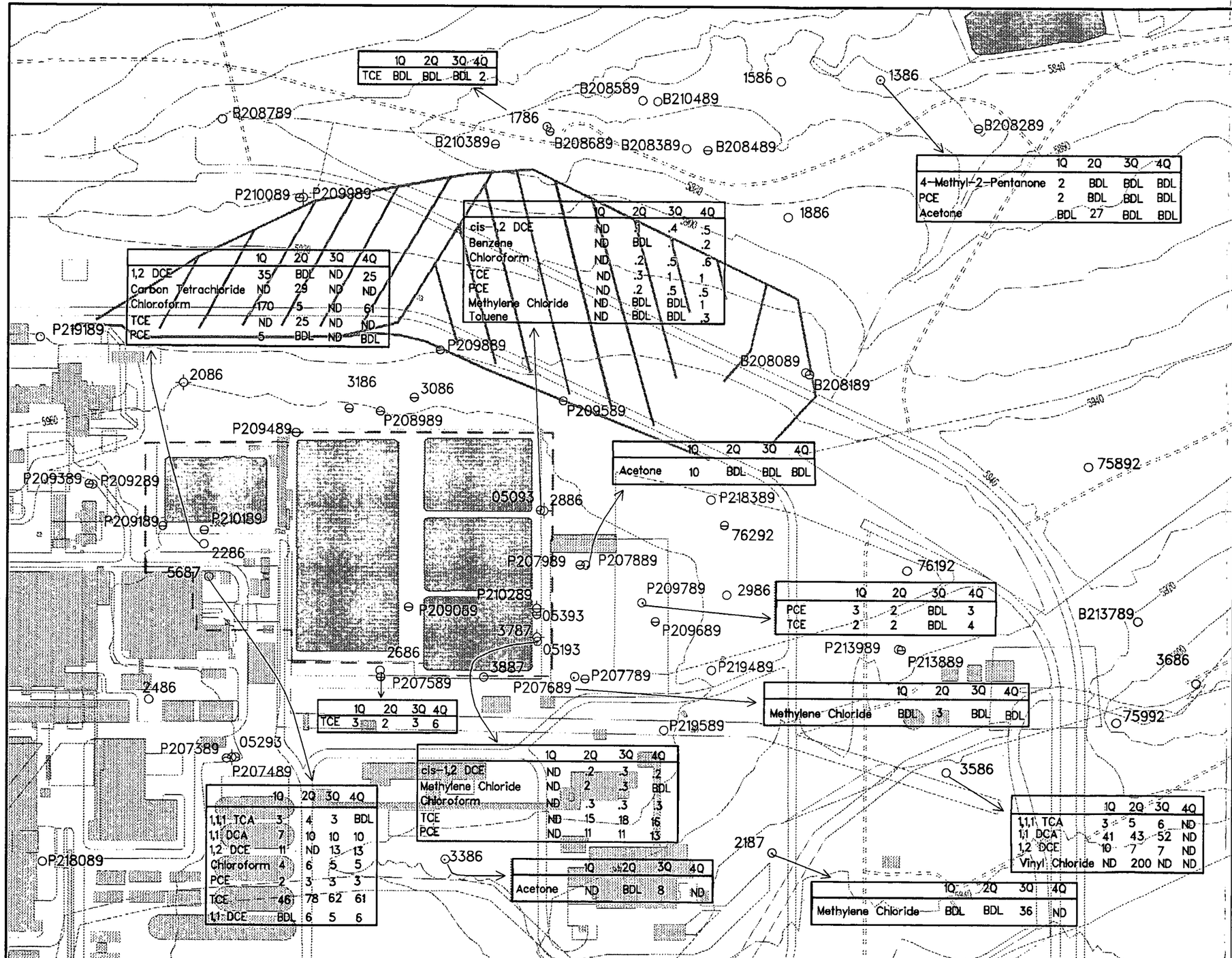
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Sr-89/90, Cs-137, Ra-226, and Ra-228 (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 3-17



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Intercepter Trench System
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

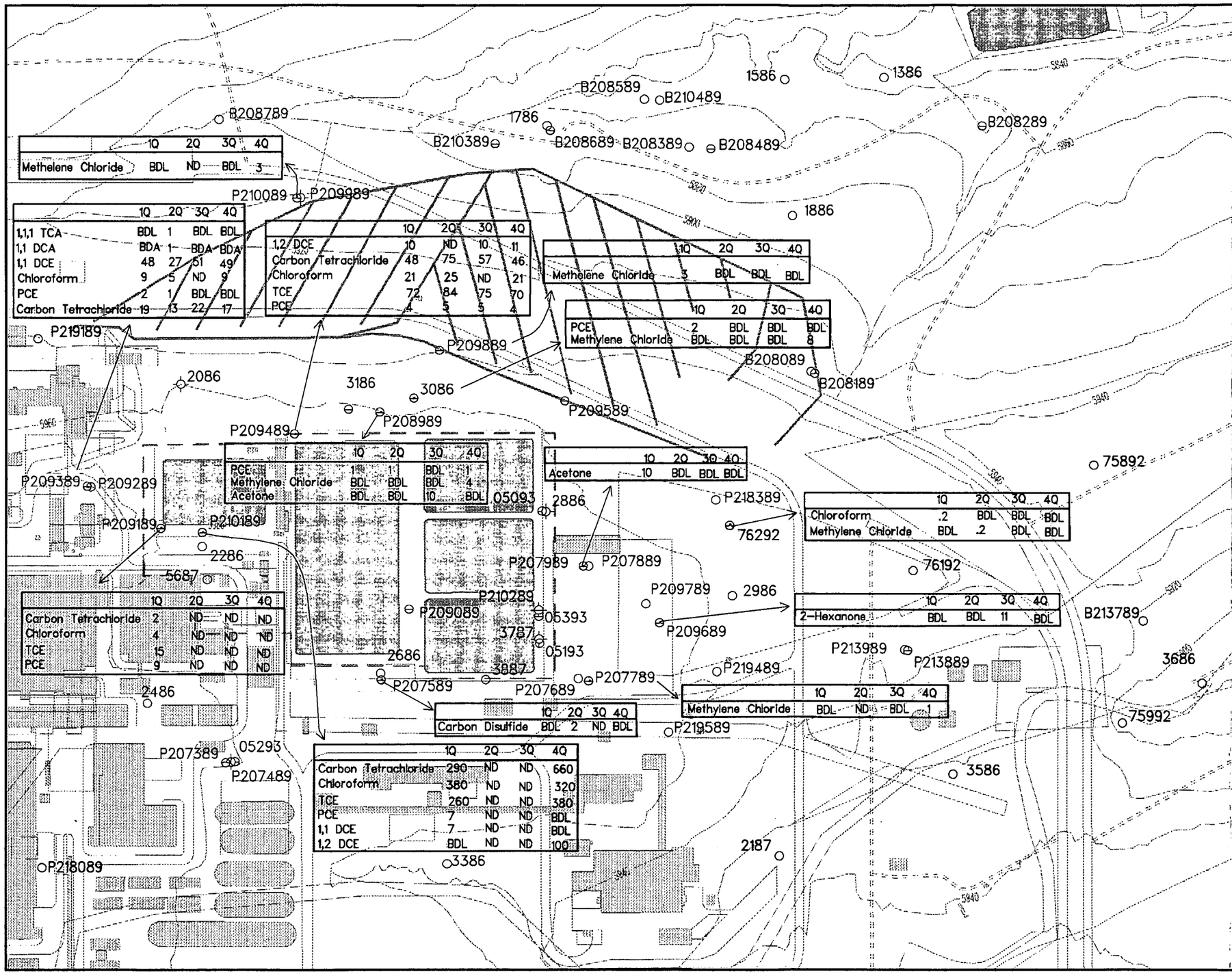
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Volatile Organic Compounds (ug/L)
in Groundwater
UHSU Surficial Materials, 1993

Figure 3-18



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
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- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

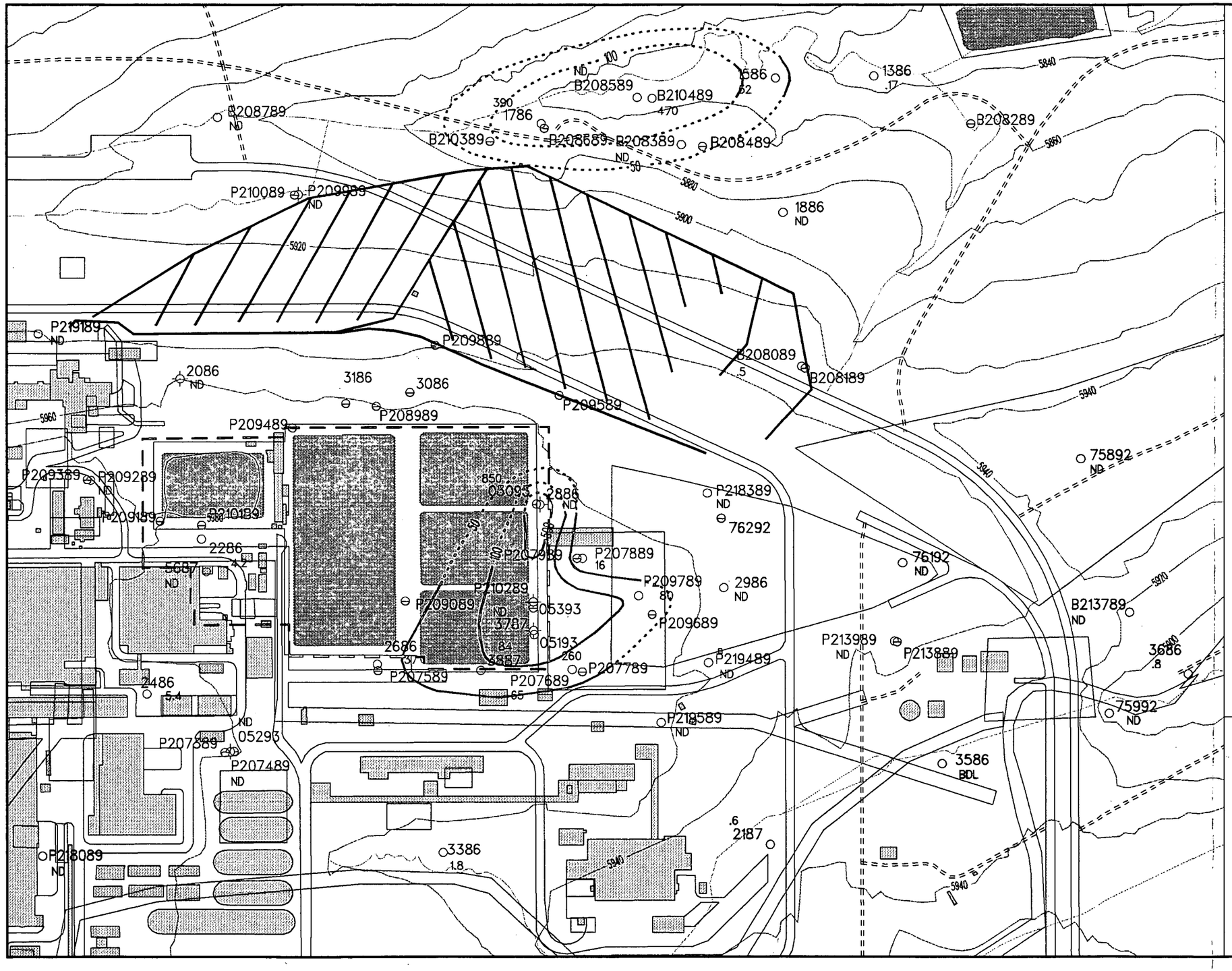
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Volatile Organic Compounds (ug/L)
in Groundwater
UHSU Bedrock, 1993

Figure 3-19



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours
- Intercepter Trench System
- Isoconcentration Contours; Dashed Where Approximately Located
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- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

0 feet 250 500

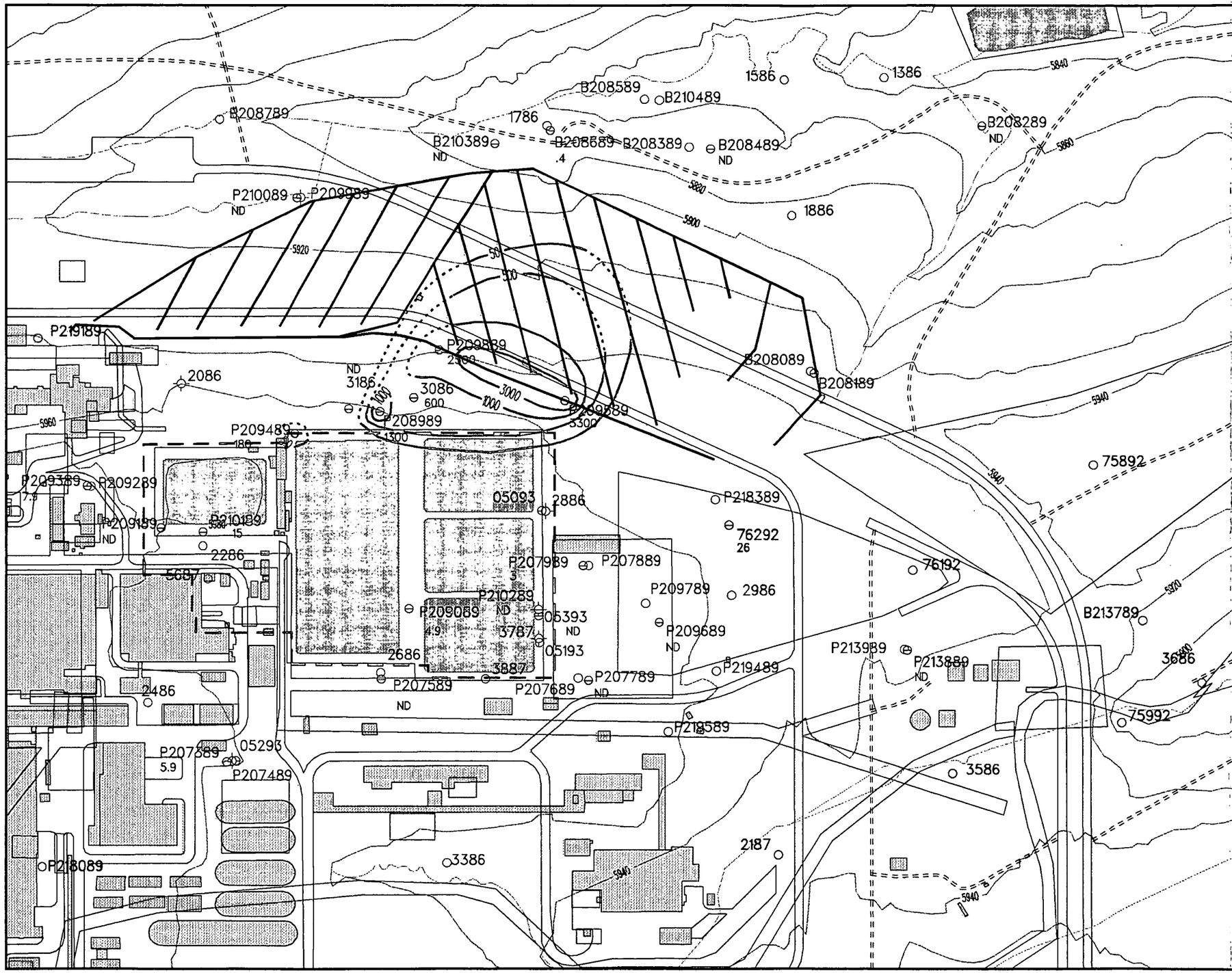
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Nitrate plus Nitrite (mg/L)
in Groundwater
UHSU Surficial Materials, Second Quarter 1993

Figure 3-20



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
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- RCRA Characterization Wells
- Special Purpose Wells

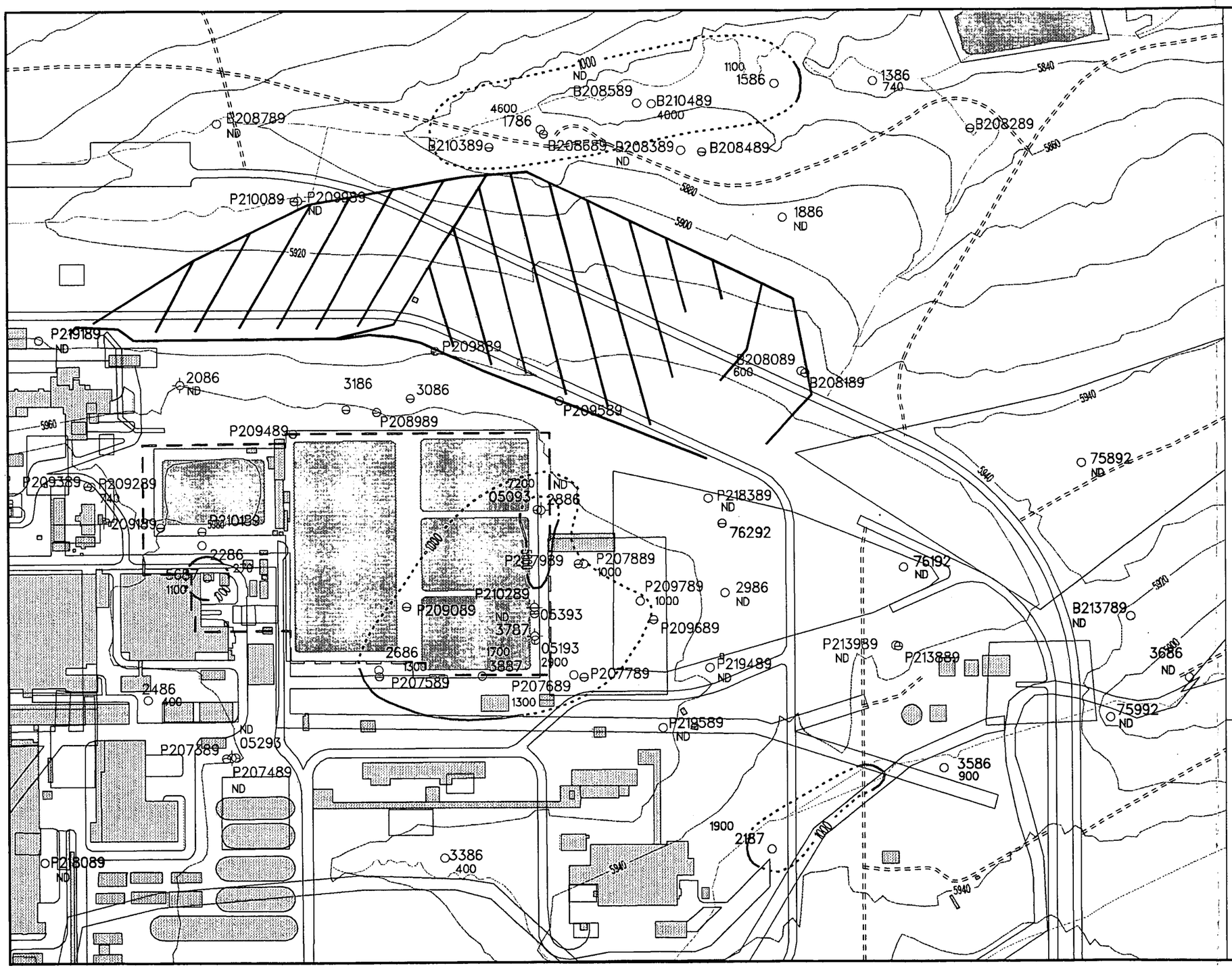
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Nitrate plus Nitrite (mg/L)
in Groundwater
UHSU Bedrock, Second Quarter 1993

Figure 3-21



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- Special Purpose Wells

N

0 feet 250 500

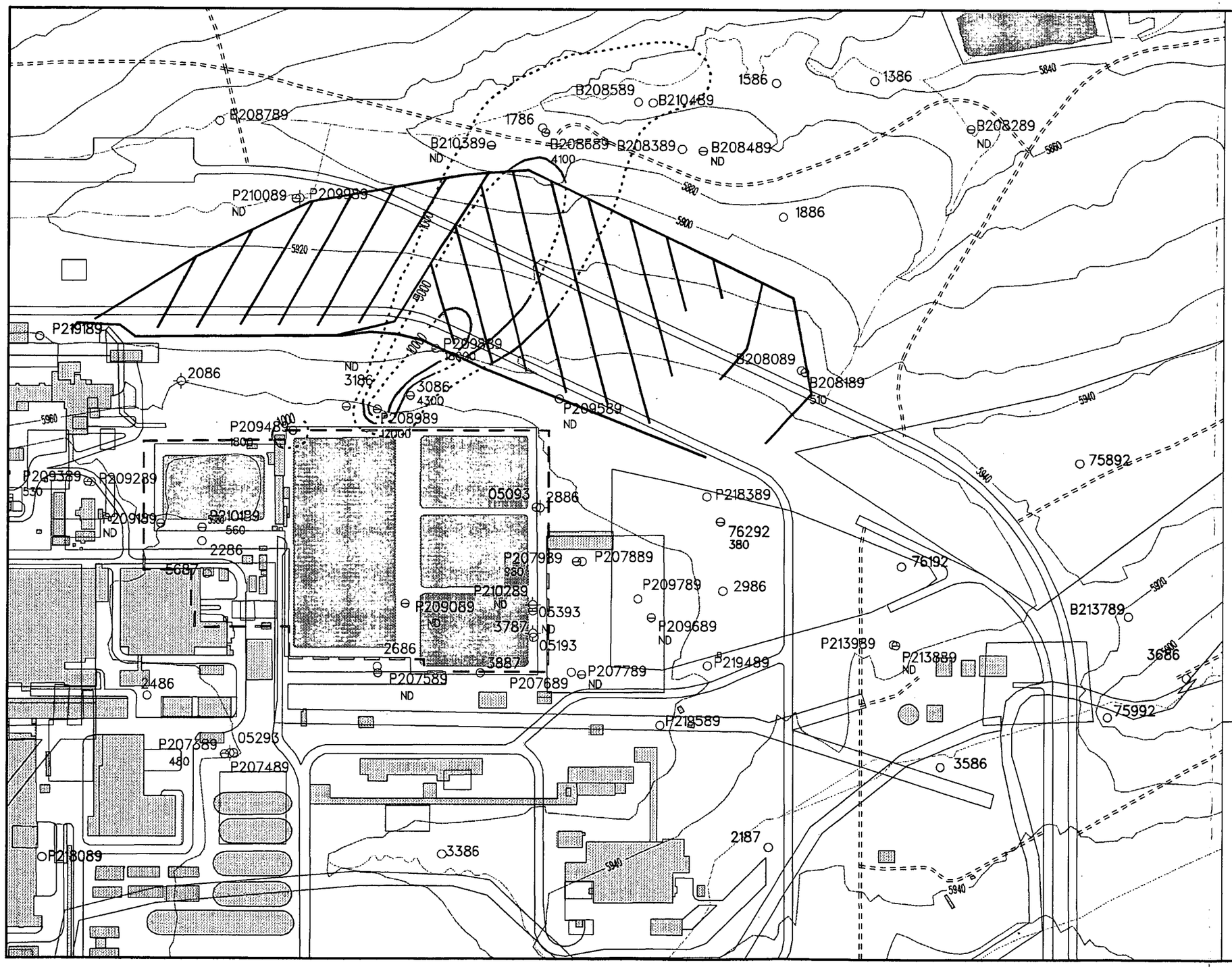
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Total Dissolved Solids (mg/L)
in Groundwater
UHSU Surficial Materials, Second Quarter 1993

Figure 3-22



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- Special Purpose Wells

0 feet 250 500

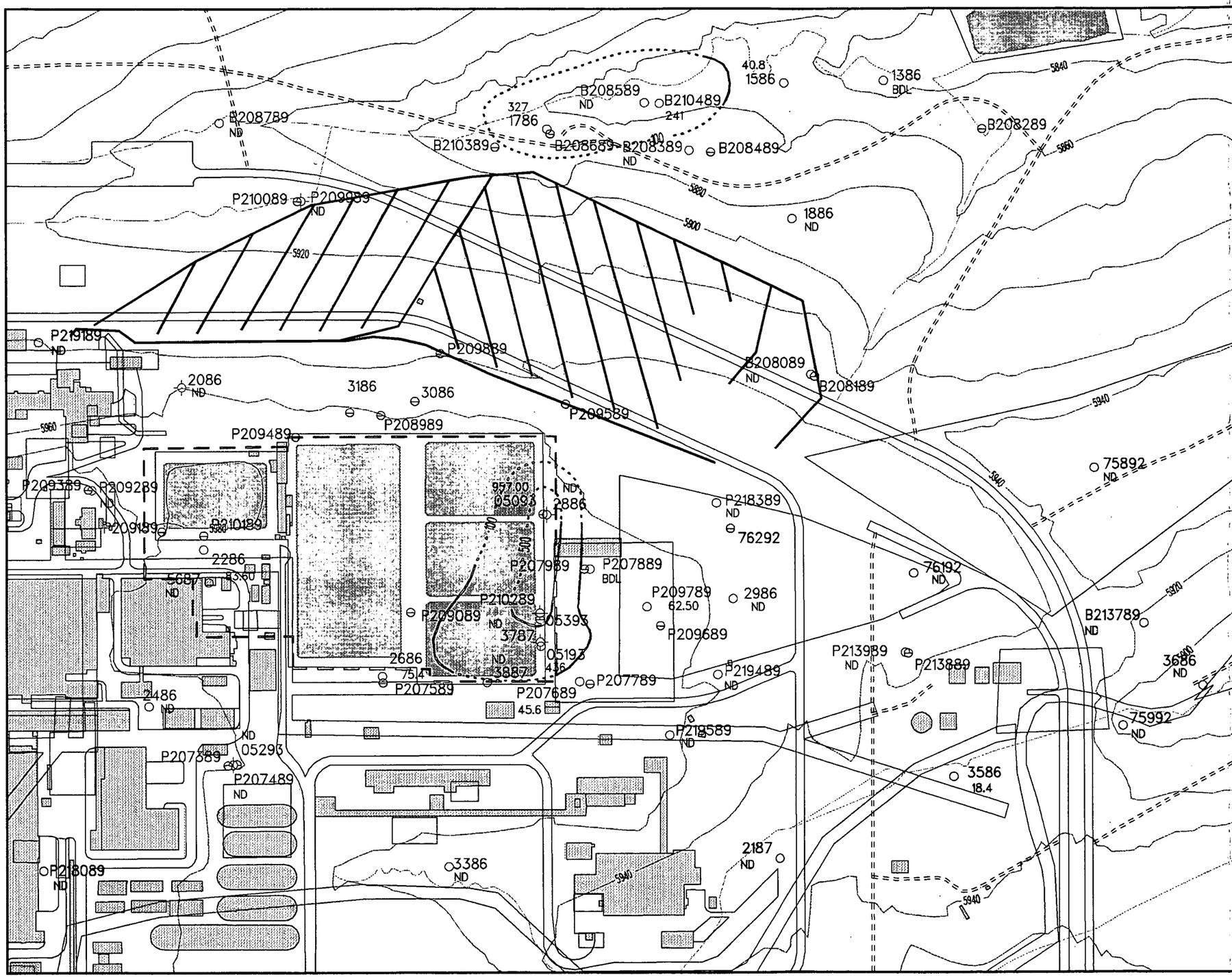
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Total Dissolved Solids (mg/L)
in Groundwater
UHSU Bedrock, Second Quarter 1993

Figure 3-23



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
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- Special Purpose Wells

N

0 feet 250 500

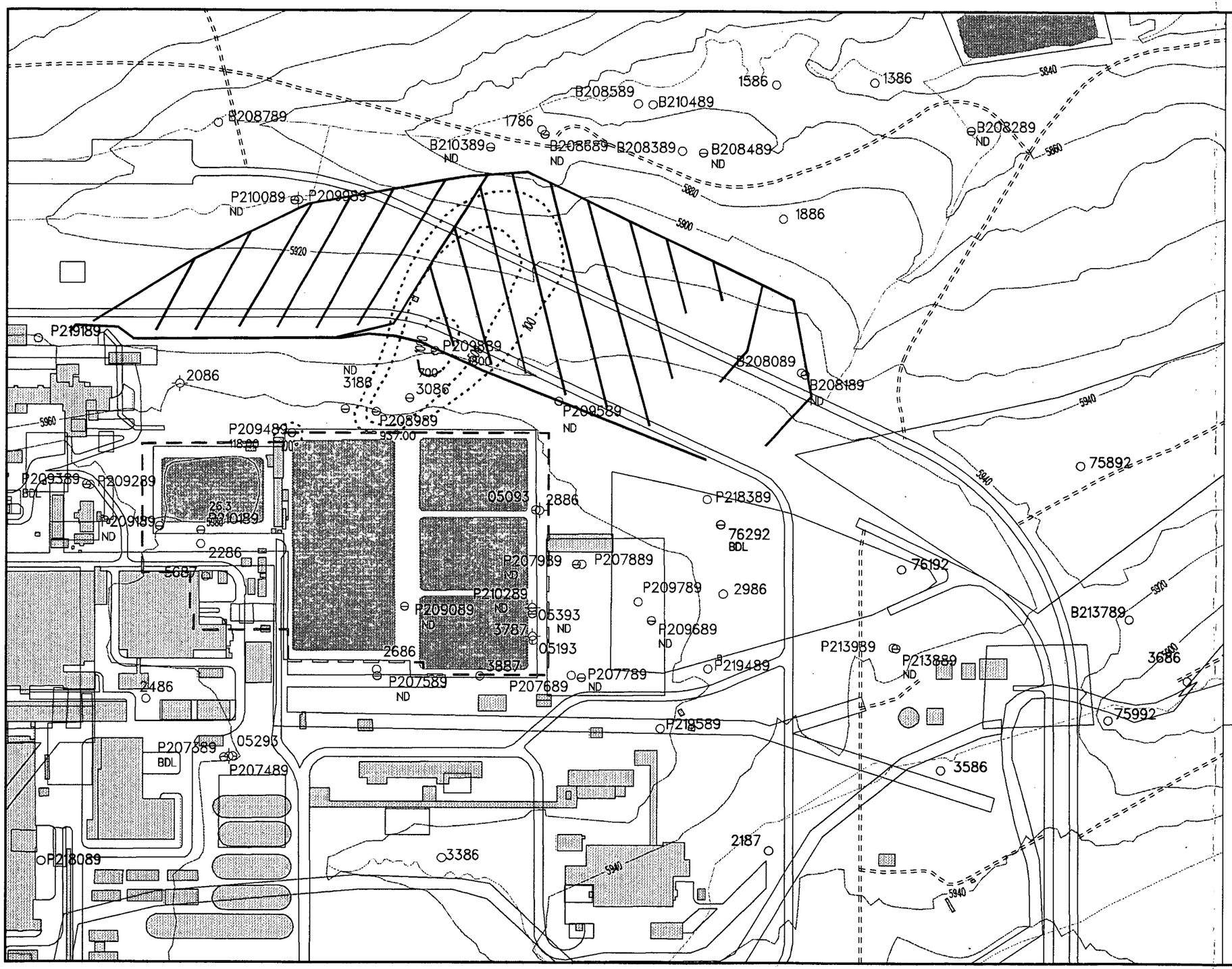
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Lithium (ug/L)
in Groundwater
UHSU Surficial Materials, Second Quarter 1993

Figure 3-24



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- RCRA Characterization Wells
- Special Purpose Wells

0 feet 250 500

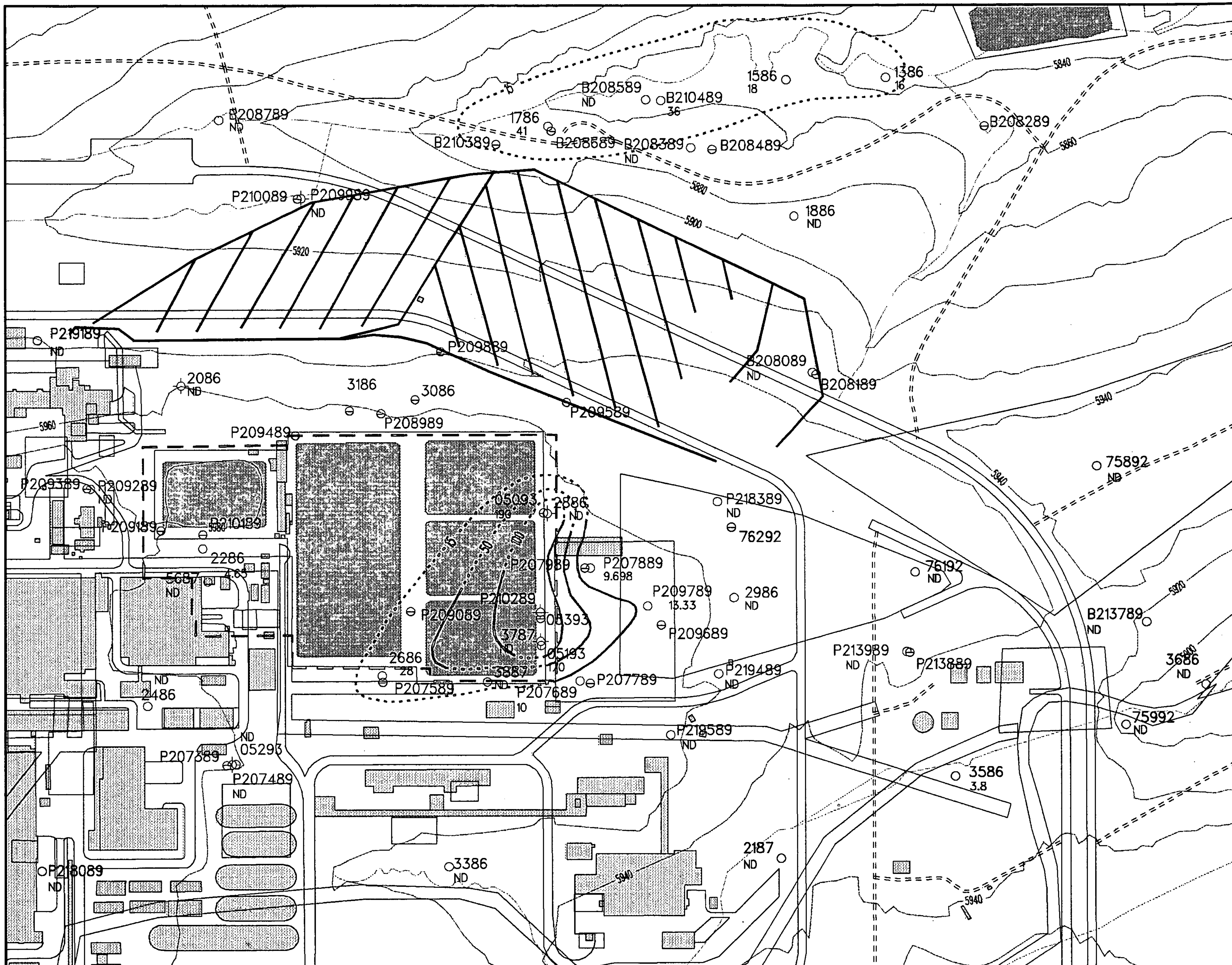
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Lithium (ug/L)
in Groundwater
UHSU Bedrock, Second Quarter 1993

Figure 3-25



EXPLANATION

- ○ Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

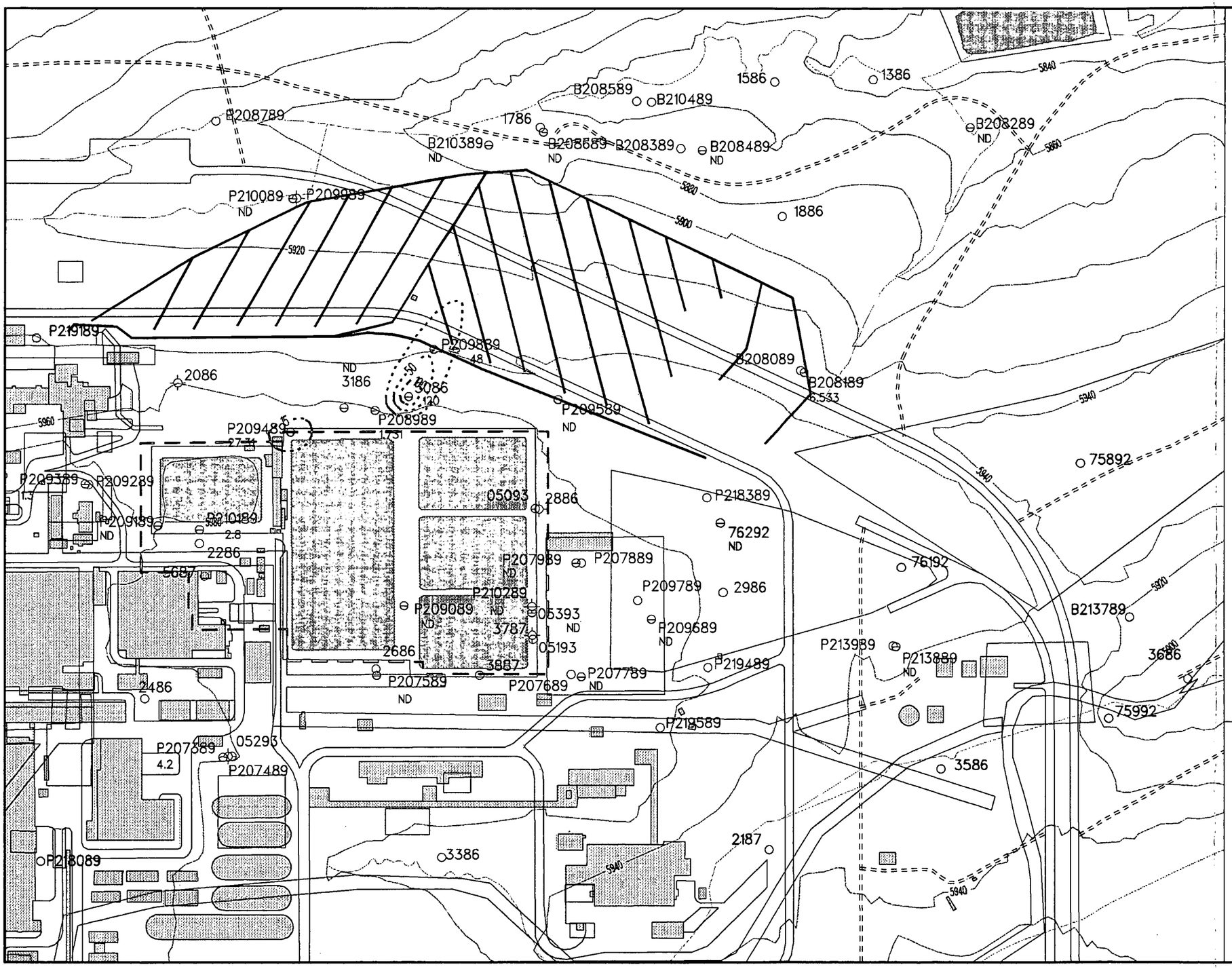
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Uranium-233/234 (pCi/L)
in Groundwater
UHSU Surficial Materials, Second Quarter 1993

Figure 3-26



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- Dirt Roads
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- Intercepter Trench System
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 250 500

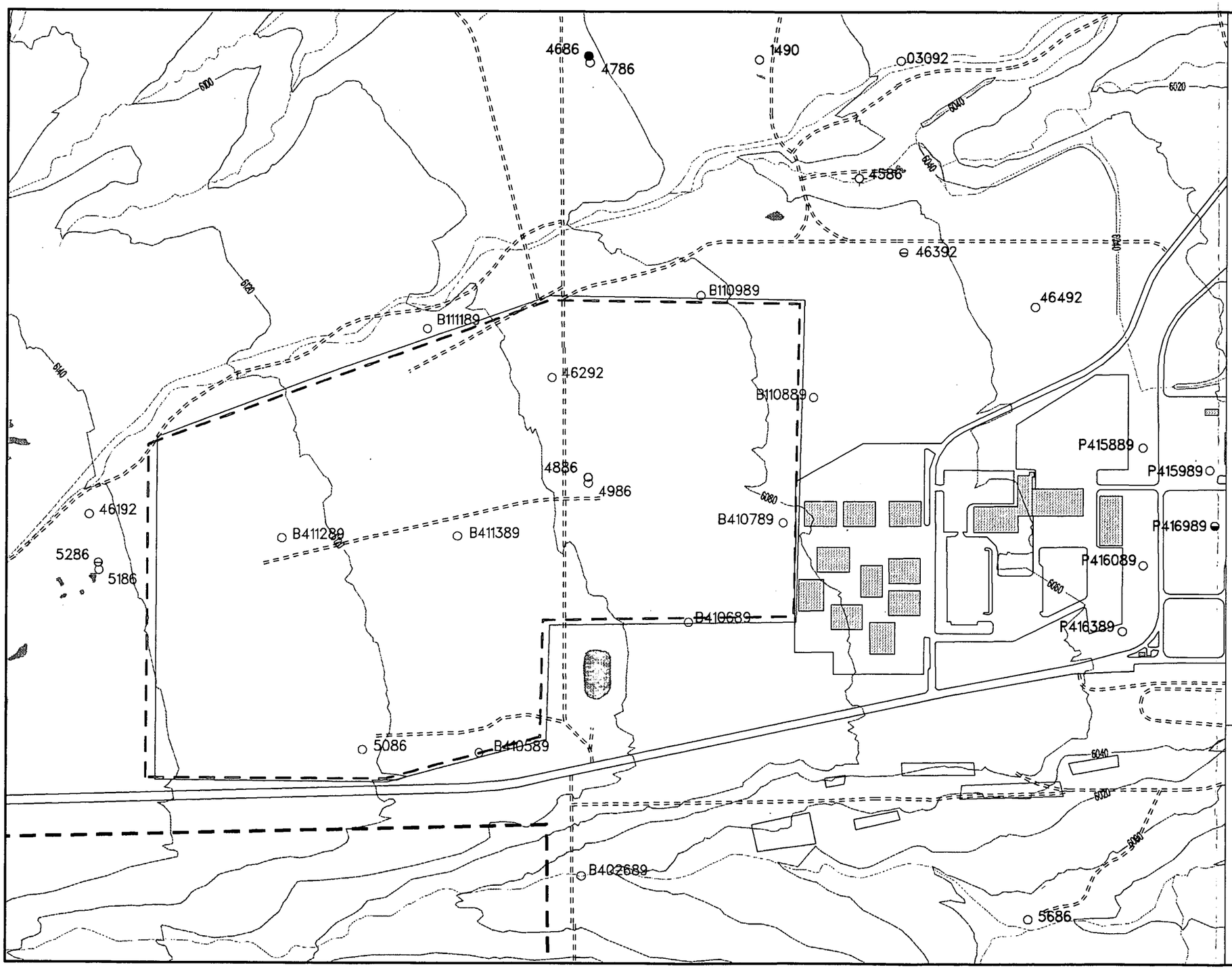
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Solar Evaporation Ponds

1993 Annual RCRA Groundwater Monitoring Report

Uranium-233/234 (pCi/L)
in Groundwater
UHSU Bedrock, Second Quarter 1993

Figure 3-27



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- IHSS Boundary
- Rocky Flats Plant Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Impoundments
- Buildings
- Background Characterization Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 450 900

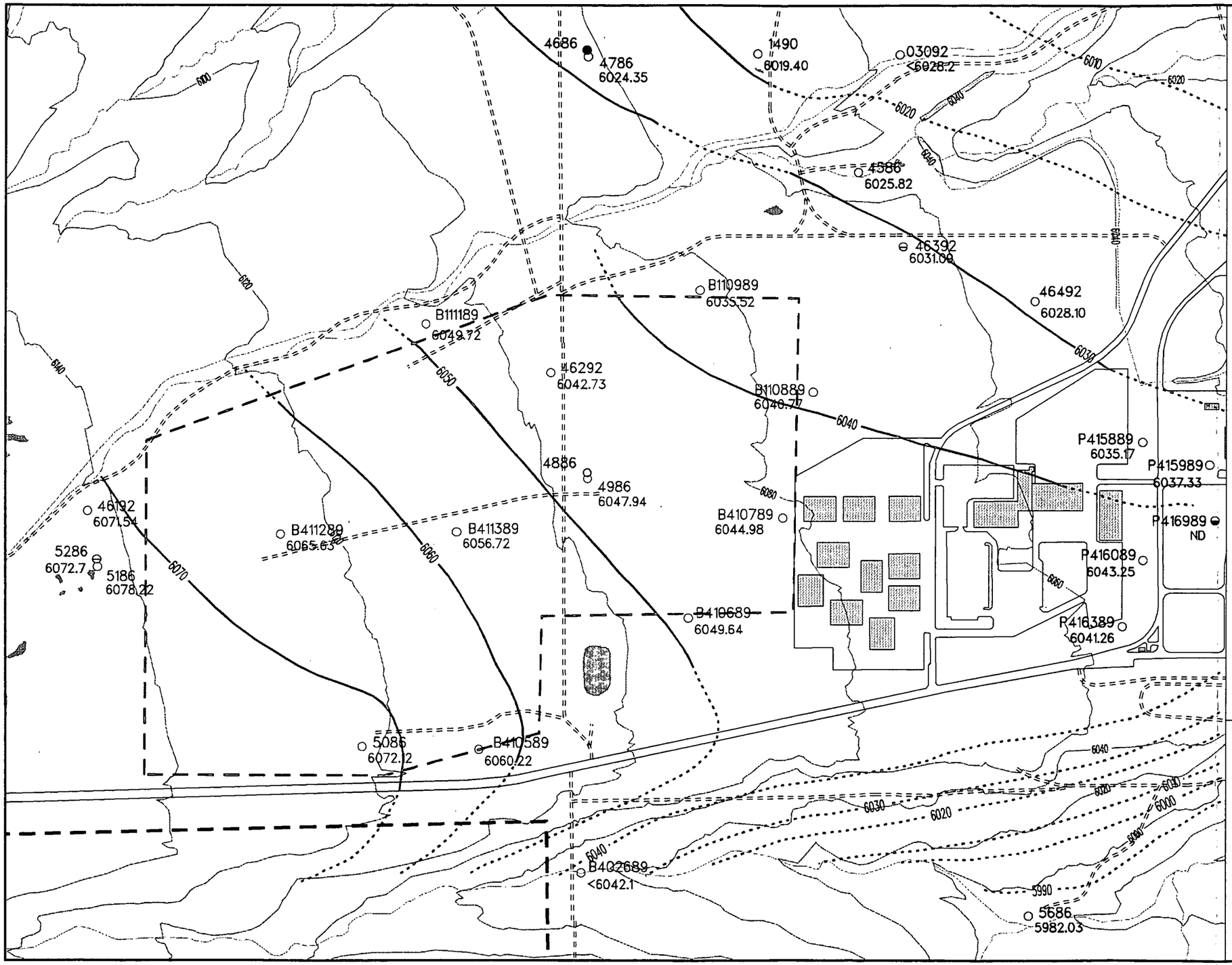
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Waste Management Area and
Monitoring Well Locations
1993

Figure 4-1



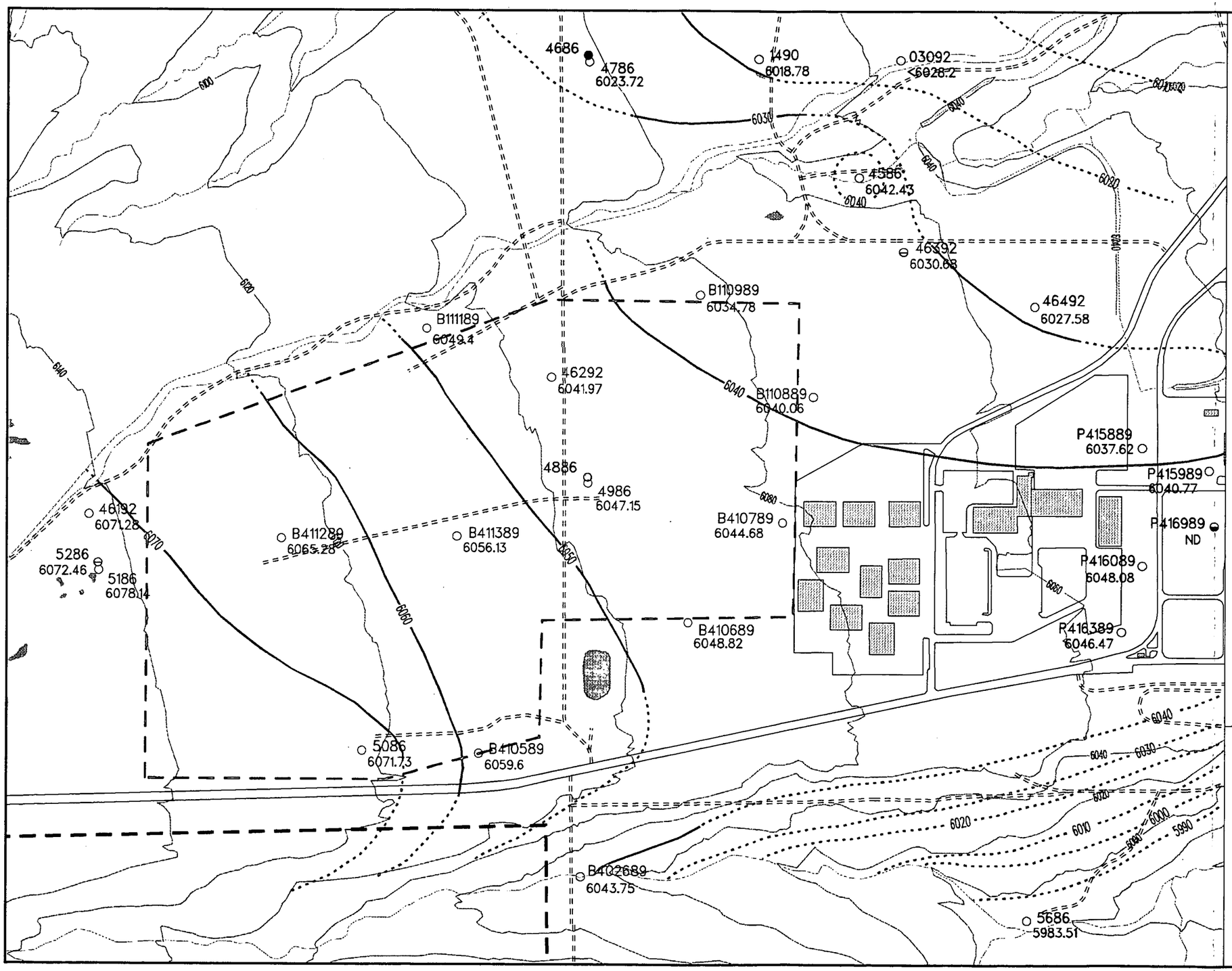
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
First Quarter (January) 1993

Figure 4-2



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
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- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- ND No Data
- Surface Water Impoundments
- Buildings
- Background Characterization Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 450 900

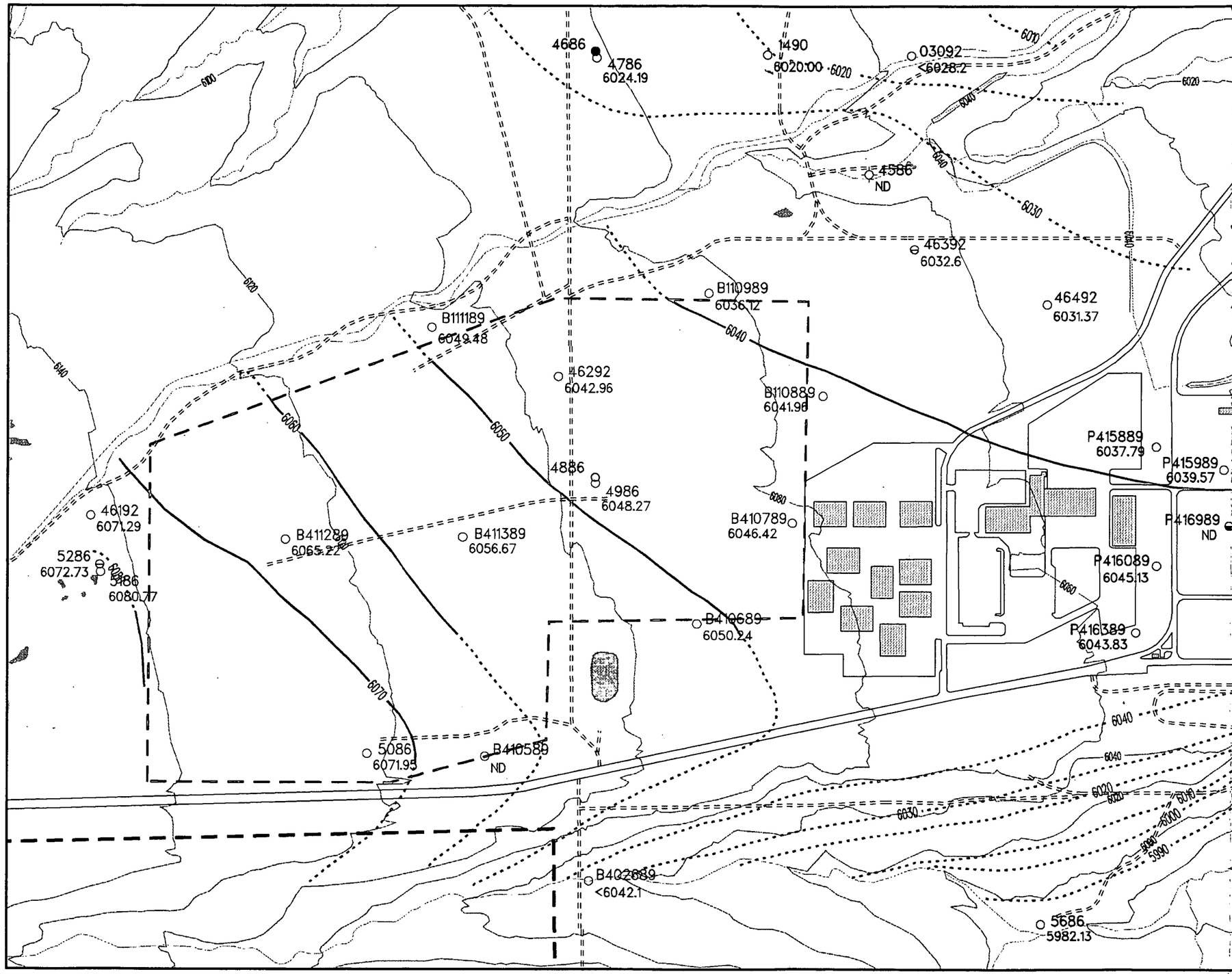
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
Second Quarter (April) 1993

Figure 4-3



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
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- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
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- Dirt Roads
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- Topographic Contours (feet above MSL)
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- Surface Water Impoundments
- Buildings
- Background Characterization Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 450 900

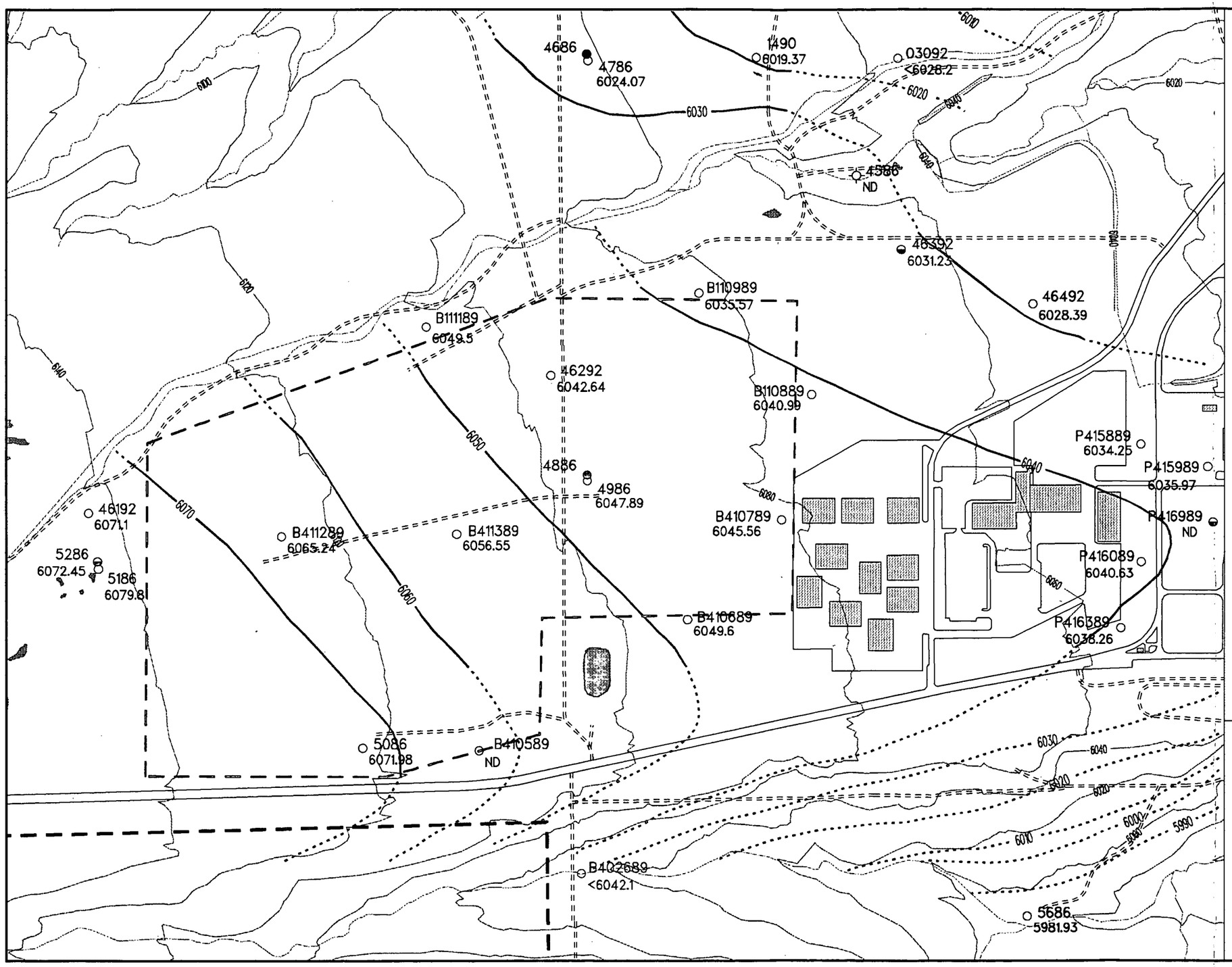
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
Third Quarter (July) 1993

Figure 4-4



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
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- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
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- Background Characterization Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

0 feet 450 900

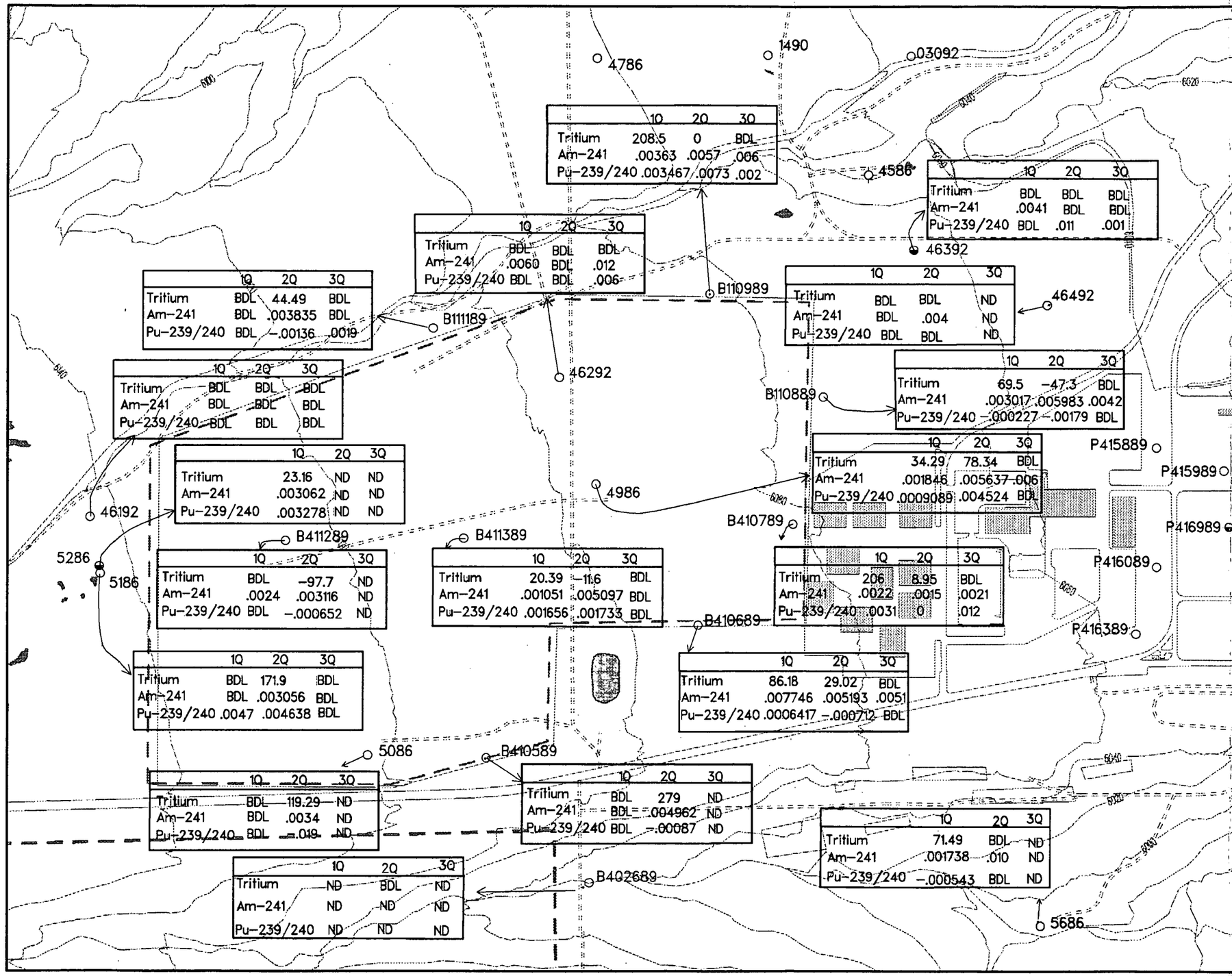
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
Fourth Quarter (October) 1993

Figure 4-5



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- IHSS Boundary
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- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
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- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 450 900

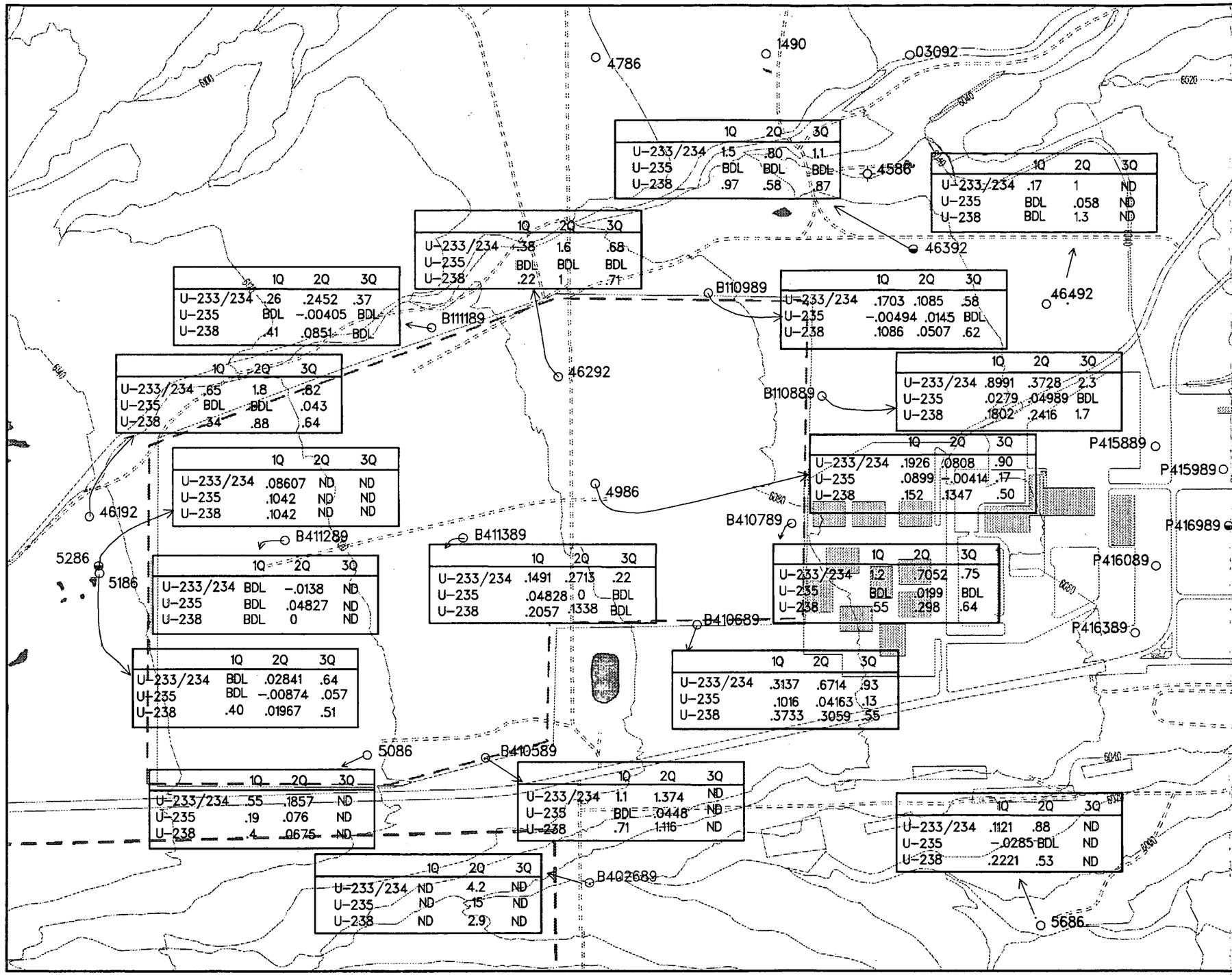
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Tritium, Am-241, and Pu-239/240 (pCi/L) in Groundwater
Upper Hydrostratigraphic Unit, 1993

Figure 4-6



	1Q	2Q	3Q
U-233/234	1.5	.80	1.1
U-235	BDL	BDL	BDL
U-238	.97	.58	.87

	1Q	2Q	3Q
U-233/234	.17	1	ND
U-235	BDL	.058	ND
U-238	BDL	1.3	ND

	1Q	2Q	3Q
U-233/234	.38	1.6	.68
U-235	BDL	BDL	BDL
U-238	.22	1	.71

	1Q	2Q	3Q
U-233/234	.26	.2452	.37
U-235	BDL	-.00405	BDL
U-238	.41	.0851	BDL

	1Q	2Q	3Q
U-233/234	.1703	.1085	.58
U-235	-.00494	.0145	BDL
U-238	.1086	.0507	.62

	1Q	2Q	3Q
U-233/234	.65	1.8	.82
U-235	BDL	BDL	.043
U-238	.34	.88	.64

	1Q	2Q	3Q
U-233/234	.8991	.3728	2.3
U-235	.0279	.04989	BDL
U-238	.1802	.2416	1.7

	1Q	2Q	3Q
U-233/234	.08607	ND	ND
U-235	.1042	ND	ND
U-238	.1042	ND	ND

	1Q	2Q	3Q
U-233/234	.1926	.0808	.90
U-235	.0899	-.00414	.17
U-238	.152	.1347	.50

	1Q	2Q	3Q
U-233/234	BDL	-.0138	ND
U-235	BDL	.04827	ND
U-238	BDL	0	ND

	1Q	2Q	3Q
U-233/234	.1491	.2713	.22
U-235	.04828	0	BDL
U-238	.2057	.1338	BDL

	1Q	2Q	3Q
U-233/234	1.2	.7052	.75
U-235	BDL	.0199	BDL
U-238	.55	.298	.64

	1Q	2Q	3Q
U-233/234	BDL	.02841	.64
U-235	BDL	-.00874	.057
U-238	.40	.01967	.51

	1Q	2Q	3Q
U-233/234	.3137	.6714	.93
U-235	.1016	.04163	.13
U-238	.3733	.3059	.55

	1Q	2Q	3Q
U-233/234	.55	.1857	ND
U-235	.19	.076	ND
U-238	.4	.0675	ND

	1Q	2Q	3Q
U-233/234	1.1	1.374	ND
U-235	BDL	.0448	ND
U-238	.71	1.116	ND

	1Q	2Q	3Q
U-233/234	.1121	.88	ND
U-235	-.0285	BDL	ND
U-238	.2221	.53	ND

	1Q	2Q	3Q
U-233/234	ND	4.2	ND
U-235	ND	.15	ND
U-238	ND	2.9	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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Values exceeding background activity (mean + 2 st. dev.) shown in red.

0 feet 450 900

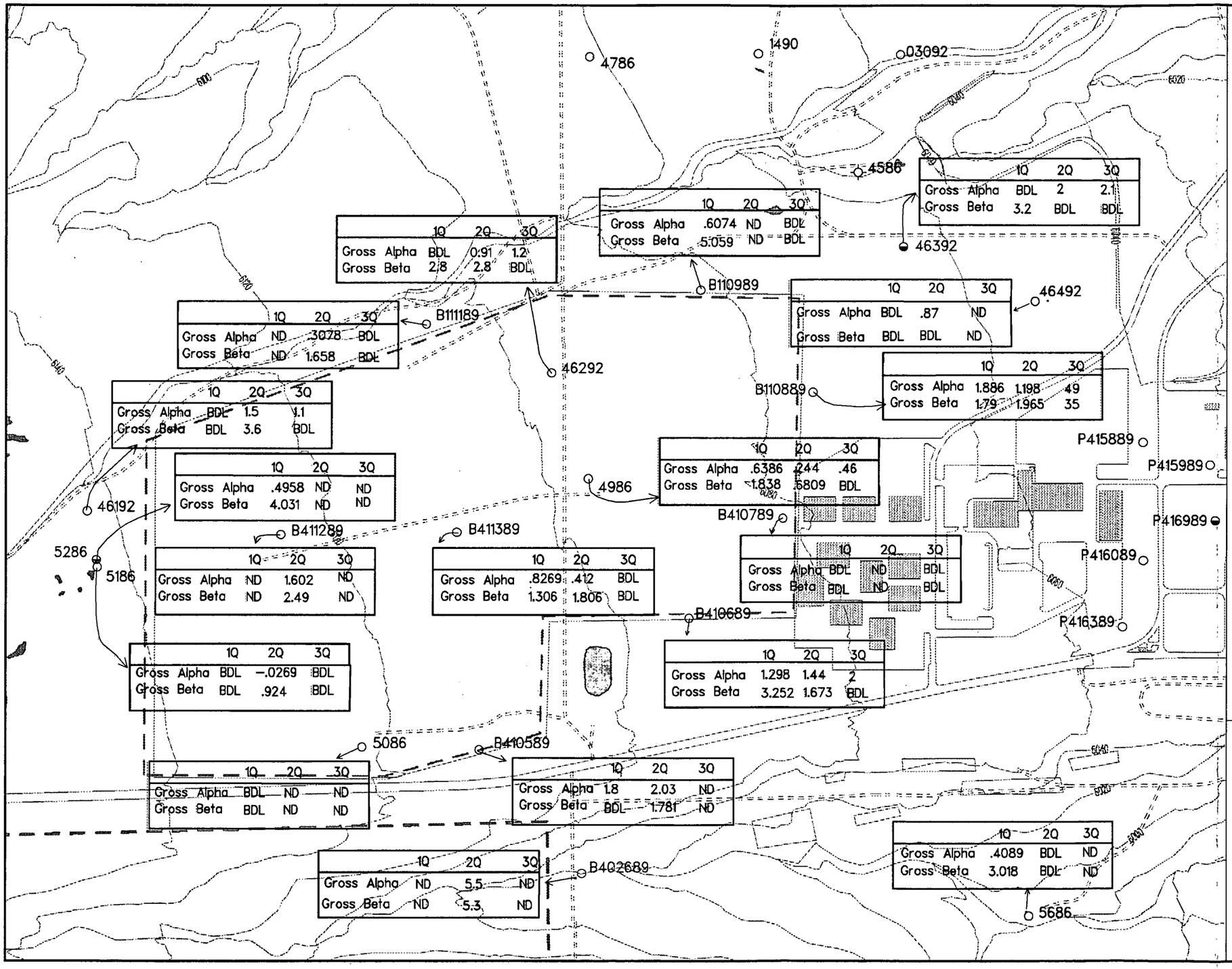
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

U-233/234, U-235, and U-238 (pCi/L) in Groundwater
Upper Hydrostratigraphic Unit, 1993

Figure 4-7



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Rocky Flats Plant Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- Background Characterization Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 450 900

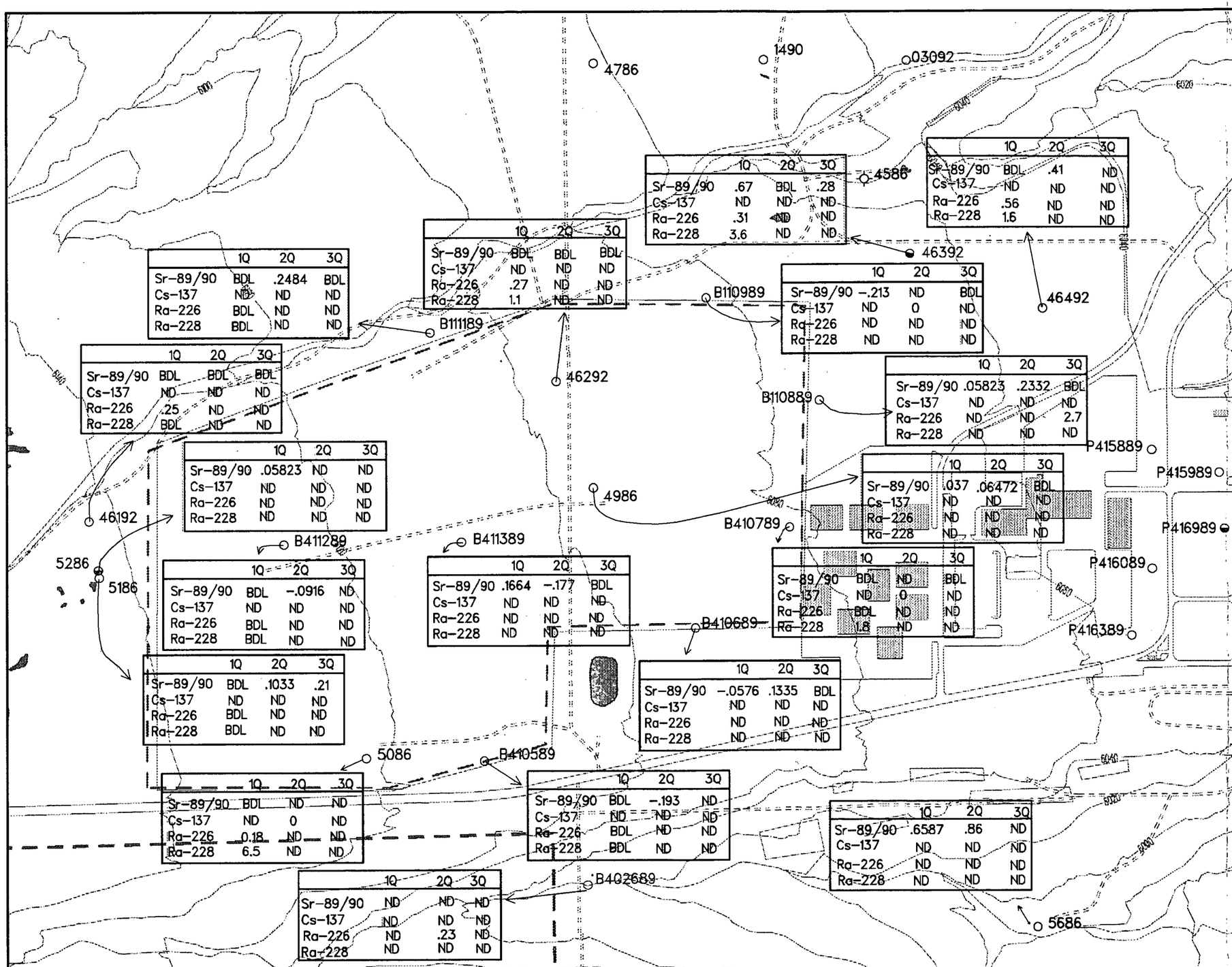
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Gross Alpha and Gross Beta (pCi/L) in Groundwater
Upper Hydrostratigraphic Unit, 1993

Figure 4-8



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Rocky Flats Plant Boundary
- Paved Roads
- Dirt Roads
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- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 450 900

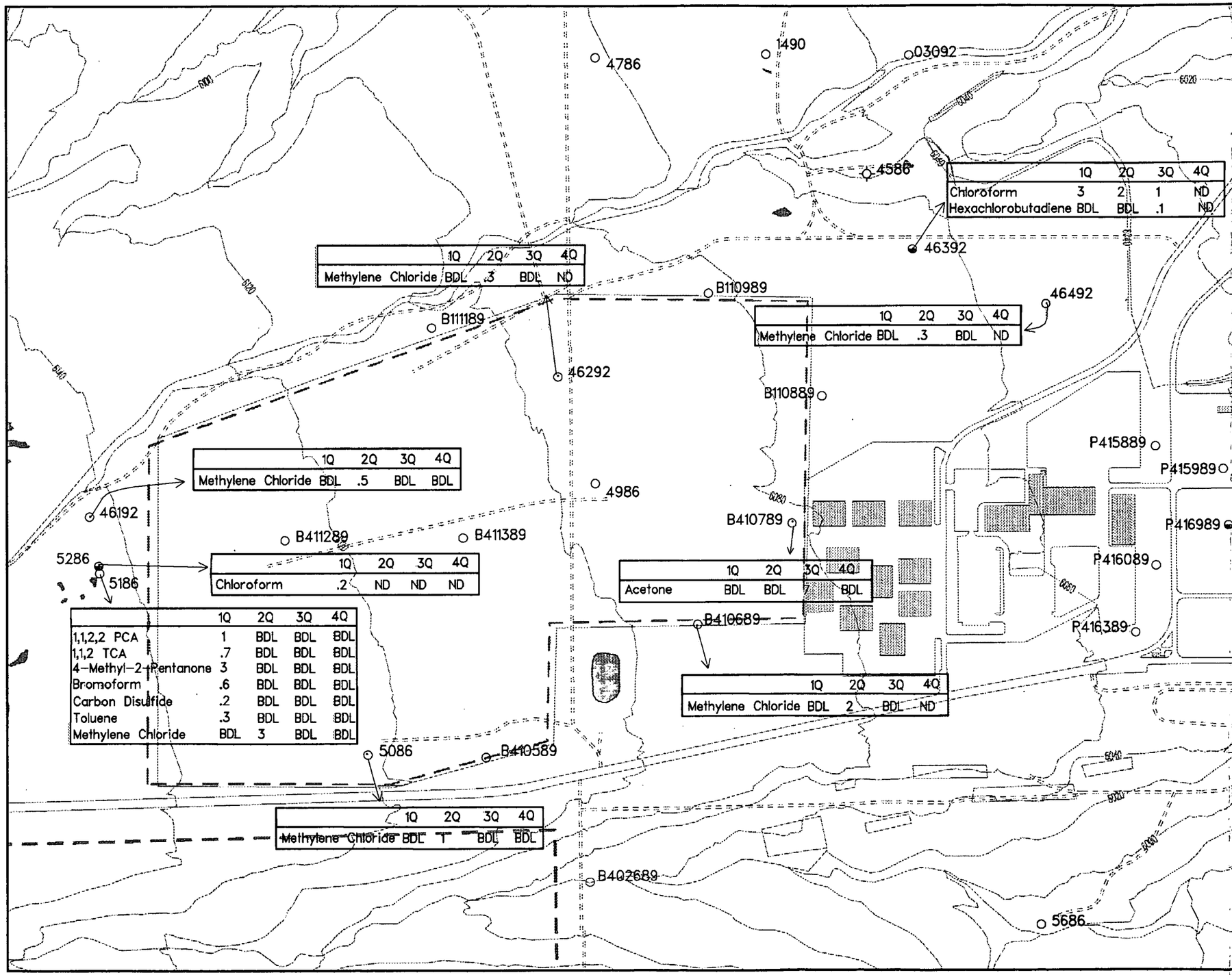
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Sr-89/90, Cs-137, Ra-226, and Ra-228 (pCi/L) in Groundwater
Upper Hydrostratigraphic Unit, 1993

Figure 4-9



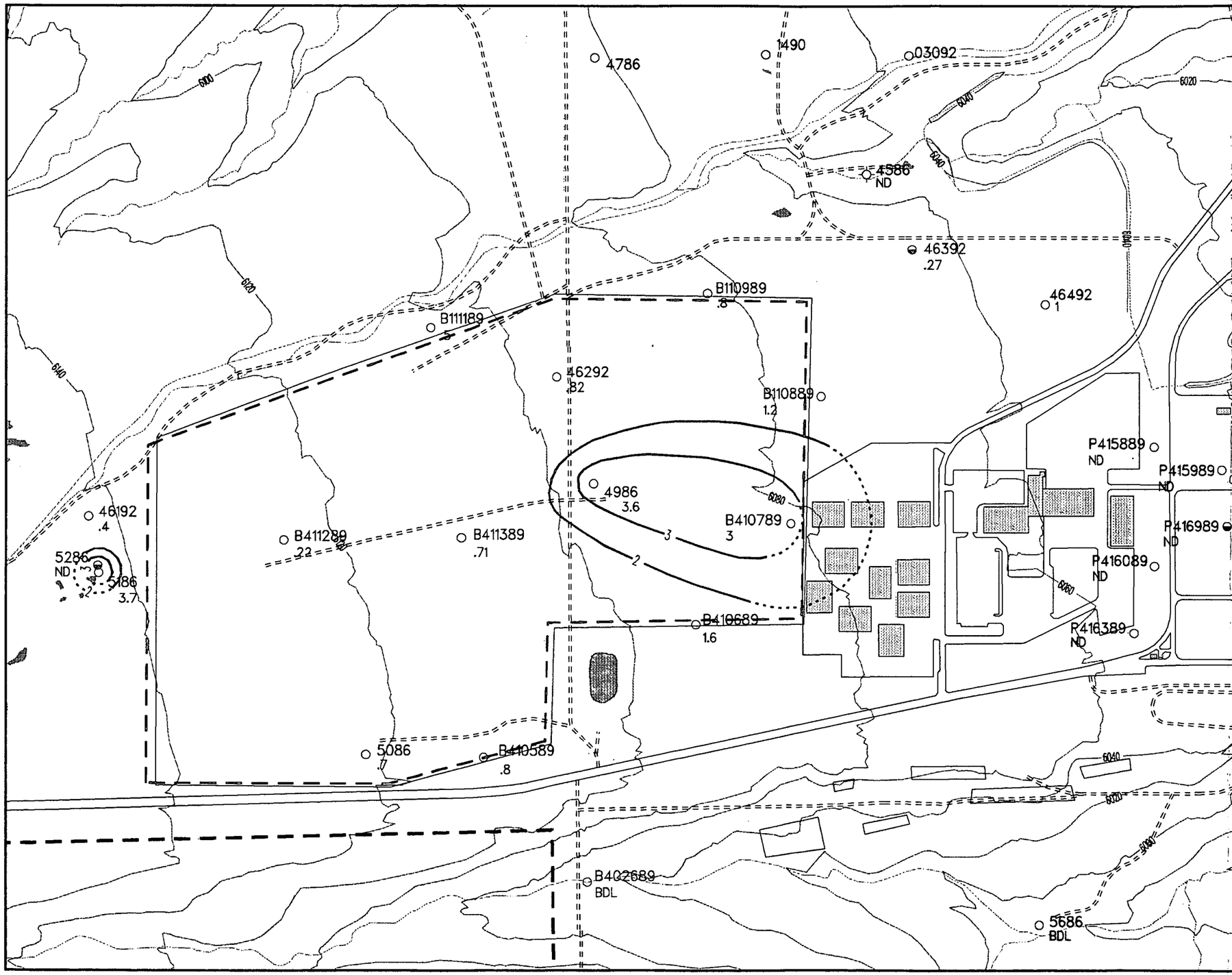
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Volatile Organic Compounds (ug/L)
in Groundwater
Upper Hydrostratigraphic Unit, 1993

Figure 4-10



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Rocky Flats Plant Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Isoconcentration Contours; Dashed Where Approximately Located
- ND No Data
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- Background Characterization Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 450 900

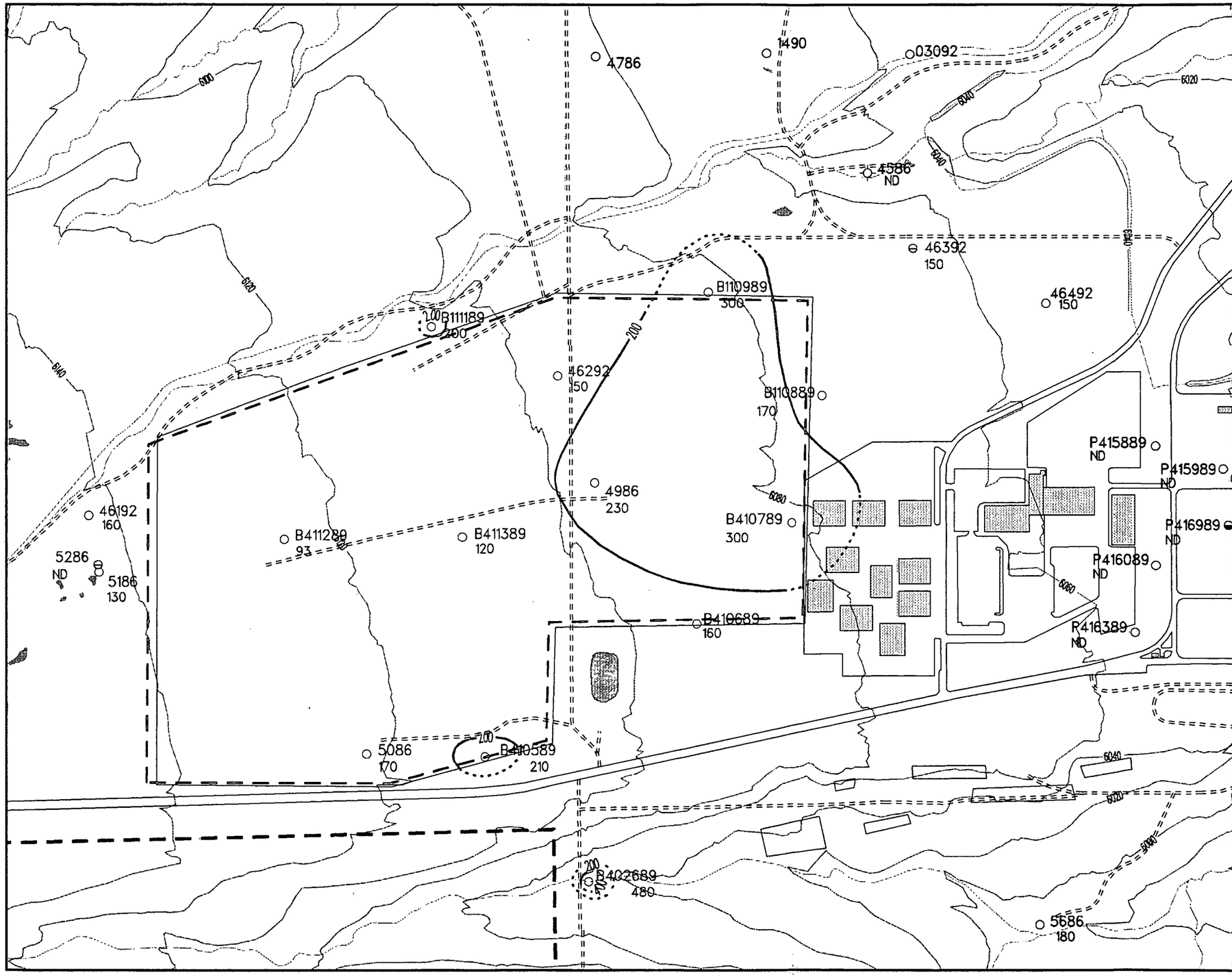
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Nitrate plus Nitrite (mg/L)
in Groundwater
UHSU, Second Quarter 1993

Figure 4-11



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Rocky Flats Plant Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
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- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

N

0 feet 450 900

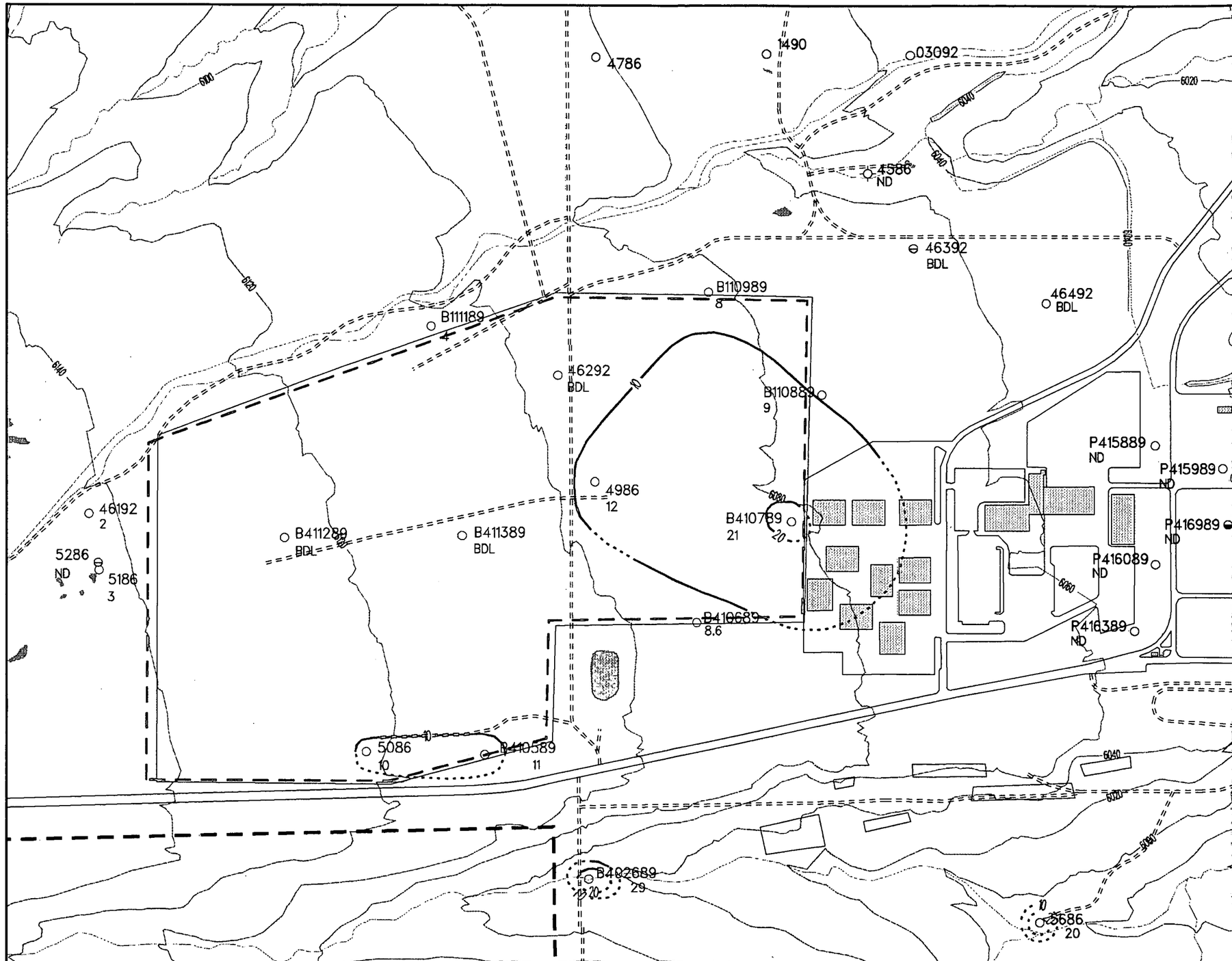
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Total Dissolved Solids (mg/L)
in Groundwater
UHSU, Second Quarter 1993

Figure 4-12



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
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- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
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- RCRA Regulatory Wells
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N

0 feet 450 900

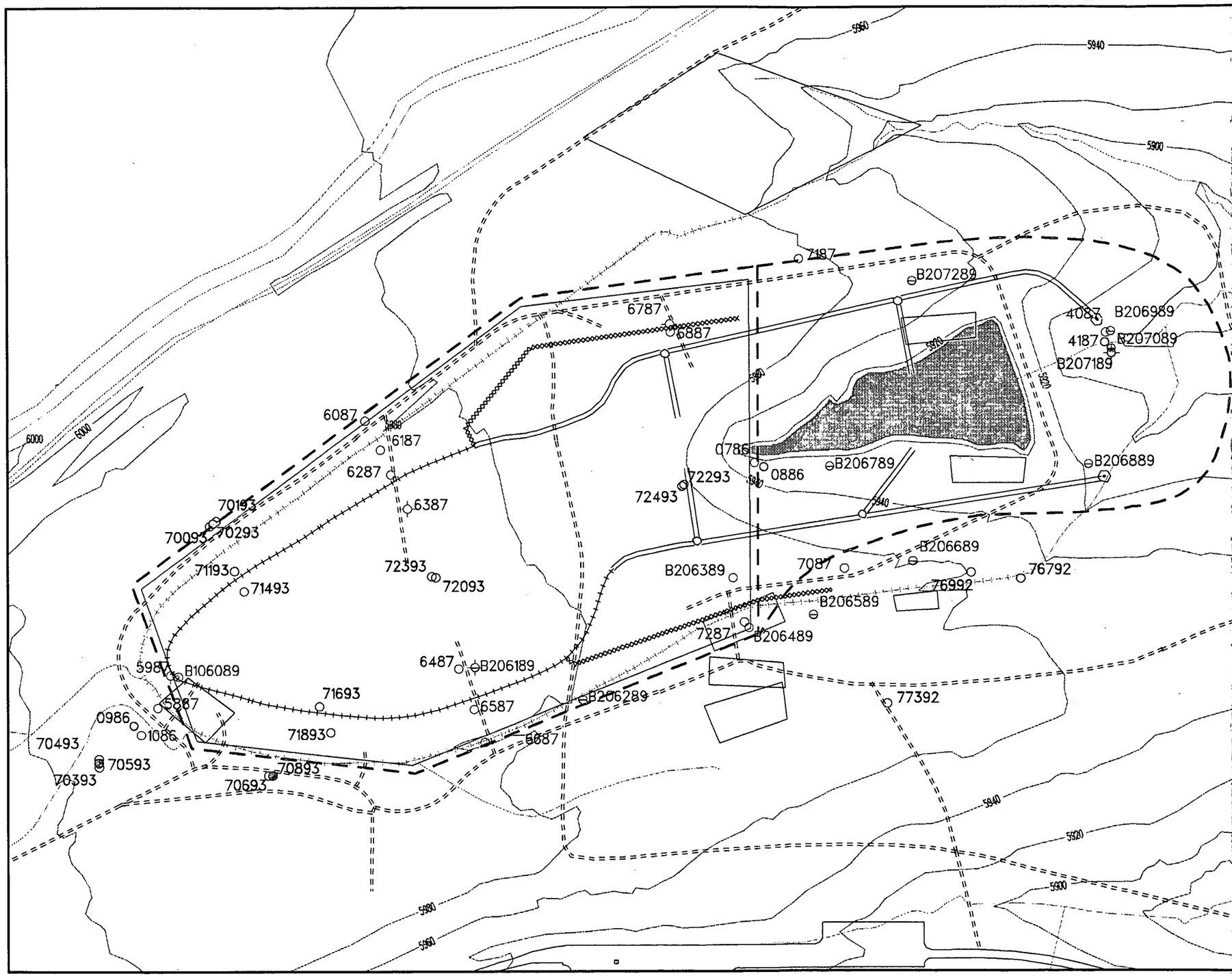
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

West Spray Field

1993 Annual RCRA Groundwater Monitoring Report

Chloride (mg/L)
in Groundwater
UHSU, Second Quarter 1993

Figure 4-13



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

0 feet 250 500

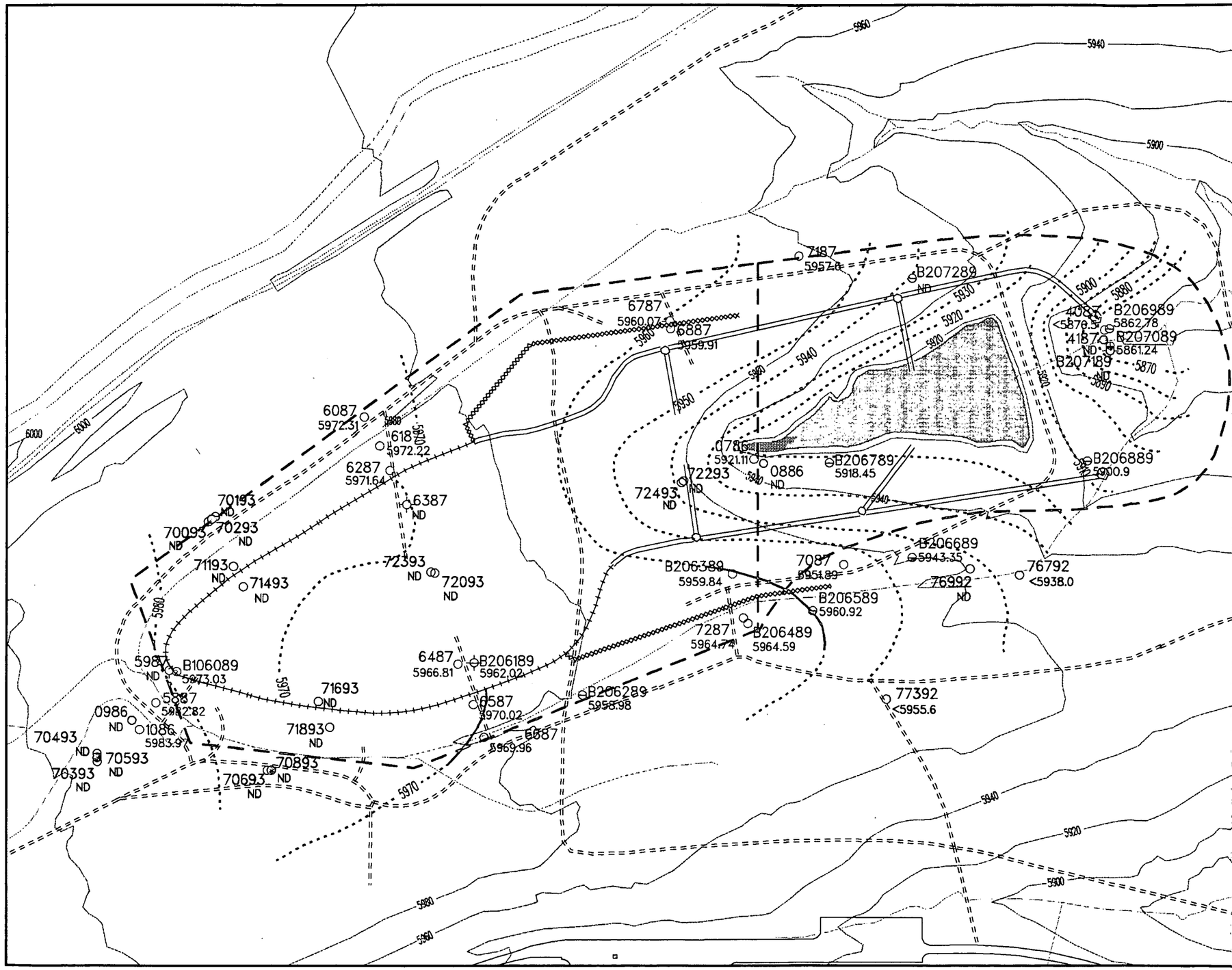
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Waste Management Area and
Monitoring Well Locations
1993

Figure 5-1



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
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- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
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- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
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- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

0 feet 250 500

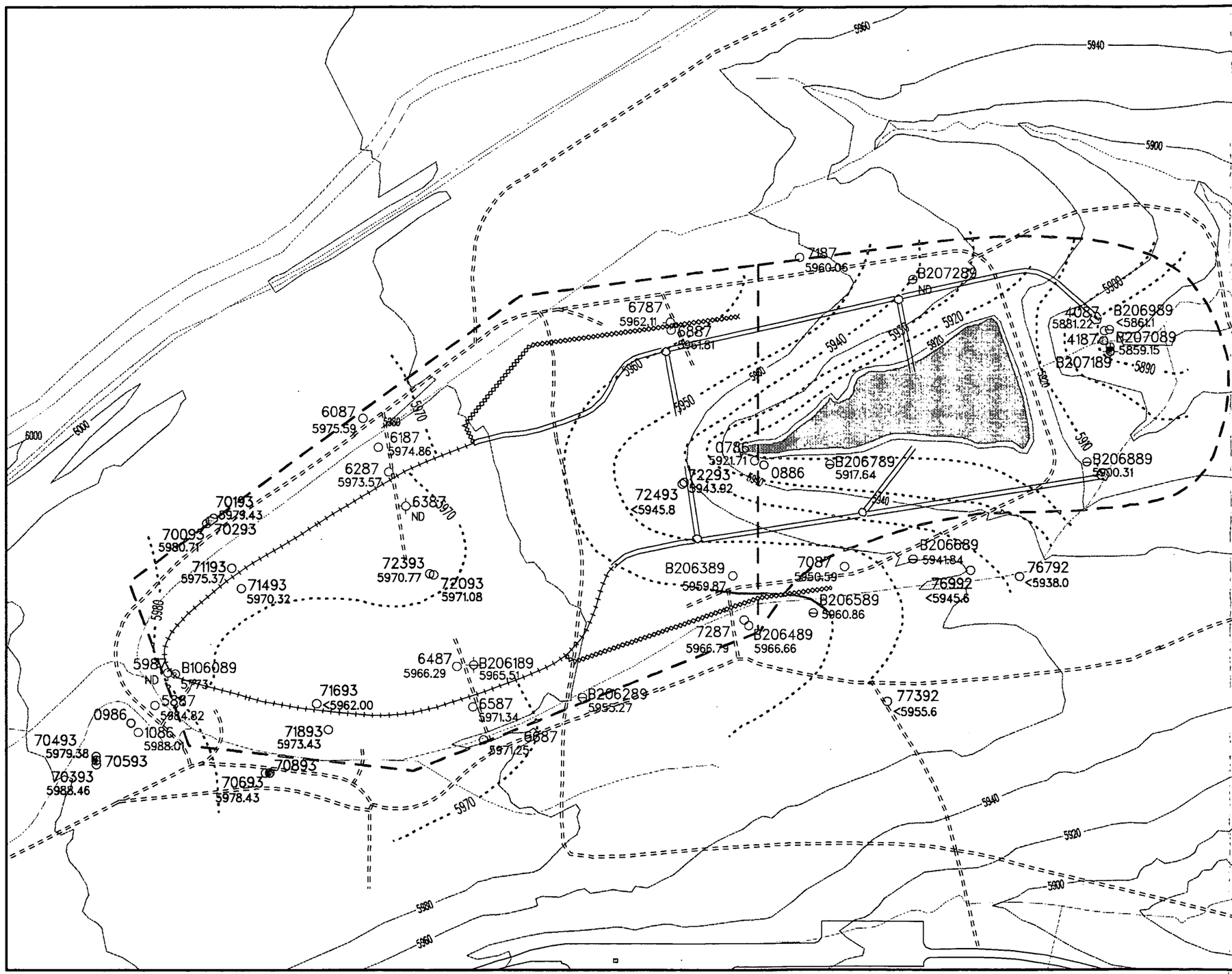
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
First Quarter (January) 1993

Figure 5-2



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

N

0 feet 250 500

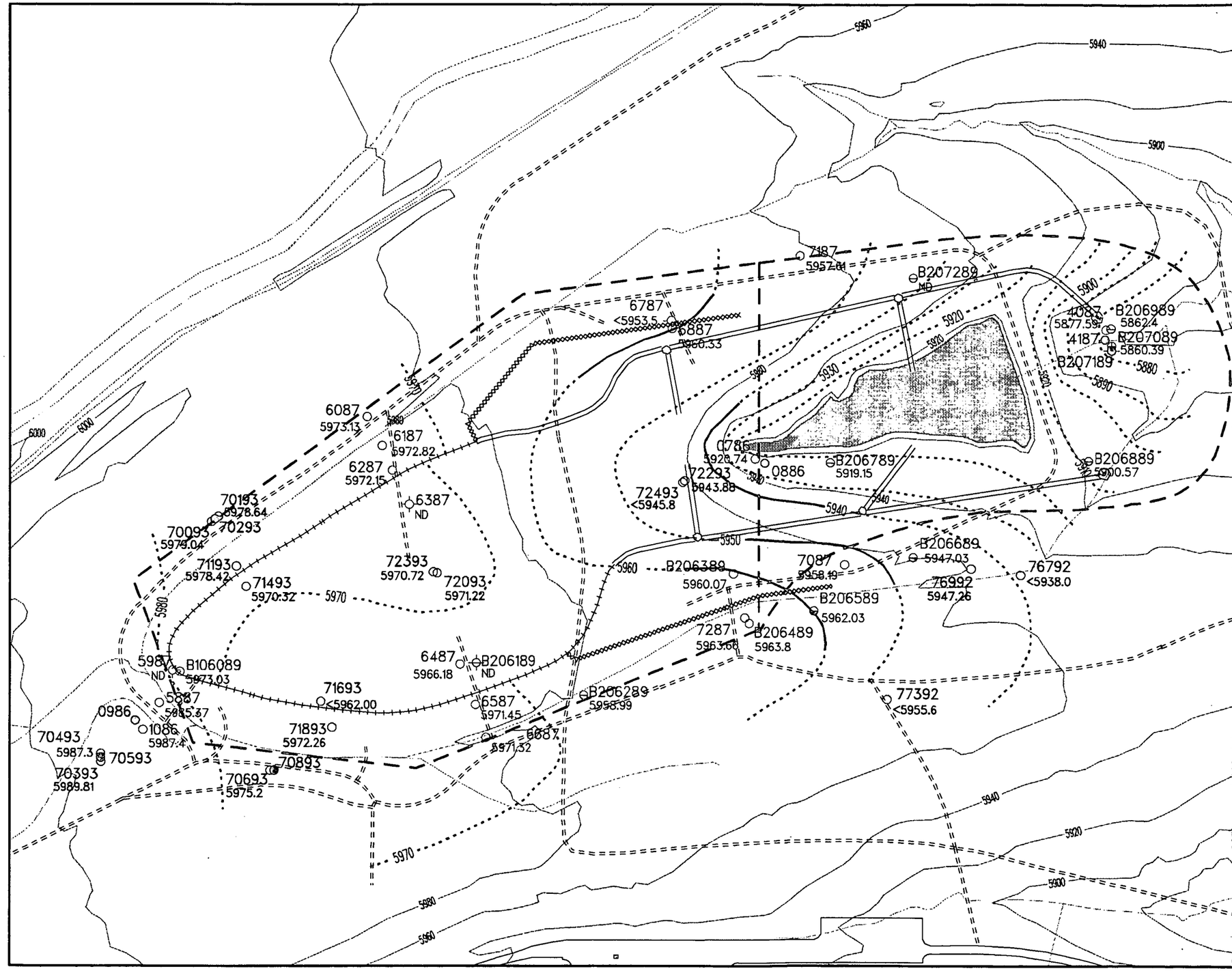
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
Second Quarter (April) 1993

Figure 5-3



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

N

0 feet 250 500

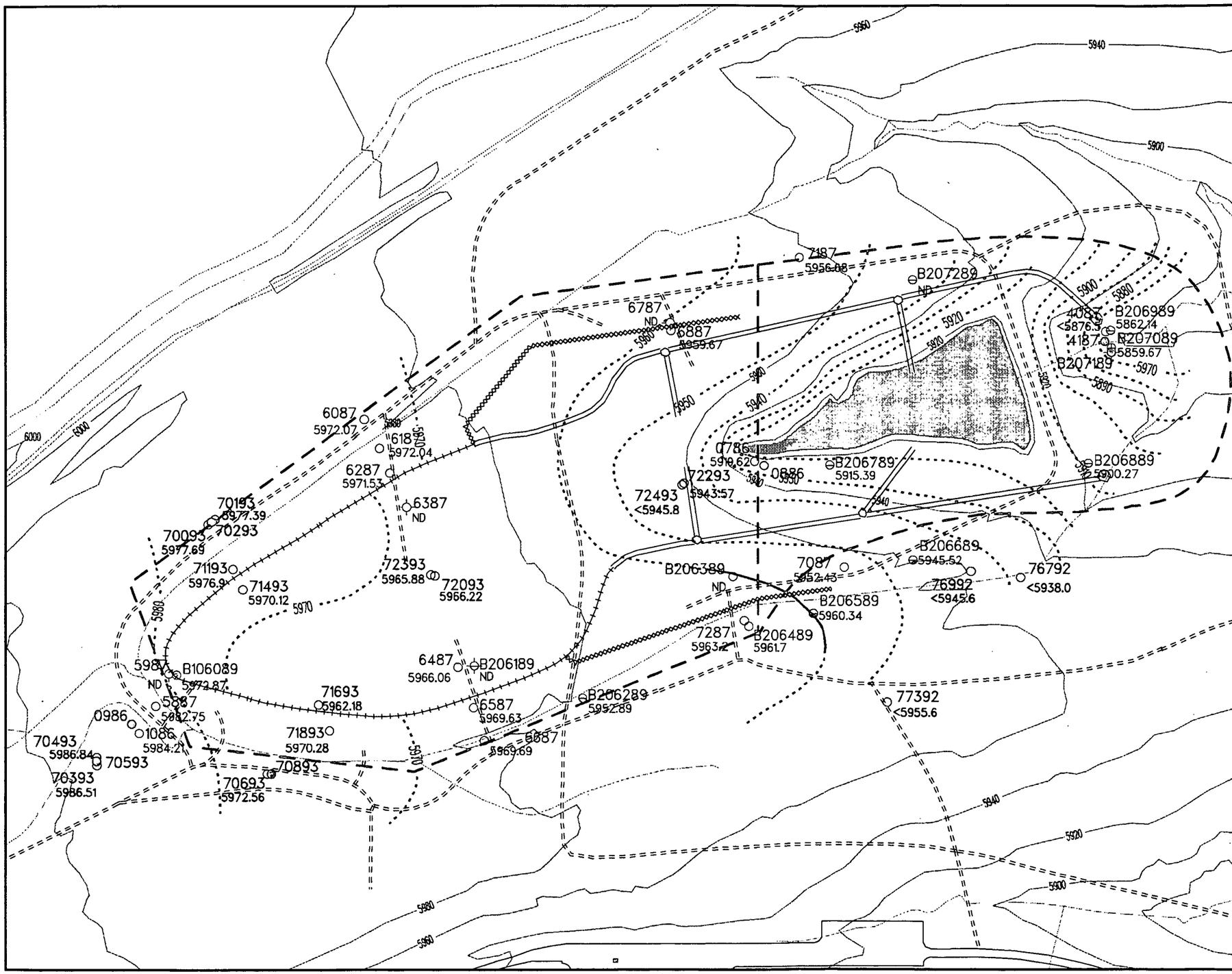
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
Third Quarter (July) 1993

Figure 5-4



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Well (Bedrock, Lower Hydrostratigraphic Unit – LHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Abandoned Well (Bedrock, LHSU)
- Compliance Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Groundwater Potentiometric Contours (feet above MSL); Dashed Where Approximately Located
- ND No Data
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

N

0 feet 250 500

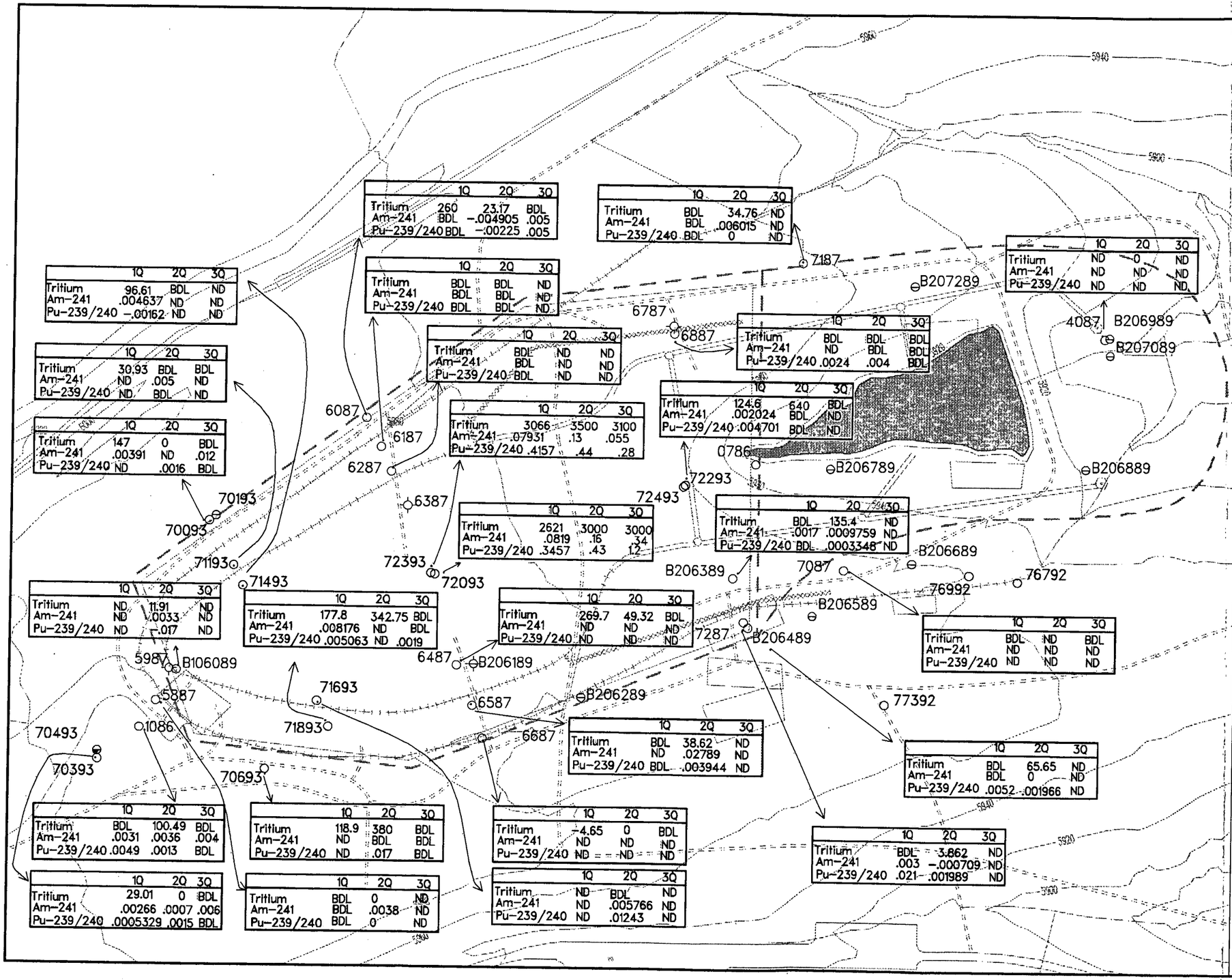
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Groundwater Potentiometric-Surface Map
Upper Hydrostratigraphic Unit
Fourth Quarter (October) 1993

Figure 5-5



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

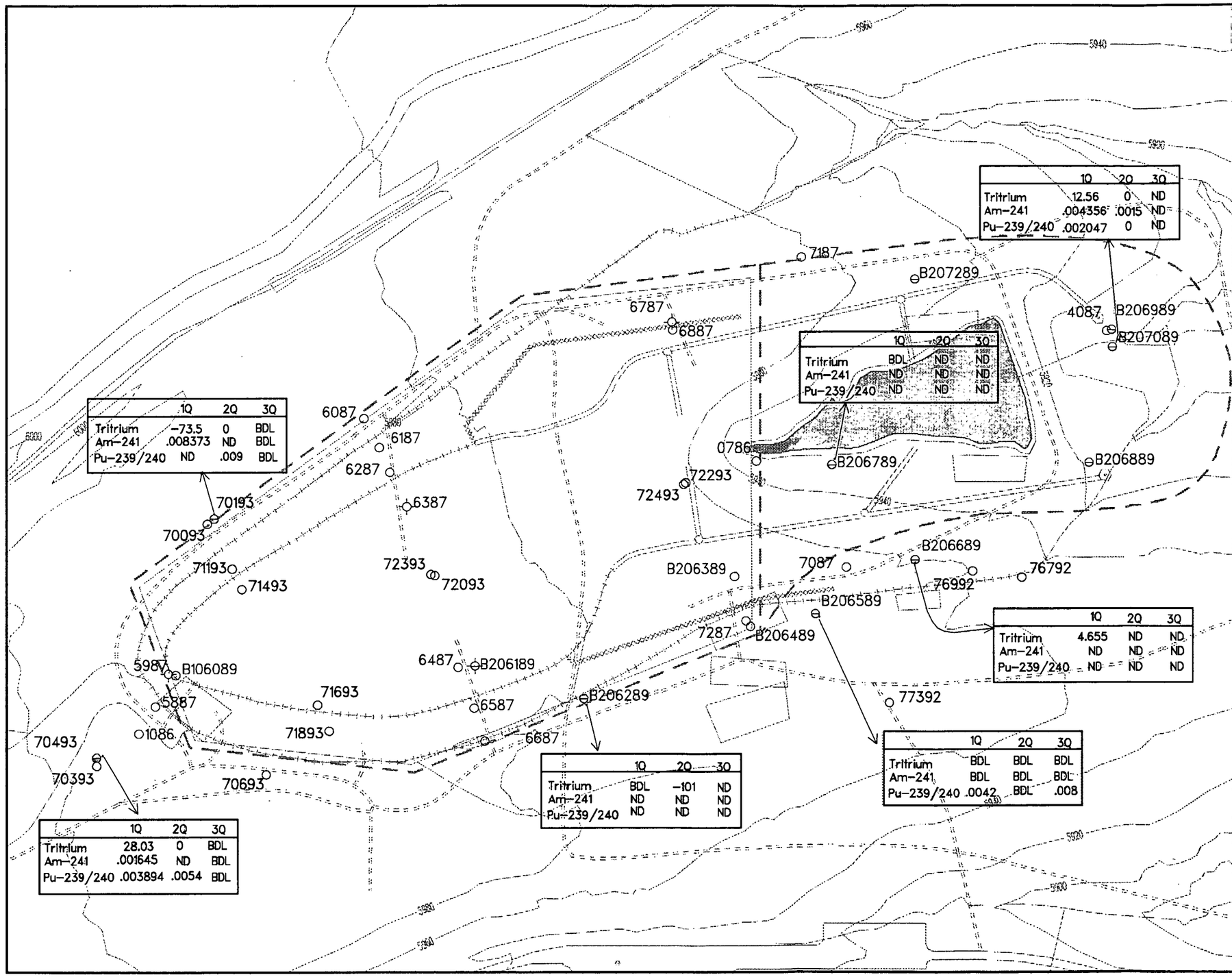
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Tritium, Am-241, and Pu-239/240 (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 5-6



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
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- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

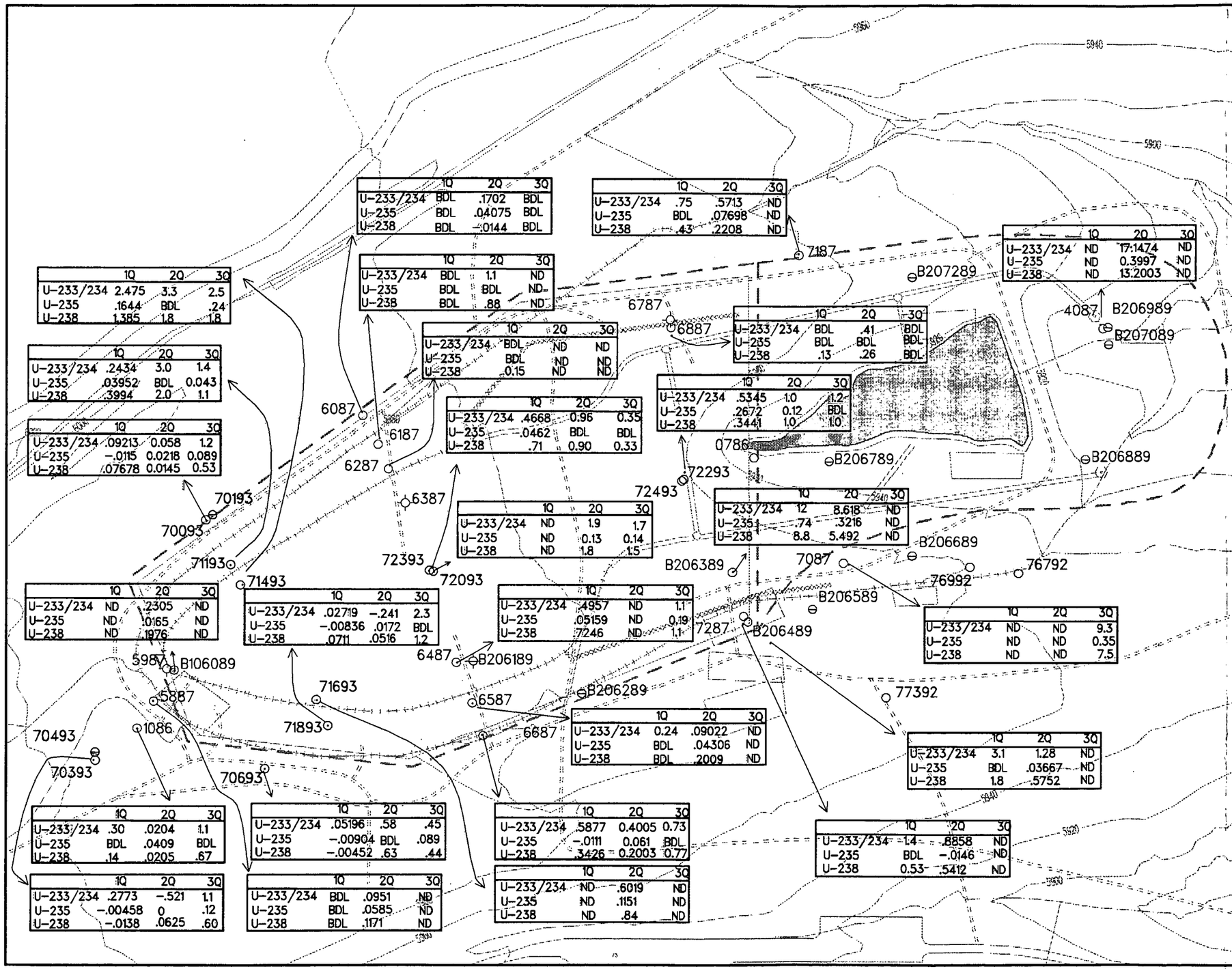
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Tritium, Am-241, and Pu-239/240 (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 5-7



	1Q	2Q	3Q
U-233/234	2.475	3.3	2.5
U-235	.1644	BDL	.24
U-238	1.385	1.8	1.8

	1Q	2Q	3Q
U-233/234	.2434	3.0	1.4
U-235	.03952	BDL	0.043
U-238	.3994	2.0	1.1

	1Q	2Q	3Q
U-233/234	.09213	0.058	1.2
U-235	-.0115	0.0218	0.089
U-238	.07678	0.0145	0.53

	1Q	2Q	3Q
U-233/234	BDL	.1702	BDL
U-235	BDL	.04075	BDL
U-238	BDL	-.0144	BDL

	1Q	2Q	3Q
U-233/234	BDL	1.1	ND
U-235	BDL	BDL	ND
U-238	BDL	.88	ND

	1Q	2Q	3Q
U-233/234	BDL	ND	ND
U-235	BDL	ND	ND
U-238	0.15	ND	ND

	1Q	2Q	3Q
U-233/234	.4668	0.96	0.35
U-235	.0462	BDL	BDL
U-238	.71	0.90	0.33

	1Q	2Q	3Q
U-233/234	ND	1.9	1.7
U-235	ND	0.13	0.14
U-238	ND	1.8	1.5

	1Q	2Q	3Q
U-233/234	.75	.5713	ND
U-235	BDL	.07698	ND
U-238	.43	.2208	ND

	1Q	2Q	3Q
U-233/234	BDL	.41	BDL
U-235	BDL	BDL	BDL
U-238	.13	.26	BDL

	1Q	2Q	3Q
U-233/234	.5345	1.0	1.2
U-235	.2672	0.12	BDL
U-238	.3441	1.0	1.0

	1Q	2Q	3Q
U-233/234	12	8.618	ND
U-235	.74	.3216	ND
U-238	8.8	5.492	ND

	1Q	2Q	3Q
U-233/234	ND	17.1474	ND
U-235	ND	0.3997	ND
U-238	ND	13.2003	ND

	1Q	2Q	3Q
U-233/234	ND	.2305	ND
U-235	ND	.0165	ND
U-238	ND	.1976	ND

	1Q	2Q	3Q
U-233/234	.02719	-.241	2.3
U-235	-.00836	.0172	BDL
U-238	.0711	.0516	1.2

	1Q	2Q	3Q
U-233/234	.4957	ND	1.1
U-235	.05159	ND	0.19
U-238	.7246	ND	1.1

	1Q	2Q	3Q
U-233/234	ND	ND	9.3
U-235	ND	ND	0.35
U-238	ND	ND	7.5

	1Q	2Q	3Q
U-233/234	0.24	.09022	ND
U-235	BDL	.04306	ND
U-238	BDL	.2009	ND

	1Q	2Q	3Q
U-233/234	3.1	1.28	ND
U-235	BDL	.03667	ND
U-238	1.8	.5752	ND

	1Q	2Q	3Q
U-233/234	.30	.0204	1.1
U-235	BDL	.0409	BDL
U-238	.14	.0205	.67

	1Q	2Q	3Q
U-233/234	.2773	-.521	1.1
U-235	-.00458	0	.12
U-238	-.0138	.0625	.60

	1Q	2Q	3Q
U-233/234	.05196	.58	.45
U-235	-.00904	BDL	.089
U-238	-.00452	.63	.44

	1Q	2Q	3Q
U-233/234	BDL	.0951	ND
U-235	BDL	.0585	ND
U-238	BDL	.1171	ND

	1Q	2Q	3Q
U-233/234	.5877	0.4005	0.73
U-235	-.0111	0.061	BDL
U-238	.3426	0.2003	0.77

	1Q	2Q	3Q
U-233/234	ND	.6019	ND
U-235	ND	.1151	ND
U-238	ND	.84	ND

	1Q	2Q	3Q
U-233/234	1.4	.8858	ND
U-235	BDL	-.0146	ND
U-238	0.53	.5412	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
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- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

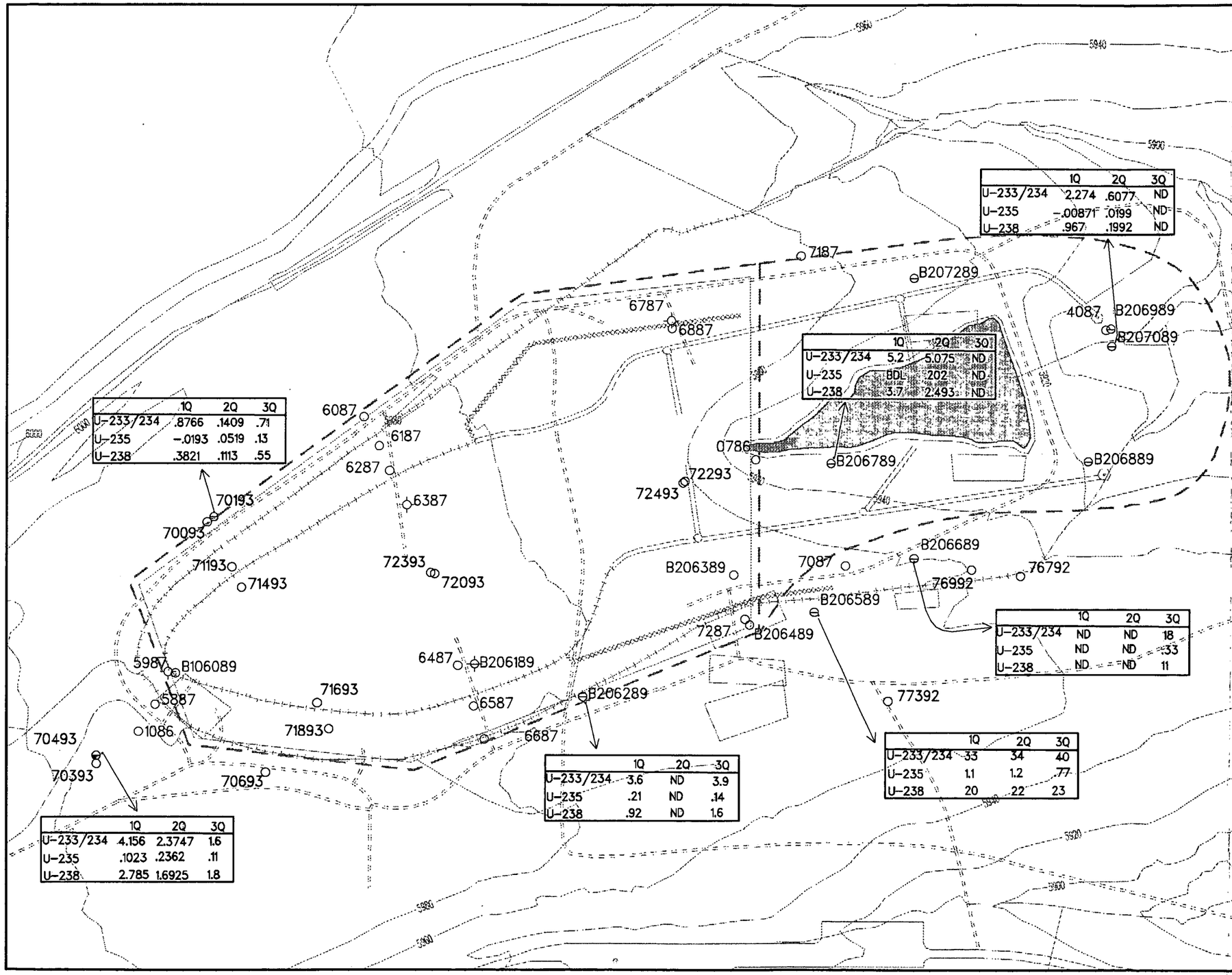
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

U-233/234, U-235, and U-238 (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 5-8



	1Q	2Q	3Q
U-233/234	.8766	.1409	.71
U-235	-.0193	.0519	.13
U-238	.3821	.1113	.55

	1Q	2Q	3Q
U-233/234	2.274	.6077	ND
U-235	-.00871	.0199	ND
U-238	.967	.1992	ND

	1Q	2Q	3Q
U-233/234	5.2	5.075	ND
U-235	BDL	.202	ND
U-238	3.7	2.493	ND

	1Q	2Q	3Q
U-233/234	ND	ND	18
U-235	ND	ND	.33
U-238	ND	ND	11

	1Q	2Q	3Q
U-233/234	3.6	ND	3.9
U-235	.21	ND	.14
U-238	.92	ND	1.6

	1Q	2Q	3Q
U-233/234	33	34	40
U-235	1.1	1.2	.77
U-238	20	22	23

	1Q	2Q	3Q
U-233/234	4.156	2.3747	1.6
U-235	.1023	.2362	.11
U-238	2.785	1.6925	1.8

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
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- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

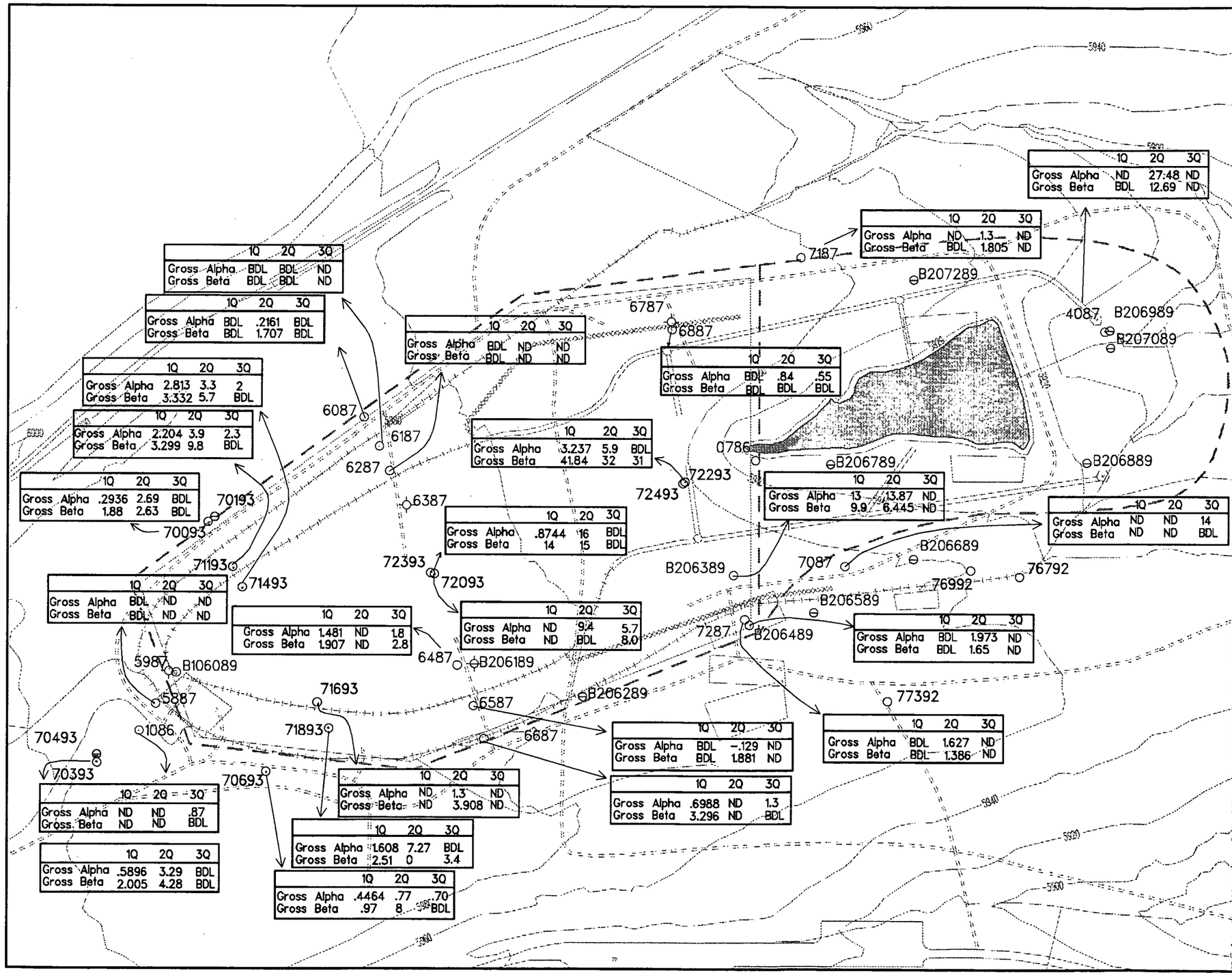
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

U-233/234, U-235, and U-238 (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 5-9



	1Q	2Q	3Q
Gross Alpha	BDL	BDL	ND
Gross Beta	BDL	BDL	ND

	1Q	2Q	3Q
Gross Alpha	BDL	.2161	BDL
Gross Beta	BDL	1.707	BDL

	1Q	2Q	3Q
Gross Alpha	2.813	3.3	2
Gross Beta	3.332	5.7	BDL

	1Q	2Q	3Q
Gross Alpha	2.204	3.9	2.3
Gross Beta	3.299	9.8	BDL

	1Q	2Q	3Q
Gross Alpha	.2936	2.69	BDL
Gross Beta	1.88	2.63	BDL

	1Q	2Q	3Q
Gross Alpha	BDL	ND	ND
Gross Beta	BDL	ND	ND

	1Q	2Q	3Q
Gross Alpha	1.481	ND	1.8
Gross Beta	1.907	ND	2.8

	1Q	2Q	3Q
Gross Alpha	ND	ND	ND
Gross Beta	ND	ND	ND

	1Q	2Q	3Q
Gross Alpha	ND	ND	.87
Gross Beta	ND	ND	BDL

	1Q	2Q	3Q
Gross Alpha	.5896	3.29	BDL
Gross Beta	2.005	4.28	BDL

	1Q	2Q	3Q
Gross Alpha	1.608	7.27	BDL
Gross Beta	2.51	0	3.4

	1Q	2Q	3Q
Gross Alpha	.4464	.77	.70
Gross Beta	.97	8	BDL

	1Q	2Q	3Q
Gross Alpha	ND	1.3	ND
Gross Beta	ND	3.908	ND

	1Q	2Q	3Q
Gross Alpha	ND	ND	ND
Gross Beta	BDL	ND	ND

	1Q	2Q	3Q
Gross Alpha	3.237	5.9	BDL
Gross Beta	41.84	32	31

	1Q	2Q	3Q
Gross Alpha	.8744	16	BDL
Gross Beta	14	15	BDL

	1Q	2Q	3Q
Gross Alpha	ND	9.4	5.7
Gross Beta	ND	BDL	8.0

	1Q	2Q	3Q
Gross Alpha	BDL	.84	.55
Gross Beta	BDL	BDL	BDL

	1Q	2Q	3Q
Gross Alpha	BDL	-.129	ND
Gross Beta	BDL	1.881	ND

	1Q	2Q	3Q
Gross Alpha	.6988	ND	1.3
Gross Beta	3.296	ND	BDL

	1Q	2Q	3Q
Gross Alpha	13	13.87	ND
Gross Beta	9.9	6.445	ND

	1Q	2Q	3Q
Gross Alpha	ND	27.48	ND
Gross Beta	BDL	12.69	ND

	1Q	2Q	3Q
Gross Alpha	ND	1.3	ND
Gross Beta	BDL	1.805	ND

	1Q	2Q	3Q
Gross Alpha	ND	ND	14
Gross Beta	ND	ND	BDL

	1Q	2Q	3Q
Gross Alpha	BDL	1.973	ND
Gross Beta	BDL	1.65	ND

	1Q	2Q	3Q
Gross Alpha	BDL	1.627	ND
Gross Beta	BDL	1.386	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

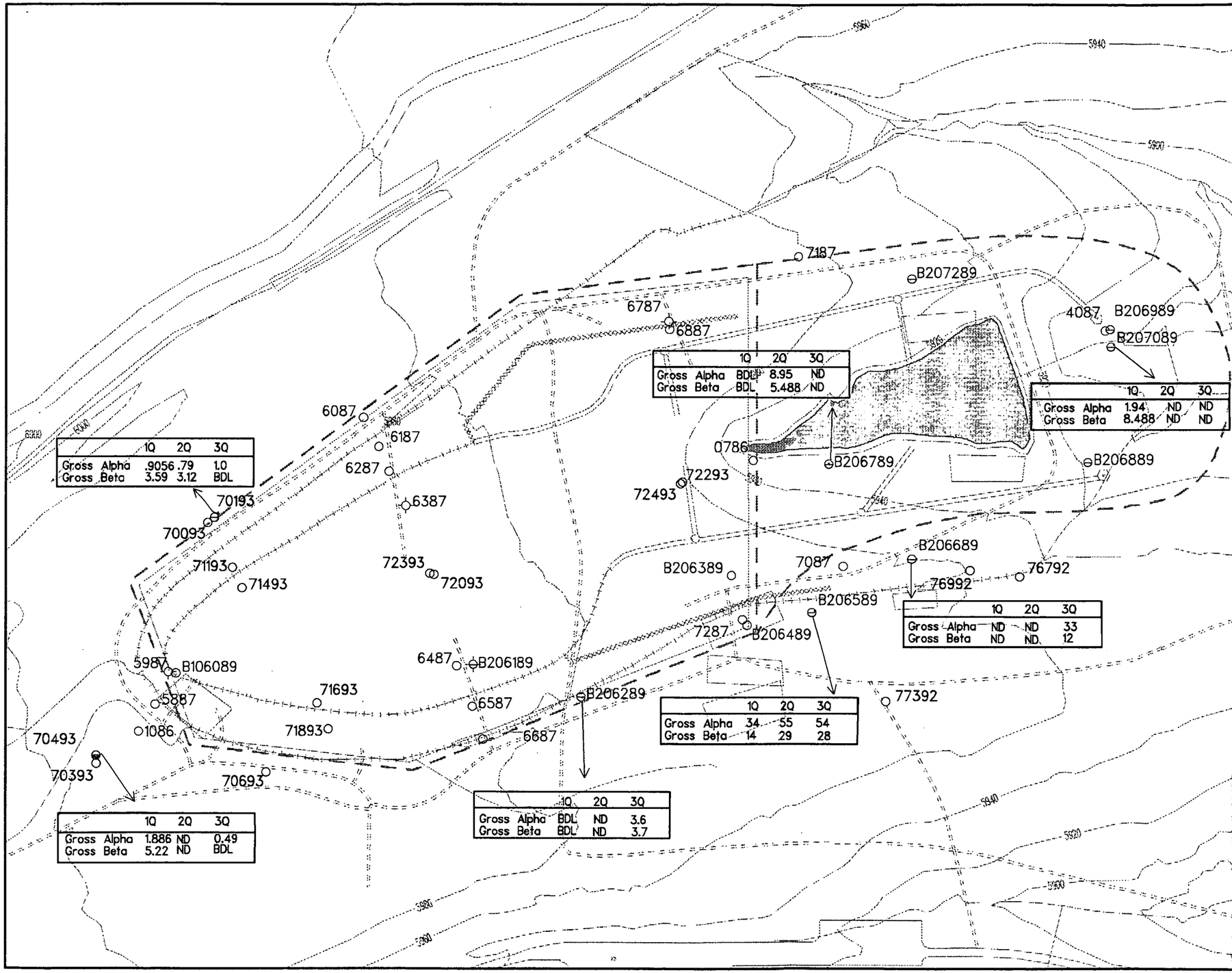
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Gross Alpha and Gross Beta (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 5-10



	1Q	2Q	3Q
Gross Alpha	.9056	.79	1.0
Gross Beta	3.59	3.12	BDL

	1Q	2Q	3Q
Gross Alpha	BDL	8.95	ND
Gross Beta	BDL	5.488	ND

	1Q	2Q	3Q
Gross Alpha	1.94	ND	ND
Gross Beta	8.488	ND	ND

	1Q	2Q	3Q
Gross Alpha	ND	ND	33
Gross Beta	ND	ND	12

	1Q	2Q	3Q
Gross Alpha	34	55	54
Gross Beta	14	29	28

	1Q	2Q	3Q
Gross Alpha	BDL	ND	3.6
Gross Beta	BDL	ND	3.7

	1Q	2Q	3Q
Gross Alpha	1.886	ND	0.49
Gross Beta	5.22	ND	BDL

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

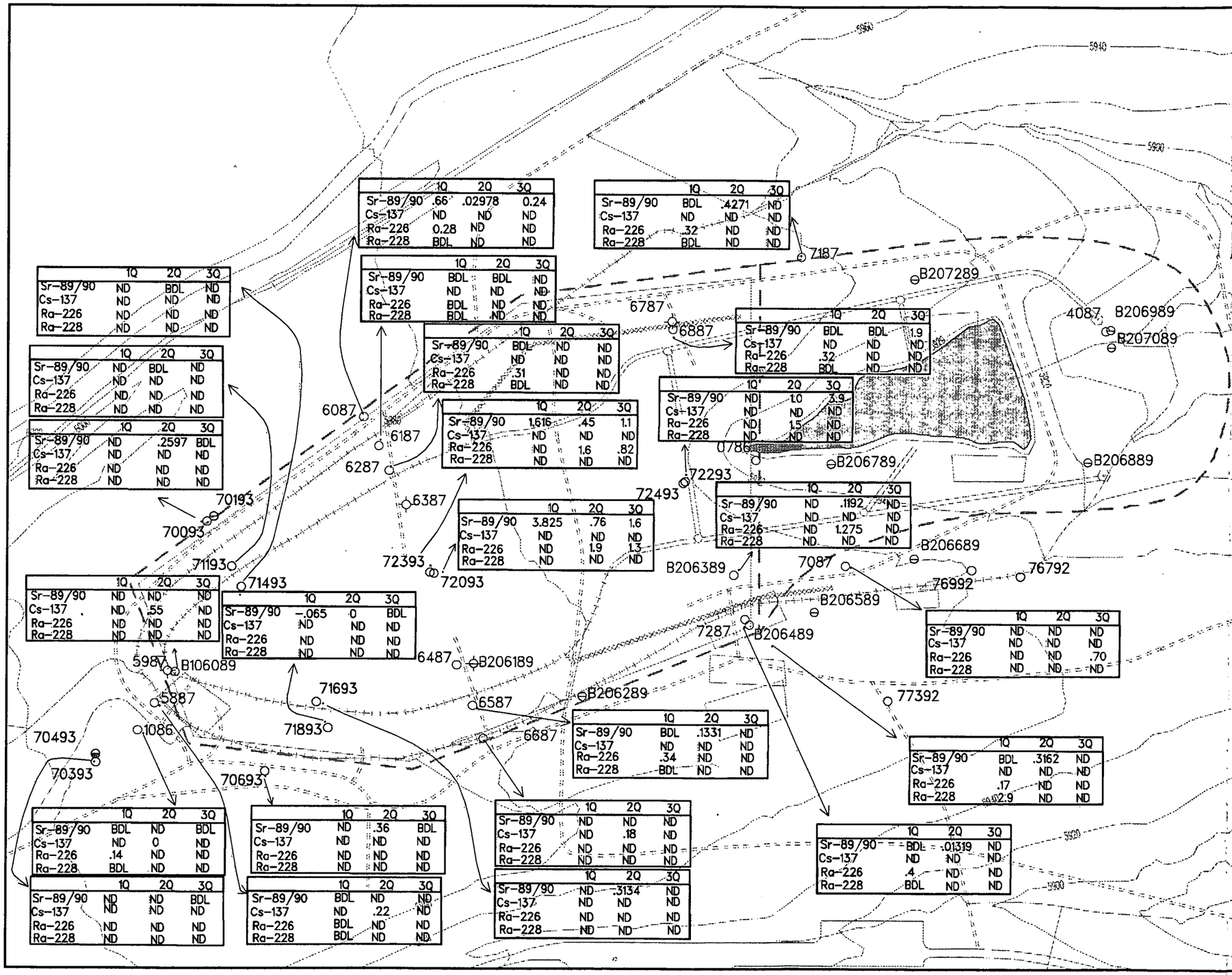
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Gross Alpha and Gross Beta (pCi/L)
in Groundwater
UHSU Bedrock, 1993

Figure 5-11



	1Q	2Q	3Q
Sr-89/90	ND	BDL	ND
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	BDL	ND
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	.2597	BDL
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	ND
Cs-137	.55	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	ND	BDL
Cs-137	ND	0	ND
Ra-226	.14	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	BDL
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	.66	.02978	0.24
Cs-137	ND	ND	ND
Ra-226	0.28	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	BDL	ND
Cs-137	ND	ND	ND
Ra-226	BDL	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	ND	ND
Cs-137	ND	ND	ND
Ra-226	.31	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	1.616	.45	1.1
Cs-137	ND	ND	ND
Ra-226	ND	1.6	.82
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	3.825	.76	1.6
Cs-137	ND	ND	ND
Ra-226	ND	1.9	1.3
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	-.065	0	BDL
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	.4271	ND
Cs-137	ND	ND	ND
Ra-226	.32	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	BDL	1.9
Cs-137	ND	ND	ND
Ra-226	.32	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	1.0	3.9
Cs-137	ND	ND	ND
Ra-226	ND	1.5	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	.1192	ND
Cs-137	ND	ND	ND
Ra-226	ND	1.275	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	ND
Cs-137	ND	ND	ND
Ra-226	ND	ND	.70
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	.1331	ND
Cs-137	ND	ND	ND
Ra-226	.34	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	.3162	ND
Cs-137	ND	ND	ND
Ra-226	.17	ND	ND
Ra-228	2.9	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	ND
Cs-137	ND	.18	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	.3134	ND
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	.01319	ND
Cs-137	ND	ND	ND
Ra-226	.4	ND	ND
Ra-228	BDL	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	ND	BDL
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	.36	BDL
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	ND	ND
Cs-137	ND	.22	ND
Ra-226	BDL	ND	ND
Ra-228	BDL	ND	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

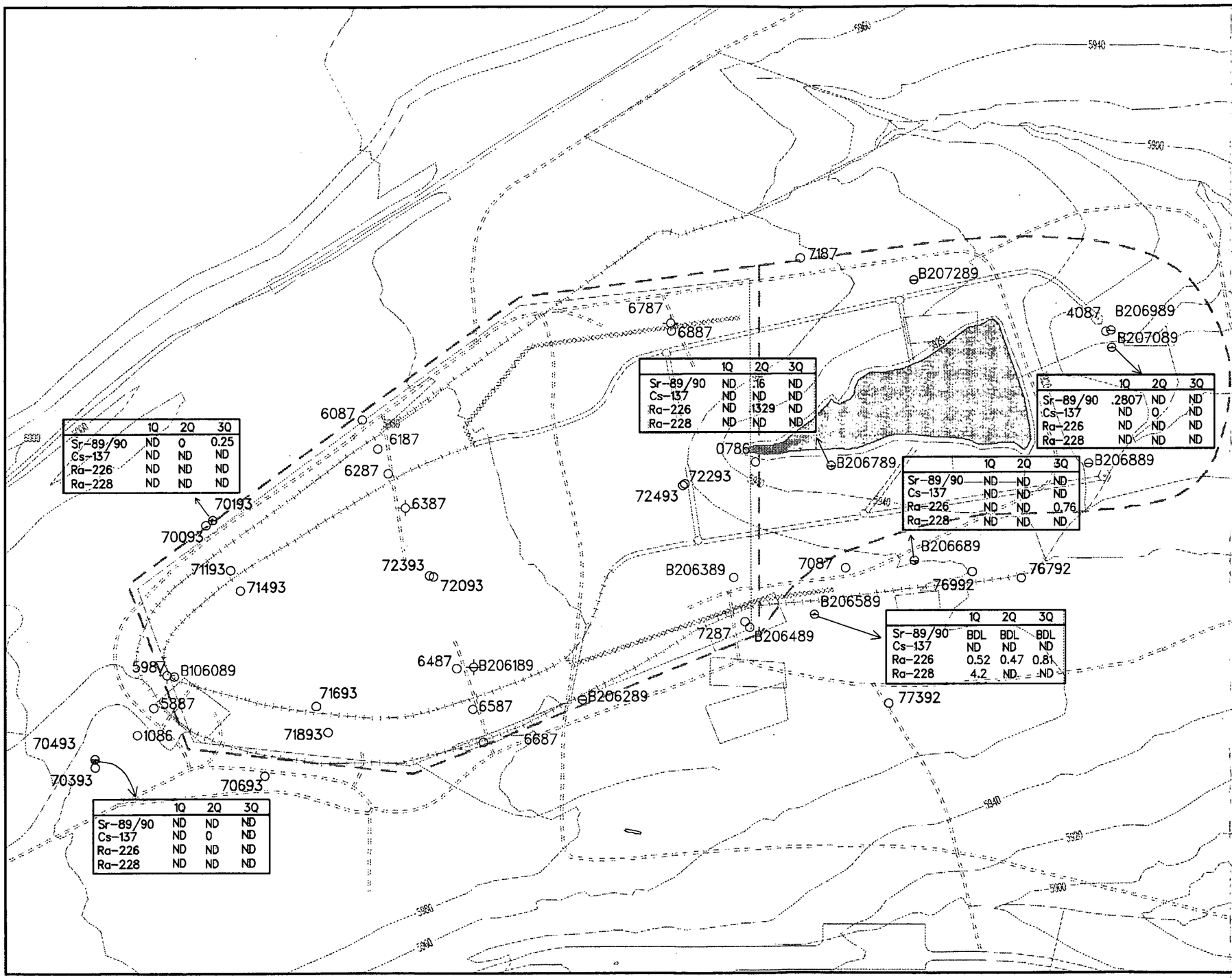
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Sr-89/90, Cs-137, Ra-226, and Ra-228 (pCi/L) in Groundwater
UHSU Surficial Materials, 1993

Figure 5-12



	1Q	2Q	3Q
Sr-89/90	ND	0	0.25
Cs-137	ND	ND	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	16	ND
Cs-137	ND	ND	ND
Ra-226	ND	1329	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	.2807	ND	ND
Cs-137	ND	0	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	ND
Cs-137	ND	ND	ND
Ra-226	ND	ND	0.76
Ra-228	ND	ND	ND

	1Q	2Q	3Q
Sr-89/90	BDL	BDL	BDL
Cs-137	ND	ND	ND
Ra-226	0.52	0.47	0.81
Ra-228	4.2	ND	ND

	1Q	2Q	3Q
Sr-89/90	ND	ND	ND
Cs-137	ND	0	ND
Ra-226	ND	ND	ND
Ra-228	ND	ND	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

Values exceeding background activity (mean + 2 st. dev.) shown in red.

N

0 feet 250 500

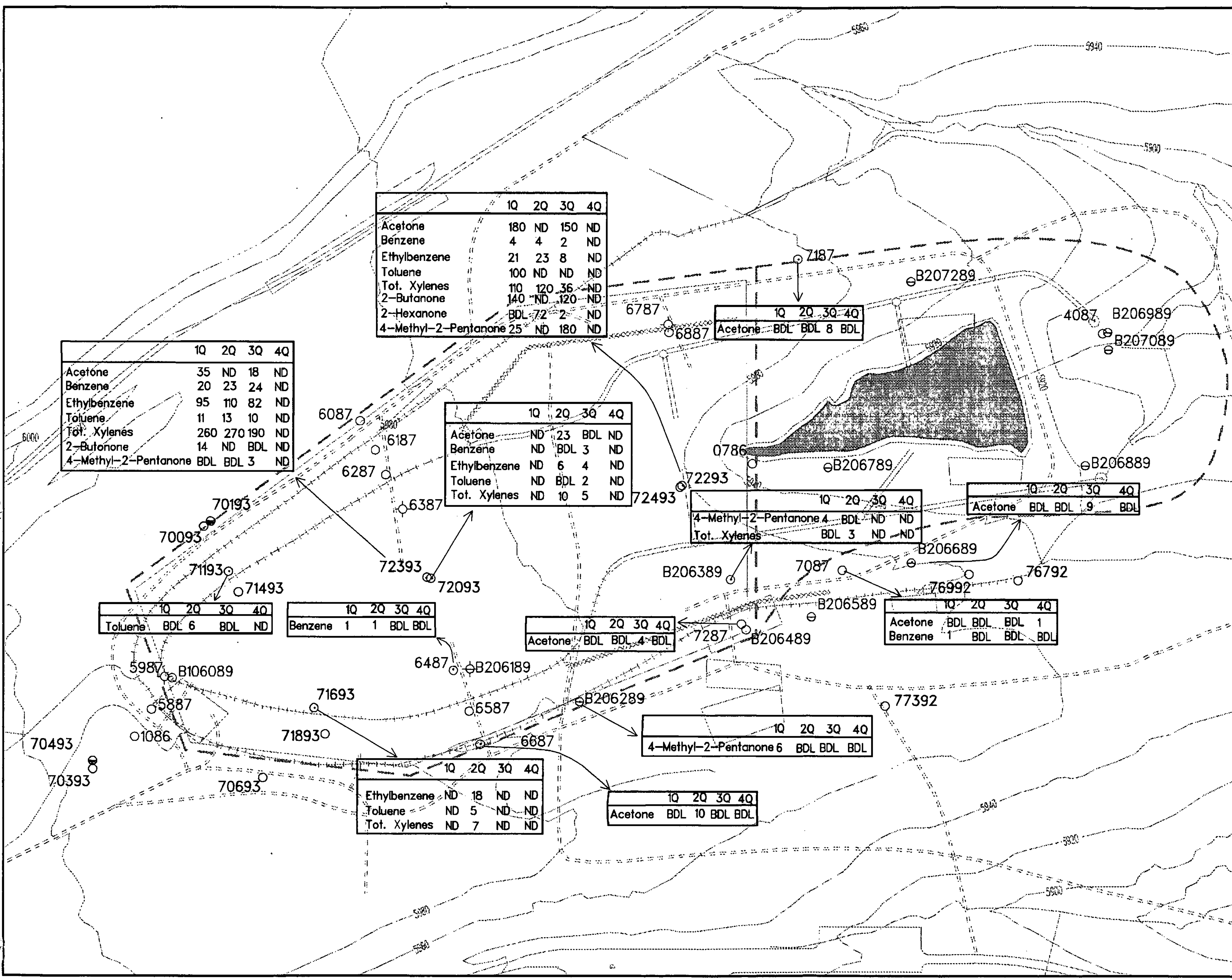
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Sr-89/90, Cs-137, Ra-226, and Ra-228 (pCi/L) in Groundwater
UHSU Bedrock, 1993

Figure 5-13



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

0 feet 250 500

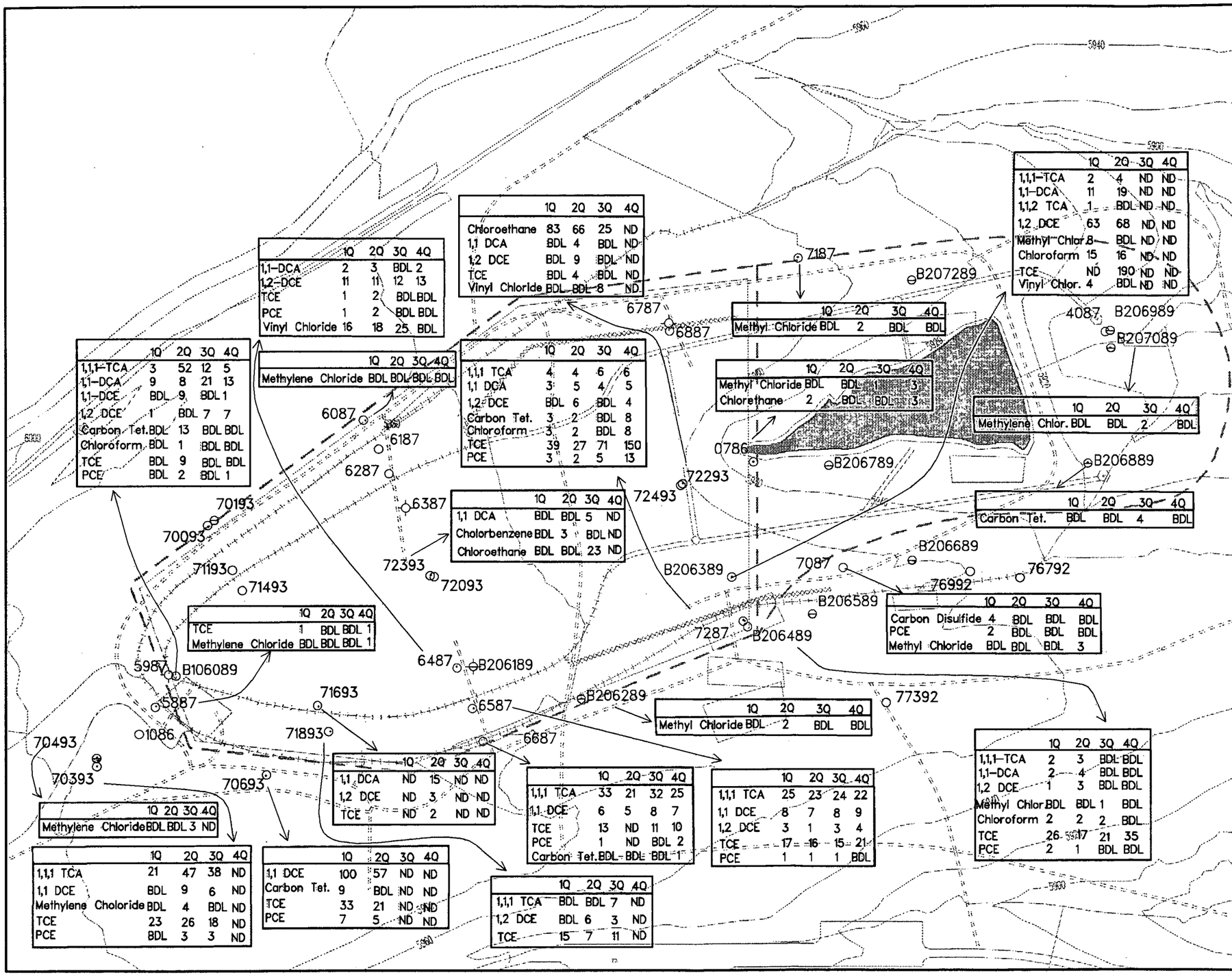
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Volatile Organic Compounds (ug/L) in Groundwater Upper Hydrostratigraphic Unit, 1993

Figure 5-14



	1Q	2Q	3Q	4Q
1,1,1-TCA	3	52	12	5
1,1-DCA	9	8	21	13
1,1-DCE	BDL	9	BDL	1
1,2 DCE	1	BDL	7	7
Carbon Tet.	BDL	13	BDL	BDL
Chloroform	BDL	1	BDL	BDL
TCE	BDL	9	BDL	BDL
PCE	BDL	2	BDL	1

	1Q	2Q	3Q	4Q
1,1-DCA	2	3	BDL	2
1,2-DCE	11	11	12	13
TCE	1	2	BDL	BDL
PCE	1	2	BDL	BDL
Vinyl Chloride	16	18	25	BDL

	1Q	2Q	3Q	4Q
Methylene Chloride	BDL	BDL	BDL	BDL

	1Q	2Q	3Q	4Q
Chloroethane	83	66	25	ND
1,1 DCA	BDL	4	BDL	ND
1,2 DCE	BDL	9	BDL	ND
TCE	BDL	4	BDL	ND
Vinyl Chloride	BDL	BDL	8	ND

	1Q	2Q	3Q	4Q
1,1,1 TCA	4	4	6	6
1,1 DCA	3	5	4	5
1,2 DCE	BDL	6	BDL	4
Carbon Tet.	3	2	BDL	8
Chloroform	3	2	BDL	8
TCE	39	27	71	150
PCE	3	2	5	13

	1Q	2Q	3Q	4Q
1,1 DCA	BDL	BDL	5	ND
Cholorbenzene	BDL	3	BDL	ND
Chloroethane	BDL	BDL	23	ND

	1Q	2Q	3Q	4Q
Methyl Chloride	BDL	2	BDL	BDL

	1Q	2Q	3Q	4Q
Methyl Chloride	BDL	BDL	1	3
Chlorethane	2	BDL	BDL	3

	1Q	2Q	3Q	4Q
1,1,1-TCA	2	4	ND	ND
1,1-DCA	11	19	ND	ND
1,1,2 TCA	1	BDL	ND	ND
1,2 DCE	63	68	ND	ND
Methyl Chlor	8	BDL	ND	ND
Chloroform	15	16	ND	ND
TCE	ND	190	ND	ND
Vinyl Chlor.	4	BDL	ND	ND

	1Q	2Q	3Q	4Q
Methylene Chlor.	BDL	BDL	2	BDL

	1Q	2Q	3Q	4Q
Carbon Tet.	BDL	BDL	4	BDL

	1Q	2Q	3Q	4Q
Carbon Disulfide	4	BDL	BDL	BDL
PCE	2	BDL	BDL	BDL
Methyl Chloride	BDL	BDL	BDL	3

	1Q	2Q	3Q	4Q
TCE	1	BDL	BDL	1
Methylene Chloride	BDL	BDL	BDL	1

	1Q	2Q	3Q	4Q
Methyl Chloride	BDL	2	BDL	BDL

	1Q	2Q	3Q	4Q
1,1,1-TCA	2	3	BDL	BDL
1,1-DCA	2	4	BDL	BDL
1,2 DCE	1	3	BDL	BDL
Methyl Chlor	BDL	BDL	1	BDL
Chloroform	2	2	2	BDL
TCE	26	17	21	35
PCE	2	1	BDL	BDL

	1Q	2Q	3Q	4Q
1,1,1 TCA	21	47	38	ND
1,1 DCE	BDL	9	6	ND
Methylene Choloride	BDL	4	BDL	ND
TCE	23	26	18	ND
PCE	BDL	3	3	ND

	1Q	2Q	3Q	4Q
Methylene Chloride	BDL	BDL	3	ND

	1Q	2Q	3Q	4Q
1,1 DCE	100	57	ND	ND
Carbon Tet.	9	BDL	ND	ND
TCE	33	21	ND	ND
PCE	7	5	ND	ND

	1Q	2Q	3Q	4Q
1,1 DCA	ND	15	ND	ND
1,2 DCE	ND	3	ND	ND
TCE	ND	2	ND	ND

	1Q	2Q	3Q	4Q
1,1,1 TCA	33	21	32	25
1,1 DCE	6	5	8	7
TCE	13	ND	11	10
PCE	1	ND	BDL	2
Carbon Tet.	BDL	BDL	BDL	1

	1Q	2Q	3Q	4Q
1,1,1 TCA	25	23	24	22
1,1 DCE	8	7	8	9
1,2 DCE	3	1	3	4
TCE	17	16	15	21
PCE	1	1	1	BDL

	1Q	2Q	3Q	4Q
1,1,1 TCA	BDL	BDL	7	ND
1,2 DCE	BDL	6	3	ND
TCE	15	7	11	ND

EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- ND Data Not Available
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

N

0 feet 250 500

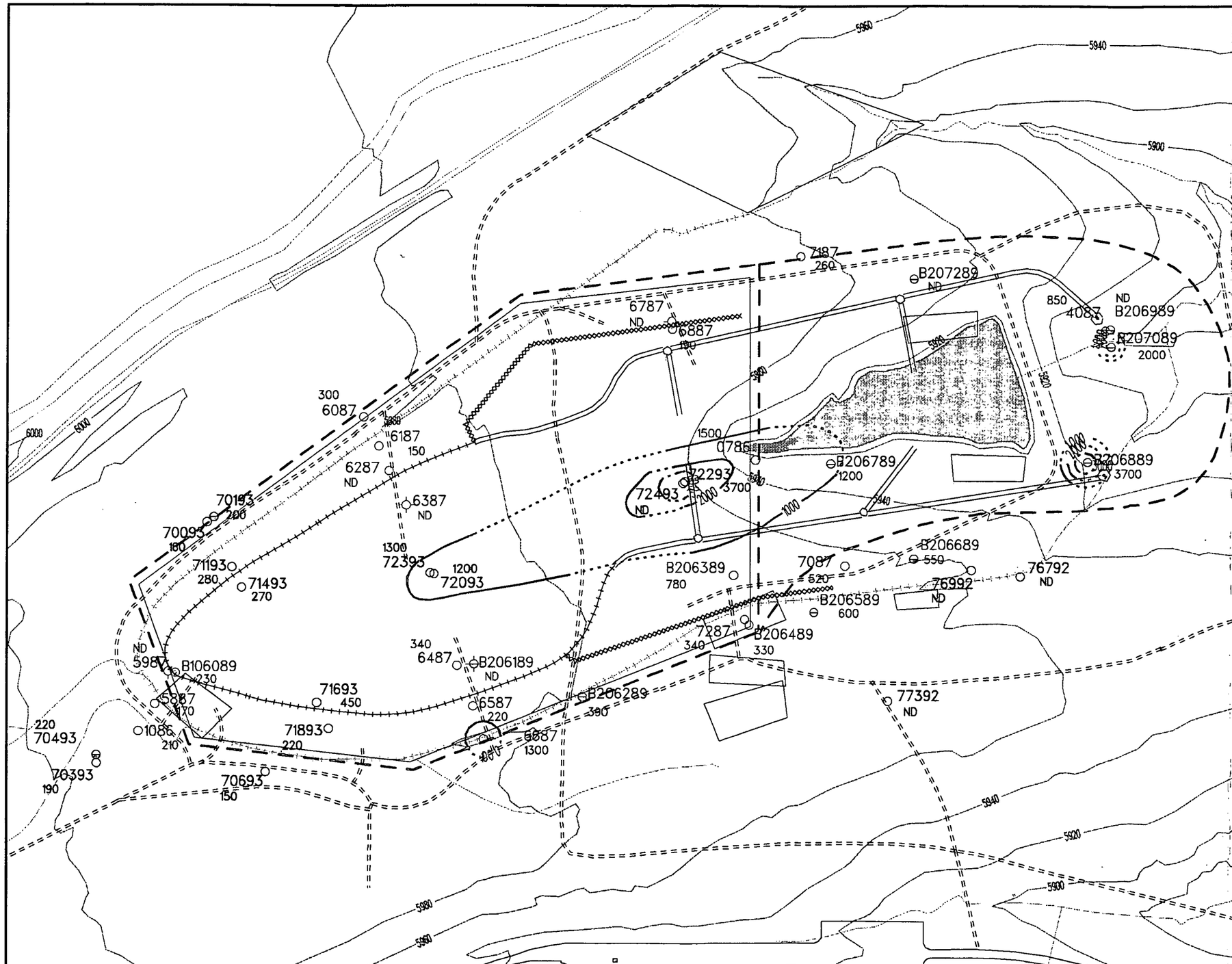
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Volatile Organic Compounds (ug/L)
in Groundwater
Upper Hydrostratigraphic Unit, 1993

Figure 5-15



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Isoconcentration Contours; Dashed Where Approximately Located
- ND No Data
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

N

0 feet 250 500

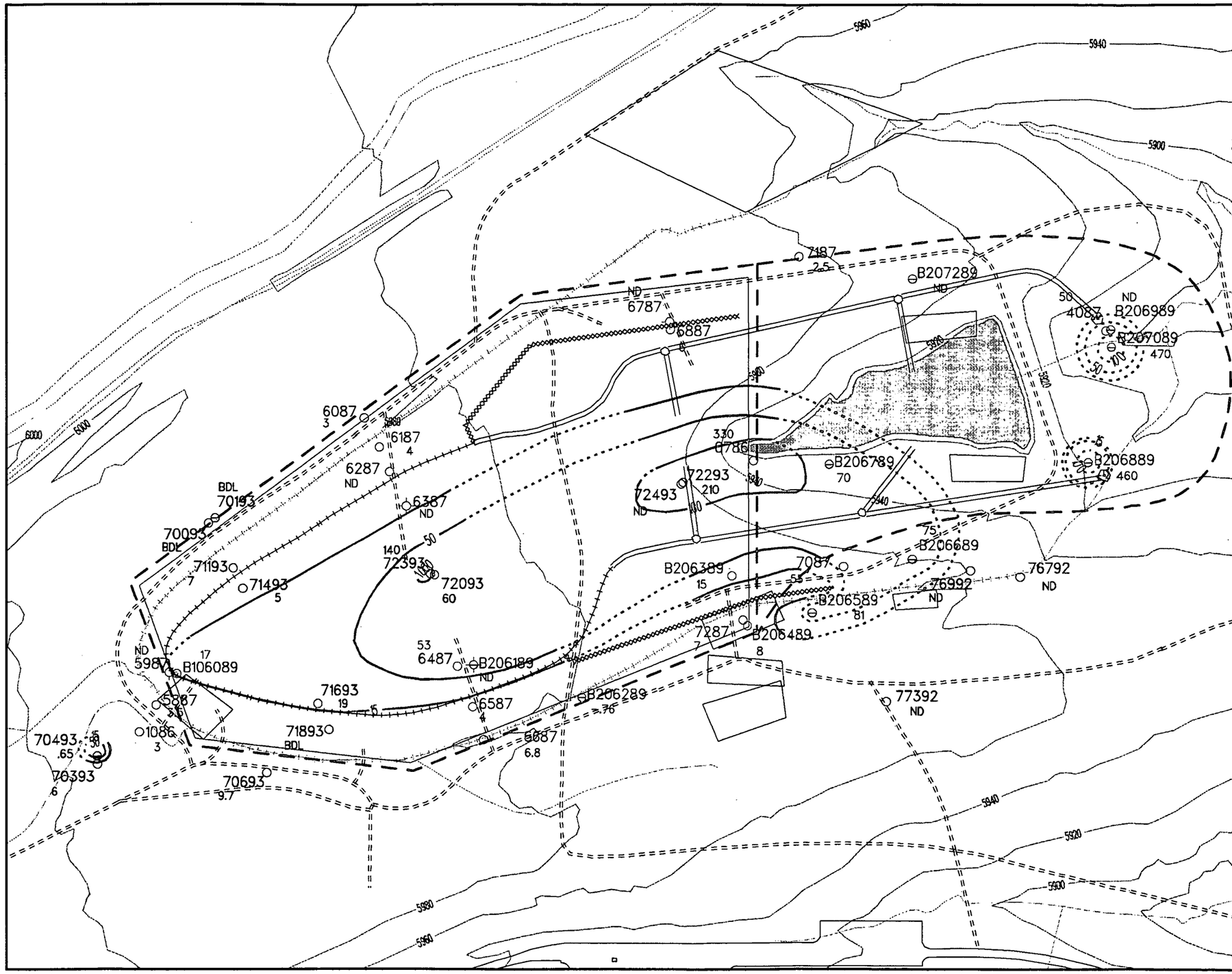
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Total Dissolved Solids (mg/L)
in Groundwater
UHSU, Second Quarter 1993

Figure 5-16



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Isoconcentration Contours; Dashed Where Approximately Located
- ND No Data
- BDL Below Detection Limit
- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

N

0 feet 250 500

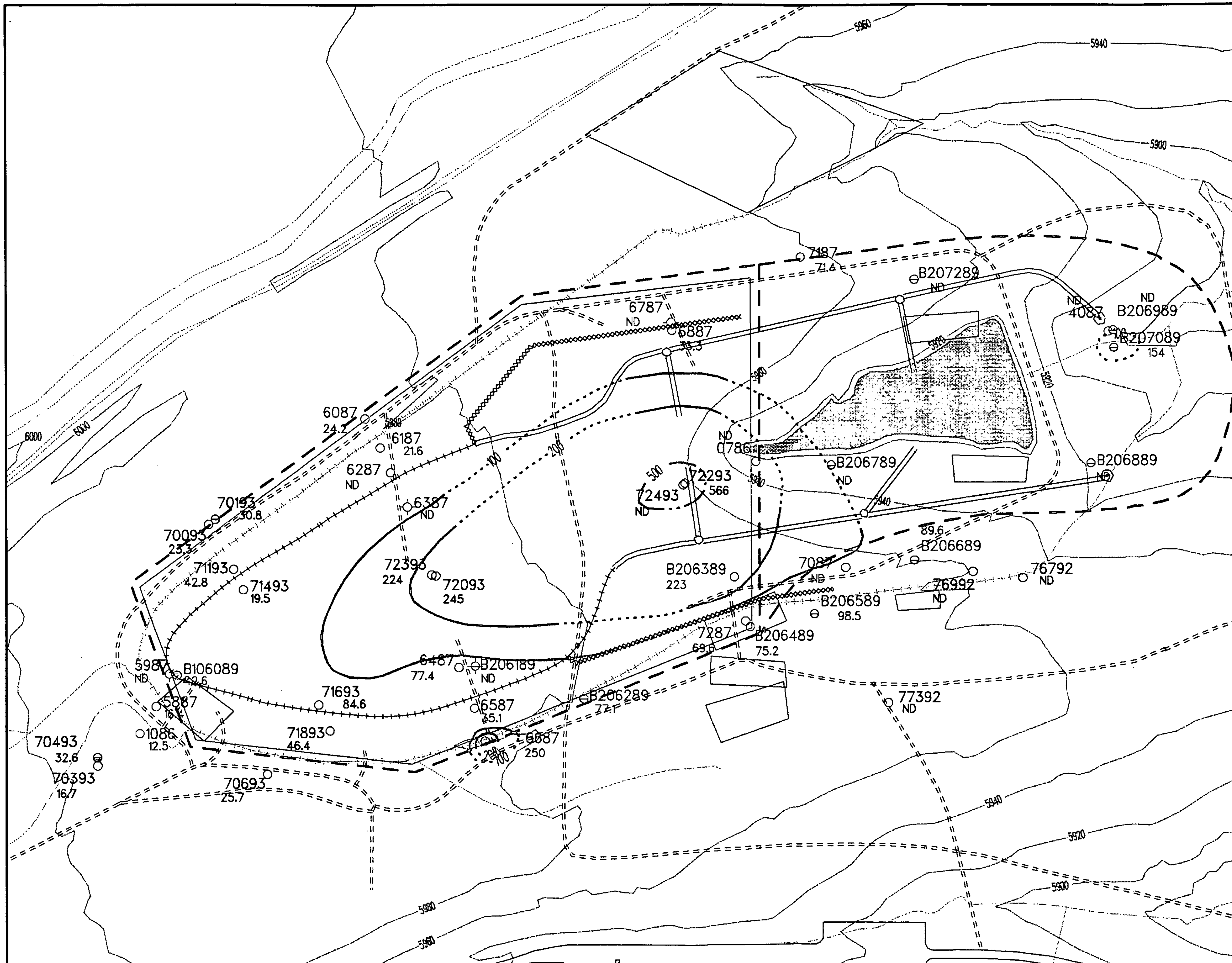
U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Chloride (mg/L)
in Groundwater
UHSU, Second Quarter 1993

Figure 5-17



EXPLANATION

- Well (Surficial Material, Upper Hydrostratigraphic Unit – UHSU)
- Well (Bedrock, UHSU)
- Abandoned Well (Surficial Material, UHSU)
- Abandoned Well (Bedrock, UHSU)
- Compliance Boundary
- IHSS Boundary
- Paved Roads
- Dirt Roads
- Streams, Ditches, Drainage Features
- Topographic Contours (feet above MSL)
- Surface Water Diversion Ditch
- Slurry Wall
- Groundwater Intercept System (perforated)
- Groundwater Intercept System (unperf.)
- Isoconcentration Contours; Dashed Where Approximately Located

ND No Data

BDL Below Detection Limit

- Surface Water Impoundments
- Buildings
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells

0 feet 250 500

U.S. Department of Energy
Rocky Flats Plant, Golden, Colorado

Present Landfill

1993 Annual RCRA Groundwater Monitoring Report

Calcium (mg/L)
in Groundwater
UHSU, Second Quarter 1993

Figure 5-18

APPENDICES

APPENDIX A

Groundwater Potentiometric Head Data for 1993

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	0586	13-JAN-93	5715.39	5714.60	QUARTERLY WATER LEVEL
PLF	0586	26-JAN-93	5714.41	5714.60	DRY
PLF	0586	26-FEB-93	5715.12	5714.60	
PLF	0586	03-MAR-93	5715.19	5714.60	
PLF	0586	22-MAR-93	5715.28	5714.60	
PLF	0586	01-APR-93	5715.52	5714.60	QUARTERLY WATER LEVEL
PLF	0586	14-APR-93	5717.79	5714.60	
PLF	0586	13-JUL-93	5715.65	5714.60	QUARTERLY WATER LEVEL
PLF	0586	04-AUG-93	5715.44	5714.60	
PLF	0586	05-OCT-93	5714.81	5714.60	QUARTERLY WATER LEVEL
PLF	0586	08-NOV-93	5715.03	5714.60	
PLF	0686	14-JAN-93	5805.49	5805.80	QUARTERLY WATER LEVEL - DRY
PLF	0686	26-JAN-93	DRY	5805.80	DRY
PLF	0686	17-FEB-93	5805.46	5805.80	WATER <.3FT (DRY) - NOT SAMPLED
PLF	0686	26-FEB-93	DRY	5805.80	DRY
PLF	0686	22-MAR-93	DRY	5805.80	DRY
PLF	0686	09-APR-93	5805.41	5805.80	QUARTERLY WATER LEVEL - DRY
PLF	0686	12-JUL-93	DRY	5805.80	QUARTERLY WATER LEVEL
PLF	0686	07-OCT-93	5805.42	5805.80	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
PLF	0786	13-JAN-93	5921.11	5919.20	QUARTERLY WATER LEVEL
PLF	0786	26-JAN-93	5921.13	5919.20	NONE
PLF	0786	08-FEB-93	5921.19	5919.20	
PLF	0786	26-FEB-93	5921.17	5919.20	
PLF	0786	22-MAR-93	5921.26	5919.20	
PLF	0786	02-APR-93	5921.71	5919.20	QUARTERLY WATER LEVEL
PLF	0786	12-APR-93	5921.55	5919.20	
PLF	0786	12-JUL-93	5920.74	5919.20	QUARTERLY WATER LEVEL
PLF	0786	05-AUG-93	5920.50	5919.20	
PLF	0786	06-OCT-93	5919.62	5919.20	QUARTERLY WATER LEVEL
PLF	0786	11-OCT-93	5919.94	5919.20	
PLF	0886	13-JAN-93	5890.08	5861.80	QUARTERLY WATER LEVEL
PLF	0886	26-JAN-93	5892.66	5861.80	NONE
PLF	0886	08-FEB-93	5894.87	5861.80	
PLF	0886	26-FEB-93	5869.00	5861.80	
PLF	0886	22-MAR-93	5877.28	5861.80	
PLF	0886	02-APR-93	5880.44	5861.80	QUARTERLY WATER LEVEL
PLF	0886	12-APR-93	5883.21	5861.80	
PLF	0886	21-JUN-93	5884.19	5861.80	
PLF	0886	12-JUL-93	5885.86	5861.80	QUARTERLY WATER LEVEL
PLF	0886	05-AUG-93	5890.90	5861.80	
PLF	0886	06-OCT-93	5882.12	5861.80	QUARTERLY WATER LEVEL
PLF	0886	11-OCT-93	5883.35	5861.80	
PLF	0986	13-JAN-93	5966.38	5861.00	QUARTERLY WATER LEVEL
PLF	0986	26-JAN-93	5966.84	5861.00	NONE
PLF	0986	11-FEB-93	5967.20	5861.00	
PLF	0986	26-FEB-93	5936.72	5861.00	
PLF	0986	22-MAR-93	5962.19	5861.00	
PLF	0986	01-APR-93	5964.30	5861.00	QUARTERLY WATER LEVEL
PLF	0986	14-APR-93	5965.65	5861.00	
PLF	0986	07-JUL-93	5965.71	5861.00	QUARTERLY WATER LEVEL
PLF	0986	10-AUG-93	5966.57	5861.00	
PLF	0986	04-OCT-93	5964.56	5861.00	QUARTERLY WATER LEVEL
PLF	0986	02-NOV-93	5965.88	5861.00	
PLF	1086	13-JAN-93	5983.97	5972.80	QUARTERLY WATER LEVEL
PLF	1086	26-JAN-93	5983.76	5972.80	NONE
PLF	1086	27-JAN-93	5983.89	5972.80	
PLF	1086	26-FEB-93	5983.62	5972.80	
PLF	1086	22-MAR-93	5984.28	5972.80	
PLF	1086	01-APR-93	5988.01	5972.80	QUARTERLY WATER LEVEL
PLF	1086	14-APR-93	5991.10	5972.80	
PLF	1086	07-JUL-93	5987.40	5972.80	QUARTERLY WATER LEVEL
PLF	1086	09-AUG-93	5986.13	5972.80	
PLF	1086	04-OCT-93	5984.21	5972.80	QUARTERLY WATER LEVEL
PLF	1086	12-OCT-93	5984.04	5972.80	
PLF	4087	14-JAN-93	DRY	5876.50	QUARTERLY WATER LEVEL
PLF	4087	26-JAN-93	DRY	5876.50	DRY
PLF	4087	26-FEB-93	5879.48	5876.50	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	4087	22-MAR-93	5879.71	5876.50	
PLF	4087	01-APR-93	5881.22	5876.50	QUARTERLY WATER LEVEL
PLF	4087	20-APR-93	5881.30	5876.50	
PLF	4087	07-JUL-93	5877.59	5876.50	QUARTERLY WATER LEVEL
PLF	4087	07-OCT-93	5876.03	5876.50	QUARTERLY WATER LEVEL/<.3FT (DRY) NOT SAMPLED
PLF	4187	14-JAN-93	5843.85	5789.20	QUARTERLY WATER LEVEL
PLF	4187	26-JAN-93	5846.02	5789.20	NONE
PLF	4187	26-FEB-93	5850.01	5789.20	
PLF	4187	01-MAR-93	5849.89	5789.20	
PLF	4187	22-MAR-93	5814.36	5789.20	
PLF	4187	01-APR-93	5822.56	5789.20	QUARTERLY WATER LEVEL
PLF	4187	20-APR-93	5833.51	5789.20	
PLF	4187	07-JUL-93	5840.99	5789.20	QUARTERLY WATER LEVEL
PLF	4187	09-AUG-93	5847.49	5789.20	
PLF	4187	07-OCT-93	5835.85	5789.20	QUARTERLY WATER LEVEL
PLF	4187	04-NOV-93	5844.01	5789.20	
PLF	4287	14-JAN-93	5852.46	5847.90	QUARTERLY WATER LEVEL
PLF	4287	26-JAN-93	5852.77	5847.90	NONE
PLF	4287	17-FEB-93	5852.47	5847.90	
PLF	4287	18-FEB-93	5852.47	5847.90	
PLF	4287	26-FEB-93	5852.58	5847.90	
PLF	4287	22-MAR-93	5852.55	5847.90	
PLF	4287	01-APR-93	5852.64	5847.90	QUARTERLY WATER LEVEL
PLF	4287	10-MAY-93	5851.93	5847.90	
PLF	4287	07-JUL-93	5848.84	5847.90	QUARTERLY WATER LEVEL
PLF	4287	04-AUG-93	DRY	5847.90	
PLF	4287	07-OCT-93	DRY	5847.90	QUARTERLY WATER LEVEL
PLF	5887	13-JAN-93	5982.82	5973.20	QUARTERLY WATER LEVEL
PLF	5887	26-JAN-93	5982.62	5973.20	NONE
PLF	5887	27-JAN-93	5982.67	5973.20	
PLF	5887	26-FEB-93	5982.48	5973.20	
PLF	5887	22-MAR-93	5983.10	5973.20	
PLF	5887	01-APR-93	5984.82	5973.20	QUARTERLY WATER LEVEL
PLF	5887	14-APR-93	5988.83	5973.20	
PLF	5887	07-JUL-93	5985.37	5973.20	QUARTERLY WATER LEVEL
PLF	5887	05-AUG-93	5984.52	5973.20	
PLF	5887	04-OCT-93	5982.75	5973.20	QUARTERLY WATER LEVEL
PLF	5887	13-OCT-93	5982.55	5973.20	
PLF	5987	26-FEB-93	DRY	5972.10	DESTROYED
PLF	5987	22-MAR-93	DRY	5972.10	DESTROYED
PLF	6087	14-JAN-93	5972.31	5956.90	QUARTERLY WATER LEVEL
PLF	6087	26-JAN-93	5972.30	5956.90	NONE
PLF	6087	19-FEB-93	5972.40	5956.90	
PLF	6087	26-FEB-93	5972.41	5956.90	
PLF	6087	22-MAR-93	5972.78	5956.90	
PLF	6087	01-APR-93	5975.59	5956.90	QUARTERLY WATER LEVEL
PLF	6087	09-APR-93	5977.00	5956.90	
PLF	6087	07-JUL-93	5973.13	5956.90	QUARTERLY WATER LEVEL
PLF	6087	11-AUG-93	5972.41	5956.90	
PLF	6087	04-OCT-93	5972.07	5956.90	QUARTERLY WATER LEVEL
PLF	6087	27-OCT-93	5972.13	5956.90	
PLF	6187	13-JAN-93	5972.22	5956.20	QUARTERLY WATER LEVEL
PLF	6187	26-JAN-93	5972.18	5956.20	NONE
PLF	6187	29-JAN-93	5972.19	5956.20	
PLF	6187	26-FEB-93	5972.24	5956.20	
PLF	6187	22-MAR-93	5972.48	5956.20	
PLF	6187	02-APR-93	5974.86	5956.20	QUARTERLY WATER LEVEL
PLF	6187	16-APR-93	5976.75	5956.20	
PLF	6187	08-JUL-93	5972.82	5956.20	QUARTERLY WATER LEVEL
PLF	6187	04-AUG-93	5972.40	5956.20	
PLF	6187	06-OCT-93	5972.04	5956.20	QUARTERLY WATER LEVEL
PLF	6187	26-OCT-93	5972.04	5956.20	
PLF	6287	13-JAN-93	5971.64	5957.90	QUARTERLY WATER LEVEL
PLF	6287	26-JAN-93	5971.62	5957.90	NONE
PLF	6287	29-JAN-93	5971.59	5957.90	
PLF	6287	26-FEB-93	5971.63	5957.90	
PLF	6287	22-MAR-93	5971.78	5957.90	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	6287	02-APR-93	5973.57	5957.90	QUARTERLY WATER LEVEL
PLF	6287	08-JUL-93	5972.15	5957.90	QUARTERLY WATER LEVEL
PLF	6287	06-OCT-93	5971.53	5957.90	QUARTERLY WATER LEVEL
PLF	6387	26-JAN-93	DRY	5960.20	DESTROYED
PLF	6387	26-FEB-93	DRY	5960.20	ABANDONED/DESTROYED
PLF	6387	22-MAR-93	DRY	5960.20	ABANDONED/DESTROYED
PLF	6387	07-JUN-93	5971.51	5960.20	GROUND NOT EVEN
PLF	6487	13-JAN-93	5966.81	5962.80	QUARTERLY WATER LEVEL
PLF	6487	26-JAN-93	5966.72	5962.80	NONE
PLF	6487	08-FEB-93	5966.57	5962.80	
PLF	6487	26-FEB-93	5966.32	5962.80	
PLF	6487	22-MAR-93	5966.21	5962.80	
PLF	6487	02-APR-93	5966.29	5962.80	QUARTERLY WATER LEVEL
PLF	6487	12-APR-93	5966.13	5962.80	
PLF	6487	08-JUL-93	5966.18	5962.80	QUARTERLY WATER LEVEL
PLF	6487	09-AUG-93	5965.98	5962.80	
PLF	6487	06-OCT-93	5966.06	5962.80	QUARTERLY WATER LEVEL
PLF	6487	14-OCT-93	5966.02	5962.80	
PLF	6587	13-JAN-93	5970.02	5959.50	QUARTERLY WATER LEVEL
PLF	6587	26-JAN-93	5969.82	5959.50	NONE
PLF	6587	29-JAN-93	5969.81	5959.50	
PLF	6587	26-FEB-93	5969.44	5959.50	
PLF	6587	22-MAR-93	5969.74	5959.50	
PLF	6587	02-APR-93	5971.34	5959.50	QUARTERLY WATER LEVEL
PLF	6587	08-JUL-93	5971.45	5959.50	QUARTERLY WATER LEVEL
PLF	6587	13-AUG-93	5970.38	5959.50	
PLF	6587	06-OCT-93	5969.63	5959.50	QUARTERLY WATER LEVEL
PLF	6587	18-OCT-93	5969.51	5959.50	
PLF	6687	19-JAN-93	5969.96	5964.30	QUARTERLY WATER LEVEL
PLF	6687	26-JAN-93	5969.82	5964.30	NONE
PLF	6687	10-FEB-93	5969.57	5964.30	
PLF	6687	26-FEB-93	5969.45	5964.30	
PLF	6687	22-MAR-93	5969.71	5964.30	
PLF	6687	01-APR-93	5971.25	5964.30	QUARTERLY WATER LEVEL
PLF	6687	20-APR-93	5974.52	5964.30	
PLF	6687	12-JUL-93	5971.32	5964.30	QUARTERLY WATER LEVEL
PLF	6687	09-AUG-93	5970.44	5964.30	
PLF	6687	06-OCT-93	5969.69	5964.30	QUARTERLY WATER LEVEL
PLF	6687	14-OCT-93	5969.54	5964.30	
PLF	6787	13-JAN-93	5960.07	5953.50	QUARTERLY WATER LEVEL
PLF	6787	26-JAN-93	5960.11	5953.50	NONE
PLF	6787	26-FEB-93	5960.15	5953.50	
PLF	6787	22-MAR-93	5960.43	5953.50	
PLF	6787	02-APR-93	5962.11	5953.50	QUARTERLY WATER LEVEL
PLF	6787	03-JUN-93	5962.94	5953.50	
PLF	6787	06-JUL-93	DRY	5953.50	QUARTERLY WATER LEVEL
PLF	6887	13-JAN-93	5959.91	5953.10	QUARTERLY WATER LEVEL
PLF	6887	26-JAN-93	5959.93	5953.10	NONE
PLF	6887	10-FEB-93	5959.94	5953.10	
PLF	6887	26-FEB-93	5959.99	5953.10	
PLF	6887	22-MAR-93	5960.25	5953.10	
PLF	6887	02-APR-93	5961.81	5953.10	QUARTERLY WATER LEVEL
PLF	6887	16-APR-93	5962.80	5953.10	
PLF	6887	08-JUL-93	5960.33	5953.10	QUARTERLY WATER LEVEL
PLF	6887	06-AUG-93	5959.84	5953.10	
PLF	6887	06-OCT-93	5959.67	5953.10	QUARTERLY WATER LEVEL
PLF	6887	25-OCT-93	5959.70	5953.10	
PLF	7087	13-JAN-93	5951.89	5950.40	QUARTERLY WATER LEVEL
PLF	7087	26-JAN-93	5951.98	5950.40	NONE
PLF	7087	08-FEB-93	5951.99	5950.40	
PLF	7087	26-FEB-93	5950.25	5950.40	DRY
PLF	7087	22-MAR-93	5950.47	5950.40	
PLF	7087	02-APR-93	5950.59	5950.40	QUARTERLY WATER LEVEL
PLF	7087	12-APR-93	5951.74	5950.40	
PLF	7087	12-JUL-93	5958.19	5950.40	QUARTERLY WATER LEVEL
PLF	7087	09-AUG-93	5957.25	5950.40	
PLF	7087	06-OCT-93	5952.43	5950.40	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	7087	19-OCT-93	5952.59	5950.40	
PLF	7187	14-JAN-93	5957.60	5950.40	QUARTERLY WATER LEVEL
PLF	7187	26-JAN-93	5957.92	5950.40	NONE
PLF	7187	19-FEB-93	5958.01	5950.40	
PLF	7187	26-FEB-93	5958.09	5950.40	
PLF	7187	22-MAR-93	5958.36	5950.40	
PLF	7187	01-APR-93	5960.06	5950.40	QUARTERLY WATER LEVEL
PLF	7187	09-APR-93	5960.01	5950.40	
PLF	7187	12-JUL-93	5957.61	5950.40	QUARTERLY WATER LEVEL
PLF	7187	11-AUG-93	5956.08	5950.40	
PLF	7187	07-OCT-93	5956.68	5950.40	QUARTERLY WATER LEVEL
PLF	7187	03-NOV-93	5957.32	5950.40	
PLF	7287	13-JAN-93	5964.74	5962.80	QUARTERLY WATER LEVEL
PLF	7287	26-JAN-93	5965.10	5962.80	NONE
PLF	7287	01-FEB-93	5965.03	5962.80	
PLF	7287	26-FEB-93	5964.87	5962.80	
PLF	7287	22-MAR-93	5965.33	5962.80	
PLF	7287	01-APR-93	5966.79	5962.80	QUARTERLY WATER LEVEL
PLF	7287	08-APR-93	5966.91	5962.80	
PLF	7287	12-JUL-93	5963.66	5962.80	QUARTERLY WATER LEVEL
PLF	7287	09-AUG-93	5963.00	5962.80	
PLF	7287	06-OCT-93	5963.20	5962.80	QUARTERLY WATER LEVEL
PLF	7287	13-OCT-93	5963.08	5962.80	
PLF	B106089	13-JAN-93	5973.03	5970.10	QUARTERLY WATER LEVEL
PLF	B106089	26-JAN-93	5973.05	5970.10	NONE
PLF	B106089	27-JAN-93	5973.05	5970.10	
PLF	B106089	26-FEB-93	5973.05	5970.10	
PLF	B106089	22-MAR-93	5973.00	5970.10	
PLF	B106089	02-APR-93	5973.00	5970.10	QUARTERLY WATER LEVEL
PLF	B106089	14-APR-93	5973.92	5970.10	
PLF	B106089	07-JUL-93	5973.03	5970.10	QUARTERLY WATER LEVEL
PLF	B106089	10-AUG-93	5973.05	5970.10	
PLF	B106089	04-OCT-93	5972.87	5970.10	QUARTERLY WATER LEVEL
PLF	B106089	13-OCT-93	5972.88	5970.10	
PLF	B206189	13-JAN-93	5962.02	5949.10	QUARTERLY WATER LEVEL
PLF	B206189	26-JAN-93	5963.09	5949.10	NONE
PLF	B206189	26-FEB-93	5964.66	5949.10	
PLF	B206189	22-MAR-93	5965.23	5949.10	
PLF	B206189	02-APR-93	5965.51	5949.10	QUARTERLY WATER LEVEL
PLF	B206189	09-JUN-93	5968.67	5949.10	
PLF	B206289	13-JAN-93	5958.98	5935.80	QUARTERLY WATER LEVEL
PLF	B206289	26-JAN-93	5960.11	5935.80	NONE
PLF	B206289	02-FEB-93	5960.64	5935.80	
PLF	B206289	26-FEB-93	5945.39	5935.80	
PLF	B206289	22-MAR-93	5953.07	5935.80	
PLF	B206289	01-APR-93	5955.27	5935.80	QUARTERLY WATER LEVEL
PLF	B206289	12-JUL-93	5958.99	5935.80	QUARTERLY WATER LEVEL
PLF	B206289	09-AUG-93	5960.28	5935.80	
PLF	B206289	06-OCT-93	5952.89	5935.80	QUARTERLY WATER LEVEL
PLF	B206289	27-OCT-93	5955.78	5935.80	
PLF	B206389	13-JAN-93	5959.84	5956.20	QUARTERLY WATER LEVEL
PLF	B206389	26-JAN-93	5959.74	5956.20	LEL 46% AT WELLHEAD
PLF	B206389	08-FEB-93	5959.74	5956.20	
PLF	B206389	26-FEB-93	5959.59	5956.20	
PLF	B206389	22-MAR-93	5959.57	5956.20	
PLF	B206389	02-APR-93	5959.87	5956.20	QUARTERLY WATER LEVEL
PLF	B206389	12-APR-93	5960.11	5956.20	
PLF	B206389	12-JUL-93	5960.07	5956.20	QUARTERLY WATER LEVEL
PLF	B206489	13-JAN-93	5964.59	5959.10	QUARTERLY WATER LEVEL
PLF	B206489	26-JAN-93	5964.91	5959.10	NONE
PLF	B206489	01-FEB-93	5964.86	5959.10	
PLF	B206489	26-FEB-93	5964.75	5959.10	
PLF	B206489	26-FEB-93	5964.75	5959.10	
PLF	B206489	22-MAR-93	5965.20	5959.10	
PLF	B206489	01-APR-93	5966.66	5959.10	QUARTERLY WATER LEVEL
PLF	B206489	12-JUL-93	5963.80	5959.10	QUARTERLY WATER LEVEL
PLF	B206489	05-AUG-93	5963.29	5959.10	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	B206489	06-OCT-93	5961.70	5959.10	QUARTERLY WATER LEVEL
PLF	B206489	18-OCT-93	5962.04	5959.10	
PLF	B206589	13-JAN-93	5960.92	5932.70	QUARTERLY WATER LEVEL
PLF	B206589	26-JAN-93	5960.85	5932.70	NONE
PLF	B206589	01-FEB-93	5960.82	5932.70	
PLF	B206589	26-FEB-93	5960.46	5932.70	
PLF	B206589	22-MAR-93	5960.64	5932.70	
PLF	B206589	01-APR-93	5960.86	5932.70	QUARTERLY WATER LEVEL
PLF	B206589	15-APR-93	5961.87	5932.70	
PLF	B206589	12-JUL-93	5962.03	5932.70	QUARTERLY WATER LEVEL
PLF	B206589	11-AUG-93	5960.62	5932.70	
PLF	B206589	06-OCT-93	5960.34	5932.70	QUARTERLY WATER LEVEL
PLF	B206589	04-NOV-93	5960.52	5932.70	
PLF	B206689	14-JAN-93	5943.35	5941.10	QUARTERLY WATER LEVEL
PLF	B206689	26-JAN-93	5943.64	5941.10	NONE
PLF	B206689	10-FEB-93	5943.99	5941.10	
PLF	B206689	26-FEB-93	5940.60	5941.10	DRY
PLF	B206689	22-MAR-93	5941.46	5941.10	
PLF	B206689	01-APR-93	5941.84	5941.10	QUARTERLY WATER LEVEL
PLF	B206689	20-APR-93	5943.22	5941.10	
PLF	B206689	07-JUL-93	5947.03	5941.10	QUARTERLY WATER LEVEL
PLF	B206689	07-JUL-93		5941.10	
PLF	B206689	09-AUG-93	5948.46	5941.10	
PLF	B206689	06-OCT-93	5945.52	5941.10	QUARTERLY WATER LEVEL
PLF	B206689	18-OCT-93	5942.84	5941.10	
PLF	B206789	13-JAN-93	5918.45	5908.60	QUARTERLY WATER LEVEL
PLF	B206789	26-JAN-93	5918.70	5908.60	NONE
PLF	B206789	08-FEB-93	5918.85	5908.60	
PLF	B206789	26-FEB-93	5913.17	5908.60	
PLF	B206789	26-FEB-93	5913.17	5908.60	
PLF	B206789	22-MAR-93	5916.65	5908.60	
PLF	B206789	02-APR-93	5917.64	5908.60	QUARTERLY WATER LEVEL
PLF	B206789	12-APR-93	5918.54	5908.60	
PLF	B206789	09-JUL-93	5919.15	5908.60	QUARTERLY WATER LEVEL
PLF	B206789	05-AUG-93	5916.97	5908.60	
PLF	B206789	06-OCT-93	5915.39	5908.60	QUARTERLY WATER LEVEL
PLF	B206789	18-OCT-93	5916.00	5908.60	
PLF	B206889	14-JAN-93	5900.90	5899.60	QUARTERLY WATER LEVEL
PLF	B206889	26-JAN-93	5901.07	5899.60	NONE
PLF	B206889	17-FEB-93	5901.38	5899.60	
PLF	B206889	26-FEB-93	5899.71	5899.60	
PLF	B206889	22-MAR-93	5900.12	5899.60	
PLF	B206889	01-APR-93	5900.31	5899.60	QUARTERLY WATER LEVEL
PLF	B206889	22-APR-93	5900.63	5899.60	
PLF	B206889	07-JUL-93	5900.57	5899.60	QUARTERLY WATER LEVEL
PLF	B206889	09-AUG-93	5901.03	5899.60	
PLF	B206889	07-OCT-93	5900.27	5899.60	QUARTERLY WATER LEVEL
PLF	B206889	18-OCT-93	5900.43	5899.60	
PLF	B206989	14-JAN-93	5862.78	5861.10	QUARTERLY WATER LEVEL
PLF	B206989	26-JAN-93	5862.97	5861.10	NONE
PLF	B206989	11-FEB-93	5863.17	5861.10	
PLF	B206989	26-FEB-93	5860.51	5861.10	DRY
PLF	B206989	22-MAR-93	5860.89	5861.10	DRY
PLF	B206989	01-APR-93	5861.02	5861.10	QUARTERLY WATER LEVEL - DRY
PLF	B206989	20-APR-93	5861.80	5861.10	
PLF	B206989	07-JUL-93	5862.40	5861.10	QUARTERLY WATER LEVEL
PLF	B206989	09-AUG-93	5863.10	5861.10	
PLF	B206989	07-OCT-93	5862.14	5861.10	QUARTERLY WATER LEVEL
PLF	B206989	11-OCT-93	5862.20	5861.10	
PLF	B207089	14-JAN-93	5861.24	5830.10	QUARTERLY WATER LEVEL
PLF	B207089	26-JAN-93	5861.53	5830.10	NONE
PLF	B207089	26-FEB-93	5862.09	5830.10	
PLF	B207089	01-MAR-93	5862.14	5830.10	
PLF	B207089	22-MAR-93	5857.54	5830.10	
PLF	B207089	01-APR-93	5859.15	5830.10	QUARTERLY WATER LEVEL
PLF	B207089	20-APR-93	5860.53	5830.10	
PLF	B207089	07-JUL-93	5860.39	5830.10	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	B207089	12-AUG-93	5861.00	5830.10	
PLF	B207089	07-OCT-93	5859.67	5830.10	QUARTERLY WATER LEVEL
PLF	B207089	11-OCT-93	5859.81	5830.10	
PLF	B207189	14-JAN-93	5858.92	5809.40	QUARTERLY WATER LEVEL
PLF	B207189	26-JAN-93	5859.07	5809.40	NONE
PLF	B207189	26-FEB-93	5859.39	5809.40	
PLF	B207189	22-MAR-93	5859.19	5809.40	
PLF	B207189	10-JUN-93	5854.22	5809.40	
PLF	76792	14-JAN-93	DRY	5938.00	QUARTERLY WATER LEVEL-NOT DEVELOPED
PLF	76792	26-FEB-93	DRY	5938.00	DRY
PLF	76792	22-MAR-93	DRY	5938.00	DRY
PLF	76792	01-APR-93	DRY	5938.00	QUARTERLY WATER LEVEL
PLF	76792	07-JUL-93	5935.28	5938.00	QUARTERLY WATER LEVEL - DRY
PLF	76792	06-OCT-93	DRY	5938.00	QUARTERLY WATER LEVEL/DRY - NOT DEVELOPED
PLF	76992	14-JAN-93	DRY	5945.60	QUARETERLY WATER LEVEL-NOT DEVELOPED
PLF	76992	26-FEB-93	DRY	5945.60	DRY
PLF	76992	22-MAR-93	DRY	5945.60	DRY
PLF	76992	01-APR-93	DRY	5945.60	QUARTERLY WATER LEVEL
PLF	76992	07-JUL-93	5947.26	5945.60	QUARTERLY WATER LEVEL
PLF	76992	06-OCT-93	5945.56	5945.60	QUARTERLY WATER LEVEL/DRY - NOT DEVELOPED
PLF	77392	20-JAN-93	5955.37	5955.60	QUARTERLY WATER LEVEL/DRY - NOT DEVELOPED
PLF	77392	26-FEB-93	5955.29	5955.60	DRY
PLF	77392	22-MAR-93	5955.23	5955.60	DRY
PLF	77392	01-APR-93	5955.21	5955.60	QUARTERLY WATER LEVEL - DRY
PLF	77392	12-JUL-93	DRY	5955.60	QUARTERLY WATER LEVEL
PLF	77392	06-OCT-93	DRY	5955.60	QUARTERLY WATER LEVEL/DRY - NOT DEVELOPED
PLF	70093	26-FEB-93	5978.15	5968.90	
PLF	70093	22-MAR-93	5978.47	5968.90	
PLF	70093	02-APR-93	5980.71	5968.90	QUARTERLY WATER LEVEL
PLF	70093	20-APR-93	5982.96	5968.90	
PLF	70093	24-MAY-93	5979.87	5968.90	
PLF	70093	14-JUN-93	5979.18	5968.90	
PLF	70093	07-JUL-93	5979.04	5968.90	QUARTERLY WATER LEVEL
PLF	70093	30-JUL-93	5978.44	5968.90	
PLF	70093	04-OCT-93	5977.69	5968.90	QUARTERLY WATER LEVEL
PLF	70093	10-NOV-93	5977.84	5968.90	
PLF	70193	26-FEB-93	5977.57	5952.70	
PLF	70193	22-MAR-93	5977.79	5952.70	
PLF	70193	02-APR-93	5979.43	5952.70	QUARTERLY WATER LEVEL
PLF	70193	20-APR-93	5982.10	5952.70	
PLF	70193	24-MAY-93	5979.35	5952.70	
PLF	70193	16-JUN-93	5978.76	5952.70	
PLF	70193	07-JUL-93	5978.64	5952.70	QUARTERLY WATER LEVEL
PLF	70193	29-JUL-93	5978.12	5952.70	
PLF	70193	04-OCT-93	5977.39	5952.70	QUARTERLY WATER LEVEL
PLF	70193	11-NOV-93	5977.44	5952.70	
PLF	70293	26-FEB-93	5976.16	5926.00	
PLF	70293	22-MAR-93	5944.10	5926.00	
PLF	70293	02-APR-93	5953.70	5926.00	QUARTERLY WATER LEVEL
PLF	70293	27-APR-93	5972.88	5926.00	
PLF	70293	24-MAY-93	5972.86	5926.00	
PLF	70293	14-JUN-93	5971.46	5926.00	
PLF	70293	07-JUL-93	5971.16	5926.00	QUARTERLY WATER LEVEL
PLF	70293	29-JUL-93	5972.94	5926.00	
PLF	70293	04-OCT-93	5973.34	5926.00	QUARTERLY WATER LEVEL
PLF	70293	18-NOV-93	5964.48	5926.00	
PLF	70393	26-FEB-93	5985.87	5975.10	
PLF	70393	22-MAR-93	5986.26	5975.10	
PLF	70393	07-APR-93	5988.46	5975.10	QUARTERLY WATER LEVEL
PLF	70393	22-APR-93	5992.62	5975.10	
PLF	70393	01-JUN-93	5990.52	5975.10	
PLF	70393	14-JUN-93	5989.83	5975.10	
PLF	70393	07-JUL-93	5989.81	5975.10	QUARTERLY WATER LEVEL
PLF	70393	27-JUL-93	5988.97	5975.10	
PLF	70393	04-OCT-93	5986.51	5975.10	QUARTERLY WATER LEVEL
PLF	70393	12-NOV-93	5986.34	5975.10	
PLF	70493	26-FEB-93	5983.97	5954.00	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	70493	22-MAR-93	5965.68	5954.00	
PLF	70493	07-APR-93	5979.38	5954.00	QUARTERLY WATER LEVEL
PLF	70493	22-APR-93	5987.43	5954.00	
PLF	70493	24-MAY-93	5988.65	5954.00	
PLF	70493	21-JUN-93	5985.88	5954.00	
PLF	70493	07-JUL-93	5987.30	5954.00	QUARTERLY WATER LEVEL
PLF	70493	29-JUL-93	5988.00	5954.00	
PLF	70493	04-OCT-93	5986.84	5954.00	QUARTERLY WATER LEVEL
PLF	70493	18-NOV-93	5986.64	5954.00	
PLF	70593	26-FEB-93	5954.74	5862.00	
PLF	70593	22-MAR-93	5897.04	5862.00	
PLF	70593	07-APR-93	5872.03	5862.00	QUARTERLY WATER LEVEL
PLF	70593	28-APR-93	5923.50	5862.00	
PLF	70593	01-JUN-93	5935.82	5862.00	
PLF	70593	15-JUN-93	5917.08	5862.00	
PLF	70593	07-JUL-93	5922.99	5862.00	QUARTERLY WATER LEVEL
PLF	70593	27-JUL-93	5939.17	5862.00	
PLF	70593	03-AUG-93	5912.40	5862.00	
PLF	70593	04-OCT-93	5947.40	5862.00	QUARTERLY WATER LEVEL
PLF	70593	18-NOV-93	5923.48	5862.00	
PLF	70693	26-FEB-93	5971.83	5962.80	
PLF	70693	22-MAR-93	5972.52	5962.80	
PLF	70693	02-APR-93	5978.43	5962.80	QUARTERLY WATER LEVEL
PLF	70693	27-APR-93	5979.02	5962.80	
PLF	70693	25-MAY-93	5975.66	5962.80	
PLF	70693	15-JUN-93	5974.79	5962.80	
PLF	70693	07-JUL-93	5975.20	5962.80	QUARTERLY WATER LEVEL
PLF	70693	28-JUL-93	5974.14	5962.80	
PLF	70693	04-OCT-93	5972.56	5962.80	QUARTERLY WATER LEVEL
PLF	70693	11-NOV-93	5973.20	5962.80	
PLF	70893	26-FEB-93	5946.26	5925.20	
PLF	70893	22-MAR-93	5930.78	5925.20	
PLF	70893	05-APR-93	5926.01	5925.20	QUARTERLY WATER LEVEL
PLF	70893	27-APR-93	5929.68	5925.20	
PLF	70893	25-MAY-93	5933.06	5925.20	
PLF	70893	15-JUN-93	5931.73	5925.20	
PLF	70893	07-JUL-93	5931.80	5925.20	QUARTERLY WATER LEVEL
PLF	70893	28-JUL-93	5936.01	5925.20	
PLF	70893	04-OCT-93	5940.03	5925.20	QUARTERLY WATER LEVEL
PLF	70893	11-NOV-93	5948.26	5925.20	
PLF	71193	26-FEB-93	5974.83	5969.30	
PLF	71193	22-MAR-93	5974.56	5969.30	
PLF	71193	02-APR-93	5975.37	5969.30	QUARTERLY WATER LEVEL
PLF	71193	28-APR-93	5980.68	5969.30	
PLF	71193	25-MAY-93	5979.88	5969.30	
PLF	71193	17-JUN-93	5978.24	5969.30	
PLF	71193	07-JUL-93	5978.42	5969.30	QUARTERLY WATER LEVEL
PLF	71193	27-JUL-93	5977.91	5969.30	
PLF	71193	04-OCT-93	5976.90	5969.30	QUARTERLY WATER LEVEL
PLF	71193	15-NOV-93	5976.86	5969.30	
PLF	71493	26-FEB-93	5969.82	5967.60	
PLF	71493	22-MAR-93	5970.11	5967.60	
PLF	71493	02-APR-93	5970.32	5967.60	QUARTERLY WATER LEVEL
PLF	71493	28-APR-93	5970.59	5967.60	
PLF	71493	25-MAY-93	5970.38	5967.60	
PLF	71493	16-JUN-93	5970.30	5967.60	
PLF	71493	07-JUL-93	5970.32	5967.60	QUARTERLY WATER LEVEL
PLF	71493	26-JUL-93	5970.27	5967.60	
PLF	71493	04-OCT-93	5970.12	5967.60	QUARTERLY WATER LEVEL
PLF	71493	15-NOV-93	5970.12	5967.60	
PLF	71693	22-MAR-93	DRY	5962.00	DRY
PLF	71693	02-APR-93	DRY	5962.00	QUARTERLY WATER LEVEL
PLF	71693	27-MAY-93	5963.91	5962.00	
PLF	71693	18-JUN-93	5960.86	5962.00	DRY
PLF	71693	07-JUL-93	5961.48	5962.00	QUARTERLY WATER LEVEL - DRY
PLF	71693	26-JUL-93	5962.05	5962.00	
PLF	71693	04-OCT-93	5962.18	5962.00	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
PLF	71893	22-MAR-93	5970.39	5962.00	
PLF	71893	02-APR-93	5973.43	5962.00	QUARTERLY WATER LEVEL
PLF	71893	26-APR-93	5975.04	5962.00	
PLF	71893	26-MAY-93	5972.70	5962.00	
PLF	71893	18-JUN-93	5973.21	5962.00	
PLF	71893	07-JUL-93	5972.26	5962.00	QUARTERLY WATER LEVEL
PLF	71893	27-JUL-93	5971.56	5962.00	
PLF	71893	04-OCT-93	5970.28	5962.00	QUARTERLY WATER LEVEL
PLF	71893	16-NOV-93	5971.66	5962.00	
PLF	72093	26-FEB-93	5971.06	5950.60	
PLF	72093	22-MAR-93	5970.97	5950.60	
PLF	72093	02-APR-93	5971.08	5950.60	QUARTERLY WATER LEVEL
PLF	72093	26-APR-93	5971.00	5950.60	
PLF	72093	27-MAY-93	5971.10	5950.60	
PLF	72093	21-JUN-93	5971.05	5950.60	
PLF	72093	08-JUL-93	5971.22	5950.60	QUARTERLY WATER LEVEL
PLF	72093	28-JUL-93	5971.27	5950.60	
PLF	72093	06-OCT-93	5966.22	5950.60	QUARTERLY WATER LEVEL
PLF	72093	15-NOV-93	5966.06	5950.60	
PLF	72293	26-FEB-93	DRY	5941.10	WELL IS BEING COMPLETED
PLF	72293	22-MAR-93	5943.57	5941.10	
PLF	72293	02-APR-93	5943.82	5941.10	QUARTERLY WATER LEVEL
PLF	72293	26-APR-93	5944.39	5941.10	
PLF	72293	27-MAY-93	5943.81	5941.10	
PLF	72293	15-JUN-93	5943.90	5941.10	
PLF	72293	08-JUL-93	5943.88	5941.10	QUARTERLY WATER LEVEL
PLF	72293	28-JUL-93	5943.55	5941.10	
PLF	72293	06-OCT-93	5943.57	5941.10	QUARTERLY WATER LEVEL
PLF	72293	15-NOV-93	5943.40	5941.10	
PLF	72393	26-FEB-93	5970.84	5963.20	
PLF	72393	22-MAR-93	5970.71	5963.20	
PLF	72393	02-APR-93	5970.77	5963.20	QUARTERLY WATER LEVEL
PLF	72393	27-APR-93	5970.70	5963.20	
PLF	72393	27-MAY-93	5970.75	5963.20	
PLF	72393	15-JUN-93	5970.75	5963.20	
PLF	72393	08-JUL-93	5970.72	5963.20	QUARTERLY WATER LEVEL
PLF	72393	26-JUL-93	5970.94	5963.20	
PLF	72393	06-OCT-93	5965.88	5963.20	QUARTERLY WATER LEVEL
PLF	72393	12-NOV-93	5965.88	5963.20	
PLF	72493	26-FEB-93	DRY	5945.80	WELL IS BEING COMPLETED
PLF	72493	22-MAR-93	DRY	5945.80	DRY
PLF	72493	02-APR-93	DRY	5945.80	QUARTERLY WATER LEVEL
PLF	72493	27-MAY-93	DRY	5945.80	
PLF	72493	08-JUL-93	DRY	5945.80	QUARTERLY WATER LEVEL
PLF	72493	06-OCT-93	DRY	5945.80	QUARTERLY WATER LEVEL
SEP	1386	13-JAN-93	5837.15	5831.00	QUARTERLY WATER LEVEL
SEP	1386	02-APR-93	5837.72	5831.00	QUARTERLY WATER LEVEL
SEP	1386	12-APR-93	5837.39	5831.00	
SEP	1386	12-JUL-93	5835.82	5831.00	QUARTERLY WATER LEVEL
SEP	1386	03-AUG-93	5835.56	5831.00	
SEP	1386	06-OCT-93	5834.24	5831.00	QUARTERLY WATER LEVEL
SEP	1386	27-OCT-93	5836.87	5831.00	
SEP	1486	13-JAN-93	5836.94	5789.30	QUARTERLY WATER LEVEL
SEP	1486	02-FEB-93	5836.92	5789.30	
SEP	1486	02-APR-93	5836.50	5789.30	QUARTERLY WATER LEVEL
SEP	1486	12-APR-93	5836.42	5789.30	
SEP	1486	12-JUL-93	5835.32	5789.30	QUARTERLY WATER LEVEL
SEP	1486	02-AUG-93	5835.27	5789.30	
SEP	1486	06-OCT-93	5835.42	5789.30	QUARTERLY WATER LEVEL
SEP	1486	28-OCT-93	5835.73	5789.30	
SEP	1586	13-JAN-93	5843.60	5834.00	QUARTERLY WATER LEVEL
SEP	1586	05-FEB-93	5843.73	5834.00	
SEP	1586	02-APR-93	5844.41	5834.00	QUARTERLY WATER LEVEL
SEP	1586	12-APR-93	5844.09	5834.00	
SEP	1586	12-JUL-93	5843.21	5834.00	QUARTERLY WATER LEVEL
SEP	1586	02-AUG-93	5842.99	5834.00	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	1586	06-OCT-93	5843.20	5834.00	QUARTERLY WATER LEVEL
SEP	1586	20-OCT-93	5843.67	5834.00	
SEP	1686	13-JAN-93	5864.12	5822.80	QUARTERLY WATER LEVEL
SEP	1686	01-FEB-93	5864.15	5822.80	
SEP	1686	02-APR-93	5863.87	5822.80	QUARTERLY WATER LEVEL
SEP	1686	22-APR-93	5863.81	5822.80	
SEP	1686	12-JUL-93	5862.53	5822.80	QUARTERLY WATER LEVEL
SEP	1686	02-AUG-93	5862.38	5822.80	
SEP	1686	06-OCT-93	5862.62	5822.80	QUARTERLY WATER LEVEL
SEP	1686	28-OCT-93	5862.90	5822.80	
SEP	1786	13-JAN-93	5862.89	5854.40	QUARTERLY WATER LEVEL
SEP	1786	02-APR-93	5863.65	5854.40	QUARTERLY WATER LEVEL
SEP	1786	16-APR-93	5864.07	5854.40	
SEP	1786	12-JUL-93	5862.68	5854.40	QUARTERLY WATER LEVEL
SEP	1786	02-AUG-93	5862.51	5854.40	
SEP	1786	06-OCT-93	5862.58	5854.40	QUARTERLY WATER LEVEL
SEP	1786	29-OCT-93	5863.33	5854.40	
SEP	1886	13-JAN-93	5877.97	5878.30	QUARTERLY WATER LEVEL- <.3 (DRY) - NOT SAMPLED
SEP	1886	05-APR-93	5878.81	5878.30	QUARTERLY WATER LEVEL
SEP	1886	23-JUN-93	5879.06	5878.30	
SEP	1886	12-JUL-93	DRY	5878.30	QUARTERLY WATER LEVEL
SEP	1886	06-OCT-93	DRY	5878.30	QUARTERLY WATER LEVEL
SEP	2286	13-JAN-93	5969.22	5967.60	QUARTERLY WATER LEVEL
SEP	2286	18-FEB-93	5968.72	5967.60	
SEP	2286	07-APR-93	5971.53	5967.60	QUARTERLY WATER LEVEL
SEP	2286	14-JUL-93	5970.57	5967.60	QUARTERLY WATER LEVEL/TRANSDUCER ATTACHED
SEP	2286	26-JUL-93	5970.04	5967.60	
SEP	2286	04-OCT-93	5970.15	5967.60	QUARTERLY WATER LEVEL
SEP	2286	12-OCT-93	5969.97	5967.60	
SEP	2386	13-JAN-93	5904.01	5865.20	QUARTERLY WATER LEVEL
SEP	2386	22-FEB-93	5914.55	5865.20	
SEP	2386	13-APR-93	5888.44	5865.20	
SEP	2386	01-JUL-93	5897.95	5865.20	QUARTERLY WATER LEVEL
SEP	2386	21-JUL-93	5904.25	5865.20	
SEP	2386	04-OCT-93	5897.61	5865.20	QUARTERLY WATER LEVEL
SEP	2386	28-OCT-93	5905.08	5865.20	
SEP	2486	13-JAN-93	DRY	5975.00	QUARTERLY WATER LEVEL
SEP	2486	13-APR-93	5976.19	5975.00	
SEP	2486	01-JUL-93	5975.65	5975.00	QUARTERLY WATER LEVEL
SEP	2486	14-JUL-93	5974.64	5975.00	<.3FT (DRY) - NOT SAMPLED
SEP	2486	04-OCT-93	5974.64	5975.00	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
SEP	2586	13-JAN-93	5950.58	5893.20	QUARTERLY WATER LEVEL
SEP	2586	04-FEB-93	5952.98	5893.20	
SEP	2586	01-APR-93	5941.82	5893.20	QUARTERLY WATER LEVEL
SEP	2586	12-APR-93	5941.08	5893.20	
SEP	2586	01-JUL-93	5948.41	5893.20	QUARTERLY WATER LEVEL
SEP	2586	15-JUL-93	5950.78	5893.20	
SEP	2586	04-OCT-93	5948.79	5893.20	QUARTERLY WATER LEVEL
SEP	2586	21-OCT-93	5951.47	5893.20	
SEP	2686	13-JAN-93	5965.07	5964.40	QUARTERLY WATER LEVEL
SEP	2686	04-FEB-93	5964.75	5964.40	
SEP	2686	08-APR-93	5966.29	5964.40	QUARTERLY WATER LEVEL
SEP	2686	12-APR-93	5966.51	5964.40	
SEP	2686	15-JUL-93	5965.85	5964.40	QUARTERLY WATER LEVEL/TRANSDUCER ATTACHED
SEP	2686	29-JUL-93	5965.58	5964.40	
SEP	2686	04-OCT-93	5964.94	5964.40	QUARTERLY WATER LEVEL
SEP	2686	11-OCT-93	5964.89	5964.40	
SEP	2786	13-JAN-93	5892.06	5829.90	QUARTERLY WATER LEVEL
SEP	2786	09-FEB-93	5898.89	5829.90	
SEP	2786	20-APR-93	5884.56	5829.90	
SEP	2786	21-JUN-93	5881.72	5829.90	
SEP	2786	01-JUL-93	5884.08	5829.90	QUARTERLY WATER LEVEL
SEP	2786	22-JUL-93	5891.50	5829.90	
SEP	2786	04-OCT-93	5883.43	5829.90	QUARTERLY WATER LEVEL
SEP	2786	25-OCT-93	5890.93	5829.90	
SEP	2886	13-JAN-93	DRY	5953.80	QUARTERLY WATER LEVEL
SEP	2986	14-JAN-93	DRY	5950.80	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	2986	01-APR-93	5950.26	5950.80	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
SEP	2986	01-JUL-93	5950.23	5950.80	QUARTERLY WATER LEVEL - DRY
SEP	2986	04-OCT-93	5950.24	5950.80	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
SEP	3086	13-JAN-93	5951.11	5942.50	QUARTERLY WATER LEVEL
SEP	3086	03-FEB-93	5950.84	5942.50	
SEP	3086	20-APR-93	5953.71	5942.50	
SEP	3086	01-JUL-93	5952.30	5942.50	QUARTERLY WATER LEVEL
SEP	3086	02-AUG-93	5951.88	5942.50	
SEP	3086	04-OCT-93	5951.17	5942.50	QUARTERLY WATER LEVEL
SEP	3086	19-OCT-93	5951.30	5942.50	
SEP	3186	13-JAN-93	DRY	5947.70	QUARTERLY WATER LEVEL
SEP	3186	22-JUN-93	5948.20	5947.70	
SEP	3186	01-JUL-93	DRY	5947.70	QUARTERLY WATER LEVEL
SEP	3186	04-OCT-93	DRY	5947.70	QUARTERLY WATER LEVEL
SEP	3286	13-JAN-93	5914.28	5840.60	QUARTERLY WATER LEVEL
SEP	3286	10-FEB-93	5914.62	5840.60	
SEP	3286	22-APR-93	5913.89	5840.60	
SEP	3286	01-JUL-93	5913.58	5840.60	QUARTERLY WATER LEVEL
SEP	3286	29-JUL-93	5914.20	5840.60	
SEP	3286	04-OCT-93	5913.42	5840.60	QUARTERLY WATER LEVEL
SEP	3286	02-NOV-93	5914.12	5840.60	
SEP	3386	14-APR-93	5946.84	5944.10	QUARTERLY WATER LEVEL
SEP	3386	21-JUN-93	5947.07	5944.10	
SEP	3386	01-JUL-93	5945.00	5944.10	QUARTERLY WATER LEVEL
SEP	3386	14-JUL-93	5944.52	5944.10	
SEP	3386	04-OCT-93	5943.72	5944.10	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
SEP	3486	15-JAN-93	5892.52	5855.70	QUARTERLY WATER LEVEL
SEP	3486	04-MAR-93	5892.65	5855.70	
SEP	3486	07-APR-93	5892.82	5855.70	QUARTERLY WATER LEVEL
SEP	3486	06-MAY-93	5892.87	5855.70	
SEP	3486	09-JUL-93	5892.62	5855.70	QUARTERLY WATER LEVEL
SEP	3486	22-SEP-93	5892.50	5855.70	
SEP	3486	01-OCT-93	5892.19	5855.70	QUARTERLY WATER LEVEL
SEP	3486	14-DEC-93	5892.51	5855.70	
SEP	3586	15-JAN-93	5903.99	5899.20	QUARTERLY WATER LEVEL
SEP	3586	04-MAR-93	5904.41	5899.20	
SEP	3586	07-APR-93	5906.11	5899.20	QUARTERLY WATER LEVEL
SEP	3586	06-MAY-93	5905.18	5899.20	
SEP	3586	09-JUL-93	5903.00	5899.20	QUARTERLY WATER LEVEL
SEP	3586	21-SEP-93	5903.58	5899.20	
SEP	3586	01-OCT-93	5903.25	5899.20	QUARTERLY WATER LEVEL
SEP	3586	13-DEC-93	5903.54	5899.20	
SEP	3686	14-JAN-93	5877.18	5877.20	QUARTERLY WATER LEVEL - DRY
SEP	3686	18-FEB-93	5877.32	5877.20	
SEP	3686	01-APR-93	5879.07	5877.20	QUARTERLY WATER LEVEL
SEP	3686	06-MAY-93	5878.86	5877.20	
SEP	3686	23-JUN-93	5877.41	5877.20	
SEP	3686	13-JUL-93	DRY	5877.20	QUARTERLY WATER LEVEL
SEP	3686	12-AUG-93	DRY	5877.20	
SEP	3686	05-OCT-93	DRY	5877.20	QUARTERLY WATER LEVEL
SEP	2187	13-JAN-93	5920.91	5918.00	QUARTERLY WATER LEVEL
SEP	2187	03-FEB-93	5921.34	5918.00	
SEP	2187	01-APR-93	5921.13	5918.00	QUARTERLY WATER LEVEL
SEP	2187	15-APR-93	5921.66	5918.00	
SEP	2187	01-JUL-93	5922.30	5918.00	QUARTERLY WATER LEVEL
SEP	2187	02-AUG-93	5923.44	5918.00	
SEP	2187	04-OCT-93	5921.25	5918.00	QUARTERLY WATER LEVEL
SEP	2187	02-NOV-93	5921.59	5918.00	
SEP	2287	13-JAN-93	5852.43	#VALUE!	QUARTERLY WATER LEVEL
SEP	2287	03-FEB-93	5852.40	#VALUE!	
SEP	2287	01-APR-93	5852.42	#VALUE!	QUARTERLY WATER LEVEL
SEP	2287	15-APR-93	5852.50	#VALUE!	
SEP	2287	01-JUL-93	5852.43	#VALUE!	QUARTERLY WATER LEVEL
SEP	2287	02-AUG-93	5852.31	#VALUE!	
SEP	2287	04-OCT-93	5852.25	#VALUE!	QUARTERLY WATER LEVEL
SEP	2287	02-NOV-93	5852.24	#VALUE!	
SEP	3787	13-JAN-93	5959.69	5958.70	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	3787	31-MAR-93	5960.76	5958.70	QUARTERLY WATER LEVEL
SEP	3887	13-JAN-93	5963.60	5962.90	QUARTERLY WATER LEVEL
SEP	3887	09-FEB-93	5963.10	5962.90	
SEP	3887	01-APR-93	5963.52	5962.90	QUARTERLY WATER LEVEL
SEP	3887	06-APR-93	5964.98	5962.90	
SEP	3887	01-JUL-93	DRY	5962.90	QUARTERLY WATER LEVEL
SEP	3887	04-OCT-93	DRY	5962.90	QUARTERLY WATER LEVEL
SEP	5687	13-JAN-93	5971.03	5968.70	QUARTERLY WATER LEVEL
SEP	5687	11-FEB-93	5970.73	5968.70	
SEP	5687	05-APR-93	5971.13	5968.70	
SEP	5687	01-JUL-93	5972.01	5968.70	QUARTERLY WATER LEVEL
SEP	5687	14-JUL-93	5971.81	5968.70	
SEP	5687	04-OCT-93	5971.20	5968.70	QUARTERLY WATER LEVEL
SEP	5687	14-OCT-93	5971.21	5968.70	
SEP	P207389	14-JAN-93	5975.70	5965.80	QUARTERLY WATER LEVEL
SEP	P207389	03-FEB-93	5975.97	5965.80	
SEP	P207389	14-APR-93	5976.55	5965.80	QUARTERLY WATER LEVEL
SEP	P207389	01-JUL-93	5975.55	5965.80	QUARTERLY WATER LEVEL
SEP	P207389	19-JUL-93	5976.30	5965.80	
SEP	P207389	04-OCT-93	5975.72	5965.80	QUARTERLY WATER LEVEL
SEP	P207389	11-OCT-93	5975.74	5965.80	
SEP	P207489	14-JAN-93	5975.70	5973.70	QUARTERLY WATER LEVEL
SEP	P207489	14-APR-93	5976.51	5973.70	QUARTERLY WATER LEVEL
SEP	P207589	13-JAN-93	5950.50	5950.20	QUARTERLY WATER LEVEL
SEP	P207589	04-FEB-93	5950.68	5950.20	
SEP	P207589	01-APR-93	5949.82	5950.20	QUARTERLY WATER LEVEL - DRY
SEP	P207589	12-APR-93	5949.96	5950.20	DRY
SEP	P207589	21-JUN-93	5951.20	5950.20	
SEP	P207589	01-JUL-93	5949.73	5950.20	QUARTERLY WATER LEVEL - DRY
SEP	P207589	14-JUL-93	5949.97	5950.20	DRY
SEP	P207589	04-OCT-93	5950.32	5950.20	QUARTERLY WATER LEVEL
SEP	P207589	12-OCT-93	5950.44	5950.20	
SEP	P207689	13-JAN-93	5959.60	5953.20	QUARTERLY WATER LEVEL
SEP	P207689	10-FEB-93	5960.53	5953.20	
SEP	P207689	12-APR-93	5959.55	5953.20	
SEP	P207689	14-JUL-93	5959.90	5953.20	QUARTERLY WATER LEVEL
SEP	P207689	30-JUL-93	5959.73	5953.20	
SEP	P207689	04-OCT-93	5959.23	5953.20	QUARTERLY WATER LEVEL
SEP	P207689	18-OCT-93	5959.86	5953.20	
SEP	P207789	13-JAN-93	5938.75	5938.60	QUARTERLY WATER LEVEL
SEP	P207789	11-FEB-93	5939.04	5938.60	
SEP	P207789	12-APR-93	5938.08	5938.60	DRY
SEP	P207789	25-JUN-93	5938.23	5938.60	DRY
SEP	P207789	01-JUL-93	5937.87	5938.60	QUARTERLY WATER LEVEL - DRY
SEP	P207789	29-JUL-93	5938.33	5938.60	DRY
SEP	P207789	04-OCT-93	5938.31	5938.60	QUARTERLY WATER LEVEL - DRY
SEP	P207789	13-OCT-93	5938.43	5938.60	DRY
SEP	P207889	14-JAN-93	5957.22	5955.10	QUARTERLY WATER LEVEL
SEP	P207889	08-FEB-93	5957.11	5955.10	
SEP	P207889	07-APR-93	5960.93	5955.10	QUARTERLY WATER LEVEL
SEP	P207889	01-JUL-93	5958.73	5955.10	QUARTERLY WATER LEVEL
SEP	P207889	19-JUL-93	5957.34	5955.10	
SEP	P207889	04-OCT-93	5954.79	5955.10	QUARTERLY WATER LEVEL - DRY
SEP	P207889	13-OCT-93	5954.79	5955.10	DRY
SEP	P207989	14-JAN-93	5946.97	5942.60	QUARTERLY WATER LEVEL
SEP	P207989	08-FEB-93	5947.88	5942.60	
SEP	P207989	07-APR-93	5944.97	5942.60	QUARTERLY WATER LEVEL
SEP	P207989	21-JUN-93	5947.73	5942.60	
SEP	P207989	01-JUL-93	5946.88	5942.60	QUARTERLY WATER LEVEL
SEP	P207989	19-JUL-93	5947.76	5942.60	
SEP	P207989	26-JUL-93	5942.26	5942.60	DRY
SEP	P207989	04-OCT-93	5945.75	5942.60	QUARTERLY WATER LEVEL
SEP	P207989	13-OCT-93	5946.15	5942.60	
SEP	B208089	13-JAN-93	5923.32	5922.50	QUARTERLY WATER LEVEL
SEP	B208089	04-FEB-93	5923.16	5922.50	
SEP	B208089	05-APR-93	5923.17	5922.50	QUARTERLY WATER LEVEL
SEP	B208089	22-APR-93	5923.66	5922.50	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	B208089	23-JUN-93	5923.73	5922.50	
SEP	B208089	13-JUL-93	5923.78	5922.50	QUARTERLY WATER LEVEL
SEP	B208089	28-JUL-93	5923.66	5922.50	
SEP	B208089	06-OCT-93	5923.29	5922.50	QUARTERLY WATER LEVEL
SEP	B208089	25-OCT-93	5923.19	5922.50	
SEP	B208189	13-JAN-93	5915.37	5909.10	QUARTERLY WATER LEVEL
SEP	B208189	04-FEB-93	5916.35	5909.10	
SEP	B208189	05-APR-93	5913.34	5909.10	QUARTERLY WATER LEVEL
SEP	B208189	22-APR-93	5914.44	5909.10	
SEP	B208189	23-JUN-93	5913.01	5909.10	
SEP	B208189	13-JUL-93	5914.48	5909.10	QUARTERLY WATER LEVEL
SEP	B208189	28-JUL-93	5915.32	5909.10	
SEP	B208189	06-OCT-93	5913.85	5909.10	QUARTERLY WATER LEVEL
SEP	B208189	25-OCT-93	5914.99	5909.10	
SEP	B208289	13-JAN-93	5835.60	5835.30	QUARTERLY WATER LEVEL
SEP	B208289	04-FEB-93	5835.62	5835.30	
SEP	B208289	05-APR-93	5835.35	5835.30	QUARTERLY WATER LEVEL
SEP	B208289	11-APR-93	5835.34	5835.30	
SEP	B208289	13-JUL-93	5835.69	5835.30	QUARTERLY WATER LEVEL
SEP	B208289	03-AUG-93	5835.81	5835.30	
SEP	B208289	06-OCT-93	5835.57	5835.30	QUARTERLY WATER LEVEL
SEP	B208289	27-OCT-93	5835.63	5835.30	
SEP	B208389	13-JAN-93	DRY	5869.00	QUARTERLY WATER LEVEL
SEP	B208389	05-APR-93	5868.67	5869.00	QUARTERLY WATER LEVEL - DRY
SEP	B208389	23-JUN-93	5869.72	5869.00	
SEP	B208389	12-JUL-93	5868.28	5869.00	QUARTERLY WATER LEVEL - DRY
SEP	B208389	06-OCT-93	5868.34	5869.00	QUARTERLY WATER LEVEL - DRY
SEP	B208489	13-JAN-93	5846.09	5847.10	QUARTERLY WATER LEVEL -<.3 (DRY) - NOT SAMPLED
SEP	B208489	05-APR-93	5846.11	5847.10	QUARTERLY WATER LEVEL -<.3 (DRY) - NOT SAMPLED
SEP	B208489	23-JUN-93	5847.19	5847.10	
SEP	B208489	12-JUL-93	5846.00	5847.10	QUARTERLY WATER LEVEL - DRY
SEP	B208489	06-OCT-93	5846.22	5847.10	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
SEP	B208589	13-JAN-93	5853.52	5852.50	QUARTERLY WATER LEVEL
SEP	B208589	02-APR-93	5854.64	5852.50	QUARTERLY WATER LEVEL
SEP	B208589	12-JUL-93	5852.49	5852.50	QUARTERLY WATER LEVEL - DRY
SEP	B208589	06-OCT-93	5852.25	5852.50	QUARTERLY WATER LEVEL - DRY
SEP	B208689	13-JAN-93	5855.45	5845.80	QUARTERLY WATER LEVEL
SEP	B208689	01-FEB-93	5856.56	5845.80	
SEP	B208689	02-APR-93	5851.68	5845.80	QUARTERLY WATER LEVEL
SEP	B208689	22-APR-93	5853.18	5845.80	
SEP	B208689	12-JUL-93	5853.00	5845.80	QUARTERLY WATER LEVEL
SEP	B208689	02-AUG-93	5855.71	5845.80	
SEP	B208689	06-OCT-93	5853.62	5845.80	QUARTERLY WATER LEVEL
SEP	B208689	27-OCT-93	5855.40	5845.80	
SEP	B208789	13-JAN-93	5895.52	5896.20	QUARTERLY WATER LEVEL - DRY
SEP	B208789	04-FEB-93	5895.56	5896.20	DRY
SEP	B208789	05-APR-93	5895.76	5896.20	QUARTERLY WATER LEVEL - DRY
SEP	B208789	23-JUN-93	5905.25	5896.20	
SEP	B208789	12-JUL-93	5903.11	5896.20	QUARTERLY WATER LEVEL
SEP	B208789	06-OCT-93	5901.03	5896.20	QUARTERLY WATER LEVEL
SEP	P208989	13-JAN-93	5946.71	5937.70	QUARTERLY WATER LEVEL
SEP	P208989	09-FEB-93	5946.56	5937.70	
SEP	P208989	01-APR-93	5947.25	5937.70	QUARTERLY WATER LEVEL
SEP	P208989	22-APR-93	5949.14	5937.70	
SEP	P208989	21-JUN-93	5949.03	5937.70	
SEP	P208989	01-JUL-93	5947.85	5937.70	QUARTERLY WATER LEVEL
SEP	P208989	28-JUL-93	5947.33	5937.70	
SEP	P208989	04-OCT-93	5946.86	5937.70	QUARTERLY WATER LEVEL
SEP	P208989	21-OCT-93	5946.74	5937.70	
SEP	P209089	14-JAN-93	5949.91	5946.20	QUARTERLY WATER LEVEL
SEP	P209089	22-FEB-93	5951.13	5946.20	
SEP	P209089	01-APR-93	5947.08	5946.20	QUARTERLY WATER LEVEL
SEP	P209089	14-APR-93	5947.51	5946.20	
SEP	P209089	21-JUN-93	5949.16	5946.20	
SEP	P209089	01-JUL-93	5948.17	5946.20	QUARTERLY WATER LEVEL
SEP	P209089	22-JUL-93	5948.98	5946.20	
SEP	P209089	04-OCT-93	5948.91	5946.20	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	P209089	20-OCT-93	5949.55	5946.20	
SEP	P209189	13-JAN-93	5968.47	5945.70	QUARTERLY WATER LEVEL
SEP	P209189	18-FEB-93	5967.64	5945.70	
SEP	P209189	01-APR-93	5971.74	5945.70	QUARTERLY WATER LEVEL
SEP	P209189	08-JUN-93	5970.68	5945.70	
SEP	P209189	01-JUL-93	5970.82	5945.70	QUARTERLY WATER LEVEL
SEP	P209189	04-OCT-93	5970.26	5945.70	QUARTERLY WATER LEVEL
SEP	P209289	13-JAN-93	5968.65	5968.90	QUARTERLY WATER LEVEL - DRY
SEP	P209289	11-FEB-93	5968.64	5968.90	DRY
SEP	P209289	05-APR-93	5969.09	5968.90	QUARTERLY WATER LEVEL
SEP	P209289	21-JUN-93	5969.77	5968.90	
SEP	P209289	01-JUL-93	5968.29	5968.90	QUARTERLY WATER LEVEL - DRY
SEP	P209289	04-OCT-93	5968.32	5968.90	QUARTERLY WATER LEVEL/<.3FT (DRY) - NOT SAMPLED
SEP	P209389	13-JAN-93	5963.51	5952.70	QUARTERLY WATER LEVEL
SEP	P209389	11-FEB-93	5963.42	5952.70	
SEP	P209389	14-APR-93	5966.50	5952.70	
SEP	P209389	01-JUL-93	5964.66	5952.70	QUARTERLY WATER LEVEL
SEP	P209389	19-JUL-93	5963.96	5952.70	
SEP	P209389	04-OCT-93	5964.55	5952.70	QUARTERLY WATER LEVEL
SEP	P209389	18-OCT-93	5964.52	5952.70	
SEP	P209489	13-JAN-93	5950.34	5943.00	QUARTERLY WATER LEVEL
SEP	P209489	18-FEB-93	5950.18	5943.00	
SEP	P209489	01-APR-93	5951.39	5943.00	QUARTERLY WATER LEVEL
SEP	P209489	06-APR-93	5952.40	5943.00	
SEP	P209489	01-JUL-93	5951.13	5943.00	QUARTERLY WATER LEVEL
SEP	P209489	21-JUL-93	5951.00	5943.00	
SEP	P209489	04-OCT-93	5950.44	5943.00	QUARTERLY WATER LEVEL
SEP	P209489	14-OCT-93	5950.84	5943.00	
SEP	P209589	13-JAN-93	5930.95	5929.70	QUARTERLY WATER LEVEL
SEP	P209589	08-FEB-93	5931.62	5929.70	
SEP	P209589	01-APR-93	5930.19	5929.70	QUARTERLY WATER LEVEL
SEP	P209589	21-APR-93	5930.94	5929.70	
SEP	P209589	01-JUL-93	5931.22	5929.70	QUARTERLY WATER LEVEL
SEP	P209589	22-JUL-93	5931.91	5929.70	
SEP	P209589	04-OCT-93	5930.62	5929.70	QUARTERLY WATER LEVEL
SEP	P209589	19-OCT-93	5930.90	5929.70	
SEP	P209689	14-JAN-93	5936.26	5935.90	QUARTERLY WATER LEVEL
SEP	P209689	08-FEB-93	5936.50	5935.90	
SEP	P209689	01-APR-93	5935.57	5935.90	QUARTERLY WATER LEVEL - DRY
SEP	P209689	05-APR-93	5935.61	5935.90	DRY
SEP	P209689	01-JUL-93	5935.89	5935.90	QUARTERLY WATER LEVEL - DRY
SEP	P209689	19-JUL-93	5936.15	5935.90	
SEP	P209689	04-OCT-93	5935.94	5935.90	QUARTERLY WATER LEVEL
SEP	P209689	12-OCT-93	5936.03	5935.90	
SEP	P209789	14-JAN-93	5955.00	5950.30	QUARTERLY WATER LEVEL
SEP	P209789	08-FEB-93	5954.40	5950.30	
SEP	P209789	05-APR-93	5959.32	5950.30	QUARTERLY WATER LEVEL
SEP	P209789	01-JUL-93	5958.13	5950.30	QUARTERLY WATER LEVEL
SEP	P209789	16-JUL-93	5957.48	5950.30	
SEP	P209789	04-OCT-93	5954.05	5950.30	QUARTERLY WATER LEVEL
SEP	P209789	14-OCT-93	5953.54	5950.30	
SEP	P209889	13-JAN-93	5936.50	5922.00	QUARTERLY WATER LEVEL
SEP	P209889	10-FEB-93	5936.50	5922.00	
SEP	P209889	01-APR-93	5937.26	5922.00	QUARTERLY WATER LEVEL
SEP	P209889	20-APR-93	5937.23	5922.00	
SEP	P209889	01-JUL-93	5937.68	5922.00	QUARTERLY WATER LEVEL
SEP	P209889	22-JUL-93	5937.42	5922.00	
SEP	P209889	04-OCT-93	5936.72	5922.00	QUARTERLY WATER LEVEL
SEP	P209889	20-OCT-93	5936.68	5922.00	
SEP	P209989	13-JAN-93	DRY	5889.90	QUARTERLY WATER LEVEL
SEP	P209989	05-APR-93	DRY	5889.90	QUARTERLY WATER LEVEL
SEP	P209989	13-JUL-93	DRY	5889.90	QUARTERLY WATER LEVEL
SEP	P209989	06-OCT-93	DRY	5889.90	QUARTERLY WATER LEVEL/NOT SAMPLED
SEP	P210089	13-JAN-93	5881.81	5876.90	QUARTERLY WATER LEVEL
SEP	P210089	04-FEB-93	5881.83	5876.90	
SEP	P210089	05-APR-93	5880.29	5876.90	QUARTERLY WATER LEVEL
SEP	P210089	22-APR-93	5880.92	5876.90	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	P210089	13-JUL-93	5881.35	5876.90	QUARTERLY WATER LEVEL
SEP	P210089	19-AUG-93	5882.27	5876.90	
SEP	P210089	06-OCT-93	5880.21	5876.90	QUARTERLY WATER LEVEL
SEP	P210089	19-OCT-93	5880.87	5876.90	
SEP	P210189	13-JAN-93	5967.70	5944.70	QUARTERLY WATER LEVEL
SEP	P210189	22-FEB-93	5967.18	5944.70	
SEP	P210189	01-APR-93	5968.61	5944.70	QUARTERLY WATER LEVEL
SEP	P210189	15-APR-93	5969.91	5944.70	
SEP	P210189	01-JUL-93	5969.36	5944.70	QUARTERLY WATER LEVEL
SEP	P210189	26-JUL-93	5968.57	5944.70	
SEP	P210189	04-OCT-93	5968.88	5944.70	QUARTERLY WATER LEVEL
SEP	P210189	21-OCT-93	5968.80	5944.70	
SEP	B210389	13-JAN-93	5852.41	5850.10	QUARTERLY WATER LEVEL
SEP	B210389	01-FEB-93	5852.83	5850.10	
SEP	B210389	02-APR-93	5851.08	5850.10	QUARTERLY WATER LEVEL
SEP	B210389	12-JUL-93	5852.90	5850.10	QUARTERLY WATER LEVEL
SEP	B210389	06-OCT-93	5854.88	5850.10	QUARTERLY WATER LEVEL
SEP	B210489	13-JAN-93	5853.60	5849.00	QUARTERLY WATER LEVEL
SEP	B210489	02-FEB-93	5852.99	5849.00	
SEP	B210489	02-APR-93	5854.87	5849.00	QUARTERLY WATER LEVEL
SEP	B210489	19-APR-93	5854.43	5849.00	
SEP	B210489	12-JUL-93	5852.25	5849.00	QUARTERLY WATER LEVEL
SEP	B210489	04-AUG-93	5852.03	5849.00	
SEP	B210489	06-OCT-93	5852.73	5849.00	QUARTERLY WATER LEVEL
SEP	B210489	20-OCT-93	5853.20	5849.00	
SEP	B213789	19-JAN-93	DRY	5910.90	QUARTERLY WATER LEVEL
SEP	B213789	14-APR-93	DRY	5910.90	QUARTERLY WATER LEVEL
SEP	B213789	14-JUL-93	DRY	5910.90	QUARTERLY WATER LEVEL
SEP	B213789	06-OCT-93	DRY	5910.90	QUARTERLY WATER LEVEL
SEP	P213889	15-JAN-93	DRY	5933.30	QUARTERLY WATER LEVEL
SEP	P213889	07-APR-93	DRY	5933.30	QUARTERLY WATER LEVEL
SEP	P213889	07-JUL-93	DRY	5933.30	QUARTERLY WATER LEVEL
SEP	P213989	15-JAN-93	DRY	5947.40	QUARTERLY WATER LEVEL
SEP	P213989	07-APR-93	DRY	5947.40	QUARTERLY WATER LEVEL
SEP	P213989	07-JUL-93	DRY	5947.40	QUARTERLY WATER LEVEL
SEP	P218089	14-JAN-93	5981.74	5978.40	QUARTERLY WATER LEVEL
SEP	P218089	08-FEB-93	5981.65	5978.40	
SEP	P218089	01-APR-93	5979.88	5978.40	QUARTERLY WATER LEVEL
SEP	P218089	01-JUL-93	5978.51	5978.40	QUARTERLY WATER LEVEL
SEP	P218089	04-OCT-93	5979.11	5978.40	QUARTERLY WATER LEVEL
SEP	P218389	14-JAN-93	5943.72	5943.70	QUARTERLY WATER LEVEL
SEP	P218389	01-APR-93	5945.87	5943.70	QUARTERLY WATER LEVEL
SEP	P218389	01-JUL-93	5945.71	5943.70	QUARTERLY WATER LEVEL
SEP	P218389	04-OCT-93	5943.63	5943.70	QUARTERLY WATER LEVEL - DRY
SEP	P218389	15-NOV-93	5945.23	5943.70	
SEP	P219189	13-JAN-93	5933.27	5929.70	QUARTERLY WATER LEVEL
SEP	P219189	01-APR-93	5933.37	5929.70	QUARTERLY WATER LEVEL
SEP	P219189	01-JUL-93	5929.19	5929.70	QUARTERLY WATER LEVEL - DRY
SEP	P219189	04-OCT-93	5930.73	5929.70	QUARTERLY WATER LEVEL
SEP	P219189	17-NOV-93	5931.27	5929.70	
SEP	P219489	14-JAN-93	5947.30	5936.60	QUARTERLY WATER LEVEL
SEP	P219489	01-APR-93	5946.87	5936.60	QUARTERLY WATER LEVEL
SEP	P219489	01-JUL-93	5947.37	5936.60	QUARTERLY WATER LEVEL
SEP	P219489	04-OCT-93	5947.31	5936.60	QUARTERLY WATER LEVEL
SEP	P219489	15-NOV-93	5947.37	5936.60	
SEP	P219589	14-JAN-93	5944.00	5938.10	QUARTERLY WATER LEVEL
SEP	P219589	01-APR-93	5944.23	5938.10	QUARTERLY WATER LEVEL
SEP	P219589	01-JUL-93	5945.43	5938.10	QUARTERLY WATER LEVEL
SEP	P219589	04-OCT-93	5945.97	5938.10	QUARTERLY WATER LEVEL
SEP	P219589	15-NOV-93	5946.20	5938.10	
SEP	75892	20-JAN-93	DRY	5948.90	QUARTERLY WATER LEVEL-NOT DEVELOPED
SEP	75892	01-APR-93	DRY	5948.90	QUARTERLY WATER LEVEL
SEP	75892	14-JUL-93	5946.92	5948.90	QUARTERLY WATER LEVEL - DRY
SEP	75892	05-OCT-93	DRY	5948.90	QUARTERLY WATER LEVEL/NOT DEVELOPED
SEP	75992	01-APR-93	5892.81	5887.10	QUARTERLY WATER LEVEL
SEP	75992	07-JUN-93	5886.31	5887.10	<3FT (DRY) - NOT DEVELOPED
SEP	75992	13-JUL-93	5888.10	5887.10	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
SEP	75992	12-AUG-93	5888.12	5887.10	
SEP	75992	05-OCT-93	5886.28	5887.10	QUARTERLY WATER LEVEL/DRY - NOT DEVELOPED
SEP	76192	20-JAN-93	5953.48	5954.00	QUARTERLY WATER LEVEL/DRY - NOT DEVELOPED
SEP	76192	07-APR-93	5953.48	5954.00	QUARTERLY WATER LEVEL - DRY
SEP	76192	15-JUL-93	5953.15	5954.00	QUARTERLY WATER LEVEL - DRY
SEP	76192	07-OCT-93	DRY	5954.00	QUARTERLY WATER LEVEL/NOT DEVELOPED
SEP	76292	22-MAR-93	5939.50	5937.80	
SEP	76292	01-APR-93	5942.42	5937.80	QUARTERLY WATER LEVEL
SEP	76292	20-APR-93	5944.05	5937.80	
SEP	76292	01-JUL-93	5942.83	5937.80	QUARTERLY WATER LEVEL
SEP	76292	03-AUG-93	5941.32	5937.80	
SEP	76292	04-OCT-93	5940.02	5937.80	QUARTERLY WATER LEVEL
SEP	76292	28-OCT-93	5939.92	5937.80	
SEP	05093	15-JUN-93	5956.87	5952.80	
SEP	05093	01-JUL-93	5956.99	5952.80	QUARTERLY WATER LEVEL
SEP	05093	02-AUG-93	5956.07	5952.80	
SEP	05093	04-OCT-93	5955.28	5952.80	QUARTERLY WATER LEVEL
SEP	05093	18-OCT-93	5955.23	5952.80	
SEP	05193	16-JUN-93	5962.01	5957.00	
SEP	05193	01-JUL-93	5961.94	5957.00	QUARTERLY WATER LEVEL
SEP	05193	02-AUG-93	5960.52	5957.00	
SEP	05193	04-OCT-93	5958.40	5957.00	QUARTERLY WATER LEVEL
SEP	05193	18-OCT-93	5958.27	5957.00	
SEP	05293	15-JUL-93	5973.93	5973.00	QUARTERLY WATER LEVEL
SEP	05293	04-OCT-93	5973.71	5973.00	QUARTERLY WATER LEVEL/NOT DEVELOPED
SEP	05393	01-JUN-93	DRY	5945.30	
SEP	05393	07-JUN-93	DRY	5945.30	NOT DEVELOPED-DRY WELL
SEP	05393	01-JUL-93	5946.18	5945.30	QUARTERLY WATER LEVEL
SEP	05393	04-OCT-93	5952.39	5945.30	QUARTERLY WATER LEVEL/NOT DEVELOPED
WSF	4586	14-JAN-93	6025.82	6002.30	QUARTERLY WATER LEVEL
WSF	4586	01-APR-93	6042.43	6002.30	QUARTERLY WATER LEVEL
WSF	4686	14-JAN-93	5995.66	5921.20	QUARTERLY WATER LEVEL
WSF	4686	26-JAN-93	5997.34	5921.20	
WSF	4686	01-APR-93	5992.49	5921.20	QUARTERLY WATER LEVEL
WSF	4686	20-APR-93	5996.41	5921.20	
WSF	4686	06-JUL-93	5994.49	5921.20	QUARTERLY WATER LEVEL
WSF	4686	16-AUG-93	5999.99	5921.20	
WSF	4686	04-OCT-93	5988.29	5921.20	QUARTERLY WATER LEVEL
WSF	4686	13-DEC-93	6000.98	5921.20	
WSF	4786	14-JAN-93	6024.35	5987.40	QUARTERLY WATER LEVEL
WSF	4786	27-JAN-93	6024.13	5987.40	
WSF	4786	01-APR-93	6023.72	5987.40	QUARTERLY WATER LEVEL
WSF	4786	19-APR-93	6019.35	5987.40	
WSF	4786	06-JUL-93	6024.19	5987.40	QUARTERLY WATER LEVEL
WSF	4786	19-AUG-93	6024.15	5987.40	
WSF	4786	04-OCT-93	6024.07	5987.40	QUARTERLY WATER LEVEL
WSF	4786	03-DEC-93	6023.97	5987.40	
WSF	4886	14-JAN-93	6039.41	5890.00	QUARTERLY WATER LEVEL
WSF	4886	28-JAN-93	6039.70	5890.00	
WSF	4886	01-APR-93	6038.47	5890.00	QUARTERLY WATER LEVEL
WSF	4886	21-APR-93	6030.34	5890.00	
WSF	4886	07-JUL-93	6013.01	5890.00	QUARTERLY WATER LEVEL
WSF	4886	02-AUG-93	6036.03	5890.00	
WSF	4886	04-OCT-93	6036.72	5890.00	QUARTERLY WATER LEVEL
WSF	4886	08-NOV-93	6039.18	5890.00	
WSF	4986	14-JAN-93	6047.94	6029.80	QUARTERLY WATER LEVEL
WSF	4986	26-JAN-93	6047.63	6029.80	
WSF	4986	01-APR-93	6047.15	6029.80	QUARTERLY WATER LEVEL
WSF	4986	13-APR-93	6047.37	6029.80	
WSF	4986	07-JUL-93	6048.27	6029.80	QUARTERLY WATER LEVEL
WSF	4986	20-JUL-93	6048.15	6029.80	
WSF	4986	04-OCT-93	6047.89	6029.80	QUARTERLY WATER LEVEL
WSF	4986	09-NOV-93	6047.52	6029.80	
WSF	5086	14-JAN-93	6072.12	6024.80	QUARTERLY WATER LEVEL
WSF	5086	03-FEB-93	6071.86	6024.80	
WSF	5086	01-APR-93	6071.73	6024.80	QUARTERLY WATER LEVEL

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
WSF	5086	14-APR-93	6071.83	6024.80	
WSF	5086	06-JUL-93	6071.95	6024.80	QUARTERLY WATER LEVEL
WSF	5086	03-AUG-93	6071.78	6024.80	
WSF	5086	04-OCT-93	6071.98	6024.80	QUARTERLY WATER LEVEL
WSF	5086	05-NOV-93	6071.62	6024.80	
WSF	5186	14-JAN-93	6078.22	6063.30	QUARTERLY WATER LEVEL
WSF	5186	26-JAN-93	6077.50	6063.30	
WSF	5186	01-APR-93	6078.14	6063.30	QUARTERLY WATER LEVEL
WSF	5186	08-APR-93	6079.12	6063.30	
WSF	5186	06-JUL-93	6080.77	6063.30	QUARTERLY WATER LEVEL
WSF	5186	20-JUL-93	6080.57	6063.30	
WSF	5186	04-OCT-93	6079.81	6063.30	QUARTERLY WATER LEVEL
WSF	5186	04-NOV-93	6079.69	6063.30	
WSF	5286	14-JAN-93	6072.70	6016.30	QUARTERLY WATER LEVEL
WSF	5286	26-JAN-93	6072.54	6016.30	
WSF	5286	01-APR-93	6072.46	6016.30	QUARTERLY WATER LEVEL
WSF	5286	06-JUL-93	6072.73	6016.30	QUARTERLY WATER LEVEL
WSF	5286	04-OCT-93	6072.45	6016.30	QUARTERLY WATER LEVEL
WSF	5686	20-JAN-93	5982.03	5977.90	QUARTERLY WATER LEVEL
WSF	5686	17-MAR-93	5982.50	5977.90	
WSF	5686	08-APR-93	5983.51	5977.90	QUARTERLY WATER LEVEL
WSF	5686	24-MAY-93	5982.49	5977.90	
WSF	5686	13-JUL-93	5982.13	5977.90	QUARTERLY WATER LEVEL
WSF	5686	16-SEP-93	5982.28	5977.90	
WSF	5686	05-OCT-93	5981.94	5977.90	QUARTERLY WATER LEVEL
WSF	B110889	14-JAN-93	6040.77	6010.80	QUARTERLY WATER LEVEL
WSF	B110889	25-JAN-93	6040.39	6010.80	
WSF	B110889	01-APR-93	6040.06	6010.80	QUARTERLY WATER LEVEL
WSF	B110889	08-APR-93	6040.18	6010.80	
WSF	B110889	06-JUL-93	6041.96	6010.80	QUARTERLY WATER LEVEL
WSF	B110889	23-JUL-93	6041.77	6010.80	
WSF	B110889	04-OCT-93	6040.99	6010.80	QUARTERLY WATER LEVEL
WSF	B110889	05-NOV-93	6040.63	6010.80	
WSF	B110989	14-JAN-93	6035.52	6016.70	QUARTERLY WATER LEVEL
WSF	B110989	25-JAN-93	6035.11	6016.70	
WSF	B110989	01-APR-93	6034.78	6016.70	QUARTERLY WATER LEVEL
WSF	B110989	15-APR-93	6035.05	6016.70	
WSF	B110989	13-JUL-93	6036.12	6016.70	QUARTERLY WATER LEVEL
WSF	B110989	19-JUL-93	6035.87	6016.70	
WSF	B110989	04-OCT-93	6035.57	6016.70	QUARTERLY WATER LEVEL
WSF	B110989	08-NOV-93	6035.30	6016.70	
WSF	B111189	14-JAN-93	6049.72	6033.10	QUARTERLY WATER LEVEL
WSF	B111189	26-JAN-93	6049.41	6033.10	
WSF	B111189	01-APR-93	6049.40	6033.10	QUARTERLY WATER LEVEL
WSF	B111189	13-APR-93	6049.59	6033.10	
WSF	B111189	06-JUL-93	6049.48	6033.10	QUARTERLY WATER LEVEL
WSF	B111189	23-JUL-93	6049.52	6033.10	
WSF	B111189	04-OCT-93	6049.50	6033.10	QUARTERLY WATER LEVEL
WSF	B111189	04-NOV-93	6049.64	6033.10	
WSF	B402689	19-JAN-93	DRY	6042.10	QUARTERLY WATER LEVEL
WSF	B402689	06-APR-93	6043.75	6042.10	QUARTERLY WATER LEVEL
WSF	B402689	25-MAY-93	6042.81	6042.10	
WSF	B402689	08-JUL-93	6041.01	6042.10	QUARTERLY WATER LEVEL - DRY
WSF	B402689	01-OCT-93	6040.88	6042.10	QUARTERLY WATER LEVEL - DRY
WSF	B410589	14-JAN-93	6060.22	6051.80	QUARTERLY WATER LEVEL
WSF	B410589	27-JAN-93	6060.10	6051.80	
WSF	B410589	01-APR-93	6059.60	6051.80	QUARTERLY WATER LEVEL
WSF	B410689	14-JAN-93	6049.64	6041.60	QUARTERLY WATER LEVEL
WSF	B410689	25-JAN-93	6049.33	6041.60	
WSF	B410689	01-APR-93	6048.82	6041.60	QUARTERLY WATER LEVEL
WSF	B410689	12-APR-93	6049.11	6041.60	
WSF	B410689	06-JUL-93	6050.24	6041.60	QUARTERLY WATER LEVEL
WSF	B410689	22-JUL-93	6050.07	6041.60	
WSF	B410689	04-OCT-93	6049.60	6041.60	QUARTERLY WATER LEVEL
WSF	B410689	02-NOV-93	6049.22	6041.60	
WSF	B410789	25-JAN-93	6044.98	6037.10	QUARTERLY WATER LEVEL
WSF	B410789	26-JAN-93	6044.92	6037.10	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
WSF	B410789	01-APR-93	6044.68	6037.10	QUARTERLY WATER LEVEL
WSF	B410789	15-APR-93	6045.08	6037.10	
WSF	B410789	06-JUL-93	6046.42	6037.10	QUARTERLY WATER LEVEL
WSF	B410789	26-JUL-93	6046.21	6037.10	
WSF	B410789	04-OCT-93	6045.56	6037.10	QUARTERLY WATER LEVEL
WSF	B410789	05-NOV-93	6045.18	6037.10	
WSF	B411289	14-JAN-93	6065.63	6057.00	QUARTERLY WATER LEVEL
WSF	B411289	25-JAN-93	6065.41	6057.00	
WSF	B411289	01-APR-93	6065.28	6057.00	QUARTERLY WATER LEVEL
WSF	B411289	12-APR-93	6065.36	6057.00	
WSF	B411289	06-JUL-93	6065.22	6057.00	QUARTERLY WATER LEVEL
WSF	B411289	02-AUG-93	6065.01	6057.00	
WSF	B411289	04-OCT-93	6065.24	6057.00	QUARTERLY WATER LEVEL
WSF	B411289	03-NOV-93	6065.36	6057.00	
WSF	B411389	14-JAN-93	6056.72	6046.00	QUARTERLY WATER LEVEL
WSF	B411389	25-JAN-93	6056.40	6046.00	
WSF	B411389	01-APR-93	6056.13	6046.00	QUARTERLY WATER LEVEL
WSF	B411389	12-APR-93	6056.16	6046.00	
WSF	B411389	06-JUL-93	6056.67	6046.00	QUARTERLY WATER LEVEL
WSF	B411389	22-JUL-93	6056.57	6046.00	
WSF	B411389	04-OCT-93	6056.55	6046.00	QUARTERLY WATER LEVEL
WSF	B411389	03-NOV-93	6056.62	6046.00	
WSF	P415889	19-JAN-93	6035.17	6007.20	QUARTERLY WATER LEVEL
WSF	P415889	02-APR-93	6037.62	6007.20	QUARTERLY WATER LEVEL
WSF	P415889	07-JUL-93	6037.79	6007.20	QUARTERLY WATER LEVEL
WSF	P415889	01-OCT-93	6034.25	6007.20	QUARTERLY WATER LEVEL
WSF	P415889	17-NOV-93	6035.90	6007.20	
WSF	P415989	19-JAN-93	6037.33	6018.20	QUARTERLY WATER LEVEL
WSF	P415989	02-APR-93	6040.77	6018.20	QUARTERLY WATER LEVEL
WSF	P415989	07-JUL-93	6039.57	6018.20	QUARTERLY WATER LEVEL
WSF	P415989	01-OCT-93	6035.97	6018.20	QUARTERLY WATER LEVEL
WSF	P415989	21-NOV-93	6038.83	6018.20	
WSF	P416089	19-JAN-93	6043.25	6017.70	QUARTERLY WATER LEVEL
WSF	P416089	02-APR-93	6048.08	6017.70	QUARTERLY WATER LEVEL
WSF	P416089	07-JUL-93	6045.13	6017.70	QUARTERLY WATER LEVEL
WSF	P416089	01-OCT-93	6040.63	6017.70	QUARTERLY WATER LEVEL
WSF	P416089	22-NOV-93	6045.99	6017.70	
WSF	P416389	19-JAN-93	6041.28	6025.30	QUARTERLY WATER LEVEL
WSF	P416389	02-APR-93	6046.47	6025.30	QUARTERLY WATER LEVEL
WSF	P416389	10-JUN-93	6043.79	6025.30	
WSF	P416389	07-JUL-93	6043.83	6025.30	QUARTERLY WATER LEVEL
WSF	P416389	01-OCT-93	6038.26	6025.30	QUARTERLY WATER LEVEL
WSF	P416389	22-NOV-93	6043.26	6025.30	
WSF	0190	14-JAN-93	6007.14	5999.80	QUARTERLY WATER LEVEL
WSF	0190	20-MAR-93	6006.86	5999.80	
WSF	0190	01-APR-93	6007.09	5999.80	QUARTERLY WATER LEVEL
WSF	0190	27-APR-93	6010.52	5999.80	
WSF	0190	23-JUN-93	6008.94	5999.80	
WSF	0190	06-JUL-93	6008.57	5999.80	QUARTERLY WATER LEVEL
WSF	0190	13-AUG-93	6007.80	5999.80	
WSF	0190	04-OCT-93	6007.27	5999.80	QUARTERLY WATER LEVEL
WSF	0190	19-NOV-93	6006.88	5999.80	
WSF	0390	14-JAN-93	6022.75	5983.40	QUARTERLY WATER LEVEL
WSF	0390	19-MAR-93	6022.21	5983.40	
WSF	0390	01-APR-93	6022.23	5983.40	QUARTERLY WATER LEVEL
WSF	0390	28-APR-93	6022.13	5983.40	
WSF	0390	25-MAY-93	6022.29	5983.40	
WSF	0390	24-JUN-93	6022.58	5983.40	
WSF	0390	06-JUL-93	6022.57	5983.40	QUARTERLY WATER LEVEL
WSF	0390	12-AUG-93	6022.49	5983.40	
WSF	0390	04-OCT-93	6022.52	5983.40	QUARTERLY WATER LEVEL
WSF	0390	19-NOV-93	6022.25	5983.40	
WSF	1490	19-JAN-93	6019.40	6009.40	QUARTERLY WATER LEVEL-NOT DEVELOPED
WSF	1490	20-MAR-93	6018.78	6009.40	
WSF	1490	01-APR-93	6018.78	6009.40	QUARTERLY WATER LEVEL
WSF	1490	28-APR-93	6019.44	6009.40	
WSF	1490	23-JUN-93	6020.26	6009.40	

Appendix A
1993 Groundwater Potentiometric Heads
(in Feet Above Mean Sea Level)

Unit	Well ID	Sampling Date	Hydraulic Head	Bottom of Screen	COMMENTS
WSF	1490	06-JUL-93	6020.00	6009.40	QUARTERLY WATER LEVEL
WSF	1490	12-AUG-93	6019.69	6009.40	
WSF	1490	04-OCT-93	6019.37	6009.40	QUARTERLY WATER LEVEL
WSF	1490	21-NOV-93	6019.05	6009.40	
WSF	03092	22-JAN-93	DRY	6028.20	QUARTERLY WATER LEVEL
WSF	03092	01-APR-93	DRY	6028.20	QUARTERLY WATER LEVEL
WSF	03092	07-JUL-93	DRY	6028.20	QUARTERLY WATER LEVEL
WSF	03092	04-OCT-93	DRY	6028.20	QUARTERLY WATER LEVEL/NOT DEVELOPED
WSF	03192	22-JAN-93	DRY	6036.00	QUARTERLY WATER LEVEL
WSF	03192	01-APR-93	DRY	6036.00	QUARTERLY WATER LEVEL
WSF	03192	07-JUL-93	DRY	6036.00	QUARTERLY WATER LEVEL
WSF	03192	04-OCT-93	DRY	6036.00	QUARTERLY WATER LEVEL/NOT DEVELEOPED
WSF	46192	14-JAN-93	6071.54	6064.30	QUARTERLY WATER LEVEL
WSF	46192	26-JAN-93	6071.37	6064.30	
WSF	46192	01-APR-93	6071.28	6064.30	QUARTERLY WATER LEVEL
WSF	46192	15-APR-93	6071.29	6064.30	
WSF	46192	06-JUL-93	6071.29	6064.30	QUARTERLY WATER LEVEL
WSF	46192	20-JUL-93	6071.12	6064.30	
WSF	46192	04-OCT-93	6071.10	6064.30	QUARTERLY WATER LEVEL
WSF	46192	03-NOV-93	6071.13	6064.30	
WSF	46292	14-JAN-93	6042.73	6004.80	QUARTERLY WATER LEVEL
WSF	46292	27-JAN-93	6042.42	6004.80	
WSF	46292	01-APR-93	6041.97	6004.80	QUARTERLY WATER LEVEL
WSF	46292	20-APR-93	6041.80	6004.80	
WSF	46292	06-JUL-93	6042.96	6004.80	QUARTERLY WATER LEVEL
WSF	46292	19-JUL-93	6052.60	6004.80	
WSF	46292	04-OCT-93	6042.64	6004.80	QUARTERLY WATER LEVEL
WSF	46292	11-NOV-93	6042.59	6004.80	
WSF	46392	14-JAN-93	6031.09	5983.70	QUARTERLY WATER LEVEL
WSF	46392	26-JAN-93	6030.82	5983.70	
WSF	46392	01-APR-93	6030.68	5983.70	QUARTERLY WATER LEVEL
WSF	46392	18-MAY-93	6032.55	5983.70	
WSF	46392	22-JUN-93	6032.56	5983.70	
WSF	46392	06-JUL-93	6032.60	5983.70	QUARTERLY WATER LEVEL
WSF	46392	04-AUG-93	6032.01	5983.70	
WSF	46392	16-AUG-93	6031.23	5983.70	
WSF	46392	04-OCT-93	6031.23	5983.70	QUARTERLY WATER LEVEL
WSF	46392	08-NOV-93	6031.05	5983.70	
WSF	46492	14-JAN-93	6028.10	6011.50	QUARTERLY WATER LEVEL
WSF	46492	26-JAN-93	6027.65	6011.50	
WSF	46492	01-APR-93	6027.58	6011.50	QUARTERLY WATER LEVEL
WSF	46492	20-APR-93	6028.85	6011.50	
WSF	46492	06-JUL-93	6031.37	6011.50	QUARTERLY WATER LEVEL
WSF	46492	16-AUG-93	6029.97	6011.50	
WSF	46492	04-OCT-93	6028.39	6011.50	QUARTERLY WATER LEVEL
WSF	46492	13-DEC-93	6028.29	6011.50	

APPENDIX B

Groundwater Quality Data for 1993

APPENDIX B

Analytical data for the 1993 Annual RCRA Groundwater Monitoring Report are included on one 3 1/2-inch disk. The files are located in Directory \93_APX_B in a self-extracting file named 93_APX_B.EXE. These files contain all "Target" analyte records. The names and contents of the files in 93_APX_B.EXE are:

Solar Evaporation Ponds

SEP93VOA.TXT	Volatile Organic Analytes
SEP93RAD.TXT	Radionuclides
SEP93MET.TXT	Metals
SEP93WAT.TXT	Inorganic Analytes

West Spray Field

WSF93VOA.TXT	Volatile Organic Analytes
WSF93RAD.TXT	Radionuclides
WSF93MET.TXT	Metals
WSF93WAT.TXT	Inorganic Analytes

Present Landfill

PLF93VOA.TXT	Volatile Organic Analytes
PLF93RAD.TXT	Radionuclides
PLF93MET.TXT	Metals
PLF93WAT.TXT	Inorganic Analytes

APPENDIX C

Comparative Statistics for Upgradient versus Downgradient Wells

Results from statistical comparisons are given in electronic format. Results are given in a separate directory for each RCRA-regulated unit. Three self-extracting files exist within each directory. The first (*sas1.zip) contains ANOVA results from the initial comparisons of groundwater-quality data. The second (*sas2.zip) contains the results of multiple comparison tests of individual downgradient wells to pooled upgradient means. The third contains the results of distribution tests. The contents of each individual file are summarized below.

*SAS1.ZIP	FILE1.OUT	ANOVA results for normally distributed data (dissolved analytes)
	FILE2.OUT	ANOVA results for normally distributed data (total analytes)
	FILE3.OUT	ANOVA results for log-normally distributed data (dissolved analytes)
	FILE4.OUT	ANOVA results for log-normally distributed data (total analytes)
	FILE5.OUT	ANOVA results using nonparametric method (dissolved analytes)
	FILE6.OUT	ANOVA results using nonparametric method (total analytes)
*SAS2.ZIP	FILE7.OUT	Multiple comparisons for normally distributed data (dissolved analytes)
	FILE8.OUT	Multiple comparisons for normally distributed data (total analytes)
	FILE9.OUT	Multiple comparisons for log-normal data (dissolved analytes)
	FILE10.OUT	Multiple comparisons for log-normal data (total analytes)
	FILE11.OUT	Multiple comparisons for nonparametric method (dissolved analytes)
	FILE12.OUT	Multiple comparisons for non-parametric method (total analytes)
*SAS3.ZIP	FILE13.OUT	Levene's Method for normally distributed data (dissolved analytes)
	FILE14.OUT	Levene's Method for normally distributed data (total analytes)
	FILE15.OUT	Levene's Method for log-normally distributed data (dissolved analytes)
	FILE16.OUT	Levene's Method for log-normally distributed data (total analytes)
	FILE17.OUT	W-Test Results for normally distributed data (dissolved analytes)
	FILE18.OUT	W-Test Results for normally distributed data (total analytes)
	FILE19.OUT	W-Test Results for log-normally distributed data (dissolved analytes)
	FILE20.OUT	W-Test Results for log-normally distributed data (total analytes)

APPENDIX D

Summary Tables of Data Quality

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	ALUMINUM	46292	01/27/93	36.8	U	JA	20.6	U	JA	
Dissolved	ALUMINUM	5086	02/03/93	29.6	U	JA	18	U	V	
Dissolved	ALUMINUM	6887	02/10/93	23.9	U	JA	35.4	U	JA	
Dissolved	ALUMINUM	7187	02/19/93	18	U	V	18	U	JA	
Dissolved	ALUMINUM	6087	02/22/93	36	U	V	66.5		V	
Dissolved	ALUMINUM	6887	04/16/93	13	U	V	13	U	JA	
Dissolved	ALUMINUM	7187	04/09/93	13	U	V	13	U	V	
Dissolved	ALUMINUM	6087	04/09/93	13	U	V	13	U	V	
Dissolved	ALUMINUM	5086	04/14/93	13	U	V	13	U	JA	
Dissolved	ALUMINUM	46292	04/20/93	24	U		39.1			
Dissolved	ALUMINUM	71893	04/26/93	24	U	V	24	U	V	
Dissolved	ALUMINUM	46292	07/19/93	30	U		41.8			
Dissolved	ALUMINUM	5086	08/03/93	18.20	B	V	15.00	U	V	
Dissolved	ALUMINUM	6887	08/06/93	15.00	U	V	15.00	U	V	
Dissolved	ALUMINUM	6087	08/11/93	104.00	B	JA	34.40	B	JA	
Dissolved	ALUMINUM	4786	08/19/93	30.40	B	JA	18.60	B	JA	
Dissolved	ALUMINUM	7187	11/03/93	21.00	U	Y	21.00	U	Y	
Dissolved	ALUMINUM	5086	11/05/93	21.00	U	Y	21.00	U	Y	
Dissolved	ALUMINUM	70093	03/25/93	95.9		JA	31.7	U	V	
Dissolved	ALUMINUM	71893	03/29/93	35.4		JA	31.7	U	V	
Dissolved	AMERICIUM-241	71893	04/26/93	-0.002		V	0.0029		V	-1088.889
Dissolved	AMERICIUM-241	70093	03/25/93	.003423	J	A	.00133	J	A	88.07069
Dissolved	AMERICIUM-241	71893	03/29/93				.002993	J	A	
Dissolved	ANTIMONY	46292	01/27/93	23	U	V	23	U	V	
Dissolved	ANTIMONY	5086	02/03/93	23	U	V	23	U	V	
Dissolved	ANTIMONY	6887	02/10/93	23	U	V	23	U	V	
Dissolved	ANTIMONY	7187	02/19/93	23	U	V	23	U	V	
Dissolved	ANTIMONY	6087	02/22/93	31	U	V	31	U	V	
Dissolved	ANTIMONY	6887	04/16/93	13	U	V	13	U	JA	
Dissolved	ANTIMONY	7187	04/09/93	13	U	V	13	U	V	
Dissolved	ANTIMONY	6087	04/09/93	13	U	V	13	U	V	
Dissolved	ANTIMONY	5086	04/14/93	13	U	V	13	U	V	
Dissolved	ANTIMONY	46292	04/20/93	27	U		27	U		
Dissolved	ANTIMONY	71893	04/26/93	27	U	V	27	U	V	
Dissolved	ANTIMONY	46292	07/19/93	36	U		36	U		
Dissolved	ANTIMONY	5086	08/03/93	17.00	U	V	17.00	U	V	
Dissolved	ANTIMONY	6887	08/06/93	17.00	U	V	17.00	U	V	
Dissolved	ANTIMONY	6087	08/11/93	17.00	U	V	17.00	U	V	
Dissolved	ANTIMONY	4786	08/19/93	17.00	U	V	17.00	U	V	
Dissolved	ANTIMONY	7187	11/03/93	16.00	U	Y	16.00	U	Y	
Dissolved	ANTIMONY	5086	11/05/93	16.00	U	Y	16.00	U	Y	
Dissolved	ANTIMONY	70093	03/25/93	19.7	U	V	19.7	U	V	
Dissolved	ANTIMONY	71893	03/29/93	19.7	U	V	19.7	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	ARSENIC	46292	01/27/93	1	U	V	1	U	V	
Dissolved	ARSENIC	5086	02/03/93	1	U	V	1	U	V	
Dissolved	ARSENIC	6887	02/10/93	1	U	V	1	U	V	
Dissolved	ARSENIC	7187	02/19/93	1	U	V	1	U	V	
Dissolved	ARSENIC	6087	02/22/93	1	U	V	1	U	JA	
Dissolved	ARSENIC	6887	04/16/93	1	U	V	1	U	V	
Dissolved	ARSENIC	7187	04/09/93	1	U	V	1	U	V	
Dissolved	ARSENIC	6087	04/09/93	1	UW	V	1	U	V	
Dissolved	ARSENIC	5086	04/14/93	1	U	V	1	U	V	
Dissolved	ARSENIC	46292	04/20/93	3	U		3	U		
Dissolved	ARSENIC	71893	04/26/93	3	U	V	3	U	V	
Dissolved	ARSENIC	46292	07/19/93	2	UW		2	U		
Dissolved	ARSENIC	5086	08/03/93	1.00	U	V	1.00	U	V	
Dissolved	ARSENIC	6887	08/06/93	1.00	U	V	1.00	U	V	
Dissolved	ARSENIC	6087	08/11/93	1.00	U	V	1.00	U	V	
Dissolved	ARSENIC	4786	08/19/93	1.00	U	V	1.00	U	V	
Dissolved	ARSENIC	7187	11/03/93	1.00	U	Y	1.00	U	Y	
Dissolved	ARSENIC	5086	11/05/93	1.00	U	Y	1.00	U	Y	
Dissolved	ARSENIC	70093	03/25/93	1.4	U	V	1.4	U	V	
Dissolved	ARSENIC	71893	03/29/93	1.4	U	V	1.4	U	V	
Dissolved	BARIUM	46292	01/27/93	69.2	B	V	65.5	B	V	
Dissolved	BARIUM	5086	02/03/93	56.2	B	V	57.1	B	V	
Dissolved	BARIUM	6887	02/10/93	88.9	B	V	84.1	B	V	
Dissolved	BARIUM	7187	02/19/93	109	B	V	108	B	V	
Dissolved	BARIUM	6087	02/22/93	71.5		V	74.2		V	-3.7
Dissolved	BARIUM	6887	04/16/93	86.3	B	V	86.6	B	V	
Dissolved	BARIUM	7187	04/09/93	118	B	V	116	B	V	
Dissolved	BARIUM	6087	04/09/93	67.5	B	V	66.6	B	V	
Dissolved	BARIUM	5086	04/14/93	51.6	B	V	52	B	V	
Dissolved	BARIUM	46292	04/20/93	72.1			75.9			-5.1
Dissolved	BARIUM	71893	04/26/93	140		V	135		V	4
Dissolved	BARIUM	46292	07/19/93	66.7			66.6			0.2
Dissolved	BARIUM	5086	08/03/93	56.70	B	V	56.10	B	V	
Dissolved	BARIUM	6887	08/06/93	95.10	B	V	92.50	B	V	
Dissolved	BARIUM	6087	08/11/93	66.70	B	V	67.90	B	V	
Dissolved	BARIUM	4786	08/19/93	42.20	B	V	42.90	B	V	
Dissolved	BARIUM	7187	11/03/93	122.00	B	Y	119.00	B	Y	
Dissolved	BARIUM	5086	11/05/93	61.00	B	Y	60.50	B	Y	
Dissolved	BARIUM	70093	03/25/93	58.9		V	58		V	2
Dissolved	BARIUM	71893	03/29/93	97.8		V	93.5		V	4.5
Dissolved	BERYLLIUM	46292	01/27/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	5086	02/03/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	6887	02/10/93	1	U	V	1	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	BERYLLIUM	7187	02/19/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	6087	02/22/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	6887	04/16/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	7187	04/09/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	6087	04/09/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	5086	04/14/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	46292	04/20/93	1	U		1	U		
Dissolved	BERYLLIUM	71893	04/26/93	1	U	V	1	U	V	
Dissolved	BERYLLIUM	46292	07/19/93	1	U		1	U		
Dissolved	BERYLLIUM	5086	08/03/93	1.00	U	V	1.00	U	V	
Dissolved	BERYLLIUM	6887	08/06/93	1.00	U	V	1.00	U	V	
Dissolved	BERYLLIUM	6087	08/11/93	1.00	U	V	1.00	U	V	
Dissolved	BERYLLIUM	4786	08/19/93	1.00	U	V	1.00	U	V	
Dissolved	BERYLLIUM	7187	11/03/93	1.00	U	Y	1.00	U	Y	
Dissolved	BERYLLIUM	5086	11/05/93	1.00	U	Y	1.00	U	Y	
Dissolved	BERYLLIUM	70093	03/25/93	.9	U	V	.9	U	V	
Dissolved	BERYLLIUM	71893	03/29/93	.9	U	V	.9	U	V	
Dissolved	CADMIUM	46292	01/27/93	2	U	V	2	U	V	
Dissolved	CADMIUM	5086	02/03/93	2	U	V	2	U	V	
Dissolved	CADMIUM	6887	02/10/93	2	U	JA	2	U	JA	
Dissolved	CADMIUM	7187	02/19/93	2	U	JA	2	U	JA	
Dissolved	CADMIUM	6087	02/22/93	2	U	V	2	U	V	
Dissolved	CADMIUM	6887	04/16/93	3	U	V	3	U	V	
Dissolved	CADMIUM	7187	04/09/93	3	U	V	3	U	V	
Dissolved	CADMIUM	6087	04/09/93	3	U	V	3	U	V	
Dissolved	CADMIUM	5086	04/14/93	3	U	V	3	U	V	
Dissolved	CADMIUM	46292	04/20/93	2	UN		2	UN		
Dissolved	CADMIUM	71893	04/26/93	2	U	V	2	U	V	
Dissolved	CADMIUM	46292	07/19/93	2	U		2	U		
Dissolved	CADMIUM	5086	08/03/93	4.00	U	V	4.00	U	V	
Dissolved	CADMIUM	6887	08/06/93	4.00	U	V	4.00	U	V	
Dissolved	CADMIUM	6087	08/11/93	4.00	U	V	4.00	U	V	
Dissolved	CADMIUM	4786	08/19/93	4.00	U	V	4.00	U	V	
Dissolved	CADMIUM	7187	11/03/93	3.00	U	Y	3.00	U	Y	
Dissolved	CADMIUM	5086	11/05/93	3.00	U	Y	3.00	U	Y	
Dissolved	CADMIUM	70093	03/25/93	2.7	U	V	2.7	U	V	
Dissolved	CADMIUM	71893	03/29/93	2.7	U	V	2.7	U	V	
Dissolved	CALCIUM	46292	01/27/93	21800		V	20300		V	7
Dissolved	CALCIUM	5086	02/03/93	33000		V	33100		V	0.00
Dissolved	CALCIUM	6887	02/10/93	32400		V	32400		V	0.00
Dissolved	CALCIUM	7187	02/19/93	71900		V	70600		V	2
Dissolved	CALCIUM	6087	02/22/93	28100	E	JA	28400	E	JA	-1
Dissolved	CALCIUM	6887	04/16/93	33300		V	33300		V	0.00

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	CALCIUM	7187	04/09/93	71400		V	72100		V	-1
Dissolved	CALCIUM	6087	04/09/93	24200		V	24400		V	-1
Dissolved	CALCIUM	5086	04/14/93	29000		V	29000		V	0.00
Dissolved	CALCIUM	46292	04/20/93	23100	E		23500	E		-2
Dissolved	CALCIUM	71893	04/26/93	46400	E	JA	45400	E	JA	2
Dissolved	CALCIUM	46292	07/19/93	20900			21200			-1
Dissolved	CALCIUM	5086	08/03/93	32000.00		V	32000.00		V	0.00
Dissolved	CALCIUM	6887	08/06/93	32800.00		V	32000.00		V	2.47
Dissolved	CALCIUM	6087	08/11/93	23200.00		V	23300.00		V	-0.43
Dissolved	CALCIUM	4786	08/19/93	18000.00		V	17700.00		V	1.68
Dissolved	CALCIUM	7187	11/03/93	69400.00		Y	67000.00		Y	3.52
Dissolved	CALCIUM	5086	11/05/93	33100.00		Y	32000.00		Y	3.38
Dissolved	CALCIUM	70093	03/25/93	18700		V	18200		V	3
Dissolved	CALCIUM	71893	03/29/93	29300		V	28600		V	2
Dissolved	CESIUM	46292	01/27/93	25	U	V	25	U	V	
Dissolved	CESIUM	5086	02/03/93	25	U		25	U	JA	
Dissolved	CESIUM	6887	02/10/93	25	U					
Dissolved	CESIUM	7187	02/19/93	25	U	V	25	U	V	
Dissolved	CESIUM	6087	02/22/93	33	U	V	33	U	V	
Dissolved	CESIUM	6887	04/16/93	36	U	V	36	U	V	
Dissolved	CESIUM	7187	04/09/93	36	U		36	U	V	
Dissolved	CESIUM	6087	04/09/93	36	U	JA	36	U	JA	
Dissolved	CESIUM	5086	04/14/93	36	U	V	36	U	V	
Dissolved	CESIUM	46292	04/20/93	617	UN		617	UN		
Dissolved	CESIUM	71893	04/26/93	33	U	V	33	U	V	
Dissolved	CESIUM	46292	07/19/93	22	U		18	U		
Dissolved	CESIUM	5086	08/03/93	80.0000	B		29.00	U	V	
Dissolved	CESIUM	6887	08/06/93	29.0000	U		40.00	B	JA	
Dissolved	CESIUM	6087	08/11/93	29.00	U	JA	29.00	U	V	
Dissolved	CESIUM	4786	08/19/93	30.0000	B	Z				
Dissolved	CESIUM	7187	11/03/93	63.00	U	Y	63.00	U	Y	
Dissolved	CESIUM	5086	11/05/93	130.00	B	Y	110.00	B	Y	
Dissolved	CESIUM	70093	03/25/93	500	U	V	500	U	V	
Dissolved	CESIUM	71893	03/29/93	500	U	V	500	U	V	
Dissolved	CESIUM-134	7187	04/09/93	-.219	J		.2163	J		32244.444
Dissolved	CESIUM-134	6087	04/09/93	.09266	J		-.0268	J		362.7695
Dissolved	CESIUM-134	71893	04/26/93	.75			.32			80.37
Dissolved	CESIUM-137	6887	04/16/93	.95	J		.46	U		
Dissolved	CESIUM-137	7187	04/09/93	-.154	J		-.246	J		-46.000
Dissolved	CESIUM-137	6087	04/09/93	-.369	J		-.91	J		-84.60
Dissolved	CESIUM-137	71893	04/26/93	.26			0			200
Dissolved	CESIUM-137	70093	03/25/93	.4747	J		-.034	J		230.860
Dissolved	CESIUM-137	71893	03/29/93				-.184	J		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	CHROMIUM	46292	01/27/93	2	U	V	2	U	V	
Dissolved	CHROMIUM	5086	02/03/93	2	U	V	2	U	V	
Dissolved	CHROMIUM	6887	02/10/93	2	U	V	2	U	V	
Dissolved	CHROMIUM	7187	02/19/93	2	U	V	2	U	V	
Dissolved	CHROMIUM	6087	02/22/93	3	U	V	3	U	V	
Dissolved	CHROMIUM	6887	04/16/93	4	U	V	4	U	V	
Dissolved	CHROMIUM	7187	04/09/93	4	U	V	4	U	V	
Dissolved	CHROMIUM	6087	04/09/93	4	U	V	4	U	V	
Dissolved	CHROMIUM	5086	04/14/93	4	U	V	4	U	V	
Dissolved	CHROMIUM	46292	04/20/93	5	U		5	U		
Dissolved	CHROMIUM	71893	04/26/93	4	U	V	4	U	V	
Dissolved	CHROMIUM	46292	07/19/93	3	U		3	U		
Dissolved	CHROMIUM	5086	08/03/93	3.00	U	V	3.00	U	V	
Dissolved	CHROMIUM	6887	08/06/93	3.00	U	V	3.00	U	V	
Dissolved	CHROMIUM	6087	08/11/93	3.00	U	V	3.00	U	V	
Dissolved	CHROMIUM	4786	08/19/93	3.00	U	V	3.00	U	V	
Dissolved	CHROMIUM	7187	11/03/93	3.00	U	Y	3.00	U	Y	
Dissolved	CHROMIUM	5086	11/05/93	3.00	U	Y	3.00	U	Y	
Dissolved	CHROMIUM	70093	03/25/93	2.6	U	V	2.6	U	V	
Dissolved	CHROMIUM	71893	03/29/93	2.6	U	V	2.6	U	V	
Dissolved	COBALT	46292	01/27/93	3	U	V	3	U	V	
Dissolved	COBALT	5086	02/03/93	3	U	V	3	U	V	
Dissolved	COBALT	6887	02/10/93	3	U	V	3	U	V	
Dissolved	COBALT	7187	02/19/93	3	U	V	3	U	V	
Dissolved	COBALT	6087	02/22/93	8	U	V	8	U	V	
Dissolved	COBALT	6887	04/16/93	3	U	V	3	U	V	
Dissolved	COBALT	7187	04/09/93	3	U	V	3	U	V	
Dissolved	COBALT	6087	04/09/93	3	U	V	3	U	V	
Dissolved	COBALT	5086	04/14/93	3	U	V	3	U	V	
Dissolved	COBALT	46292	04/20/93	6	U		6	U		
Dissolved	COBALT	71893	04/26/93	6	U	V	6	U	V	
Dissolved	COBALT	46292	07/19/93	5	U		5	U		
Dissolved	COBALT	5086	08/03/93	4.00	U	V	4.00	U	V	
Dissolved	COBALT	6887	08/06/93	4.00	U	V	4.00	U	V	
Dissolved	COBALT	6087	08/11/93	4.00	U	V	4.00	U	V	
Dissolved	COBALT	4786	08/19/93	4.00	U	V	4.00	U	V	
Dissolved	COBALT	7187	11/03/93	3.00	U	Y	3.00	U	Y	
Dissolved	COBALT	5086	11/05/93	3.00	U	Y	3.00	U	Y	
Dissolved	COBALT	70093	03/25/93	3.2		JA	2.6	U	V	
Dissolved	COBALT	71893	03/29/93	2.8		JA	2.6	U	V	
Dissolved	COPPER	46292	01/27/93	2	U	V	2	U	V	
Dissolved	COPPER	5086	02/03/93	2	U	JA	2	U	V	
Dissolved	COPPER	6887	02/10/93	2	U	JA	2	U	JA	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	COPPER	7187	02/19/93	2	U	V	2	U	V	
Dissolved	COPPER	6087	02/22/93	4	U	V	4	U	V	
Dissolved	COPPER	6887	04/16/93	7.5	B	V	8.5	B	V	
Dissolved	COPPER	7187	04/09/93	2	U	V	7.2	B	V	
Dissolved	COPPER	6087	04/09/93	2	U	V	2	U	V	
Dissolved	COPPER	5086	04/14/93	2	U	V	2.3	B	V	
Dissolved	COPPER	46292	04/20/93	4	U		4	U		
Dissolved	COPPER	71893	04/26/93	4.9		JA	4	U	V	
Dissolved	COPPER	46292	07/19/93	2	U		2	U		
Dissolved	COPPER	5086	08/03/93	3.80	B	V	2.00	U	V	
Dissolved	COPPER	6887	08/06/93	2.00	U	V	2.00	U	V	
Dissolved	COPPER	6087	08/11/93	2.00	U	V	2.00	U	V	
Dissolved	COPPER	4786	08/19/93	2.00	U	V	2.00	U	V	
Dissolved	COPPER	7187	11/03/93	2.00	U	Y	2.00	U	Y	
Dissolved	COPPER	5086	11/05/93	2.00	U	Y	2.00	U	Y	
Dissolved	COPPER	70093	03/25/93	2.9	U	V	2.9	U	V	
Dissolved	COPPER	71893	03/29/93	2.9	U	V	2.9	U	V	
Dissolved	GROSS ALPHA	46292	01/27/93	0.58	U	V	0.28	U	V	
Dissolved	GROSS ALPHA	5086	02/03/93	.75	U	V	.72	UC	V	
Dissolved	GROSS ALPHA	6887	02/10/93	0.14	U	V	-0.43	UC	V	
Dissolved	GROSS ALPHA	7187	02/19/93	1.3	UC	A	1.5	UC	A	
Dissolved	GROSS ALPHA	6087	02/22/93	.42	U	A	1	U	A	
Dissolved	GROSS ALPHA	6887	04/16/93	.84	J		.87	J		-3.51
Dissolved	GROSS ALPHA	7187	04/09/93	.8322	J		1.441			-53.563
Dissolved	GROSS ALPHA	6087	04/09/93	.2161	J		.08496	J		87.1188
Dissolved	GROSS ALPHA	46292	04/20/93	0.91	J	V	1.3	J	V	-35.3
Dissolved	GROSS ALPHA	71893	04/26/93	7.27			4.28			51.77
Dissolved	GROSS ALPHA	46292	07/19/93	1.2	J		0.29	U		
Dissolved	GROSS ALPHA	6887	08/06/93	0.55	J		0.61	J		-10.34
Dissolved	GROSS ALPHA	6087	08/11/93	0.22	U		0.72	J		
Dissolved	GROSS ALPHA	4786	08/19/93	0.68	J	Y	0.58	J	Y	15.87
Dissolved	GROSS ALPHA	70093	03/25/93	.2936	J	V	.353	J	V	-18.373
Dissolved	GROSS ALPHA	71893	03/29/93	1.608		V				
Dissolved	GROSS BETA	46292	01/27/93	2.8		V	1.8	U	V	
Dissolved	GROSS BETA	5086	02/03/93	.96	U	A	.43	U	A	
Dissolved	GROSS BETA	6887	02/10/93	0.35	U	V	0.21	U	V	
Dissolved	GROSS BETA	7187	02/19/93	.86	U	A	-.04	U	A	
Dissolved	GROSS BETA	6087	02/22/93	1.4	U	A	.52	U	A	
Dissolved	GROSS BETA	6887	04/16/93	.47	U		-.33	U		
Dissolved	GROSS BETA	7187	04/09/93	1.805			1.335	J		29.936
Dissolved	GROSS BETA	6087	04/09/93	1.707			1.114	J		42.042
Dissolved	GROSS BETA	46292	04/20/93	2.8	J	V	1.0	U	V	
Dissolved	GROSS BETA	71893	04/26/93	0			2.62			-200

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	GROSS BETA	46292	07/19/93	1.3	U		2.0	U		
Dissolved	GROSS BETA	6887	08/06/93	2.5	U		0.22	U		
Dissolved	GROSS BETA	6087	08/11/93	-0.80	U		-1.6	U		
Dissolved	GROSS BETA	4786	08/19/93	0.54	U	Y	0.59	U	Y	
Dissolved	GROSS BETA	70093	03/25/93	1.88		V	1.956		V	-3.96
Dissolved	GROSS BETA	71893	03/29/93	2.51		V				
Dissolved	IRON	46292	01/27/93	33	U	JA	15.3	U	JA	
Dissolved	IRON	5086	02/03/93	120	*	JA				
Dissolved	IRON	6887	02/10/93	10.4	U	JA	29.8	B	V	
Dissolved	IRON	7187	02/19/93	21.4	U	JA	29.4	U	JA	
Dissolved	IRON	6087	02/22/93	14.9		V	41.5		V	-94.3
Dissolved	IRON	6887	04/16/93	6.9	U	JA	12.1	U	JA	
Dissolved	IRON	7187	04/09/93	30	U	V	30	U	V	
Dissolved	IRON	6087	04/09/93	97.5	U	JA	30	U	V	
Dissolved	IRON	5086	04/14/93	11	U	JA	14.3	U	JA	
Dissolved	IRON	46292	04/20/93	11.6			26.8			-79.2
Dissolved	IRON	71893	04/26/93	5	U	JA	5	U	JA	
Dissolved	IRON	46292	07/19/93	23.2			19.4			17.8
Dissolved	IRON	5086	08/03/93	11.60	B	JA	7.00	U	V	
Dissolved	IRON	6887	08/06/93	7.00	U	V	7.00	U	V	
Dissolved	IRON	6087	08/11/93	53.00	B	V	9.20	B	V	
Dissolved	IRON	4786	08/19/93	15.70	B	JA	7.00	U	V	
Dissolved	IRON	7187	11/03/93	13.00	B	Y	4.00	U	Y	
Dissolved	IRON	5086	11/05/93	4.20	B	Y	14.10	B	Y	
Dissolved	IRON	70093	03/25/93	135		JA	10.9		JA	170
Dissolved	IRON	71893	03/29/93	164		JA	48.1		JA	109
Dissolved	LEAD	46292	01/27/93	1	U	V	1	U	V	
Dissolved	LEAD	5086	02/03/93	1	UN*	JA	1	UN*	JA	
Dissolved	LEAD	6887	02/10/93	1	U	V	1	U	V	
Dissolved	LEAD	7187	02/19/93	1	U	V	1	U	V	
Dissolved	LEAD	6087	02/22/93	1.7		JA	1.5		JA	12.5
Dissolved	LEAD	6887	04/16/93	1	U	V	1	U	V	
Dissolved	LEAD	7187	04/09/93	1	U	V	1	U	V	
Dissolved	LEAD	6087	04/09/93	1	U	V	1	U	V	
Dissolved	LEAD	5086	04/14/93	1	U	V	1	U	V	
Dissolved	LEAD	46292	04/20/93	2	UW		2	U		
Dissolved	LEAD	71893	04/26/93	2	U	JA	2	U	JA	
Dissolved	LEAD	46292	07/19/93	2	U		2	U		
Dissolved	LEAD	5086	08/03/93	1.00	U	V	1.00	U	V	
Dissolved	LEAD	6887	08/06/93	1.00	U	V	1.00	U	V	
Dissolved	LEAD	6087	08/11/93	1.00	U	V	1.00	U	V	
Dissolved	LEAD	4786	08/19/93	1.00	U	V	1.00	U	V	
Dissolved	LEAD	7187	11/03/93	1.00	U	Y	1.00	U	Y	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	LEAD	5086	11/05/93	1.00	U	Y	1.00	U	Y	
Dissolved	LEAD	70093	03/25/93	1	U	JA	1	U	JA	
Dissolved	LEAD	71893	03/29/93	4		JA	1	U	JA	
Dissolved	LITHIUM	46292	01/27/93	4.1	B	V	3.2	B	V	
Dissolved	LITHIUM	5086	02/03/93	6.5	B	V	7.2	B	V	
Dissolved	LITHIUM	6887	02/10/93	5.8	B	V	6.2	B	V	
Dissolved	LITHIUM	7187	02/19/93	3.4	B	V	3.5	B	V	
Dissolved	LITHIUM	6087	02/22/93	16	U	V	16	U	V	
Dissolved	LITHIUM	6887	04/16/93	4.4	B	V	5.7	B	V	
Dissolved	LITHIUM	7187	04/09/93	3.8	B	V	3.9	B	V	
Dissolved	LITHIUM	6087	04/09/93	5.7	B	V	5.6	B	V	
Dissolved	LITHIUM	5086	04/14/93	4.4	B	V	5.7	B	V	
Dissolved	LITHIUM	46292	04/20/93	30	U		30	U		
Dissolved	LITHIUM	71893	04/26/93	30	U	V	30	U	V	
Dissolved	LITHIUM	46292	07/19/93	17	U		17	U		
Dissolved	LITHIUM	5086	08/03/93	6.10	B	V	6.10	B	V	
Dissolved	LITHIUM	6887	08/06/93	4.70	B	V	4.30	B	V	
Dissolved	LITHIUM	6087	08/11/93	6.30	B	V	6.20	B	V	
Dissolved	LITHIUM	4786	08/19/93	3.00	U	V	3.00	U	V	
Dissolved	LITHIUM	7187	11/03/93	3.40	B	Y	3.80	B	Y	
Dissolved	LITHIUM	5086	11/05/93	5.80	B	Y	5.80	B	Y	
Dissolved	LITHIUM	70093	03/25/93	5.7		JA	6.5		JA	-13.1
Dissolved	LITHIUM	71893	03/29/93	7.4		JA	8.2		JA	-10.3
Dissolved	MAGNESIUM	46292	01/27/93	4510	B	V	4200	B	V	
Dissolved	MAGNESIUM	5086	02/03/93	5500		V	5550		V	-1
Dissolved	MAGNESIUM	6887	02/10/93	4820	B	V	4790	B	V	
Dissolved	MAGNESIUM	7187	02/19/93	7710		V	7680		V	0.00
Dissolved	MAGNESIUM	6087	02/22/93	4760		V	4740		V	0.00
Dissolved	MAGNESIUM	6887	04/16/93	5030		V	5020		V	0.00
Dissolved	MAGNESIUM	7187	04/09/93	7970		V	8190		V	-3
Dissolved	MAGNESIUM	6087	04/09/93	4510	B	V	4530	B	V	
Dissolved	MAGNESIUM	5086	04/14/93	5020		V	5010		V	0.00
Dissolved	MAGNESIUM	46292	04/20/93	4840			4940			-2
Dissolved	MAGNESIUM	71893	04/26/93	7620		V	7530		V	1
Dissolved	MAGNESIUM	46292	07/19/93	4580			4540			1
Dissolved	MAGNESIUM	5086	08/03/93	5480.00		V	5460.00		V	0.37
Dissolved	MAGNESIUM	6887	08/06/93	4850.00	B	V	4740.00	B	V	
Dissolved	MAGNESIUM	6087	08/11/93	3950.00	B	V	3930.00	B	V	
Dissolved	MAGNESIUM	4786	08/19/93	3310.00	B	V	3230.00	B	V	
Dissolved	MAGNESIUM	7187	11/03/93	7890.00		Y	7720.00		Y	2.18
Dissolved	MAGNESIUM	5086	11/05/93	5690.00		Y	5500.00		Y	3.40
Dissolved	MAGNESIUM	70093	03/25/93	3510		V	3380		V	4
Dissolved	MAGNESIUM	71893	03/29/93	5280		V	5160		V	2

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	MANGANESE	46292	01/27/93	143		V	146		V	-2
Dissolved	MANGANESE	5086	02/03/93	1	U	V	1	U	V	
Dissolved	MANGANESE	6887	02/10/93	19.4		V	15.2		V	24.3
Dissolved	MANGANESE	7187	02/19/93	1	U	V	1	U	V	
Dissolved	MANGANESE	6087	02/22/93	5.1		V	4.1		V	21.7
Dissolved	MANGANESE	6887	04/16/93	9.8	B	V	10	B	V	
Dissolved	MANGANESE	7187	04/09/93	1	U	V	1	U	V	
Dissolved	MANGANESE	6087	04/09/93	1.8	B	V	1.1	B	V	
Dissolved	MANGANESE	5086	04/14/93	1	U	V	1	U	V	
Dissolved	MANGANESE	46292	04/20/93	247			252			-2
Dissolved	MANGANESE	71893	04/26/93	210		V	190		V	10
Dissolved	MANGANESE	46292	07/19/93	102			76.4			29
Dissolved	MANGANESE	5086	08/03/93	2.30	B	V	1.00	U	V	
Dissolved	MANGANESE	6887	08/06/93	20.80		V	19.80		V	4.93
Dissolved	MANGANESE	6087	08/11/93	4.10	B	JA	3.90	B	JA	
Dissolved	MANGANESE	4786	08/19/93	1.60	B	JA	1.90	B	JA	
Dissolved	MANGANESE	7187	11/03/93	1.00	B	Y	1.00	U	Y	
Dissolved	MANGANESE	5086	11/05/93	1.00	U	Y	1.00	U	Y	
Dissolved	MANGANESE	70093	03/25/93	171		V	144		V	17
Dissolved	MANGANESE	71893	03/29/93	178		V	108		V	49
Dissolved	MERCURY	46292	01/27/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	5086	02/03/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	6887	02/10/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	7187	02/19/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	6087	02/22/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	6887	04/16/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	7187	04/09/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	6087	04/09/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	5086	04/14/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	46292	04/20/93	.2	U		.2	U		
Dissolved	MERCURY	71893	04/26/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	46292	07/19/93	.2	U		.2	U		
Dissolved	MERCURY	5086	08/03/93	0.20	U	V	0.20	U	V	
Dissolved	MERCURY	6887	08/06/93	0.20	U	V	0.20	U	V	
Dissolved	MERCURY	6087	08/11/93	0.20	U	V	0.20	U	V	
Dissolved	MERCURY	4786	08/19/93	0.20	U	V	0.20	U	V	
Dissolved	MERCURY	7187	11/03/93	0.20	U	Y	0.20	U	Y	
Dissolved	MERCURY	5086	11/05/93	0.20	U	Y	0.20	U	Y	
Dissolved	MERCURY	70093	03/25/93	.2	U	V	.2	U	V	
Dissolved	MERCURY	71893	03/29/93	.2	U	V	.2	U	V	
Dissolved	MOLYBDENUM	46292	01/27/93	5	U	V	5	U	V	
Dissolved	MOLYBDENUM	5086	02/03/93	5	U	V	5	U	V	
Dissolved	MOLYBDENUM	6887	02/10/93	5	U	V	5	U	V	

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	MOLYBDENUM	7187	02/19/93	5.3	U	JA	10.6	U	JA	
Dissolved	MOLYBDENUM	6087	02/22/93	15	U	V	15	U	V	
Dissolved	MOLYBDENUM	6887	04/16/93	4	U	V	4	U	V	
Dissolved	MOLYBDENUM	7187	04/09/93	4	U	V	6.9	U	JA	
Dissolved	MOLYBDENUM	6087	04/09/93	4	U	V	7.8	U	JA	
Dissolved	MOLYBDENUM	5086	04/14/93	4	U	V	4.2	U	JA	
Dissolved	MOLYBDENUM	46292	04/20/93	11	U		11	U		
Dissolved	MOLYBDENUM	71893	04/26/93	11	U	V	11	U	V	
Dissolved	MOLYBDENUM	46292	07/19/93	11	U		11	U		
Dissolved	MOLYBDENUM	5086	08/03/93	10.80	B	JA	19.30	B	JA	
Dissolved	MOLYBDENUM	6887	08/06/93	5.00	U	V	5.00	U	V	
Dissolved	MOLYBDENUM	6087	08/11/93	5.00	U	V	12.80	B	JA	
Dissolved	MOLYBDENUM	4786	08/19/93	5.00	U	V	13.30	B	JA	
Dissolved	MOLYBDENUM	7187	11/03/93	8.80	B	Y	11.80	B	Y	
Dissolved	MOLYBDENUM	5086	11/05/93	6.00	U	Y	14.70	B	Y	
Dissolved	MOLYBDENUM	70093	03/25/93	6.5	U	V	6.5	U	V	
Dissolved	MOLYBDENUM	71893	03/29/93	6.5	U	V	6.5	U	V	
Dissolved	NICKEL	46292	01/27/93	5	U	V	5	U	V	
Dissolved	NICKEL	5086	02/03/93	5	U	V	5	U	V	
Dissolved	NICKEL	6887	02/10/93	5	U	V	5	U	V	
Dissolved	NICKEL	7187	02/19/93	5	U	V	5	U	JA	
Dissolved	NICKEL	6087	02/22/93	31	U	V	31	U	V	
Dissolved	NICKEL	6887	04/16/93	6	U	V	6	U	V	
Dissolved	NICKEL	7187	04/09/93	6	U	V	6	U	V	
Dissolved	NICKEL	6087	04/09/93	6	U	V	6	U	V	
Dissolved	NICKEL	5086	04/14/93	6	U	V	6	U	V	
Dissolved	NICKEL	46292	04/20/93	11	U		11	U		
Dissolved	NICKEL	71893	04/26/93	11	U	V	11	U	V	
Dissolved	NICKEL	46292	07/19/93	14	U		14	U		
Dissolved	NICKEL	5086	08/03/93	7.00	U	V	7.00	U	V	
Dissolved	NICKEL	6887	08/06/93	7.50	B	V	7.00	U	V	
Dissolved	NICKEL	6087	08/11/93	7.00	U	V	7.00	U	V	
Dissolved	NICKEL	4786	08/19/93	7.00	U	V	7.00	U	V	
Dissolved	NICKEL	7187	11/03/93	8.00	U	Y	8.00	U	Y	
Dissolved	NICKEL	5086	11/05/93	8.00	U	Y	8.00	U	Y	
Dissolved	NICKEL	70093	03/25/93	11	U	V	11	U	V	
Dissolved	NICKEL	71893	03/29/93	11	U	V	11	U	V	
Dissolved	PLUTONIUM-239/240	71893	04/26/93	0.0053		V	0.0007		V	153.3333
Dissolved	PLUTONIUM-239/240	70093	03/25/93	.003757	J	A	-.000875	J	A	321.443442
Dissolved	PLUTONIUM-239/240	71893	03/29/93	0	J	A	.001635	J	A	-200
Dissolved	POTASSIUM	46292	01/27/93	1380	U	JA	1410	U	JA	
Dissolved	POTASSIUM	5086	02/03/93	999	B	JA	877	B	JA	
Dissolved	POTASSIUM	6887	02/10/93	582	B	JA	574	B	JA	

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	POTASSIUM	7187	02/19/93	359	U	V	359	U	V	
Dissolved	POTASSIUM	6087	02/22/93	820	U	V	820	U	V	
Dissolved	POTASSIUM	6887	04/16/93	422	U	V	695	B	V	
Dissolved	POTASSIUM	7187	04/09/93	422	U	V	422	U	V	
Dissolved	POTASSIUM	6087	04/09/93	422	U	V	422	U	V	
Dissolved	POTASSIUM	5086	04/14/93	611	B	V	666	B	V	
Dissolved	POTASSIUM	46292	04/20/93	1000	U		1190			
Dissolved	POTASSIUM	71893	04/26/93	1900		JA	1320		JA	36
Dissolved	POTASSIUM	46292	07/19/93	640	U		1140			
Dissolved	POTASSIUM	5086	08/03/93	958.00	B	JA	566.00	B	JA	
Dissolved	POTASSIUM	6887	08/06/93	342.00	B	JA	440.00	B	JA	
Dissolved	POTASSIUM	6087	08/11/93	681.00	B	JA	282.00	B	JA	
Dissolved	POTASSIUM	4786	08/19/93	253.00	U	V	416.00	B	V	
Dissolved	POTASSIUM	7187	11/03/93	413.00	U	Y	413.00	U	Y	
Dissolved	POTASSIUM	5086	11/05/93	651.00	B	Y	716.00	B	Y	
Dissolved	POTASSIUM	70093	03/25/93	779	U	V	1020		V	
Dissolved	POTASSIUM	71893	03/29/93	1430		V	1520		V	-6
Dissolved	RADIUM-226	46292	01/27/93	.27		V	.12	U	V	
Dissolved	RADIUM-226	5086	02/03/93	0.18		V	-0.06	U	V	
Dissolved	RADIUM-226	6887	02/10/93	.32		V	.34		V	-6.06
Dissolved	RADIUM-226	7187	02/19/93	0.32		V	.201	U	V	
Dissolved	RADIUM-226	6087	02/22/93	0.28		V	0.16		V	54.55
Dissolved	RADIUM-228	46292	01/27/93	1.1		A	1.2		A	-8.7
Dissolved	RADIUM-228	5086	02/03/93	6.5		V	3.2		V	68.0
Dissolved	RADIUM-228	6887	02/10/93	-.01	U	V	-.33	U	V	
Dissolved	RADIUM-228	7187	02/19/93	-.20	U	V	.31	U	V	
Dissolved	RADIUM-228	6087	02/22/93	0.0	U	V	.10	U	V	
Dissolved	SELENIUM	46292	01/27/93	1	U	JA	1.4	U	JA	
Dissolved	SELENIUM	5086	02/03/93	1	U	JA	1	U	JA	
Dissolved	SELENIUM	6887	02/10/93	1	U	JA	1	U	JA	
Dissolved	SELENIUM	7187	02/19/93	1	U	JA	1	U	V	
Dissolved	SELENIUM	6087	02/22/93	2	U	V	2	U	V	
Dissolved	SELENIUM	6887	04/16/93	1	U	V	1	U	V	
Dissolved	SELENIUM	7187	04/09/93	1	U	V	1	U	V	
Dissolved	SELENIUM	6087	04/09/93	1	U	V	1	U	V	
Dissolved	SELENIUM	5086	04/14/93	1	U	V	1	U	V	
Dissolved	SELENIUM	46292	04/20/93	2	U		2	U		
Dissolved	SELENIUM	71893	04/26/93	3	UN	JA	3	UN	JA	
Dissolved	SELENIUM	46292	07/19/93	2	U		2	U		
Dissolved	SELENIUM	5086	08/03/93	1.00	U	V	1.00	U	V	
Dissolved	SELENIUM	6887	08/06/93	1.00	UW	JA	1.00	UW	JA	
Dissolved	SELENIUM	6087	08/11/93	2.00	U	JA	2.00	U	JA	
Dissolved	SELENIUM	4786	08/19/93	2.00	UW	V	2.00	UW	V	

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	SELENIUM	7187	11/03/93	1.00	B	Y	1.00	U	Y	
Dissolved	SELENIUM	5086	11/05/93	1.00	U	Y	1.00	U	Y	
Dissolved	SELENIUM	70093	03/25/93	1.3	U	V	1.3	U	V	
Dissolved	SELENIUM	71893	03/29/93	1.3	U	V	1.3	U	V	
Dissolved	SILICON	46292	01/27/93	13300		V	12500		V	6
Dissolved	SILICON	5086	02/03/93	12400		V	12500		V	-1
Dissolved	SILICON	6887	02/10/93	9340		V	9320		V	0.00
Dissolved	SILICON	7187	02/19/93	5650		V	5770		V	-2
Dissolved	SILICON	6087	02/22/93	10900		JA	11000		JA	-1
Dissolved	SILICON	6887	04/16/93	8940		V	8840		V	1
Dissolved	SILICON	7187	04/09/93	5530		V	5570		V	-1
Dissolved	SILICON	6087	04/09/93	9680		V	9770		V	-1
Dissolved	SILICON	5086	04/14/93	11300		V	11300		V	0.00
Dissolved	SILICON	46292	04/20/93	13600			13900			-2
Dissolved	SILICON	71893	04/26/93	11700		V	11200		V	4
Dissolved	SILICON	46292	07/19/93	12500			13200			-5
Dissolved	SILICON	5086	08/03/93	12300.00		V	12300.00		V	0.00
Dissolved	SILICON	6887	08/06/93	10500.00		V	10200.00		V	2.90
Dissolved	SILICON	6087	08/11/93	10600.00		V	10500.00		V	0.95
Dissolved	SILICON	4786	08/19/93	12100.00		V	12100.00		V	0.00
Dissolved	SILICON	7187	11/03/93	7620.00		Y	7530.00		Y	1.19
Dissolved	SILICON	5086	11/05/93	12700.00		Y	12300.00		Y	3.20
Dissolved	SILICON	70093	03/25/93	10300		V	9760		V	5
Dissolved	SILICON	71893	03/29/93	9530		V	10100		V	-6
Dissolved	SILVER	46292	01/27/93	3	U	V	3	U	V	
Dissolved	SILVER	5086	02/03/93	3	U	V	3	U	V	
Dissolved	SILVER	6887	02/10/93	3	U	V	3	U	V	
Dissolved	SILVER	7187	02/19/93	3	U	V	3	U	V	
Dissolved	SILVER	6087	02/22/93	3	U	V	3	U	V	
Dissolved	SILVER	6887	04/16/93	3	U	V	3	U	V	
Dissolved	SILVER	7187	04/09/93	3	U	V	3	U	V	
Dissolved	SILVER	6087	04/09/93	3	U	V	3	U	V	
Dissolved	SILVER	5086	04/14/93	3	U	V	3	U	V	
Dissolved	SILVER	46292	04/20/93	5	U		5	U		
Dissolved	SILVER	71893	04/26/93	5	U	V	5	U	V	
Dissolved	SILVER	46292	07/19/93	3	U		3	U		
Dissolved	SILVER	5086	08/03/93	3.00	U	V	3.00	U	V	
Dissolved	SILVER	6887	08/06/93	3.00	U	V	3.00	U	V	
Dissolved	SILVER	6087	08/11/93	3.00	U	V	3.00	U	V	
Dissolved	SILVER	4786	08/19/93	3.00	U	V	3.00	U	V	
Dissolved	SILVER	7187	11/03/93	3.00	U	Y	3.00	U	Y	
Dissolved	SILVER	5086	11/05/93	3.00	U	Y	3.00	U	Y	
Dissolved	SILVER	70093	03/25/93	3.6	U	V	3.6	U	V	

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	SILVER	71893	03/29/93	3.6	U	V	3.6	U	V	
Dissolved	SODIUM	46292	01/27/93	15600		V	15200		V	3
Dissolved	SODIUM	5086	02/03/93	10200		V	10300		V	-1
Dissolved	SODIUM	6887	02/10/93	11700		V	11700		V	0.00
Dissolved	SODIUM	7187	02/19/93	8000		V	8040		V	0.00
Dissolved	SODIUM	6087	02/22/93	11000		V	10900		V	1
Dissolved	SODIUM	6887	04/16/93	11700		V	11400		V	3
Dissolved	SODIUM	7187	04/09/93	8000		V	8250		V	-3
Dissolved	SODIUM	6087	04/09/93	10500		V	10500		V	0.00
Dissolved	SODIUM	5086	04/14/93	9780		V	9760		V	0.00
Dissolved	SODIUM	46292	04/20/93	15700			16200			-3
Dissolved	SODIUM	71893	04/26/93	10800		V	11000		V	-2
Dissolved	SODIUM	46292	07/19/93	14800			14800			0.00
Dissolved	SODIUM	5086	08/03/93	10200.00		V	10100.00		V	0.99
Dissolved	SODIUM	6887	08/06/93	13300.00		V	12900.00		V	3.05
Dissolved	SODIUM	6087	08/11/93	10800.00		V	10800.00		V	0.00
Dissolved	SODIUM	4786	08/19/93	14000.00		V	14000.00		V	0.00
Dissolved	SODIUM	7187	11/03/93	9080.00		Y	9010.00		Y	0.77
Dissolved	SODIUM	5086	11/05/93	10500.00		Y	10200.00		Y	2.90
Dissolved	SODIUM	70093	03/25/93	8310		V	8180		V	2
Dissolved	SODIUM	71893	03/29/93	9340		V	9830		V	-5
Dissolved	STRONTIUM	46292	01/27/93	143	B	V	135	B	V	
Dissolved	STRONTIUM	5086	02/03/93	179	B	V	180	B	V	
Dissolved	STRONTIUM	6887	02/10/93	132	B	V	131	B	V	
Dissolved	STRONTIUM	7187	02/19/93	338		V	331		V	2
Dissolved	STRONTIUM	6087	02/22/93	126		V	126		V	0.00
Dissolved	STRONTIUM	6887	04/16/93	137	B	V	136	B	V	
Dissolved	STRONTIUM	7187	04/09/93	360		V	364		V	-1
Dissolved	STRONTIUM	6087	04/09/93	109	B	V	109	B	V	
Dissolved	STRONTIUM	5086	04/14/93	160	B	V	161	B	V	
Dissolved	STRONTIUM	46292	04/20/93	153			158			-3
Dissolved	STRONTIUM	71893	04/26/93	225		V	222		V	1
Dissolved	STRONTIUM	46292	07/19/93	148			148			0.00
Dissolved	STRONTIUM	5086	08/03/93	186.00	B	V	186.00	B	V	
Dissolved	STRONTIUM	6887	08/06/93	142.00	B	V	138.00	B	V	
Dissolved	STRONTIUM	6087	08/11/93	106.00	B	V	106.00	B	V	
Dissolved	STRONTIUM	4786	08/19/93	101.00	B	V	99.10	B	V	
Dissolved	STRONTIUM	7187	11/03/93	351.00		Y	343.00		Y	2.31
Dissolved	STRONTIUM	5086	11/05/93	194.00	B	Y	189.00	B	Y	
Dissolved	STRONTIUM	70093	03/25/93	130		V	121		V	7
Dissolved	STRONTIUM	71893	03/29/93	161		V	160		V	1
Dissolved	STRONTIUM-89,90	46292	01/27/93	.18	U	A	.77		A	
Dissolved	STRONTIUM-89,90	5086	02/03/93	1.02	U		.813	U		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	STRONTIUM-89,90	6887	02/10/93	.22	U	V	.13	U	V	
Dissolved	STRONTIUM-89,90	7187	02/19/93	.44	U	V	.08	U	V	
Dissolved	STRONTIUM-89,90	6087	02/22/93	0.66		V	.41	U	V	
Dissolved	STRONTIUM-89,90	6887	04/16/93	.08	U		.26	U		
Dissolved	STRONTIUM-89,90	7187	04/09/93	.4271	J		-.16	J		439.61
Dissolved	STRONTIUM-89,90	6087	04/09/93	.02978	J		.2933	J		-163.1299
Dissolved	STRONTIUM-89,90	46292	04/20/93	.21	U	A	.24	U	A	
Dissolved	STRONTIUM-89,90	71893	04/26/93	0			0			
Dissolved	STRONTIUM-89,90	46292	07/19/93	0.060	U		0.36	BJ		
Dissolved	STRONTIUM-89,90	6887	08/06/93	1.9			0.34	J		139.3
Dissolved	STRONTIUM-89,90	6087	08/11/93	0.24	J		0.22	U		
Dissolved	STRONTIUM-89,90	4786	08/19/93	0.16	U	Y	0.060	U	Y	
Dissolved	STRONTIUM-89,90	71893	03/29/93	-.065	J	V	.02739	J	V	491.306
Dissolved	THALLIUM	46292	01/27/93	1	U	V	1	U	V	
Dissolved	THALLIUM	5086	02/03/93	1	U	V	1	U	V	
Dissolved	THALLIUM	6887	02/10/93	1	UWN	JA	1	UWN	JA	
Dissolved	THALLIUM	7187	02/19/93	1	U	V	1	UW	V	
Dissolved	THALLIUM	6087	02/22/93	1	U	V	1	U	V	
Dissolved	THALLIUM	6887	04/16/93	1	U	V	1	U	V	
Dissolved	THALLIUM	7187	04/09/93	1	U	V	1	U	V	
Dissolved	THALLIUM	6087	04/09/93	1	U	V	1	U	V	
Dissolved	THALLIUM	5086	04/14/93	1	U	V	1	U	V	
Dissolved	THALLIUM	46292	04/20/93	3	U		3	UW		
Dissolved	THALLIUM	71893	04/26/93	3	U	V	3	U	V	
Dissolved	THALLIUM	46292	07/19/93	4	U		4	U		
Dissolved	THALLIUM	5086	08/03/93	1.00	U	V	1.00	U	V	
Dissolved	THALLIUM	6887	08/06/93	1.00	U	V	1.00	U	V	
Dissolved	THALLIUM	6087	08/11/93	2.00	U	V	2.00	U	V	
Dissolved	THALLIUM	4786	08/19/93	1.00	U	V	1.00	U	V	
Dissolved	THALLIUM	7187	11/03/93	1.00	U	Y	1.00	U	Y	
Dissolved	THALLIUM	5086	11/05/93	1.00	U	Y	1.00	U	Y	
Dissolved	THALLIUM	70093	03/25/93	1.7	U	JA	1.7	U	V	
Dissolved	THALLIUM	71893	03/29/93	1.7	U	V	1.7	U	V	
Dissolved	TIN	46292	01/27/93	13	U	V	13	U	V	
Dissolved	TIN	5086	02/03/93	13	U	JA	13	U	JA	
Dissolved	TIN	6887	02/10/93	13	U	V	13	U	V	
Dissolved	TIN	7187	02/19/93	13	U	V	13	U	V	
Dissolved	TIN	6087	02/22/93	28	U	V	28.2		V	
Dissolved	TIN	6887	04/16/93	10	U	V	10	U	V	
Dissolved	TIN	7187	04/09/93	10	U	V	10	U	V	
Dissolved	TIN	6087	04/09/93	10	U	V	13.7	B	V	
Dissolved	TIN	5086	04/14/93	10	U	V	10	U	JA	
Dissolved	TIN	46292	04/20/93	29	U		29	U		

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	TIN	71893	04/26/93	29	U	V	29	U	V	
Dissolved	TIN	46292	07/19/93	37			28	U		
Dissolved	TIN	5086	08/03/93	13.00	U	V	13.00	U	V	
Dissolved	TIN	6887	08/06/93	13.00	U	V	13.00	U	V	
Dissolved	TIN	6087	08/11/93	13.00	U	V	13.00	U	V	
Dissolved	TIN	4786	08/19/93	13.00	U	V	13.00	U	V	
Dissolved	TIN	7187	11/03/93	21.00	U	Y	21.00	U	Y	
Dissolved	TIN	5086	11/05/93	21.00	U	Y	21.00	U	Y	
Dissolved	TIN	70093	03/25/93	16.7	U	V	16.7	U	V	
Dissolved	TIN	71893	03/29/93	16.7	U	V	16.7	U	V	
Dissolved	TOTAL RADIOCESIUM	46292	01/27/93	.3	U	A	.43	U	A	
Dissolved	TOTAL RADIOCESIUM	5086	02/03/93	.697	U		.709	U		
Dissolved	TOTAL RADIOCESIUM	6887	02/10/93	.72	U	A	.89	U	A	
Dissolved	TOTAL RADIOCESIUM	7187	02/19/93	.33	U	V	.18	U	V	
Dissolved	TOTAL RADIOCESIUM	6087	02/22/93	.43	U	V	.42	U	V	
Dissolved	TOTAL RADIOCESIUM	46292	04/20/93	.33	U	V	-.12	U	V	
Dissolved	TOTAL RADIOCESIUM	46292	07/19/93	0.98	J		0.31	U		
Dissolved	TOTAL RADIOCESIUM	6887	08/06/93	0.96	U		0.44	U		
Dissolved	TOTAL RADIOCESIUM	6087	08/11/93	0.44	U		0.36	U		
Dissolved	TOTAL RADIOCESIUM	4786	08/19/93	0.62	J	Y	0.080	U	Y	
Dissolved	URANIUM-233,-234	46292	01/27/93	0.38		A	0.70		A	-59.26
Dissolved	URANIUM-233,-234	5086	02/03/93	.55			.67			-19.67
Dissolved	URANIUM-233,-234	6887	02/10/93	.049	U	A	.162	U	A	
Dissolved	URANIUM-233,-234	7187	02/19/93	.75		A	.62		A	18.98
Dissolved	URANIUM-233,-234	6087	02/22/93	.098	U	A	.29		A	
Dissolved	URANIUM-233,-234	6887	04/16/93	.41	BJ	A	.75	B	A	-58.62
Dissolved	URANIUM-233,-234	7187	04/09/93	.5713			.4502			23.7102
Dissolved	URANIUM-233,-234	6087	04/09/93	.1702	J		.2287	J		-29.3307
Dissolved	URANIUM-233,-234	5086	04/14/93	0.1857		V	0.1482		V	22.4618
Dissolved	URANIUM-233,-234	46292	04/20/93	1.6	B	A	1.8	B	A	-11.8
Dissolved	URANIUM-233,-234	71893	04/26/93	-0.241		A	0.1149		A	564.473
Dissolved	URANIUM-233,-234	46292	07/19/93	0.68	B		0.87	B		-24.52
Dissolved	URANIUM-233,-234	6887	08/06/93	-0.007	U		0	U		
Dissolved	URANIUM-233,-234	6087	08/11/93	-0.012	U		0	U		
Dissolved	URANIUM-233,-234	4786	08/19/93	0.41	J	Y	0.59	J	Y	-36.00
Dissolved	URANIUM-233,-234	70093	03/25/93	.09213	J	A	-.0543	J	A	774.1475
Dissolved	URANIUM-233,-234	71893	03/29/93	.02719	J	A				
Dissolved	URANIUM-235	46292	01/27/93	.000	U	A	0.14		A	
Dissolved	URANIUM-235	5086	02/03/93	.19			.16917	U		
Dissolved	URANIUM-235	6887	02/10/93	.057	U	A	0	U	A	
Dissolved	URANIUM-235	7187	02/19/93	.042	U	A	.08	U	A	
Dissolved	URANIUM-235	6087	02/22/93	.028	U	A	.044	U	A	
Dissolved	URANIUM-235	6887	04/16/93	0	U	A	.04	BJ	A	

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	URANIUM-235	7187	04/09/93	.07698	J		.05186	J		38.99410
Dissolved	URANIUM-235	6087	04/09/93	.04075	J		.05479	J		-29.39083
Dissolved	URANIUM-235	5086	04/14/93	0.076		V	0.0078		V	162.768
Dissolved	URANIUM-235	46292	04/20/93	-.008	U	A	.14	U	A	
Dissolved	URANIUM-235	71893	04/26/93	0.0172		A	0.0088		A	64.6154
Dissolved	URANIUM-235	46292	07/19/93	0.020	U		0.079	BJ		
Dissolved	URANIUM-235	6887	08/06/93	0	U		0	U		
Dissolved	URANIUM-235	6087	08/11/93	-0.012	U		-0.012	U		
Dissolved	URANIUM-235	4786	08/19/93	0.041	BJ	Y	0.047	BJ	Y	-13.636
Dissolved	URANIUM-235	70093	03/25/93	-.0115	J	A	-.038	J	A	-107.071
Dissolved	URANIUM-235	71893	03/29/93	-.00836	J	A				
Dissolved	URANIUM-238	46292	01/27/93	0.22		JA	0.57		JA	-88.61
Dissolved	URANIUM-238	5086	02/03/93	.4			.19671	U		
Dissolved	URANIUM-238	6887	02/10/93	.13		JA	.123	U	JA	
Dissolved	URANIUM-238	7187	02/19/93	.43		JA	.61		JA	-34.62
Dissolved	URANIUM-238	6087	02/22/93	.035	U	JA	.029	U	JA	
Dissolved	URANIUM-238	6887	04/16/93	.26	BJ	A	.63	B	A	-83.15
Dissolved	URANIUM-238	7187	04/09/93	.2208	J		.5414			-84.1249
Dissolved	URANIUM-238	6087	04/09/93	-.0144	J		-.0143	J		0.6969
Dissolved	URANIUM-238	5086	04/14/93	0.0675		V	0.078		V	-14.433
Dissolved	URANIUM-238	46292	04/20/93	1	B	A	1.4	B	A	-33
Dissolved	URANIUM-238	71893	04/26/93	0.0516		A	0.1681		A	-106.0537
Dissolved	URANIUM-238	46292	07/19/93	0.71	B		0.87	B		-20.25
Dissolved	URANIUM-238	6887	08/06/93	0.043	U		0	U		
Dissolved	URANIUM-238	6087	08/11/93	0.041	U		0	U		
Dissolved	URANIUM-238	4786	08/19/93	0.20	J	Y	0.18	J	Y	10.53
Dissolved	URANIUM-238	70093	03/25/93	.07678	J	A	.02987	J	A	87.97000
Dissolved	URANIUM-238	71893	03/29/93	.0711	J	A				
Dissolved	VANADIUM	46292	01/27/93	5	U	V	5	U	V	
Dissolved	VANADIUM	5086	02/03/93	5	U	V	5	U	V	
Dissolved	VANADIUM	6887	02/10/93	5	U	V	5	U	V	
Dissolved	VANADIUM	7187	02/19/93	5	U	V	5	U	V	
Dissolved	VANADIUM	6087	02/22/93	7	U	V	7	U	V	
Dissolved	VANADIUM	6887	04/16/93	2	U	V	2.7	B	V	
Dissolved	VANADIUM	7187	04/09/93	3.2	B	V	2.6	B	V	
Dissolved	VANADIUM	6087	04/09/93	2	U	V	2	U	V	
Dissolved	VANADIUM	5086	04/14/93	2	U	V	2	U	V	
Dissolved	VANADIUM	46292	04/20/93	4	U		4	U		
Dissolved	VANADIUM	71893	04/26/93	4	U	V	4	U	V	
Dissolved	VANADIUM	46292	07/19/93	5	U		5	U		
Dissolved	VANADIUM	5086	08/03/93	27.00	B	V	14.00	U	V	
Dissolved	VANADIUM	6887	08/06/93	14.00	U	V	14.00	U	V	
Dissolved	VANADIUM	6087	08/11/93	14.00	U	V	14.00	U	V	

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Dissolved	VANADIUM	4786	08/19/93	14.00	U	V	14.00	U	V	
Dissolved	VANADIUM	7187	11/03/93	2.00	U	Y	2.00	U	Y	
Dissolved	VANADIUM	5086	11/05/93	2.00	U	Y	2.00	U	Y	
Dissolved	VANADIUM	70093	03/25/93	3.2	U	V	3.2	U	V	
Dissolved	VANADIUM	71893	03/29/93	3.2	U	V	3.2	U	V	
Dissolved	ZINC	46292	01/27/93	5	U	JA	3.5	U	JA	
Dissolved	ZINC	5086	02/03/93	6.2	U	JA	3	U	JA	
Dissolved	ZINC	6887	02/10/93	8.7	B	JA	4.3	B	JA	
Dissolved	ZINC	7187	02/19/93	6.9	U	JA	5.5	U	JA	
Dissolved	ZINC	6087	02/22/93	6.3		V	4.2		V	40.0
Dissolved	ZINC	6887	04/16/93	18.2	B	V	8.2	U	JA	
Dissolved	ZINC	7187	04/09/93	3.8	U	JA	3.2	U	JA	
Dissolved	ZINC	6087	04/09/93	12	U	JA	11.8	U	JA	
Dissolved	ZINC	5086	04/14/93	13.1	U	JA	7.5	U	JA	
Dissolved	ZINC	46292	04/20/93	4.7			4	U		
Dissolved	ZINC	71893	04/26/93	5.8		V	5.6		V	3.5
Dissolved	ZINC	46292	07/19/93	3	U		5.1			
Dissolved	ZINC	5086	08/03/93	5.00	B	V	5.10	B	V	
Dissolved	ZINC	6887	08/06/93	17.10	B	V	7.90	B	V	
Dissolved	ZINC	6087	08/11/93	62.50		V	21.20		V	98.69
Dissolved	ZINC	4786	08/19/93	3.20	B	V	3.00	U	V	
Dissolved	ZINC	7187	11/03/93	9.20	B	Y	6.80	B	Y	
Dissolved	ZINC	5086	11/05/93	12.00	B	Y	10.60	B	Y	
Dissolved	ZINC	70093	03/25/93	6.9		JA	5.9		JA	15.6
Dissolved	ZINC	71893	03/29/93	8.3		JA	11.5		JA	-32.3
Total	1,1,1,2-TETRACHLOROETHANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,1,1,2-TETRACHLOROETHANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,1,1,2-TETRACHLOROETHANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,1,1-TRICHLOROETHANE	46292	01/27/93	.1	U	V	.1	U	V	
Total	1,1,1-TRICHLOROETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	6887	02/10/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	46292	04/20/93	.1	U	V	.1	U	V	
Total	1,1,1-TRICHLOROETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	1,1,1-TRICHLOROETHANE	5086	08/03/93	5	U		5	U		
Total	1,1,1-TRICHLOROETHANE	6887	08/06/93	5	U		5	U		
Total	1,1,1-TRICHLOROETHANE	7187	08/11/93	5	U		5	U		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	1,1,1-TRICHLOROETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	6887	10/25/93	5	U		5	U		
Total	1,1,1-TRICHLOROETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,1,1-TRICHLOROETHANE	6087	10/27/93	5	U		5	U		
Total	1,1,1-TRICHLOROETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,1,1-TRICHLOROETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	1,1,1-TRICHLOROETHANE	71893	03/29/93	5	U	V	6		V	
Total	1,1,2,2-TETRACHLOROETHANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	6887	02/10/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	5086	08/03/93	5	U		5	U		
Total	1,1,2,2-TETRACHLOROETHANE	6887	08/06/93	5	U		5	U		
Total	1,1,2,2-TETRACHLOROETHANE	7187	08/11/93	5	U		5	U		
Total	1,1,2,2-TETRACHLOROETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	6887	10/25/93	5	U		5	U		
Total	1,1,2,2-TETRACHLOROETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,1,2,2-TETRACHLOROETHANE	6087	10/27/93	5	U		5	U		
Total	1,1,2,2-TETRACHLOROETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,1,2,2-TETRACHLOROETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	1,1,2,2-TETRACHLOROETHANE	71893	03/29/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	46292	01/27/93	.6	U	V	.6	U	V	
Total	1,1,2-TRICHLOROETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	6887	02/10/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	46292	04/20/93	.6	U	V	.6	U	V	
Total	1,1,2-TRICHLOROETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	46292	07/19/93	0.6	U	V	0.6	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	1,1,2-TRICHLOROETHANE	5086	08/03/93	5	U		5	U		
Total	1,1,2-TRICHLOROETHANE	6887	08/06/93	5	U		5	U		
Total	1,1,2-TRICHLOROETHANE	7187	08/11/93	5	U		5	U		
Total	1,1,2-TRICHLOROETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	6887	10/25/93	5	U		5	U		
Total	1,1,2-TRICHLOROETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,1,2-TRICHLOROETHANE	6087	10/27/93	5	U		5	U		
Total	1,1,2-TRICHLOROETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,1,2-TRICHLOROETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	1,1,2-TRICHLOROETHANE	71893	03/29/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	46292	01/27/93	.1	U	V	.1	U	V	
Total	1,1-DICHLOROETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	6887	02/10/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	46292	04/20/93	.1	U	V	.1	U	V	
Total	1,1-DICHLOROETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	1,1-DICHLOROETHANE	5086	08/03/93	5	U		5	U		
Total	1,1-DICHLOROETHANE	6887	08/06/93	5	U		5	U		
Total	1,1-DICHLOROETHANE	7187	08/11/93	5	U		5	U		
Total	1,1-DICHLOROETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	6887	10/25/93	5	U		5	U		
Total	1,1-DICHLOROETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,1-DICHLOROETHANE	6087	10/27/93	5	U		5	U		
Total	1,1-DICHLOROETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,1-DICHLOROETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHANE	71893	03/29/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,1-DICHLOROETHENE	5086	02/03/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	6887	02/10/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	7187	02/19/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	6087	02/22/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	6887	04/16/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	7187	04/09/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	6087	04/09/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	5086	04/14/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	1,1-DICHLOROETHENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,1-DICHLOROETHENE	71893	04/26/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,1-DICHLOROETHENE	5086	08/03/93	5	U		5	U		
Total	1,1-DICHLOROETHENE	6887	08/06/93	5	U		5	U		
Total	1,1-DICHLOROETHENE	7187	08/11/93	5	U		5	U		
Total	1,1-DICHLOROETHENE	6087	08/11/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	4786	08/19/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	6887	10/25/93	5	U		5	U		
Total	1,1-DICHLOROETHENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,1-DICHLOROETHENE	6087	10/27/93	5	U		5	U		
Total	1,1-DICHLOROETHENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,1-DICHLOROETHENE	70093	03/25/93	5	U	V	5	U	V	
Total	1,1-DICHLOROETHENE	71893	03/29/93	5	U	V	5	U	V	
Total	1,1-DICHLOROPROPENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	1,1-DICHLOROPROPENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	1,1-DICHLOROPROPENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	1,2 DICHLOROETHANE -D4	7187	11/03/93	106		Y	106		Y	0.00
Total	1,2 DICHLOROETHANE -D4	5086	11/05/93	114		Y	109		Y	4
Total	1,2,3-TRICHLOROBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,2,3-TRICHLOROBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,2,3-TRICHLOROBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,2,3-TRICHLOROPROPANE	46292	01/27/93	.4	U					
Total	1,2,3-TRICHLOROPROPANE	46292	04/20/93	.4	U	V	.4	U	V	
Total	1,2,3-TRICHLOROPROPANE	46292	07/19/93	0.4	U	V	0.4	U	V	
Total	1,2,4-TRICHLOROBENZENE	46292	01/27/93	.3	U	V	.3	U	V	
Total	1,2,4-TRICHLOROBENZENE	46292	04/20/93	.3	U	V	.3	U	V	
Total	1,2,4-TRICHLOROBENZENE	71893	04/26/93	10	U	V	10	U	V	
Total	1,2,4-TRICHLOROBENZENE	46292	07/19/93	0.3	U	V	0.3	U	V	
Total	1,2,4-TRICHLOROBENZENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	1,2,4-TRICHLOROBENZENE	71893	03/29/93	11	U	V	10	U	V	
Total	1,2-DIBROMOETHANE	46292	01/27/93	.3	U	V	.3	U	V	
Total	1,2-DIBROMOETHANE	46292	04/20/93	.3	U	V	.3	U	V	
Total	1,2-DIBROMOETHANE	46292	07/19/93	0.3	U	V	0.3	U	V	
Total	1,2-DICHLOROBENZENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	1,2-DICHLOROBENZENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	1,2-DICHLOROBENZENE	71893	04/26/93	10	U	V	10	U	V	
Total	1,2-DICHLOROBENZENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	1,2-DICHLOROBENZENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	1,2-DICHLOROBENZENE	71893	03/29/93	11	U	V	10	U	V	
Total	1,2-DICHLOROETHANE	46292	01/27/93	.4	U	V	.4	U	V	
Total	1,2-DICHLOROETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	6887	02/10/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	1,2-DICHLOROETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	46292	04/20/93	.4	U	V	.4	U	V	
Total	1,2-DICHLOROETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	46292	07/19/93	0.4	U	V	0.4	U	V	
Total	1,2-DICHLOROETHANE	5086	08/03/93	5	U		5	U		
Total	1,2-DICHLOROETHANE	6887	08/06/93	5	U		5	U		
Total	1,2-DICHLOROETHANE	7187	08/11/93	5	U		5	U		
Total	1,2-DICHLOROETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	6887	10/25/93	5	U		5	U		
Total	1,2-DICHLOROETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,2-DICHLOROETHANE	6087	10/27/93	5	U		5	U		
Total	1,2-DICHLOROETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,2-DICHLOROETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHANE	71893	03/29/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	5086	02/03/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	6887	02/10/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	7187	02/19/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	6087	02/22/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	6887	04/16/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	7187	04/09/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	6087	04/09/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	5086	04/14/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	71893	04/26/93	6		JA	5		JA	18
Total	1,2-DICHLOROETHENE	5086	08/03/93	5	U		5	U		
Total	1,2-DICHLOROETHENE	6887	08/06/93	5	U		5	U		
Total	1,2-DICHLOROETHENE	7187	08/11/93	5	U		5	U		
Total	1,2-DICHLOROETHENE	6087	08/11/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	4786	08/19/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	6887	10/25/93	5	U		5	U		
Total	1,2-DICHLOROETHENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,2-DICHLOROETHENE	6087	10/27/93	5	U		5	U		
Total	1,2-DICHLOROETHENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,2-DICHLOROETHENE	70093	03/25/93	5	U	V	5	U	V	
Total	1,2-DICHLOROETHENE	71893	03/29/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	46292	01/27/93	.1	U	V	.1	U	V	
Total	1,2-DICHLOROPROPANE	5086	02/03/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	6887	02/10/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	1,2-DICHLOROPROPANE	7187	02/19/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	6087	02/22/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	6887	04/16/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	7187	04/09/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	6087	04/09/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	5086	04/14/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	46292	04/20/93	.1	U	V	.1	U	V	
Total	1,2-DICHLOROPROPANE	71893	04/26/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	1,2-DICHLOROPROPANE	5086	08/03/93	5	U		5	U		
Total	1,2-DICHLOROPROPANE	6887	08/06/93	5	U		5	U		
Total	1,2-DICHLOROPROPANE	7187	08/11/93	5	U		5	U		
Total	1,2-DICHLOROPROPANE	6087	08/11/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	4786	08/19/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	6887	10/25/93	5	U		5	U		
Total	1,2-DICHLOROPROPANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	1,2-DICHLOROPROPANE	6087	10/27/93	5	U		5	U		
Total	1,2-DICHLOROPROPANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	1,2-DICHLOROPROPANE	70093	03/25/93	5	U	V	5	U	V	
Total	1,2-DICHLOROPROPANE	71893	03/29/93	5	U	V	5	U	V	
Total	1,3-DICHLOROBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,3-DICHLOROBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,3-DICHLOROBENZENE	71893	04/26/93	10	U	V	10	U	V	
Total	1,3-DICHLOROBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,3-DICHLOROBENZENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	1,3-DICHLOROBENZENE	71893	03/29/93	11	U	V	10	U	V	
Total	1,3-DICHLOROPROPANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,3-DICHLOROPROPANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,3-DICHLOROPROPANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,4-DICHLOROBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	1,4-DICHLOROBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	1,4-DICHLOROBENZENE	71893	04/26/93	10	U	V	10	U	V	
Total	1,4-DICHLOROBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	1,4-DICHLOROBENZENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	1,4-DICHLOROBENZENE	71893	03/29/93	11	U	V	10	U	V	
Total	2,2-DICHLOROPROPANE	46292	01/27/93	.1	U	V	.1	U	V	
Total	2,2-DICHLOROPROPANE	46292	04/20/93	.1	U	V	.1	U	V	
Total	2,2-DICHLOROPROPANE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	2,4,5-TRICHLOROPHENOL	71893	04/26/93	50	U	V	50	U	V	
Total	2,4,5-TRICHLOROPHENOL	70093	03/25/93	55	U	JA	50	U	JA	
Total	2,4,5-TRICHLOROPHENOL	71893	03/29/93	55	U	V	50	U	V	
Total	2,4,6-TRICHLOROPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	2,4,6-TRICHLOROPHENOL	70093	03/25/93	11	U	JA	10	U	JA	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	2,4,6-TRICHLOROPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	2,4-DICHLOROPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	2,4-DICHLOROPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	2,4-DICHLOROPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	2,4-DIMETHYLPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	2,4-DIMETHYLPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	2,4-DIMETHYLPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	2,4-DINITROPHENOL	71893	04/26/93	50	U	V	50	U	V	
Total	2,4-DINITROPHENOL	70093	03/25/93	55	U	JA	50	U	JA	
Total	2,4-DINITROPHENOL	71893	03/29/93	55	U	V	50	U	V	
Total	2,4-DINITROTOLUENE	71893	04/26/93	10	U	V	10	U	V	
Total	2,4-DINITROTOLUENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	2,4-DINITROTOLUENE	71893	03/29/93	11	U	V	10	U	V	
Total	2,6-DINITROTOLUENE	71893	04/26/93	10	U	V	10	U	V	
Total	2,6-DINITROTOLUENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	2,6-DINITROTOLUENE	71893	03/29/93	11	U	V	10	U	V	
Total	2-BUTANONE	6887	02/10/93	10	U	V	10	U	V	
Total	2-BUTANONE	7187	02/19/93	10	U	V	10	U	V	
Total	2-BUTANONE	5086	08/03/93	10	U		10	U		
Total	2-BUTANONE	6887	08/06/93	10	U		10	U		
Total	2-BUTANONE	7187	08/11/93	10	U		10	U		
Total	2-BUTANONE	6887	10/25/93	10	U		10	U		
Total	2-BUTANONE	7187	11/03/93	10	U	Y	10	U	Y	
Total	2-BUTANONE	6087	10/27/93	10	U		10	U		
Total	2-BUTANONE	5086	11/05/93	10	U	Y	10	U	Y	
Total	2-BUTANONE	70093	03/25/93	10	U	V	10	U	V	
Total	2-BUTANONE	71893	03/29/93	10	U	V	10	U	V	
Total	2-CHLORONAPHTHALENE	71893	04/26/93	10	U	V	10	U	V	
Total	2-CHLORONAPHTHALENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	2-CHLORONAPHTHALENE	71893	03/29/93	11	U	V	10	U	V	
Total	2-CHLOROPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	2-CHLOROPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	2-CHLOROPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	2-HEXANONE	5086	02/03/93	10	U	V	10	U	V	
Total	2-HEXANONE	6887	02/10/93	10	U	V	10	U	V	
Total	2-HEXANONE	7187	02/19/93	10	U	V	10	U	V	
Total	2-HEXANONE	6087	02/22/93	10	U	V	10	U	V	
Total	2-HEXANONE	6887	04/16/93	10	U	V	10	U	V	
Total	2-HEXANONE	7187	04/09/93	10	U	V	10	U	V	
Total	2-HEXANONE	6087	04/09/93	10	U	V	10	U	V	
Total	2-HEXANONE	5086	04/14/93	10	U	V	10	U	V	
Total	2-HEXANONE	71893	04/26/93	10	U	V	10	U	V	
Total	2-HEXANONE	5086	08/03/93	10	U		10	U		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	2-HEXANONE	6887	08/06/93	10	U		10	U		
Total	2-HEXANONE	7187	08/11/93	10	U		10	U		
Total	2-HEXANONE	6087	08/11/93	10	U	V	10	U	V	
Total	2-HEXANONE	4786	08/19/93	10	U	V	10	U	V	
Total	2-HEXANONE	6887	10/25/93	10	U		10	U		
Total	2-HEXANONE	7187	11/03/93	10	U	Y	10	U	Y	
Total	2-HEXANONE	6087	10/27/93	10	U		10	U		
Total	2-HEXANONE	5086	11/05/93	10	U	Y	10	U	Y	
Total	2-HEXANONE	70093	03/25/93	10	U	V	10	U	V	
Total	2-HEXANONE	71893	03/29/93	10	U	V	10	U	V	
Total	2-METHYLNAPHTHALENE	71893	04/26/93	10	U	V	10	U	V	
Total	2-METHYLNAPHTHALENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	2-METHYLNAPHTHALENE	71893	03/29/93	11	U	V	10	U	V	
Total	2-METHYLPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	2-METHYLPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	2-METHYLPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	2-NITROANILINE	71893	04/26/93	50	U	V	50	U	V	
Total	2-NITROANILINE	70093	03/25/93	55	U	JA	50	U	JA	
Total	2-NITROANILINE	71893	03/29/93	55	U	V	50	U	V	
Total	2-NITROPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	2-NITROPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	2-NITROPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	3,3'-DICHLOROBENZIDINE	70093	03/25/93	22	U	JA	20	U	JA	
Total	3,3'-DICHLOROBENZIDINE	71893	03/29/93	22	U	V	20	U	V	
Total	3-NITROANILINE	71893	04/26/93	50	U	V	50	U	V	
Total	3-NITROANILINE	70093	03/25/93	55	U	JA	50	U	JA	
Total	3-NITROANILINE	71893	03/29/93	55	U	V	50	U	V	
Total	4,6-DINITRO-2-METHYLPHENOL	71893	04/26/93	50	U	V	50	U	V	
Total	4,6-DINITRO-2-METHYLPHENOL	70093	03/25/93	55	U	JA	50	U	JA	
Total	4,6-DINITRO-2-METHYLPHENOL	71893	03/29/93	55	U	V	50	U	V	
Total	4-BROMOPHENYL PHENYL ETHER	71893	04/26/93	10	U	V	10	U	V	
Total	4-BROMOPHENYL PHENYL ETHER	70093	03/25/93	11	U	JA	10	U	JA	
Total	4-BROMOPHENYL PHENYL ETHER	71893	03/29/93	11	U	V	10	U	V	
Total	4-CHLORO-3-METHYLPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	4-CHLORO-3-METHYLPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	4-CHLORO-3-METHYLPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	4-CHLOROANILINE	70093	03/25/93	11	U	JA	10	U	JA	
Total	4-CHLOROANILINE	71893	03/29/93	11	U	V	10	U	V	
Total	4-CHLOROPHENYL PHENYL ETHER	71893	04/26/93	10	U	V	10	U	V	
Total	4-CHLOROPHENYL PHENYL ETHER	70093	03/25/93	11	U	JA	10	U	JA	
Total	4-CHLOROPHENYL PHENYL ETHER	71893	03/29/93	11	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	5086	02/03/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	6887	02/10/93	10	U	V	10	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	4-METHYL-2-PENTANONE	7187	02/19/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	6087	02/22/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	6887	04/16/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	7187	04/09/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	6087	04/09/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	5086	04/14/93				10	U	V	
Total	4-METHYL-2-PENTANONE	71893	04/26/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	5086	08/03/93	10	U		10	U		
Total	4-METHYL-2-PENTANONE	6887	08/06/93	10	U		10	U		
Total	4-METHYL-2-PENTANONE	7187	08/11/93	10	U		10	U		
Total	4-METHYL-2-PENTANONE	6087	08/11/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	4786	08/19/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	6887	10/25/93	10	U		10	U		
Total	4-METHYL-2-PENTANONE	7187	11/03/93	10	U	Y	10	U	Y	
Total	4-METHYL-2-PENTANONE	6087	10/27/93	10	U		10	U		
Total	4-METHYL-2-PENTANONE	5086	11/05/93	10	U	Y	10	U	Y	
Total	4-METHYL-2-PENTANONE	70093	03/25/93	10	U	V	10	U	V	
Total	4-METHYL-2-PENTANONE	71893	03/29/93	10	U	V	10	U	V	
Total	4-METHYLPHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	4-METHYLPHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	4-METHYLPHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	4-NITROANILINE	71893	04/26/93	50	U	V	50	U	V	
Total	4-NITROANILINE	70093	03/25/93	55	U	JA	50	U	JA	
Total	4-NITROANILINE	71893	03/29/93	55	U	V	50	U	V	
Total	4-NITROPHENOL	70093	03/25/93	55	U	JA	50	U	JA	
Total	4-NITROPHENOL	71893	03/29/93	55	U	V	50	U	V	
Total	ACENAPHTHENE	71893	04/26/93	10	U	V	10	U	V	
Total	ACENAPHTHENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	ACENAPHTHENE	71893	03/29/93	11	U	V	10	U	V	
Total	ACENAPHTHYLENE	71893	04/26/93	10	U	V	10	U	V	
Total	ACENAPHTHYLENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	ACENAPHTHYLENE	71893	03/29/93	11	U	V	10	U	V	
Total	ACETONE	5086	02/03/93	10	U	V	10	U	V	
Total	ACETONE	6887	02/10/93	10	U	V	10	U	V	
Total	ACETONE	7187	02/19/93	10	U	V	10	U	V	
Total	ACETONE	6087	02/22/93	10	U	V	10	U	V	
Total	ACETONE	6887	04/16/93	10	U	V	10	U	V	
Total	ACETONE	7187	04/09/93	10	U	V	10	U	V	
Total	ACETONE	6087	04/09/93	10	U	V	10	U	V	
Total	ACETONE	5086	04/14/93	10	U	V	10	U	V	
Total	ACETONE	5086	08/03/93	10	U		10	U		
Total	ACETONE	6887	08/06/93	10	U		10	U		
Total	ACETONE	7187	08/11/93	8	J		10	U		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	ACETONE	6087	08/11/93	10	U	V	10	U	V	
Total	ACETONE	4786	08/19/93	10	U	V	10	U	V	
Total	ACETONE	6887	10/25/93	10	U		10	U		
Total	ACETONE	7187	11/03/93	10	U	Y	10	U	Y	
Total	ACETONE	6087	10/27/93	10	U		10	U		
Total	ACETONE	5086	11/05/93	10	U	Y	10	U	Y	
Total	ACETONE	70093	03/25/93	10	U	V	10	U	V	
Total	ACETONE	71893	03/29/93	10	U	V				
Total	ALUMINUM	46292	01/27/93	10900		V	10500		V	4
Total	ALUMINUM	5086	02/03/93	1060	N	JA	936	N	JA	12
Total	ALUMINUM	6887	02/10/93	6040	N*	JA	3650	N*	JA	49
Total	ALUMINUM	71893	04/26/93	28500		V	31400		V	-10
Total	ALUMINUM	70093	03/25/93	23100		V	36200		V	-44
Total	ALUMINUM	71893	03/29/93	20400		V	10400		V	65
Total	AMERICIUM-241	46292	01/27/93	0.0060	F	A	.003	UY	A	
Total	AMERICIUM-241	5086	02/03/93	.00318	U		.00815	U		
Total	AMERICIUM-241	7187	02/19/93	.002	U	A	.0048		A	
Total	AMERICIUM-241	6087	02/22/93	.001	UF	A	.0048	F	A	
Total	AMERICIUM-241	6887	04/16/93	.002	U	V	.002	U	V	
Total	AMERICIUM-241	7187	04/09/93	.006015	J		.003692	J		47.862367
Total	AMERICIUM-241	6087	04/09/93	.004905	J		.004562			7.246224
Total	AMERICIUM-241	5086	04/14/93	0.0034		A	0.0049		A	-36.1446
Total	AMERICIUM-241	46292	04/20/93	0.003	U	V	0.009	J	V	
Total	AMERICIUM-241	71893	04/26/93				0.001		V	
Total	AMERICIUM-241	46292	07/19/93	0.012			0.008	BJ		40.000
Total	AMERICIUM-241	6887	08/06/93	-0.001	U		0.003	J		
Total	AMERICIUM-241	6087	08/11/93	0.005	J		0.002	U		
Total	AMERICIUM-241	4786	08/19/93	0.002	U	Y	0	U	Y	
Total	AMERICIUM-241	70093	03/25/93	.00391	J	A	-.000437	J	A	250.33113
Total	AMERICIUM-241	71893	03/29/93	.008176		A	.004833	J	A	51.395188
Total	AMMONIA	6887	02/10/93	100.0	U	V	100.0	U	V	
Total	AMMONIA	7187	02/19/93	100.0	U	V	100.0	U	V	
Total	AMMONIA	6087	02/22/93	50.00	U	V	50.00	U	V	
Total	AMMONIA	6887	04/16/93	100.0			100.0	U		
Total	AMMONIA	7187	04/09/93	100.0	U	V	100.0	U	V	
Total	AMMONIA	6087	04/09/93	100.0	U	V	100.0	U	V	
Total	AMMONIA	6887	08/06/93	100.0	U	V	100.0	U	V	
Total	AMMONIA	6087	08/11/93	100.0	U	V	100.0	U	V	
Total	AMMONIA	7187	11/03/93	100.0	U	Y	100.0	U	Y	
Total	ANTHRACENE	71893	04/26/93	10	U	V	10	U	V	
Total	ANTHRACENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	ANTHRACENE	71893	03/29/93	11	U	V	10	U	V	
Total	ANTIMONY	46292	01/27/93	23	U	V	23	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	ANTIMONY	5086	02/03/93	23	U	V	23	U	V	
Total	ANTIMONY	6887	02/10/93	23	U	V	23	U	V	
Total	ANTIMONY	71893	04/26/93	27	U	V	27	U	V	
Total	ANTIMONY	70093	03/25/93	24.6		JA	21.8		JA	12.1
Total	ANTIMONY	71893	03/29/93	34.6		JA	19.7	U	V	
Total	ARSENIC	46292	01/27/93	1	UN	JA	1	UN	JA	
Total	ARSENIC	5086	02/03/93	1	U	JA	1	U	V	
Total	ARSENIC	6887	02/10/93	1.1	B	JA	1	U	V	
Total	ARSENIC	71893	04/26/93	5.1		JA	5.3		JA	-3.8
Total	ARSENIC	70093	03/25/93	2.1		V	2.4		V	-13.3
Total	ARSENIC	71893	03/29/93	1.1	U	V	3.8		JA	
Total	BARIUM	46292	01/27/93	172	B	V	169	B	V	
Total	BARIUM	5086	02/03/93	61.3	B	V	61.2	B	V	
Total	BARIUM	6887	02/10/93	133	B	V	130	B	V	
Total	BARIUM	71893	04/26/93	362		V	324		V	11
Total	BARIUM	70093	03/25/93	242		V	358		V	-39
Total	BARIUM	71893	03/29/93	236		V	169		V	33
Total	BENZENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	BENZENE	5086	02/03/93	5	U	V	5	U	V	
Total	BENZENE	6887	02/10/93	5	U	V	5	U	V	
Total	BENZENE	7187	02/19/93	5	U	V	5	U	V	
Total	BENZENE	6087	02/22/93	5	U	V	5	U	V	
Total	BENZENE	6887	04/16/93	5	U	V	5	U	V	
Total	BENZENE	7187	04/09/93	5	U	V	5	U	V	
Total	BENZENE	6087	04/09/93	5	U	V	5	U	V	
Total	BENZENE	5086	04/14/93	5	U	V	5	U	V	
Total	BENZENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	BENZENE	71893	04/26/93	5	U	V	5	U	V	
Total	BENZENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	BENZENE	5086	08/03/93	5	U		5	U		
Total	BENZENE	6887	08/06/93	5	U		5	U		
Total	BENZENE	7187	08/11/93	5	U		5	U		
Total	BENZENE	6087	08/11/93	5	U	V	5	U	V	
Total	BENZENE	4786	08/19/93	5	U	V	5	U	V	
Total	BENZENE	6887	10/25/93	5	U		5	U		
Total	BENZENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	BENZENE	6087	10/27/93	5	U		5	U		
Total	BENZENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	BENZENE	70093	03/25/93	5	U	V	5	U	V	
Total	BENZENE	71893	03/29/93	5	U	V	5	U	V	
Total	BENZENE, 1,2,4-TRIMETHYL	46292	01/27/93	.2	U	V	.2	U	V	
Total	BENZENE, 1,2,4-TRIMETHYL	46292	04/20/93	.2	U	V	.2	U	V	
Total	BENZENE, 1,2,4-TRIMETHYL	46292	07/19/93	0.2	U	V	0.2	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	BENZENE, 1,3,5-TRIMETHYL-	46292	01/27/93	.2	U	V	.2	U	V	
Total	BENZENE, 1,3,5-TRIMETHYL-	46292	04/20/93	.2	U	V	.2	U	V	
Total	BENZENE, 1,3,5-TRIMETHYL-	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	BENZO(a)ANTHRACENE	71893	04/26/93	10	U	V	10	U	V	
Total	BENZO(a)ANTHRACENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BENZO(a)ANTHRACENE	71893	03/29/93	11	U	V	10	U	V	
Total	BENZO(a)PYRENE	71893	04/26/93	10	U	V	10	U	V	
Total	BENZO(a)PYRENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BENZO(a)PYRENE	71893	03/29/93	11	U	V	10	U	V	
Total	BENZO(b)FLUORANTHENE	71893	04/26/93	10	U	V	10	U	V	
Total	BENZO(b)FLUORANTHENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BENZO(b)FLUORANTHENE	71893	03/29/93	11	U	V	10	U	V	
Total	BENZO(ghi)PERYLENE	71893	04/26/93	10	U	V	10	U	V	
Total	BENZO(ghi)PERYLENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BENZO(ghi)PERYLENE	71893	03/29/93	11	U	V	10	U	V	
Total	BENZO(k)FLUORANTHENE	71893	04/26/93	10	U	V	10	U	V	
Total	BENZO(k)FLUORANTHENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BENZO(k)FLUORANTHENE	71893	03/29/93	11	U	V	10	U	V	
Total	BENZOIC ACID	71893	04/26/93	50	U	V	50	U	V	
Total	BENZYL ALCOHOL	71893	04/26/93	10	U	V	10	U	V	
Total	BENZYL ALCOHOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	BENZYL ALCOHOL	71893	03/29/93	11	U	V	10	U	V	
Total	BERYLLIUM	46292	01/27/93	1	U	V	1	U	V	
Total	BERYLLIUM	5086	02/03/93	1	U	V	1	U	V	
Total	BERYLLIUM	6887	02/10/93	1	U	V	1	U	V	
Total	BERYLLIUM	71893	04/26/93	2.8		V	2.6		V	7.4
Total	BERYLLIUM	70093	03/25/93	2		JA	2.4		JA	-18
Total	BERYLLIUM	71893	03/29/93	2.4		JA	.9	U	V	
Total	BICARBONATE AS CACO3	46292	01/27/93	85000		V	87000		V	-2
Total	BICARBONATE AS CACO3	5086	02/03/93	92000		V	91000		V	1
Total	BICARBONATE AS CACO3	6887	02/10/93	66000		V	66000		V	0.00
Total	BICARBONATE AS CACO3	7187	02/19/93	170000		V	170000		V	0.00
Total	BICARBONATE AS CACO3	6087	02/22/93	54000		V	58000		V	-7
Total	BICARBONATE AS CACO3	6887	04/16/93	70000			70000			0.00
Total	BICARBONATE AS CACO3	7187	04/09/93	200000		V	190000		V	5
Total	BICARBONATE AS CACO3	6087	04/09/93	52000		V	52000		V	0.00
Total	BICARBONATE AS CACO3	5086	04/14/93	90000			90000			0.00
Total	BICARBONATE AS CACO3	46292	04/20/93	110000		V	110000		V	0.00
Total	BICARBONATE AS CACO3	71893	04/26/93	130000		V	130000		V	0.00
Total	BICARBONATE AS CACO3	46292	07/19/93	96.		V	95.		V	1
Total	BICARBONATE AS CACO3	5086	08/03/93	86000		V	94000		V	-9
Total	BICARBONATE AS CACO3	6887	08/06/93	68000		V	50000		V	31
Total	BICARBONATE AS CACO3	6087	08/11/93	50000		V	52000		V	-4

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	BICARBONATE AS CACO3	4786	08/19/93	76000		V	82000		V	-8
Total	BICARBONATE AS CACO3	7187	11/03/93	170000		Y	170000		Y	0.00
Total	BICARBONATE AS CACO3	5086	11/05/93	100000		Y	94000		Y	6
Total	BICARBONATE AS CACO3	70093	03/25/93	52600.0		V	41600.0		V	23.4
Total	BICARBONATE AS CACO3	71893	03/29/93	79600.0		V	74200.0		V	7.0
Total	BIS(2-CHLOROETHOXY)METHANE	71893	04/26/93	10	U	V	10	U	V	
Total	BIS(2-CHLOROETHOXY)METHANE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BIS(2-CHLOROETHOXY)METHANE	71893	03/29/93	11	U	V	10	U	V	
Total	BIS(2-CHLOROETHYL)ETHER	71893	04/26/93	10	U	V	10	U	V	
Total	BIS(2-CHLOROETHYL)ETHER	70093	03/25/93	11	U	JA	10	U	JA	
Total	BIS(2-CHLOROETHYL)ETHER	71893	03/29/93	11	U	V	10	U	V	
Total	BIS(2-CHLOROISOPROPYL)ETHER	71893	04/26/93	10	U	V	10	U	V	
Total	BIS(2-CHLOROISOPROPYL)ETHER	70093	03/25/93	11	U	JA	10	U	JA	
Total	BIS(2-CHLOROISOPROPYL)ETHER	71893	03/29/93	11	U	V	10	U	V	
Total	BIS(2-ETHYLHEXYL)PHTHALATE	71893	04/26/93	10	U	V	10	U	V	
Total	BIS(2-ETHYLHEXYL)PHTHALATE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BIS(2-ETHYLHEXYL)PHTHALATE	71893	03/29/93	11	U	V	10	U	V	
Total	BROMOBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	BROMOBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	BROMOBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	BROMOCHLOROMETHANE	46292	01/27/93	.5	U					
Total	BROMOCHLOROMETHANE	46292	04/20/93	.5	U	V	.5	U	V	
Total	BROMOCHLOROMETHANE	46292	07/19/93	0.5	U	V	0.5	U	V	
Total	BROMODICHLOROMETHANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	BROMODICHLOROMETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	6887	02/10/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	BROMODICHLOROMETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	BROMODICHLOROMETHANE	5086	08/03/93	5	U		5	U		
Total	BROMODICHLOROMETHANE	6887	08/06/93	5	U		5	U		
Total	BROMODICHLOROMETHANE	7187	08/11/93	5	U		5	U		
Total	BROMODICHLOROMETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	6887	10/25/93	5	U		5	U		
Total	BROMODICHLOROMETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	BROMODICHLOROMETHANE	6087	10/27/93	5	U		5	U		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	BROMODICHLOROMETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	BROMODICHLOROMETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	BROMODICHLOROMETHANE	71893	03/29/93	5	U	V	5	U	V	
Total	BROMOFLUOROBENZENE	7187	11/03/93	108		Y	108		Y	0.00
Total	BROMOFLUOROBENZENE	5086	11/05/93	108		Y	105		Y	3
Total	BROMOFORM	46292	01/27/93	.3	U					
Total	BROMOFORM	5086	02/03/93	5	U	V	5	U	V	
Total	BROMOFORM	6887	02/10/93	5	U	V	5	U	V	
Total	BROMOFORM	7187	02/19/93	5	U	V	5	U	V	
Total	BROMOFORM	6087	02/22/93	5	U	V	5	U	V	
Total	BROMOFORM	6887	04/16/93	5	U	V	5	U	V	
Total	BROMOFORM	7187	04/09/93	5	U	V	5	U	V	
Total	BROMOFORM	6087	04/09/93	5	U	V	5	U	V	
Total	BROMOFORM	5086	04/14/93	5	U	V	5	U	V	
Total	BROMOFORM	46292	04/20/93	.3	U	V	.3	U	V	
Total	BROMOFORM	71893	04/26/93	5	U	V	5	U	V	
Total	BROMOFORM	46292	07/19/93	0.3	U	V	0.3	U	V	
Total	BROMOFORM	5086	08/03/93	5	U		5	U		
Total	BROMOFORM	6887	08/06/93	5	U		5	U		
Total	BROMOFORM	7187	08/11/93	5	U		5	U		
Total	BROMOFORM	6087	08/11/93	5	U	V	5	U	V	
Total	BROMOFORM	4786	08/19/93	5	U	V	5	U	V	
Total	BROMOFORM	6887	10/25/93	5	U		5	U		
Total	BROMOFORM	7187	11/03/93	5	U	Y	5	U	Y	
Total	BROMOFORM	6087	10/27/93	5	U		5	U		
Total	BROMOFORM	5086	11/05/93	5	U	Y	5	U	Y	
Total	BROMOFORM	70093	03/25/93	5	U	V	5	U	V	
Total	BROMOFORM	71893	03/29/93	5	U	V	5	U	V	
Total	BROMOMETHANE	46292	01/27/93	.5	U	V	.5	U	V	
Total	BROMOMETHANE	5086	02/03/93	10	U	V	10	U	V	
Total	BROMOMETHANE	6887	02/10/93	10	U	V	10	U	V	
Total	BROMOMETHANE	7187	02/19/93	10	U	V	10	U	V	
Total	BROMOMETHANE	6087	02/22/93	10	U	V	10	U	V	
Total	BROMOMETHANE	6887	04/16/93	10	U	V	10	U	V	
Total	BROMOMETHANE	7187	04/09/93	10	U	V	10	U	V	
Total	BROMOMETHANE	6087	04/09/93	10	U	V	10	U	V	
Total	BROMOMETHANE	5086	04/14/93				10	U	V	
Total	BROMOMETHANE	46292	04/20/93	.5	U	V	.5	U	V	
Total	BROMOMETHANE	71893	04/26/93	10	U	V	10	U	V	
Total	BROMOMETHANE	46292	07/19/93	0.5	U	V	0.5	U	V	
Total	BROMOMETHANE	5086	08/03/93	10	U		10	U		
Total	BROMOMETHANE	6887	08/06/93	10	U		10	U		
Total	BROMOMETHANE	7187	08/11/93	10	U		10	U		

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	BROMOMETHANE	6087	08/11/93	10	U	V	10	U	V	
Total	BROMOMETHANE	4786	08/19/93	10	U	V	10	U	V	
Total	BROMOMETHANE	6887	10/25/93	10	U		10	U		
Total	BROMOMETHANE	7187	11/03/93	10	U	Y	10	U	Y	
Total	BROMOMETHANE	6087	10/27/93	10	U		10	U		
Total	BROMOMETHANE	5086	11/05/93	10	U	Y	10	U	Y	
Total	BROMOMETHANE	70093	03/25/93	10	U	V	10	U	V	
Total	BUTYL BENZYL PHTHALATE	71893	04/26/93	10	U	V	10	U	V	
Total	BUTYL BENZYL PHTHALATE	70093	03/25/93	11	U	JA	10	U	JA	
Total	BUTYL BENZYL PHTHALATE	71893	03/29/93	11	U	V	10	U	V	
Total	CADMIUM	46292	01/27/93	2	U	V	2	U	V	
Total	CADMIUM	5086	02/03/93	2	U	V	2	U	V	
Total	CADMIUM	6887	02/10/93	2	U	V	2	U	JA	
Total	CADMIUM	71893	04/26/93	2.7		JA	2	U	V	
Total	CADMIUM	70093	03/25/93	2.7	U	V	2.7	U	V	
Total	CADMIUM	71893	03/29/93	2.7	U	V	2.8		JA	
Total	CALCIUM	46292	01/27/93	21100		V	20000		V	5
Total	CALCIUM	5086	02/03/93	32000		V	32300		V	-1
Total	CALCIUM	6887	02/10/93	33300		V	33700		V	-1
Total	CALCIUM	71893	04/26/93	49800		V	47600		V	5
Total	CALCIUM	70093	03/25/93	22600		V	25100		V	-10
Total	CALCIUM	71893	03/29/93	35300		V	31100		V	13
Total	CARBON DISULFIDE	5086	02/03/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	6887	02/10/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	7187	02/19/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	6087	02/22/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	6887	04/16/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	7187	04/09/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	6087	04/09/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	5086	04/14/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	71893	04/26/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	5086	08/03/93	5	U		5	U		
Total	CARBON DISULFIDE	6887	08/06/93	5	U		5	U		
Total	CARBON DISULFIDE	7187	08/11/93	5	U		5	U		
Total	CARBON DISULFIDE	6087	08/11/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	4786	08/19/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	6887	10/25/93	5	U		5	U		
Total	CARBON DISULFIDE	7187	11/03/93	5	U	Y	5	U	Y	
Total	CARBON DISULFIDE	6087	10/27/93	5	U		5	U		
Total	CARBON DISULFIDE	5086	11/05/93	5	U	Y	5	U	Y	
Total	CARBON DISULFIDE	70093	03/25/93	5	U	V	5	U	V	
Total	CARBON DISULFIDE	71893	03/29/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	46292	01/27/93	.2	U	V	.2	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	CARBON TETRACHLORIDE	5086	02/03/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	6887	02/10/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	7187	02/19/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	6087	02/22/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	6887	04/16/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	7187	04/09/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	6087	04/09/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	5086	04/14/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	46292	04/20/93	.2	U	V	.2	U	V	
Total	CARBON TETRACHLORIDE	71893	04/26/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	CARBON TETRACHLORIDE	5086	08/03/93	5	U		5	U		
Total	CARBON TETRACHLORIDE	6887	08/06/93	5	U		5	U		
Total	CARBON TETRACHLORIDE	7187	08/11/93	5	U		5	U		
Total	CARBON TETRACHLORIDE	6087	08/11/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	4786	08/19/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	6887	10/25/93	5	U		5	U		
Total	CARBON TETRACHLORIDE	7187	11/03/93	5	U	Y	5	U	Y	
Total	CARBON TETRACHLORIDE	6087	10/27/93	5	U		5	U		
Total	CARBON TETRACHLORIDE	5086	11/05/93	5	U	Y	5	U	Y	
Total	CARBON TETRACHLORIDE	70093	03/25/93	5	U	V	5	U	V	
Total	CARBON TETRACHLORIDE	71893	03/29/93	5	U	V	5	U	V	
Total	CARBONATE	46292	01/27/93	1000	U	V	1000	U	V	
Total	CARBONATE	5086	02/03/93	1000	U	V	1000	U	V	
Total	CARBONATE	6887	02/10/93	1000	U	V	1000	U	V	
Total	CARBONATE	7187	02/19/93	1000	U	V	1000	U	V	
Total	CARBONATE	6087	02/22/93	10000	U	V	10000	U	V	
Total	CARBONATE	6887	04/16/93	1000	U		1000	U		
Total	CARBONATE	7187	04/09/93	1000	U	V	1000	U	V	
Total	CARBONATE	6087	04/09/93	1000	U	V	1000	U	V	
Total	CARBONATE	5086	04/14/93	1000	U		1000	U		
Total	CARBONATE	46292	04/20/93	10000	U	V	10000	U	V	
Total	CARBONATE	71893	04/26/93	10000	U	V	10000	U	V	
Total	CARBONATE	46292	07/19/93	10000	U	V	10000	U	V	
Total	CARBONATE	5086	08/03/93	1000	U	V	1000	U	V	
Total	CARBONATE	6887	08/06/93	1000	U	V	1000	U	V	
Total	CARBONATE	6087	08/11/93	1000	U	V	1000	U	V	
Total	CARBONATE	4786	08/19/93	1000	U	V	1000	U	V	
Total	CARBONATE	7187	11/03/93	1000	U	Y	1000	U	Y	
Total	CARBONATE	5086	11/05/93	1000	U	Y	1000	U	Y	
Total	CARBONATE	70093	03/25/93	10000	U	V	10000	U	V	
Total	CARBONATE	71893	03/29/93	10000	U	V	10000	U	V	
Total	CESIUM	46292	01/27/93	25	U	JA	25	U	JA	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	CESIUM	5086	02/03/93	25	U	V	25	U	V	
Total	CESIUM	6887	02/10/93	25	U	V	25	U	V	
Total	CESIUM	71893	04/26/93	33	U	V	33	U	V	
Total	CESIUM	70093	03/25/93	500	U	V	500	U	V	
Total	CESIUM	71893	03/29/93	500	U	V	500	U	V	
Total	CESIUM-134	5086	04/14/93	1.52			.54			95.15
Total	CESIUM-137	5086	04/14/93	0			0			
Total	CHEMICAL OXYGEN DEMAND	6887	02/10/93	6000		V	5000	U	V	
Total	CHEMICAL OXYGEN DEMAND	7187	02/19/93	5000	U	V	5000	U	V	
Total	CHEMICAL OXYGEN DEMAND	6087	02/22/93	10000	U	V	10000	U	V	
Total	CHEMICAL OXYGEN DEMAND	6887	04/16/93	5000	U		5000	U		
Total	CHEMICAL OXYGEN DEMAND	7187	04/09/93	5000	U	V	5000	U	V	
Total	CHEMICAL OXYGEN DEMAND	6087	04/09/93	8000		V	5000	U	V	
Total	CHEMICAL OXYGEN DEMAND	6887	08/06/93	6000		V	8000		V	-29
Total	CHEMICAL OXYGEN DEMAND	6087	08/11/93	20000		V	21000		V	-5
Total	CHEMICAL OXYGEN DEMAND	7187	11/03/93	12000		Y	5000	U	Y	
Total	CHLORIDE	46292	01/27/93	721.000		JA	598.000		JA	18.650
Total	CHLORIDE	5086	02/03/93	11000		V	11000		V	0.00
Total	CHLORIDE	6887	02/10/93	4360.00		JA	4360.00		JA	0.00
Total	CHLORIDE	7187	02/19/93	4000		V	4000		V	0.00
Total	CHLORIDE	6087	02/22/93	5000	U	V	5000	U	V	
Total	CHLORIDE	6887	04/16/93	6000			6000			0.00
Total	CHLORIDE	7187	04/09/93	2500.0		JA	3000		JA	-18
Total	CHLORIDE	6087	04/09/93	3000		JA	3000		JA	0.00
Total	CHLORIDE	5086	04/14/93	10000			10000			0.00
Total	CHLORIDE	46292	04/20/93	5000	U	V	5000	U	V	
Total	CHLORIDE	71893	04/26/93	5000	U	V	5000	U	V	
Total	CHLORIDE	46292	07/19/93	5000	U	V	5000	U	V	
Total	CHLORIDE	5086	08/03/93	11000		V	11000		V	0.00
Total	CHLORIDE	6887	08/06/93	6000		V	6000		V	0.00
Total	CHLORIDE	6087	08/11/93	4000		V	4000		V	0.00
Total	CHLORIDE	4786	08/19/93	4000		V	3000		V	29
Total	CHLORIDE	7187	11/03/93	5100.0		Y	4600.0		Y	10.3
Total	CHLORIDE	5086	11/05/93	12000		Y	12000		Y	0.00
Total	CHLORIDE	70093	03/25/93	4000		V	3700.0		V	8
Total	CHLORIDE	71893	03/29/93	5700.0		V	5900.0		V	-3.4
Total	CHLOROBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	CHLOROBENZENE	5086	02/03/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	6887	02/10/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	7187	02/19/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	6087	02/22/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	6887	04/16/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	7187	04/09/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	CHLOROBENZENE	6087	04/09/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	5086	04/14/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	CHLOROBENZENE	71893	04/26/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	CHLOROBENZENE	5086	08/03/93	5	U		5	U		
Total	CHLOROBENZENE	6887	08/06/93	5	U		5	U		
Total	CHLOROBENZENE	7187	08/11/93	5	U		5	U		
Total	CHLOROBENZENE	6087	08/11/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	4786	08/19/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	6887	10/25/93	5	U		5	U		
Total	CHLOROBENZENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	CHLOROBENZENE	6087	10/27/93	5	U		5	U		
Total	CHLOROBENZENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	CHLOROBENZENE	70093	03/25/93	5	U	V	5	U	V	
Total	CHLOROBENZENE	71893	03/29/93	5	U	V	5	U	V	
Total	CHLOROETHANE	46292	01/27/93	.4	U	V	.4	U	V	
Total	CHLOROETHANE	5086	02/03/93	10	U	V	10	U	V	
Total	CHLOROETHANE	6887	02/10/93	10	U	V	10	U	V	
Total	CHLOROETHANE	7187	02/19/93	10	U	V	10	U	V	
Total	CHLOROETHANE	6087	02/22/93	10	U	V	10	U	V	
Total	CHLOROETHANE	6887	04/16/93	10	U	V	10	U	V	
Total	CHLOROETHANE	7187	04/09/93	10	U	V	10	U	V	
Total	CHLOROETHANE	6087	04/09/93	10	U	V	10	U	V	
Total	CHLOROETHANE	5086	04/14/93				10	U	V	
Total	CHLOROETHANE	46292	04/20/93	.4	U	V	.4	U	V	
Total	CHLOROETHANE	71893	04/26/93	10	U	V	10	U	V	
Total	CHLOROETHANE	46292	07/19/93	0.4	U	V	0.4	U	V	
Total	CHLOROETHANE	5086	08/03/93	10	U		10	U		
Total	CHLOROETHANE	6887	08/06/93	10	U		10	U		
Total	CHLOROETHANE	7187	08/11/93	10	U		10	U		
Total	CHLOROETHANE	6087	08/11/93	10	U	V	10	U	V	
Total	CHLOROETHANE	4786	08/19/93	10	U	V	10	U	V	
Total	CHLOROETHANE	6887	10/25/93	10	U		10	U		
Total	CHLOROETHANE	7187	11/03/93	10	U	Y	10	U	Y	
Total	CHLOROETHANE	6087	10/27/93	10	U		10	U		
Total	CHLOROETHANE	5086	11/05/93	10	U	Y	10	U	Y	
Total	CHLOROETHANE	70093	03/25/93	10	U	V	10	U	V	
Total	CHLOROETHANE	71893	03/29/93	10	U	V	10	U	V	
Total	CHLOROFORM	46292	01/27/93	.1	U	V	.1	U	V	
Total	CHLOROFORM	5086	02/03/93	5	U	V	5	U	V	
Total	CHLOROFORM	6887	02/10/93	5	U	V	5	U	V	
Total	CHLOROFORM	7187	02/19/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	CHLOROFORM	6087	02/22/93	5	U	V	5	U	V	
Total	CHLOROFORM	6887	04/16/93	5	U	V	5	U	V	
Total	CHLOROFORM	7187	04/09/93	5	U	V	5	U	V	
Total	CHLOROFORM	6087	04/09/93	5	U	V	5	U	V	
Total	CHLOROFORM	5086	04/14/93	5	U	V	5	U	V	
Total	CHLOROFORM	46292	04/20/93	.1	U	V	.1	U	V	
Total	CHLOROFORM	71893	04/26/93	5	U	V	5	U	V	
Total	CHLOROFORM	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	CHLOROFORM	5086	08/03/93	5	U		5	U		
Total	CHLOROFORM	6887	08/06/93	5	U		5	U		
Total	CHLOROFORM	7187	08/11/93	5	U		5	U		
Total	CHLOROFORM	6087	08/11/93	5	U	V	5	U	V	
Total	CHLOROFORM	4786	08/19/93	5	U	V	5	U	V	
Total	CHLOROFORM	6887	10/25/93	5	U		5	U		
Total	CHLOROFORM	7187	11/03/93	5	U	Y	5	U	Y	
Total	CHLOROFORM	6087	10/27/93	5	U		5	U		
Total	CHLOROFORM	5086	11/05/93	5	U	Y	5	U	Y	
Total	CHLOROFORM	70093	03/25/93	5	U	V	5	U	V	
Total	CHLOROFORM	71893	03/29/93	5	U	V	5	U	V	
Total	CHLOROMETHANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	CHLOROMETHANE	5086	02/03/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	6887	02/10/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	7187	02/19/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	6087	02/22/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	6887	04/16/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	7187	04/09/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	6087	04/09/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	5086	04/14/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	46292	04/20/93	.4	U	V	.4	U	V	
Total	CHLOROMETHANE	71893	04/26/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	46292	07/19/93	0.4	U	V	0.4	U	V	
Total	CHLOROMETHANE	5086	08/03/93	10	U		10	U		
Total	CHLOROMETHANE	6887	08/06/93	10	U		10	U		
Total	CHLOROMETHANE	7187	08/11/93	10	U		10	U		
Total	CHLOROMETHANE	6087	08/11/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	4786	08/19/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	6887	10/25/93	10	U		10	U		
Total	CHLOROMETHANE	7187	11/03/93	10	U	Y	10	U	Y	
Total	CHLOROMETHANE	6087	10/27/93	10	U		10	U		
Total	CHLOROMETHANE	5086	11/05/93	10	U	Y	10	U	Y	
Total	CHLOROMETHANE	70093	03/25/93	10	U	V	10	U	V	
Total	CHLOROMETHANE	71893	03/29/93	10	U	V	10	U	V	
Total	CHROMIUM	46292	01/27/93	10.3		JA	10.4		JA	-1.0

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	CHROMIUM	5086	02/03/93	2	U	JA	2.3	B	JA	
Total	CHROMIUM	6887	02/10/93	9.3	U	JA	6.6	U	JA	
Total	CHROMIUM	71893	04/26/93	30.8		V	30.6		V	0.7
Total	CHROMIUM	70093	03/25/93	19.3		JA	32		V	-50
Total	CHROMIUM	71893	03/29/93	26.3		JA	13.1		JA	67.0
Total	CHRYSENE	71893	04/26/93	10	U	V	10	U	V	
Total	CHRYSENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	CHRYSENE	71893	03/29/93	11	U	V	10	U	V	
Total	COBALT	46292	01/27/93	3	U	V	4.2	B	V	
Total	COBALT	5086	02/03/93	3	U	V	3	U	V	
Total	COBALT	6887	02/10/93	3	U	V	3	U	V	
Total	COBALT	71893	04/26/93	14.7		V	13		V	12
Total	COBALT	70093	03/25/93	7.7		JA	14.8		JA	-63.1
Total	COBALT	71893	03/29/93	7.8		JA	2.6	U	V	
Total	COPPER	46292	01/27/93	11.6	B	V	10.4	B	V	
Total	COPPER	5086	02/03/93	2.5	B	V	2	U	V	
Total	COPPER	6887	02/10/93	8.2	B	JA	6.3	B	JA	
Total	COPPER	71893	04/26/93	33.7		V	34.4		V	-2.1
Total	COPPER	70093	03/25/93	17.6		JA	29.9		V	-51.8
Total	COPPER	71893	03/29/93	18.9		JA	9.1		JA	70.0
Total	CUMENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	CUMENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	CUMENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	CYANIDE	46292	01/27/93	0	U	V	0	U	V	
Total	CYANIDE	5086	02/03/93	0	U		0	U		
Total	CYANIDE	6887	02/10/93	0	U	V	0	U	V	
Total	CYANIDE	7187	02/19/93	0	U	V	0	U	V	
Total	CYANIDE	6087	02/22/93	10.00	U	V	10.00	U	V	
Total	CYANIDE	6887	04/16/93	0	U		0	U		
Total	CYANIDE	7187	04/09/93	0	U	V	0	U	V	
Total	CYANIDE	6087	04/09/93	0.0	B	V	0.0	B	V	
Total	CYANIDE	5086	04/14/93	0	U		0	U		
Total	CYANIDE	46292	04/20/93	10.00	U	V	10.00	U	V	
Total	CYANIDE	71893	04/26/93	13.000		V	10.00	U	V	
Total	CYANIDE	46292	07/19/93	10.000	U	V	10.000	U	V	
Total	CYANIDE	5086	08/03/93	0.00	U	V	0.00	U	V	
Total	CYANIDE	6887	08/06/93	0.00	B	V	0.00	U	V	
Total	CYANIDE	6087	08/11/93	0.00	U	V	0.00	U	JA	
Total	CYANIDE	4786	08/19/93	0.00	U	V	0.00	U	V	
Total	CYANIDE	7187	11/03/93	0.01	U	Y	0.01	U	Y	
Total	CYANIDE	5086	11/05/93	0.01	U	Y	0.01	U	Y	
Total	CYANIDE	70093	03/25/93	0	U	JA	0	U	JA	
Total	CYANIDE	71893	03/29/93	0	U	V	0	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	DI-n-BUTYL PHTHALATE	71893	04/26/93	10	U	V	10	U	V	
Total	DI-n-BUTYL PHTHALATE	70093	03/25/93	11	U	JA	10	U	JA	
Total	DI-n-BUTYL PHTHALATE	71893	03/29/93	2	J	A	10	U	V	
Total	DI-n-OCTYL PHTHALATE	71893	04/26/93	10	U	V	10	U	V	
Total	DI-n-OCTYL PHTHALATE	70093	03/25/93	11	U	JA	10	U	JA	
Total	DI-n-OCTYL PHTHALATE	71893	03/29/93	11	U	V	10	U	V	
Total	DIBENZO(a,h)ANTHRACENE	71893	04/26/93	10	U	V	10	U	V	
Total	DIBENZO(a,h)ANTHRACENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	DIBENZO(a,h)ANTHRACENE	71893	03/29/93	11	U	V	10	U	V	
Total	DIBENZOFURAN	71893	04/26/93	10	U	V	10	U	V	
Total	DIBENZOFURAN	70093	03/25/93	11	U	JA	10	U	JA	
Total	DIBENZOFURAN	71893	03/29/93	11	U	V	10	U	V	
Total	DIBROMOCHLOROMETHANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	DIBROMOCHLOROMETHANE	5086	02/03/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	6887	02/10/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	7187	02/19/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	6087	02/22/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	6887	04/16/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	7187	04/09/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	6087	04/09/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	5086	04/14/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	DIBROMOCHLOROMETHANE	71893	04/26/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	DIBROMOCHLOROMETHANE	5086	08/03/93	5	U		5	U		
Total	DIBROMOCHLOROMETHANE	6887	08/06/93	5	U		5	U		
Total	DIBROMOCHLOROMETHANE	7187	08/11/93	5	U		5	U		
Total	DIBROMOCHLOROMETHANE	6087	08/11/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	4786	08/19/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	6887	10/25/93	5	U		5	U		
Total	DIBROMOCHLOROMETHANE	7187	11/03/93	5	U	Y	5	U	Y	
Total	DIBROMOCHLOROMETHANE	6087	10/27/93	5	U		5	U		
Total	DIBROMOCHLOROMETHANE	5086	11/05/93	5	U	Y	5	U	Y	
Total	DIBROMOCHLOROMETHANE	70093	03/25/93	5	U	V	5	U	V	
Total	DIBROMOCHLOROMETHANE	71893	03/29/93	5	U	V	5	U	V	
Total	DIBROMOMETHANE	46292	01/27/93	.3	U	V	.3	U	V	
Total	DIBROMOMETHANE	46292	04/20/93	.3	U	V	.3	U	V	
Total	DIBROMOMETHANE	46292	07/19/93	0.3	U	V	0.3	U	V	
Total	DICHLORODIFLUOROMETHANE	46292	01/27/93	.2	U	V	.2	U	V	
Total	DICHLORODIFLUOROMETHANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	DICHLORODIFLUOROMETHANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	DIETHYL PHTHALATE	71893	04/26/93	4	J	A	10	U	V	
Total	DIETHYL PHTHALATE	70093	03/25/93	11	U	JA	10	U	JA	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	DIETHYL PHTHALATE	71893	03/29/93	11	U	V	10	U	V	
Total	DIMETHYL PHTHALATE	71893	04/26/93	10	U	V	10	U	V	
Total	DIMETHYL PHTHALATE	70093	03/25/93	11	U	JA	10	U	JA	
Total	DIMETHYL PHTHALATE	71893	03/29/93	11	U	V	10	U	V	
Total	ETHYLBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	ETHYLBENZENE	5086	02/03/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	6887	02/10/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	7187	02/19/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	6087	02/22/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	6887	04/16/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	7187	04/09/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	6087	04/09/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	5086	04/14/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	ETHYLBENZENE	71893	04/26/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	ETHYLBENZENE	5086	08/03/93	5	U		5	U		
Total	ETHYLBENZENE	6887	08/06/93	5	U		5	U		
Total	ETHYLBENZENE	7187	08/11/93	5	U		5	U		
Total	ETHYLBENZENE	6087	08/11/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	4786	08/19/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	6887	10/25/93	5	U		5	U		
Total	ETHYLBENZENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	ETHYLBENZENE	6087	10/27/93	5	U		5	U		
Total	ETHYLBENZENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	ETHYLBENZENE	70093	03/25/93	5	U	V	5	U	V	
Total	ETHYLBENZENE	71893	03/29/93	5	U	V	5	U	V	
Total	FLUORANTHENE	71893	04/26/93	10	U	V	10	U	V	
Total	FLUORANTHENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	FLUORANTHENE	71893	03/29/93	11	U	V	10	U	V	
Total	FLUORENE	71893	04/26/93	10	U	V	10	U	V	
Total	FLUORENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	FLUORENE	71893	03/29/93	11	U	V	10	U	V	
Total	FLUORIDE	46292	01/27/93	400.0		V	400.0		V	0.00
Total	FLUORIDE	5086	02/03/93	200.0		V	200.0		V	0.00
Total	FLUORIDE	6887	02/10/93	200.0		V	100.0		V	66.7
Total	FLUORIDE	7187	02/19/93	400.0		V	500.0		V	-22.2
Total	FLUORIDE	6087	02/22/93	100.0	U	V	100.0	U	V	
Total	FLUORIDE	6887	04/16/93	200.0			200.0			0.00
Total	FLUORIDE	7187	04/09/93	600.0		V	600.0		V	0.00
Total	FLUORIDE	6087	04/09/93	100.0		V	100.0		V	0.00
Total	FLUORIDE	5086	04/14/93	300.0			300.0			0.00
Total	FLUORIDE	46292	04/20/93	360.00		V	370.00		V	-2.74

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	FLUORIDE	71893	04/26/93	200.0		V	210.00		V	-4.9
Total	FLUORIDE	46292	07/19/93	330.00		V	330.00		V	0.00
Total	FLUORIDE	5086	08/03/93	300.0		V	300.0		V	0.00
Total	FLUORIDE	6887	08/06/93	200.0		V	200.0		V	0.00
Total	FLUORIDE	6087	08/11/93	200.0		V	200.0		V	0.00
Total	FLUORIDE	4786	08/19/93	700.0		V	700.0		V	0.00
Total	FLUORIDE	7187	11/03/93	600.0		Y	600.0		Y	0.00
Total	FLUORIDE	5086	11/05/93	300.0		Y	300.0		Y	0.00
Total	FLUORIDE	70093	03/25/93	200.0	U	V	200.0	U	V	
Total	FLUORIDE	71893	03/29/93	200.0	U	V	200.0	U	V	
Total	GROSS ALPHA	5086	04/14/93	0			0			
Total	GROSS BETA	5086	04/14/93	.4			0			200
Total	HEXACHLOROBENZENE	71893	04/26/93	10	U	V	10	U	V	
Total	HEXACHLOROBENZENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	HEXACHLOROBENZENE	71893	03/29/93	11	U	V	10	U	V	
Total	HEXACHLOROBUTADIENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	HEXACHLOROBUTADIENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	HEXACHLOROBUTADIENE	71893	04/26/93	10	U	V	10	U	V	
Total	HEXACHLOROBUTADIENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	HEXACHLOROBUTADIENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	HEXACHLOROBUTADIENE	71893	03/29/93	11	U	V	10	U	V	
Total	HEXACHLOROCYCLOPENTADIENE	71893	04/26/93	10	U	V	10	U	V	
Total	HEXACHLOROCYCLOPENTADIENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	HEXACHLOROCYCLOPENTADIENE	71893	03/29/93	11	U	V	10	U	V	
Total	HEXACHLOROETHANE	71893	04/26/93	10	U	V	10	U	V	
Total	HEXACHLOROETHANE	70093	03/25/93	11	U	JA	10	U	JA	
Total	HEXACHLOROETHANE	71893	03/29/93	11	U	V	10	U	V	
Total	INDENO(1,2,3-cd)PYRENE	71893	04/26/93	10	U	V	10	U	V	
Total	INDENO(1,2,3-cd)PYRENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	INDENO(1,2,3-cd)PYRENE	71893	03/29/93	11	U	V	10	U	V	
Total	IRON	46292	01/27/93	12600		V	12800		V	-2
Total	IRON	5086	02/03/93	1030	•	JA	998	•	JA	3
Total	IRON	6887	02/10/93	6480	•	V	4890	•	V	28
Total	IRON	71893	04/26/93	35500		V	34400		V	3
Total	IRON	70093	03/25/93	24400		V	42300		V	-54
Total	IRON	71893	03/29/93	24900		V	11000		V	77
Total	ISOPHORONE	71893	04/26/93	10	U	V	10	U	V	
Total	ISOPHORONE	70093	03/25/93	11	U	JA	10	U	JA	
Total	ISOPHORONE	71893	03/29/93	11	U	V	10	U	V	
Total	LEAD	46292	01/27/93	7.2		V	8.3		V	-14.2
Total	LEAD	5086	02/03/93	1	UW	V	1	UW	V	
Total	LEAD	6887	02/10/93	3.4	W	JA	3.9		V	-13.7
Total	LEAD	71893	04/26/93	22.1		V	20.5		V	7.5

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	LEAD	70093	03/25/93	10.9		JA	21.5		JA	-65.4
Total	LEAD	71893	03/29/93	3.3		JA	3.1		JA	6.3
Total	LITHIUM	46292	01/27/93	9.9	B	V	9.7	B	V	
Total	LITHIUM	5086	02/03/93	6.8	B	V	6.6	B	V	
Total	LITHIUM	6887	02/10/93	8	B	V	7.6	B	V	
Total	LITHIUM	71893	04/26/93	30	U	V	30	U	V	
Total	LITHIUM	70093	03/25/93	15.9		JA	21.9		JA	-31.7
Total	LITHIUM	71893	03/29/93	15.7		JA	11.6		JA	30.0
Total	MAGNESIUM	46292	01/27/93	5560		V	5340		V	4
Total	MAGNESIUM	5086	02/03/93	5420		V	5410		V	0.00
Total	MAGNESIUM	6887	02/10/93	5760		V	5550		V	4
Total	MAGNESIUM	71893	04/26/93	12200		V	12000		V	2
Total	MAGNESIUM	70093	03/25/93	6940		V	9460		V	-31
Total	MAGNESIUM	71893	03/29/93	9070		V	6710		V	30
Total	MANGANESE	46292	01/27/93	258		V	252		V	2
Total	MANGANESE	5086	02/03/93	17.9		V	17.7		V	1.1
Total	MANGANESE	6887	02/10/93	66.3		V	66.7		V	-0.6
Total	MANGANESE	71893	04/26/93	560	N	V	449	N	JA	22
Total	MANGANESE	70093	03/25/93	478		V	761		V	-46
Total	MANGANESE	71893	03/29/93	363		V	209		V	54
Total	MERCURY	46292	01/27/93	.2	U	V	.2	U	V	
Total	MERCURY	5086	02/03/93	.2	U	V	.2	U	V	
Total	MERCURY	6887	02/10/93	.2	U	V	.2	U	V	
Total	MERCURY	71893	04/26/93	.2	U	V	.2	U	V	
Total	MERCURY	70093	03/25/93	.2	U	V	.2	U	V	
Total	MERCURY	71893	03/29/93	.2	U	V	.2	U	V	
Total	METHYLENE CHLORIDE	46292	01/27/93	.1	U	V	.1	U	V	
Total	METHYLENE CHLORIDE	5086	02/03/93	5	U	V	5	U	V	
Total	METHYLENE CHLORIDE	6887	02/10/93	5	U	V	5	U	V	
Total	METHYLENE CHLORIDE	7187	02/19/93	5	U	V	5	U	V	
Total	METHYLENE CHLORIDE	6087	02/22/93	5	U	V	5	U	V	
Total	METHYLENE CHLORIDE	6887	04/16/93	10	U	V	5	U	V	
Total	METHYLENE CHLORIDE	7187	04/09/93	2	J	A	5	U	V	
Total	METHYLENE CHLORIDE	6087	04/09/93	3	J	A	1	J	A	100
Total	METHYLENE CHLORIDE	5086	04/14/93	1	J	A	2	J	A	-67
Total	METHYLENE CHLORIDE	46292	04/20/93	.3		V	.2		V	40.0
Total	METHYLENE CHLORIDE	71893	04/26/93	5	U	V	5	U	V	
Total	METHYLENE CHLORIDE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	METHYLENE CHLORIDE	5086	08/03/93	5	U		5	U		
Total	METHYLENE CHLORIDE	6887	08/06/93	5	U		5	U		
Total	METHYLENE CHLORIDE	7187	08/11/93	5	U		5	U		
Total	METHYLENE CHLORIDE	6087	08/11/93	5	U	V	5	U	V	
Total	METHYLENE CHLORIDE	4786	08/19/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	METHYLENE CHLORIDE	6887	10/25/93	5	U		5	U		
Total	METHYLENE CHLORIDE	7187	11/03/93	5	U	Y	5	U	Y	
Total	METHYLENE CHLORIDE	6087	10/27/93	5	U		5	U		
Total	METHYLENE CHLORIDE	5086	11/05/93	5	U	Y	5	U	Y	
Total	METHYLENE CHLORIDE	70093	03/25/93	11	U	JA	12	U	JA	
Total	METHYLENE CHLORIDE	71893	03/29/93	5	U	V	5	U	V	
Total	MOLYBDENUM	46292	01/27/93	5	U	V	6.2	U	JA	
Total	MOLYBDENUM	5086	02/03/93	6.6	U	JA	9.6	U	JA	
Total	MOLYBDENUM	6887	02/10/93	5	U	V	5	U	V	
Total	MOLYBDENUM	71893	04/26/93	11	U	V	11	U	V	
Total	MOLYBDENUM	70093	03/25/93	6.5	U	V	6.5	U	V	
Total	MOLYBDENUM	71893	03/29/93	6.5	U	V	6.5	U	V	
Total	N-NITROSO-DI-n-PROPYLAMINE	71893	04/26/93	10	U	V	10	U	V	
Total	N-NITROSO-DI-n-PROPYLAMINE	70093	03/25/93	11	U	JA	10	U	JA	
Total	N-NITROSO-DI-n-PROPYLAMINE	71893	03/29/93	11	U	V	10	U	V	
Total	N-NITROSODIPHENYLAMINE	71893	04/26/93	10	U	V	10	U	V	
Total	N-NITROSODIPHENYLAMINE	70093	03/25/93	11	U	JA	10	U	JA	
Total	N-NITROSODIPHENYLAMINE	71893	03/29/93	11	U	V	10	U	V	
Total	NAPHTHALENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	NAPHTHALENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	NAPHTHALENE	71893	04/26/93	10	U	V	10	U	V	
Total	NAPHTHALENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	NAPHTHALENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	NAPHTHALENE	71893	03/29/93	11	U	V	10	U	V	
Total	NICKEL	46292	01/27/93	8.8	B	V	7.2	B	V	
Total	NICKEL	5086	02/03/93	5	U	V	5	U	V	
Total	NICKEL	6887	02/10/93	8.3	B	V	6.8	B	V	
Total	NICKEL	71893	04/26/93	30.6		V	21.9		V	33.1
Total	NICKEL	70093	03/25/93	11	U	JA	20.7		JA	
Total	NICKEL	71893	03/29/93	15.7		JA	11	U	JA	
Total	NITRATE	70093	03/25/93	3000			3200.0		V	-6
Total	NITRATE	71893	03/29/93	5400.0			5600.0		V	-3.6
Total	NITRATE/NITRITE	46292	01/27/93	900.0		V	700.0		V	25.0
Total	NITRATE/NITRITE	5086	02/03/93	900.0		V	1000		V	-11
Total	NITRATE/NITRITE	6887	02/10/93	4600.0		V	4500.0		V	2.2
Total	NITRATE/NITRITE	7187	02/19/93	2900.0		V	2900.0		V	0.00
Total	NITRATE/NITRITE	6087	02/22/93	5200.0		V	5200.0		V	0.00
Total	NITRATE/NITRITE	6887	04/16/93	4500.0			4300.0			4.5
Total	NITRATE/NITRITE	7187	04/09/93	1900.0		V	1900.0		V	0.00
Total	NITRATE/NITRITE	6087	04/09/93	4100.0		V	4100.0		V	0.00
Total	NITRATE/NITRITE	5086	04/14/93	700.0			700.0			0.00
Total	NITRATE/NITRITE	46292	04/20/93	820.00		V	750.00		V	8.92
Total	NITRATE/NITRITE	71893	04/26/93	850.00		JA	1500.0		JA	-55.3

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	NITRATE/NITRITE	46292	07/19/93	960.00		JA	940.00		JA	2.11
Total	NITRATE/NITRITE	5086	08/03/93	900.0		V	900.0		V	0.00
Total	NITRATE/NITRITE	6887	08/06/93	4400.0		V	4400.0		V	0.00
Total	NITRATE/NITRITE	6087	08/11/93	7600.0		V	4400.0		V	53.3
Total	NITRATE/NITRITE	4786	08/19/93	800.0		V	900.0		V	-11.8
Total	NITRATE/NITRITE	7187	11/03/93	3000.0		Y	3000.0		Y	0.00
Total	NITRATE/NITRITE	5086	11/05/93	800.0		Y	800.0		Y	0.00
Total	NITRITE	70093	03/25/93	20.00	U	JA	20.00	U	JA	
Total	NITRITE	71893	03/29/93	29.000		V	24.000		V	18.868
Total	NITROBENZENE	71893	04/26/93	10	U	V	10	U	V	
Total	NITROBENZENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	NITROBENZENE	71893	03/29/93	11	U	V	10	U	V	
Total	ORTHOPHOSPHATE	46292	01/27/93	20.00		JA	10.00		JA	66.67
Total	ORTHOPHOSPHATE	5086	02/03/93	10.00	U	V	10.00	U	V	
Total	ORTHOPHOSPHATE	6887	02/10/93	10.00	U	V	10.00	U	V	
Total	ORTHOPHOSPHATE	7187	02/19/93	10.00	U	JA	10.00	U	JA	
Total	ORTHOPHOSPHATE	6087	02/22/93	50.00	U	V	50.00	U	V	
Total	ORTHOPHOSPHATE	6887	04/16/93	10.00	U		10.00	U		
Total	ORTHOPHOSPHATE	7187	04/09/93	10.00	U	V	10.00	U	V	
Total	ORTHOPHOSPHATE	6087	04/09/93	20.00		V	10.00	U	V	
Total	ORTHOPHOSPHATE	5086	04/14/93	10.00			10.00	U		
Total	ORTHOPHOSPHATE	46292	04/20/93	50.00	U	V	50.00	U	V	
Total	ORTHOPHOSPHATE	46292	07/19/93	50.00	U	V	50.00	U	V	
Total	ORTHOPHOSPHATE	5086	08/03/93	10.00		V	10.00	U	V	
Total	ORTHOPHOSPHATE	6887	08/06/93	10.00		V	10.00	U	V	
Total	ORTHOPHOSPHATE	6087	08/11/93	10.00	U	V	10.00		V	
Total	ORTHOPHOSPHATE	4786	08/19/93	20.00		V	20.00		V	0.00
Total	ORTHOPHOSPHATE	7187	11/03/93	10.00		Y	10.00	U	Y	
Total	ORTHOPHOSPHATE	5086	11/05/93	10.00	U	Y	10.00	U	Y	
Total	PENTACHLOROPHENOL	71893	04/26/93	50	U	V	50	U	V	
Total	PENTACHLOROPHENOL	70093	03/25/93	55	U	JA	50	U	JA	
Total	PENTACHLOROPHENOL	71893	03/29/93	55	U	V	50	U	V	
Total	PHENANTHRENE	71893	04/26/93	10	U	V	10	U	V	
Total	PHENANTHRENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	PHENANTHRENE	71893	03/29/93	11	U	V	10	U	V	
Total	PHENOL	71893	04/26/93	10	U	V	10	U	V	
Total	PHENOL	70093	03/25/93	11	U	JA	10	U	JA	
Total	PHENOL	71893	03/29/93	11	U	V	10	U	V	
Total	PLUTONIUM-239/240	46292	01/27/93	.002	U	A	.000	U	A	
Total	PLUTONIUM-239/240	5086	02/03/93	.00249	U		.00813	U		
Total	PLUTONIUM-239/240	6887	02/10/93	.0024		A	.0024		A	0.00
Total	PLUTONIUM-239/240	7187	02/19/93	0	U	A	0	U	A	
Total	PLUTONIUM-239/240	6087	02/22/93	.002	U	A	.0018		A	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	PLUTONIUM-239/240	6887	04/16/93	.004	J	V	.002	J	V	66.667
Total	PLUTONIUM-239/240	7187	04/09/93	0	J		-.000827	J		-200
Total	PLUTONIUM-239/240	6087	04/09/93	-.00225	J		.00148	J		968.83117
Total	PLUTONIUM-239/240	5086	04/14/93	-0.019		V	-0.031		V	-48.000
Total	PLUTONIUM-239/240	46292	04/20/93	0.002	U	V	0.002	U	V	
Total	PLUTONIUM-239/240	71893	04/26/93				0		V	
Total	PLUTONIUM-239/240	46292	07/19/93	0.006	J		0.002	U		
Total	PLUTONIUM-239/240	6887	08/06/93	0.001	U		0.002	U		
Total	PLUTONIUM-239/240	6087	08/11/93	0.005	J		0.003	U		
Total	PLUTONIUM-239/240	4786	08/19/93	0.004	U	Y	0.001	U	Y	
Total	PLUTONIUM-239/240	71893	03/29/93	.005063		A	.00188	J	A	91.68947
Total	POTASSIUM	46292	01/27/93	3700	B	V	3540	B	V	
Total	POTASSIUM	5086	02/03/93	825	B	V	743	B	V	
Total	POTASSIUM	6887	02/10/93	1390	U	JA	1130	U	JA	
Total	POTASSIUM	71893	04/26/93	7230		V	6930		V	4
Total	POTASSIUM	70093	03/25/93	4820		V	6080		V	-23
Total	POTASSIUM	71893	03/29/93	5330		V	3890		V	31
Total	PROPANE, 1,2-DIBROMO-3-CHLORO-	46292	01/27/93	.4	U	V	.4	U	V	
Total	PROPANE, 1,2-DIBROMO-3-CHLORO-	46292	04/20/93	.4	U					
Total	PROPANE, 1,2-DIBROMO-3-CHLORO-	46292	07/19/93	0.4	U					
Total	PYRENE	71893	04/26/93	10	U	V	10	U	V	
Total	PYRENE	70093	03/25/93	11	U	JA	10	U	JA	
Total	PYRENE	71893	03/29/93	11	U	V	10	U	V	
Total	SELENIUM	46292	01/27/93	1	BW	JA	1	U	V	
Total	SELENIUM	5086	02/03/93	1	U	V	1	U	V	
Total	SELENIUM	6887	02/10/93	1	U	JA	1	U	JA	
Total	SELENIUM	71893	04/26/93	3	U	V	3	UW	V	
Total	SELENIUM	70093	03/25/93				1.6	U	JA	
Total	SELENIUM	71893	03/29/93	1.6	U	JA	1.6	U	JA	
Total	SILICON	46292	01/27/93	31600		V	30100		V	5
Total	SILICON	5086	02/03/93	13900		V	13700		V	1
Total	SILICON	6887	02/10/93	21200	•	JA	16300	•	JA	26
Total	SILICON	71893	04/26/93	65400	•	JA	71100	•	JA	-8
Total	SILICON	70093	03/25/93	36700		V	64600		V	-55
Total	SILICON	71893	03/29/93	34600		V	24400		V	35
Total	SILVER	46292	01/27/93	3	U	V	3	U	V	
Total	SILVER	5086	02/03/93	9.6	U	JA	3	U	V	
Total	SILVER	6887	02/10/93	3	U	V	3	U	V	
Total	SILVER	71893	04/26/93	5	U	V	5	U	V	
Total	SILVER	70093	03/25/93	3.6	U	V	3.6	U	V	
Total	SILVER	71893	03/29/93	3.6	U	V	3.6		JA	
Total	SODIUM	46292	01/27/93	15000		V	14400		V	4
Total	SODIUM	5086	02/03/93	10200		V	10400		V	-2

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Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	SODIUM	6887	02/10/93	12100		V	12200		V	-1
Total	SODIUM	71893	04/26/93	13100		V	12700		V	3
Total	SODIUM	70093	03/25/93	8790		V	8520		V	3
Total	SODIUM	71893	03/29/93	10400		V	9960		V	4
Total	STRONTIUM	46292	01/27/93	158	B	V	148	B	V	
Total	STRONTIUM	5086	02/03/93	177	B	V	177	B	V	
Total	STRONTIUM	6887	02/10/93	143	B	V	142	B	V	
Total	STRONTIUM	71893	04/26/93	266	N	V	256	N	JA	4
Total	STRONTIUM	70093	03/25/93	170		V	198		V	-15
Total	STRONTIUM	71893	03/29/93	203		V	175		V	15
Total	STRONTIUM-89,90	5086	04/14/93	0			0			
Total	STYRENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	STYRENE	5086	02/03/93	5	U	V	5	U	V	
Total	STYRENE	6887	02/10/93	5	U	V	5	U	V	
Total	STYRENE	7187	02/19/93	5	U	V	5	U	V	
Total	STYRENE	6087	02/22/93	5	U	V	5	U	V	
Total	STYRENE	6887	04/16/93	5	U	V	5	U	V	
Total	STYRENE	7187	04/09/93	5	U	V	5	U	V	
Total	STYRENE	6087	04/09/93	5	U	V	5	U	V	
Total	STYRENE	5086	04/14/93	5	U	V	5	U	V	
Total	STYRENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	STYRENE	71893	04/26/93	5	U	V	5	U	V	
Total	STYRENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	STYRENE	5086	08/03/93	5	U		5	U		
Total	STYRENE	6887	08/06/93	5	U		5	U		
Total	STYRENE	7187	08/11/93	5	U		5	U		
Total	STYRENE	6087	08/11/93	5	U	V	5	U	V	
Total	STYRENE	4786	08/19/93	5	U	V	5	U	V	
Total	STYRENE	6887	10/25/93	5	U		5	U		
Total	STYRENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	STYRENE	6087	10/27/93	5	U		5	U		
Total	STYRENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	STYRENE	70093	03/25/93	5	U	V	5	U	V	
Total	STYRENE	71893	03/29/93	5	U	V	5	U	V	
Total	SULFATE	46292	01/27/93	7000		V	6000		V	15
Total	SULFATE	5086	02/03/93	11000		V	11000		V	0.00
Total	SULFATE	6887	02/10/93	29000		V	29000		V	0.00
Total	SULFATE	7187	02/19/93	27000		V	27000		V	0.00
Total	SULFATE	6087	02/22/93	24000		V	24000		V	0.00
Total	SULFATE	6887	04/16/93	32000			33000			-3
Total	SULFATE	7187	04/09/93	27000		V	27000		V	0.00
Total	SULFATE	6087	04/09/93	27000		V	27000		V	0.00
Total	SULFATE	5086	04/14/93	11000			11000			0.00

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	SULFATE	46292	04/20/93	6900.0		V	7900.0		V	-13.5
Total	SULFATE	71893	04/26/93	28000		V	28000		V	0.00
Total	SULFATE	46292	07/19/93	6300.0		V	6400.0		V	-1.6
Total	SULFATE	5086	08/03/93	13000		V	13000		V	0.00
Total	SULFATE	6887	08/06/93	36000		V	36000		V	0.00
Total	SULFATE	6087	08/11/93	22000		V	23000		V	-4
Total	SULFATE	4786	08/19/93	7000		V	7000		V	0.00
Total	SULFATE	7187	11/03/93	28000		Y	28000		Y	0.00
Total	SULFATE	5086	11/05/93	13000		Y	11000		Y	17
Total	SULFATE	70093	03/25/93	29900.0			28800.0		V	3.7
Total	SULFATE	71893	03/29/93	26400.0			27000		V	-2
Total	SULFIDE	71893	04/26/93	7800.0		V	12000		V	-42
Total	SULFIDE	70093	03/25/93	1000	U	V	1000	U	V	
Total	SULFIDE	71893	03/29/93	1000	U	V	1000	U	V	
Total	TETRACHLOROETHENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	TETRACHLOROETHENE	5086	02/03/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	6887	02/10/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	7187	02/19/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	6087	02/22/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	6887	04/16/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	7187	04/09/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	6087	04/09/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	5086	04/14/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	TETRACHLOROETHENE	71893	04/26/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	TETRACHLOROETHENE	5086	08/03/93	5	U		5	U		
Total	TETRACHLOROETHENE	6887	08/06/93	5	U		5	U		
Total	TETRACHLOROETHENE	7187	08/11/93	5	U		5	U		
Total	TETRACHLOROETHENE	6087	08/11/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	4786	08/19/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	6887	10/25/93	5	U		5	U		
Total	TETRACHLOROETHENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	TETRACHLOROETHENE	6087	10/27/93	5	U		5	U		
Total	TETRACHLOROETHENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	TETRACHLOROETHENE	70093	03/25/93	5	U	V	5	U	V	
Total	TETRACHLOROETHENE	71893	03/29/93	5	U	V	5	U	V	
Total	THALLIUM	46292	01/27/93	1	UW	V	1	UW	V	
Total	THALLIUM	5086	02/03/93	1	U	V	1	U	V	
Total	THALLIUM	6887	02/10/93	1	UWN	JA	1	UWN	JA	
Total	THALLIUM	71893	04/26/93	3	U	V	3	U	V	
Total	THALLIUM	70093	03/25/93	1.7	U	V	1.7	U	JA	
Total	THALLIUM	71893	03/29/93	1.7	U	JA	1.7	U	JA	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	TIN	46292	01/27/93	13	U	V	13	U	V	
Total	TIN	5086	02/03/93	13	U	V	13	U	V	
Total	TIN	6887	02/10/93	13	U	V	13	U	V	
Total	TIN	71893	04/26/93	29	U	JA	37.5		JA	
Total	TIN	70093	03/25/93	21.5		JA	21.3		JA	0.9
Total	TIN	71893	03/29/93	16.7	U	V	20.9		JA	
Total	TOLUENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	TOLUENE	5086	02/03/93	5	U	V	5	U	V	
Total	TOLUENE	6887	02/10/93	5	U	V	5	U	V	
Total	TOLUENE	7187	02/19/93	5	U	V	5	U	V	
Total	TOLUENE	6087	02/22/93	5	U	V	5	U	V	
Total	TOLUENE	6887	04/16/93	5	U	V	5	U	V	
Total	TOLUENE	7187	04/09/93	5	U	V	5	U	V	
Total	TOLUENE	6087	04/09/93	5	U	V	5	U	V	
Total	TOLUENE	5086	04/14/93	5	U	V	5	U	V	
Total	TOLUENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	TOLUENE	71893	04/26/93	5	U	V	5	U	V	
Total	TOLUENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	TOLUENE	5086	08/03/93	5	U		5	U		
Total	TOLUENE	6887	08/06/93	5	U		5	U		
Total	TOLUENE	7187	08/11/93	5	U		5	U		
Total	TOLUENE	6087	08/11/93	5	U	V	5	U	V	
Total	TOLUENE	4786	08/19/93	5	U	V	5	U	V	
Total	TOLUENE	6887	10/25/93	5	U		5	U		
Total	TOLUENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	TOLUENE	6087	10/27/93	5	U		5	U		
Total	TOLUENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	TOLUENE	70093	03/25/93	5	U	V	5	U	V	
Total	TOLUENE	71893	03/29/93	5	U	V	5	U	V	
Total	TOLUENE - D8	7187	11/03/93	99		Y	102		Y	-3
Total	TOLUENE - D8	5086	11/05/93	102		Y	99		Y	3
Total	TOTAL DISSOLVED SOLIDS	46292	01/27/93	150000		V	150000		V	0.00
Total	TOTAL DISSOLVED SOLIDS	5086	02/03/93	200000		V	180000		V	11
Total	TOTAL DISSOLVED SOLIDS	6887	02/10/93	380000		V	370000		V	3
Total	TOTAL DISSOLVED SOLIDS	7187	02/19/93	250000		V	260000		V	-4
Total	TOTAL DISSOLVED SOLIDS	6087	02/22/93	180000		V	180000		V	0.00
Total	TOTAL DISSOLVED SOLIDS	6887	04/16/93	190000			210000			-10
Total	TOTAL DISSOLVED SOLIDS	7187	04/09/93	260000		V	260000		V	0.00
Total	TOTAL DISSOLVED SOLIDS	6087	04/09/93	300000		V	250000		V	18
Total	TOTAL DISSOLVED SOLIDS	5086	04/14/93	170000			160000			6
Total	TOTAL DISSOLVED SOLIDS	46292	04/20/93	150000		V	140000		V	7
Total	TOTAL DISSOLVED SOLIDS	71893	04/26/93	220000		JA	220000		JA	0.00
Total	TOTAL DISSOLVED SOLIDS	46292	07/19/93	140000		V	140000		V	0.00

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	TOTAL DISSOLVED SOLIDS	5086	08/03/93	170000		V	160000		V	6
Total	TOTAL DISSOLVED SOLIDS	6887	08/06/93	190000		V	210000		V	-10
Total	TOTAL DISSOLVED SOLIDS	6087	08/11/93	290000		V	280000		V	4
Total	TOTAL DISSOLVED SOLIDS	4786	08/19/93	160000		V	160000		V	0.00
Total	TOTAL DISSOLVED SOLIDS	7187	11/03/93	280000		Y	270000		Y	4
Total	TOTAL DISSOLVED SOLIDS	5086	11/05/93	170000		Y	180000		Y	-6
Total	TOTAL DISSOLVED SOLIDS	70093	03/25/93	170000		V	260000		V	-42
Total	TOTAL DISSOLVED SOLIDS	71893	03/29/93	280000		V	390000		V	-33
Total	TOTAL ORGANIC CARBON	6887	02/10/93	1000	U	V	1000	U	V	
Total	TOTAL ORGANIC CARBON	7187	02/19/93	1000	U	V	1000		V	
Total	TOTAL ORGANIC CARBON	6087	02/22/93	1000	U	V	1000	U	V	
Total	TOTAL ORGANIC CARBON	6887	04/16/93	2000			2000			0.00
Total	TOTAL ORGANIC CARBON	7187	04/09/93	2000		V	3000		V	-40
Total	TOTAL ORGANIC CARBON	6087	04/09/93	1000	U	V	1000	U	V	
Total	TOTAL ORGANIC CARBON	6887	08/06/93	2000		V	2000		V	0.00
Total	TOTAL ORGANIC CARBON	6087	08/11/93	1000	U	V	1000	U	V	
Total	TOTAL ORGANIC CARBON	7187	11/03/93	1000		Y	1000	U	Y	
Total	TOTAL SUSPENDED SOLIDS	46292	01/27/93	780000		V	360000		V	74
Total	TOTAL SUSPENDED SOLIDS	5086	02/03/93	14000		V	17000		V	-19
Total	TOTAL SUSPENDED SOLIDS	6887	02/10/93	260000		V	160000		V	48
Total	TOTAL SUSPENDED SOLIDS	7187	02/19/93	19000		V	72000		V	-116
Total	TOTAL SUSPENDED SOLIDS	6087	02/22/93	550000		V	540000		V	2
Total	TOTAL SUSPENDED SOLIDS	6887	04/16/93	96000			68000			34
Total	TOTAL SUSPENDED SOLIDS	7187	04/09/93	110000		V	49000		V	77
Total	TOTAL SUSPENDED SOLIDS	6087	04/09/93	2700000		V	930000		V	98
Total	TOTAL SUSPENDED SOLIDS	5086	04/14/93	14000			22000			-44
Total	TOTAL SUSPENDED SOLIDS	46292	04/20/93	470000		V	500000		V	-6
Total	TOTAL SUSPENDED SOLIDS	71893	04/26/93	770000		V	2400000		V	-103
Total	TOTAL SUSPENDED SOLIDS	46292	07/19/93	300000		V	340000		V	-13
Total	TOTAL SUSPENDED SOLIDS	5086	08/03/93	50000		V	79000		V	-45
Total	TOTAL SUSPENDED SOLIDS	6887	08/06/93	140000		V	950000		V	-149
Total	TOTAL SUSPENDED SOLIDS	6087	08/11/93	690000		V	890000		V	-25
Total	TOTAL SUSPENDED SOLIDS	4786	08/19/93	420000		V	460000		V	-9
Total	TOTAL SUSPENDED SOLIDS	7187	11/03/93	12000		Y	20000		Y	-50
Total	TOTAL SUSPENDED SOLIDS	5086	11/05/93	24000		Y	17000		Y	34
Total	TOTAL SUSPENDED SOLIDS	70093	03/25/93	710000		V	830000		V	-16
Total	TOTAL SUSPENDED SOLIDS	71893	03/29/93	1200000		V	670000		V	57
Total	TOTAL XYLENES	5086	02/03/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	6887	02/10/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	7187	02/19/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	6087	02/22/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	6887	04/16/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	7187	04/09/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	TOTAL XYLENES	6087	04/09/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	5086	04/14/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	71893	04/26/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	5086	08/03/93	5	U		5	U		
Total	TOTAL XYLENES	6887	08/06/93	5	U		5	U		
Total	TOTAL XYLENES	7187	08/11/93	5	U		5	U		
Total	TOTAL XYLENES	6087	08/11/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	4786	08/19/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	6887	10/25/93	5	U		5	U		
Total	TOTAL XYLENES	7187	11/03/93	5	U	Y	5	U	Y	
Total	TOTAL XYLENES	6087	10/27/93	5	U		5	U		
Total	TOTAL XYLENES	5086	11/05/93	5	U	Y	5	U	Y	
Total	TOTAL XYLENES	70093	03/25/93	5	U	V	5	U	V	
Total	TOTAL XYLENES	71893	03/29/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	46292	01/27/93	.1	U	V	.1	U	V	
Total	TRICHLOROETHENE	5086	02/03/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	6887	02/10/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	7187	02/19/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	6087	02/22/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	6887	04/16/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	7187	04/09/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	6087	04/09/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	5086	04/14/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	46292	04/20/93	.1	U	V	.1	U	V	
Total	TRICHLOROETHENE	71893	04/26/93	7		V	7		V	0.00
Total	TRICHLOROETHENE	46292	07/19/93	0.1	U	V	0.1	U	V	
Total	TRICHLOROETHENE	5086	08/03/93	5	U		5	U		
Total	TRICHLOROETHENE	6887	08/06/93	5	U		5	U		
Total	TRICHLOROETHENE	7187	08/11/93	5	U		5	U		
Total	TRICHLOROETHENE	6087	08/11/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	4786	08/19/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	6887	10/25/93	5	U		5	U		
Total	TRICHLOROETHENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	TRICHLOROETHENE	6087	10/27/93	5	U		5	U		
Total	TRICHLOROETHENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	TRICHLOROETHENE	70093	03/25/93	5	U	V	5	U	V	
Total	TRICHLOROETHENE	71893	03/29/93	15		V	33		V	-75
Total	TRICHLOROFLUOROMETHANE	46292	01/27/93	.1	U	V	.1	U	V	
Total	TRICHLOROFLUOROMETHANE	46292	04/20/93	.2	U	V	.2	U	V	
Total	TRICHLOROFLUOROMETHANE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	TRITIUM	46292	01/27/93	56	U	A	65	U	A	
Total	TRITIUM	5086	02/03/93	76	U	A	122	U	A	
Total	TRITIUM	6887	02/10/93	57	U	A	37	U	A	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	TRITIUM	7187	02/19/93	86	U	A	66	U	A	
Total	TRITIUM	6087	02/22/93	260		A	115	U	A	
Total	TRITIUM	6887	04/16/93	150	U	V	-20	U	V	
Total	TRITIUM	7187	04/09/93	34.76	J		158.3	J		-128.0
Total	TRITIUM	6087	04/09/93	23.17	J		76.27	J		-106.80
Total	TRITIUM	5086	04/14/93	119.29			86.23			32.17
Total	TRITIUM	46292	04/20/93	130	U	A	-110	U	A	
Total	TRITIUM	71893	04/26/93	342.75			39.56			158.61
Total	TRITIUM	46292	07/19/93	-86	U		-7.1	U		
Total	TRITIUM	6887	08/06/93	-120	U		-90	U		
Total	TRITIUM	6087	08/11/93	-79	U		-16	U		
Total	TRITIUM	4786	08/19/93	-53	U	Y	-180	U	Y	
Total	TRITIUM	70093	03/25/93	147	J	V	50.28	J	V	98
Total	TRITIUM	71893	03/29/93	177.8	J	V	200	J	V	-12
Total	VANADIUM	46292	01/27/93	19.5	B	V	19.7	B	V	
Total	VANADIUM	5086	02/03/93	5	U	V	5	U	V	
Total	VANADIUM	6887	02/10/93	17	U	JA	12.7	U	JA	
Total	VANADIUM	71893	04/26/93	55.8		V	62.5		V	-11.3
Total	VANADIUM	70093	03/25/93	40.8		V	71.6		V	-54.8
Total	VANADIUM	71893	03/29/93	54.8		V	24.7		V	75.7
Total	VINYL ACETATE	5086	02/03/93	10	U	V	10	U	V	
Total	VINYL ACETATE	6887	02/10/93	10	U	V	10	U	V	
Total	VINYL ACETATE	7187	02/19/93	10	U	V	10	U	V	
Total	VINYL ACETATE	6087	02/22/93	10	U	V	10	U	V	
Total	VINYL ACETATE	6887	04/16/93	10	U	V	10	U	V	
Total	VINYL ACETATE	7187	04/09/93	10	U	V	10	U	V	
Total	VINYL ACETATE	6087	04/09/93	10	U	V	10	U	V	
Total	VINYL ACETATE	5086	04/14/93	10	U	V	10	U	V	
Total	VINYL ACETATE	71893	04/26/93	10	U	V	10	U	V	
Total	VINYL ACETATE	5086	08/03/93	10	U		10	U		
Total	VINYL ACETATE	6887	08/06/93	10	U		10	U		
Total	VINYL ACETATE	7187	08/11/93	10	U		10	U		
Total	VINYL ACETATE	6087	08/11/93	10	U	V	10	U	V	
Total	VINYL ACETATE	4786	08/19/93	10	U	V	10	U	V	
Total	VINYL ACETATE	6887	10/25/93	10	U		10	U		
Total	VINYL ACETATE	7187	11/03/93	10	U	Y	10	U	Y	
Total	VINYL ACETATE	6087	10/27/93	10	U		10	U		
Total	VINYL ACETATE	5086	11/05/93	10	U	Y	10	U	Y	
Total	VINYL ACETATE	70093	03/25/93	10	U	V	10	U	V	
Total	VINYL ACETATE	71893	03/29/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	46292	01/27/93	.2	U	V	.2	U	V	
Total	VINYL CHLORIDE	5086	02/03/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	6887	02/10/93	10	U	V	10	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	VINYL CHLORIDE	7187	02/19/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	6087	02/22/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	6887	04/16/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	7187	04/09/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	6087	04/09/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	5086	04/14/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	46292	04/20/93	.2	U	V	.2	U	V	
Total	VINYL CHLORIDE	71893	04/26/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	VINYL CHLORIDE	5086	08/03/93	10	U		10	U		
Total	VINYL CHLORIDE	6887	08/06/93	10	U		10	U		
Total	VINYL CHLORIDE	7187	08/11/93	10	U		10	U		
Total	VINYL CHLORIDE	6087	08/11/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	4786	08/19/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	6887	10/25/93	10	U		10	U		
Total	VINYL CHLORIDE	7187	11/03/93	10	U	Y	10	U	Y	
Total	VINYL CHLORIDE	6087	10/27/93	10	U		10	U		
Total	VINYL CHLORIDE	5086	11/05/93	10	U	Y	10	U	Y	
Total	VINYL CHLORIDE	70093	03/25/93	10	U	V	10	U	V	
Total	VINYL CHLORIDE	71893	03/29/93	10	U	V	10	U	V	
Total	ZINC	46292	01/27/93	39.4		JA	34.7		JA	12.7
Total	ZINC	5086	02/03/93	15.1	U	JA	14.7	U	JA	
Total	ZINC	6887	02/10/93	30.8		V	21.4		V	36.0
Total	ZINC	71893	04/26/93	165		V	118		V	33
Total	ZINC	70093	03/25/93	72.4		V	102		V	-34
Total	ZINC	71893	03/29/93	89.5		V	38.2		V	80.3
Total	cis-1,2-DICHLOROETHENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	cis-1,2-DICHLOROETHENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	cis-1,2-DICHLOROETHENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	cis-1,3-DICHLOROPROPENE	5086	02/03/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	6887	02/10/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	7187	02/19/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	6087	02/22/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	6887	04/16/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	7187	04/09/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	6087	04/09/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	5086	04/14/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	71893	04/26/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	cis-1,3-DICHLOROPROPENE	5086	08/03/93	5	U		5	U		
Total	cis-1,3-DICHLOROPROPENE	6887	08/06/93	5	U		5	U		
Total	cis-1,3-DICHLOROPROPENE	7187	08/11/93	5	U		5	U		
Total	cis-1,3-DICHLOROPROPENE	6087	08/11/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	cis-1,3-DICHLOROPROPENE	4786	08/19/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	6887	10/25/93	5	U		5	U		
Total	cis-1,3-DICHLOROPROPENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	cis-1,3-DICHLOROPROPENE	6087	10/27/93	5	U		5	U		
Total	cis-1,3-DICHLOROPROPENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	cis-1,3-DICHLOROPROPENE	70093	03/25/93	5	U	V	5	U	V	
Total	cis-1,3-DICHLOROPROPENE	71893	03/29/93	5	U	V	5	U	V	
Total	m+p XYLENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	m+p XYLENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	m+p XYLENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	n-BUTYLBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	n-BUTYLBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	n-BUTYLBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	n-PROPYLBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	n-PROPYLBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	n-PROPYLBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	o-CHLOROTOLUENE	46292	01/27/93	.3	U	V	.3	U	V	
Total	o-CHLOROTOLUENE	46292	04/20/93	.3	U	V	.3	U	V	
Total	o-CHLOROTOLUENE	46292	07/19/93	0.3	U	V	0.3	U	V	
Total	o-XYLENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	o-XYLENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	o-XYLENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	p-CHLOROTOLUENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	p-CHLOROTOLUENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	p-CHLOROTOLUENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	p-CYMENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	p-CYMENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	p-CYMENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	sec-BUTYLBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	sec-BUTYLBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	sec-BUTYLBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	tert-BUTYLBENZENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	tert-BUTYLBENZENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	tert-BUTYLBENZENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	trans-1,2-DICHLOROETHENE	46292	01/27/93	.2	U	V	.2	U	V	
Total	trans-1,2-DICHLOROETHENE	46292	04/20/93	.2	U	V	.2	U	V	
Total	trans-1,2-DICHLOROETHENE	46292	07/19/93	0.2	U	V	0.2	U	V	
Total	trans-1,3-DICHLOROPROPENE	5086	02/03/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	6887	02/10/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	7187	02/19/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	6087	02/22/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	6887	04/16/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	7187	04/09/93	5	U	V	5	U	V	

Relative Percent Differences for 1993 RCRA Data

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	Dup Result[7]	Dup Qual[8]	Dup Val[9]	RPD[10]
Total	trans-1,3-DICHLOROPROPENE	6087	04/09/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	5086	04/14/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	71893	04/26/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	46292	07/19/93	0.4	U	V	0.4	U	V	
Total	trans-1,3-DICHLOROPROPENE	5086	08/03/93	5	U		5	U		
Total	trans-1,3-DICHLOROPROPENE	6887	08/06/93	5	U		5	U		
Total	trans-1,3-DICHLOROPROPENE	7187	08/11/93	5	U		5	U		
Total	trans-1,3-DICHLOROPROPENE	6087	08/11/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	4786	08/19/93	5	U	V	5	U	V	
Total	trans-1,3-DICHLOROPROPENE	6887	10/25/93	5	U		5	U		
Total	trans-1,3-DICHLOROPROPENE	7187	11/03/93	5	U	Y	5	U	Y	
Total	trans-1,3-DICHLOROPROPENE	6087	10/27/93	5	U		5	U		
Total	trans-1,3-DICHLOROPROPENE	5086	11/05/93	5	U	Y	5	U	Y	
Total	trans-1,3-DICHLOROPROPENE	70093	03/25/93	5	U	V	5	U	V	

[1] Total (unfiltered) or Dissolved (filtered)

[2] Well number

[3] Date sample was collected

[4] Result of real sample

[5] Lab qualifier for real sample

[6] Validation code for real sample

[7] Result for duplicate sample

[8] Lab qualifier for duplicate sample

[9] Validation code for duplicate sample

[10] Relative percent difference between real sample and duplicate sample

Real/Lab Replicate Pair Relative Percent Difference

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	LR Result[7]	LR Qual[8]	LR Val[9]	RPD[10]
Dissolved	AMERICIUM-241	71893	03/29/93				.006519		A	
Dissolved	CESIUM-137	P207689	02/10/93	-.468	J		-.247	J		61.818
Dissolved	CESIUM-137	5686	03/17/93	.7041	J		.3559	J		65.6981
Dissolved	CESIUM-137	P210189	04/16/93	.26	U		.55	J		
Dissolved	CESIUM-137	6187	04/16/93	1.2			1.1			8.7
Dissolved	CESIUM-137	1786	04/16/93	.37	U		.53	U		
Dissolved	CESIUM-137	71893	03/29/93				.2161	J		
Dissolved	GROSS ALPHA	P210189	02/23/93	1.8	U	A	3.6	U	A	
Dissolved	GROSS ALPHA	P207689	02/10/93	8.507		V	11.35		V	-28.63
Dissolved	GROSS ALPHA	B410789	01/26/93	0.68	UC	V	3.5	C	V	
Dissolved	GROSS ALPHA	6187	01/29/93	0.0	U	V	0.10	U	V	
Dissolved	GROSS ALPHA	1586	02/05/93	28	C	V	18	C	V	43
Dissolved	GROSS ALPHA	1786	02/01/93	38	UC	V	39	C	V	
Dissolved	GROSS ALPHA	5686	03/17/93	.4089	J	V	.09909	J	V	121.9748
Dissolved	GROSS ALPHA	3486	03/05/93	-1.2	UC	A	7.9	UC	A	
Dissolved	GROSS ALPHA	P210189	04/16/93	3.6		V	3.5		V	2.8
Dissolved	GROSS ALPHA	P207689	04/12/93	12		A	17		A	-34
Dissolved	GROSS ALPHA	6187	04/16/93	.39	U		.66	J		
Dissolved	GROSS ALPHA	1586	04/13/93	21		V	22		V	-5
Dissolved	GROSS ALPHA	1786	04/16/93	46			29			45
Dissolved	GROSS ALPHA	5686	05/24/93	0.31	U		0.060	U		
Dissolved	GROSS ALPHA	P209789	07/16/93	12			11			9
Dissolved	GROSS ALPHA	P210189	07/27/93	3.5		Y	3.5		Y	0.00
Dissolved	GROSS ALPHA	B410789	07/26/93	1.7	UC		.95	U		
Dissolved	GROSS ALPHA	3486	09/22/93	1.5	U	Y	2.6	U	Y	
Dissolved	GROSS ALPHA	71893	03/29/93	1.608		V				
Dissolved	GROSS BETA	P210189	02/23/93	5.3	U	A	1.4	U	A	
Dissolved	GROSS BETA	P207689	02/10/93	5.894	J	V	10.21		V	-53.60
Dissolved	GROSS BETA	B410789	01/26/93	1.7	U	V	1.6	U	V	
Dissolved	GROSS BETA	6187	01/29/93	1.1	U	V	1.3	U	V	
Dissolved	GROSS BETA	1586	02/05/93	13	C	A	16	C	A	-21
Dissolved	GROSS BETA	1786	02/01/93	6.8	UC	A	7.1	UC	A	
Dissolved	GROSS BETA	5686	03/17/93	3.018		A	2.989		A	0.966
Dissolved	GROSS BETA	3486	03/05/93	9.7	UC	V	10.3	UC	V	
Dissolved	GROSS BETA	P210189	04/16/93	4.5	U	V	2.5	U	V	
Dissolved	GROSS BETA	P207689	04/12/93	4.7		A	7.1		A	-40.7
Dissolved	GROSS BETA	6187	04/16/93	.82	U		2.5	J		
Dissolved	GROSS BETA	1586	04/13/93	16		V	16		V	0.00
Dissolved	GROSS BETA	1786	04/16/93	21			27			-25
Dissolved	GROSS BETA	5686	05/24/93	2.2	U		2.7	J		
Dissolved	GROSS BETA	P209789	07/16/93	4.9			3.7	J		27.9
Dissolved	GROSS BETA	P210189	07/27/93	4.6		Y	4.6		Y	0.00
Dissolved	GROSS BETA	B410789	07/26/93	2.3	U		1.7	U		
Dissolved	GROSS BETA	3486	09/22/93	11		Y	8.3		Y	28
Dissolved	GROSS BETA	71893	03/29/93	2.51		V				
Dissolved	PLUTONIUM-239/240	71893	03/29/93	0	J	A	.002336	J	A	-200
Dissolved	RADIUM-226	P210189	02/23/93	0.53		V	0.56		V	-5.50

Real/Lab Replicate Pair Relative Percent Difference

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	LR Result[7]	LR Qual[8]	LR Val[9]	RPD[10]
Dissolved	RADIUM-226	P207689	02/10/93	.1943		A	.2116		A	-8.5243
Dissolved	RADIUM-226	B410789	01/26/93	.21	U	V	.1	U	V	
Dissolved	RADIUM-226	6187	01/29/93	.12	U	V	.15		V	
Dissolved	RADIUM-226	1586	02/05/93	0.75		V	0.56		V	29.01
Dissolved	RADIUM-226	1786	02/01/93	0.92		V	0.86		V	6.74
Dissolved	RADIUM-226	3486	03/05/93	.23			.24	U		
Dissolved	RADIUM-226	P207689	04/12/93				.42			
Dissolved	RADIUM-226	1586	04/13/93	0.78	B		0.61	B		24.46
Dissolved	RADIUM-226	1786	04/16/93	0.49	BJ		0.56	B		-13.33
Dissolved	RADIUM-226	P209789	07/16/93	0.33	BJ	Y	0.41	BJ	Y	-21.62
Dissolved	RADIUM-228	P210189	02/23/93	.37	U	V	-.54	U	V	
Dissolved	RADIUM-228	B410789	01/26/93	1.8		A	1.8		A	0.00
Dissolved	RADIUM-228	6187	01/29/93	.39	U	A	.39	U	A	
Dissolved	RADIUM-228	1586	02/05/93	.96	U	V	1.4		V	
Dissolved	RADIUM-228	1786	02/01/93	2.2		V	1.8		V	20.0
Dissolved	RADIUM-228	3486	03/05/93	1.15	U		1.32	U		
Dissolved	STRONTIUM-89,90	P210189	02/23/93	.29	U	V	.36	U	V	
Dissolved	STRONTIUM-89,90	P207689	02/10/93	.09866	J	V	.2512	J	V	-87.2006
Dissolved	STRONTIUM-89,90	B410789	01/26/93	.54	U	A	.73	U	A	
Dissolved	STRONTIUM-89,90	6187	01/29/93	.2	U	A	.07	U	A	
Dissolved	STRONTIUM-89,90	1586	02/05/93	.75	U		.806	U		
Dissolved	STRONTIUM-89,90	1786	02/01/93	1.1	U		.817	U		
Dissolved	STRONTIUM-89,90	5686	03/17/93	.6587		V	.7537		V	-13.4523
Dissolved	STRONTIUM-89,90	3486	03/05/93	.65	U		.642	U		
Dissolved	STRONTIUM-89,90	P210189	04/16/93	.16	U		.17	U		
Dissolved	STRONTIUM-89,90	P207689	04/12/93	-.21			.41			-620.00
Dissolved	STRONTIUM-89,90	6187	04/16/93	.01	U		.05	U		
Dissolved	STRONTIUM-89,90	1586	04/13/93	.25	U	A	.25	BJ	A	
Dissolved	STRONTIUM-89,90	1786	04/16/93	.59	J		.63	J		-6.56
Dissolved	STRONTIUM-89,90	5686	05/24/93	0.86	J		0.75	J		13.66
Dissolved	STRONTIUM-89,90	P209789	07/16/93	0.17	U		0.050	U		
Dissolved	STRONTIUM-89,90	P210189	07/27/93	0.30	J	Y	0.20	U	Y	
Dissolved	STRONTIUM-89,90	B410789	07/26/93	.089	U		.18	U		
Dissolved	STRONTIUM-89,90	3486	09/22/93	0.40	U	Y	0.43	U	Y	
Dissolved	STRONTIUM-89,90	71893	03/29/93	-.065	J	V				
Dissolved	TOTAL RADIOCESIUM	P210189	02/23/93	.38	U	V	-.09	U	V	
Dissolved	TOTAL RADIOCESIUM	B410789	01/26/93	.86		A	.38	U	A	
Dissolved	TOTAL RADIOCESIUM	6187	01/29/93	.28	U	A	1.2		A	
Dissolved	TOTAL RADIOCESIUM	1586	02/05/93	.851	U		1.06	U		
Dissolved	TOTAL RADIOCESIUM	1786	02/01/93	.866	U		.988	U		
Dissolved	TOTAL RADIOCESIUM	3486	03/05/93	.698	U		1			
Dissolved	TOTAL RADIOCESIUM	P207689	04/12/93	1			.93			7
Dissolved	TOTAL RADIOCESIUM	1586	04/13/93	0	U	V	.16	U	V	
Dissolved	TOTAL RADIOCESIUM	5686	05/24/93	2.5			0.36	U		
Dissolved	TOTAL RADIOCESIUM	P209789	07/16/93	0.77	J		0.60	J		24.82
Dissolved	TOTAL RADIOCESIUM	P210189	07/27/93	0.10	U	Y	0.19	U	Y	
Dissolved	TOTAL RADIOCESIUM	B410789	07/26/93	.37			.11	U		

Real/Lab Replicate Pair Relative Percent Difference

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	LR Result[7]	LR Qual[8]	LR Val[9]	RPD[10]
Dissolved	TOTAL RADIOCESIUM	3486	09/22/93	-0.39	U	Y	0.89	U	Y	
Dissolved	URANIUM-233,-234	P210189	02/23/93	1.8		A	2		A	-11
Dissolved	URANIUM-233,-234	P207689	02/10/93	8.23			7.956			3.39
Dissolved	URANIUM-233,-234	B410789	01/26/93	1.2		A	0.68		A	55.3
Dissolved	URANIUM-233,-234	6187	01/29/93	-.023	U	A	.147	U	A	
Dissolved	URANIUM-233,-234	1586	02/05/93	19			20			-5
Dissolved	URANIUM-233,-234	1786	02/01/93	35			40			-13
Dissolved	URANIUM-233,-234	5686	03/17/93	.1121	J	A	.4081		A	-113.8024
Dissolved	URANIUM-233,-234	3486	03/05/93	0.35		A	0.0764	U	A	
Dissolved	URANIUM-233,-234	P210189	04/16/93	2.3		A	1.8		A	24.4
Dissolved	URANIUM-233,-234	P207689	04/12/93	10		A	12		A	-18
Dissolved	URANIUM-233,-234	6187	04/16/93	1.1	B	A	1.2	B	A	-8.7
Dissolved	URANIUM-233,-234	1586	04/13/93	18	B	A	16	B	A	12
Dissolved	URANIUM-233,-234	1786	04/16/93	41	B	A	40	B	A	2
Dissolved	URANIUM-233,-234	B410789	04/15/93	0.7052		V	0.6689		V	5.2835
Dissolved	URANIUM-233,-234	5686	05/24/93	0.88	B		0.65	B		30.07
Dissolved	URANIUM-233,-234	P209789	07/16/93	8.5	B		8.1	B		4.8
Dissolved	URANIUM-233,-234	P210189	07/27/93	5.2	B	Y	4.7	B	Y	10.1
Dissolved	URANIUM-233,-234	B410789	07/26/93	0.75	Y	V	1.2		V	-46.2
Dissolved	URANIUM-233,-234	3486	09/22/93	0.41	BJ	Y	0.63	B	Y	-42.31
Dissolved	URANIUM-233,-234	71893	03/29/93	.02719	J	A				
Dissolved	URANIUM-235	P210189	02/23/93	.18		A	.149	U	A	
Dissolved	URANIUM-235	P207689	02/10/93	.5783			.1322	J		125.5735
Dissolved	URANIUM-235	B410789	01/26/93	.033	U	A	.040	U	A	
Dissolved	URANIUM-235	6187	01/29/93	.000	U	A	.000	U	A	
Dissolved	URANIUM-235	1586	02/05/93	.36			.69			-62.86
Dissolved	URANIUM-235	1786	02/01/93	1.5			1.6			-6.5
Dissolved	URANIUM-235	5686	03/17/93	-.0285	J	A	.07185	J	A	-462.9758
Dissolved	URANIUM-235	3486	03/05/93	0.11		A	0.0477	U	A	
Dissolved	URANIUM-235	P210189	04/16/93	.16	BJ	A	.13	BJ	A	20.69
Dissolved	URANIUM-235	P207689	04/12/93	0.75		A	0.093		A	155.87
Dissolved	URANIUM-235	6187	04/16/93	-.007	U	A	.09	BJ	A	
Dissolved	URANIUM-235	1586	04/13/93	.51	J	A	1.1		A	-73.3
Dissolved	URANIUM-235	1786	04/16/93	1.2	B	A	.84	B	A	35.3
Dissolved	URANIUM-235	B410789	04/15/93	0.0199		V	0.0496		V	-85.4676
Dissolved	URANIUM-235	5686	05/24/93	-0.008	U		0	U		
Dissolved	URANIUM-235	P209789	07/16/93	0.42	BJ		0.45	BJ		-6.90
Dissolved	URANIUM-235	P210189	07/27/93	0.28	BJ	Y	0.20	U	Y	
Dissolved	URANIUM-235	B410789	07/26/93	0.035	UY	V	0.11	U	V	
Dissolved	URANIUM-235	3486	09/22/93	0.039	U	Y	0	U	Y	
Dissolved	URANIUM-235	71893	03/29/93	-.00836	J	A				
Dissolved	URANIUM-238	P210189	02/23/93	1.9		JA	1.3		JA	37.5
Dissolved	URANIUM-238	P207689	02/10/93	4.925			5.771			-15.819
Dissolved	URANIUM-238	B410789	01/26/93	0.55		JA	0.27		JA	68.29
Dissolved	URANIUM-238	6187	01/29/93	.000	U	JA	.035	U	JA	
Dissolved	URANIUM-238	1586	02/05/93	16			16			0.00
Dissolved	URANIUM-238	1786	02/01/93	26			31			-18

Real/Lab Replicate Pair Relative Percent Difference

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	LR Result[7]	LR Qual[8]	LR Val[9]	RPD[10]
Dissolved	URANIUM-238	5686	03/17/93	.2221	J	A	.3909		A	-55.0734
Dissolved	URANIUM-238	3486	03/05/93	0.0352	U	JA	0.0477	U	JA	
Dissolved	URANIUM-238	P210189	04/16/93	1.1		A	1.5		A	-30.8
Dissolved	URANIUM-238	P207689	04/12/93	8.8		A	9.0		A	-2.2
Dissolved	URANIUM-238	6187	04/16/93	.88	B	A	.88	B	A	0.00
Dissolved	URANIUM-238	1586	04/13/93	16	B	A	13	B	A	21
Dissolved	URANIUM-238	1786	04/16/93	30	B	A	28	B	A	7
Dissolved	URANIUM-238	B410789	04/15/93	0.298		V	0.4047		V	-30.369
Dissolved	URANIUM-238	5686	05/24/93	0.53	BJ		0.48	BJ		9.90
Dissolved	URANIUM-238	P209789	07/16/93	4.6	B		4.3	B		6.7
Dissolved	URANIUM-238	P210189	07/27/93	1.7	B	Y	4.1	B	Y	-82.8
Dissolved	URANIUM-238	B410789	07/26/93	0.64	Y	V	0.77		V	-18.44
Dissolved	URANIUM-238	3486	09/22/93	0.36	BJ	Y	0.54	BJ	Y	-40.00
Dissolved	URANIUM-238	71893	03/29/93	.0711	J	A				
Total	AMERICIUM-241	P210189	02/23/93	.0023		A	.004	U	A	
Total	AMERICIUM-241	P207689	02/10/93	.006302			.005365			16.062398
Total	AMERICIUM-241	B410789	01/26/93	0.0022		A	.003		A	-30.769
Total	AMERICIUM-241	6187	01/29/93	-.001	U	A	.003	U	A	
Total	AMERICIUM-241	1586	02/05/93	.0077			.00374	UF		
Total	AMERICIUM-241	1786	02/01/93	.019	F		.01629	UF		
Total	AMERICIUM-241	5686	03/17/93	.001738	J	A	-.000389	J	A	315.344700
Total	AMERICIUM-241	3486	03/05/93	0.0085	U	A	0.0021	U	A	
Total	AMERICIUM-241	P207689	04/12/93	0.074		A	0.00		A	200.00
Total	AMERICIUM-241	6187	04/16/93	0	U	V	.004	U	V	
Total	AMERICIUM-241	1586	04/13/93	0.008	J	V	0.002	U	V	
Total	AMERICIUM-241	1786	04/16/93	.059		V	.037	U	V	
Total	AMERICIUM-241	B410789	04/15/93	0.0015		A	0.005		A	-107.692
Total	AMERICIUM-241	5686	05/24/93	0.010			0.002	U		
Total	AMERICIUM-241	P209789	07/16/93	0.004	U		0.007	BJ		
Total	AMERICIUM-241	P210189	07/27/93	0.003	J		0.002	U		
Total	AMERICIUM-241	B410789	07/26/93	0.0021		A	0.0042		A	-66.6667
Total	AMERICIUM-241	3486	09/22/93	0.006	J	Y	0.004	J	Y	40.000
Total	AMERICIUM-241	71893	03/29/93	.008176		A	.005249		A	43.605214
Total	CESIUM-134	B410789	04/15/93	1.52			0			200
Total	CESIUM-137	B410789	04/15/93	0			0			
Total	GROSS ALPHA	B410789	04/15/93	1.31			3.06			-80.09
Total	GROSS ALPHA	5686	05/24/93	.31	U		.06	U		
Total	GROSS BETA	B410789	04/15/93	.91			3.62			-119.65
Total	GROSS BETA	5686	05/24/93	2.2	U		2.7	J		
Total	PLUTONIUM-239/240	P210189	02/23/93	.0039		A	.0068		A	-54.2056
Total	PLUTONIUM-239/240	P207689	02/10/93	.00891			-.00183	J		303.38983
Total	PLUTONIUM-239/240	B410789	01/26/93	0.0031		A	.000	U	A	
Total	PLUTONIUM-239/240	6187	01/29/93	.000	U	A	.005	U	A	
Total	PLUTONIUM-239/240	1586	02/05/93	.01132	U		.0032			
Total	PLUTONIUM-239/240	1786	02/01/93	.1			.09			10.5
Total	PLUTONIUM-239/240	5686	03/17/93	-.000543	J	A	.0004544	J	A	2251.467269
Total	PLUTONIUM-239/240	3486	03/05/93	0.0000	U	A	0.0018	U	A	

Real/Lab Replicate Pair Relative Percent Difference

Tot/Dis[1]	Analyte	Location[2]	S. Date[3]	Real Result[4]	Real Qual[5]	Real Val[6]	LR Result[7]	LR Qual[8]	LR Val[9]	RPD[10]
Total	PLUTONIUM-239/240	P210189	04/16/93	.001	U		.003	U		
Total	PLUTONIUM-239/240	P207689	04/12/93	-0.0020		A	0.020		A	-244.444
Total	PLUTONIUM-239/240	6187	04/16/93	0	U	V	0	U	V	
Total	PLUTONIUM-239/240	1586	04/13/93	0	U	V	0.002	U	V	
Total	PLUTONIUM-239/240	1786	04/16/93	.21		V	.032		V	147.11
Total	PLUTONIUM-239/240	B410789	04/15/93	0		V	-0.011		V	-200
Total	PLUTONIUM-239/240	5686	05/24/93	0.001	U		0.003	U		
Total	PLUTONIUM-239/240	P209789	07/16/93	0.007	J		0.003	U		
Total	PLUTONIUM-239/240	P210189	07/27/93	0.003	U		0.006	J		
Total	PLUTONIUM-239/240	B410789	07/26/93	0.012		A	-0.0011	U	A	
Total	PLUTONIUM-239/240	3486	09/22/93	0.005	U	Y	0.002	BJ	Y	
Total	PLUTONIUM-239/240	71893	03/29/93	.005063		A	.01426		A	-95.19226
Total	RADIUM-226	1786	04/16/93	.49	BJ		.56	B		-13.33
Total	STRONTIUM-89,90	B410789	04/15/93	0			0			
Total	STRONTIUM-89,90	5686	05/24/93	.86	J		.75	J		13.66
Total	TRITIUM	P210189	02/23/93	930.		A	660.		A	34
Total	TRITIUM	P207689	02/10/93	104.3	J	V	39.11	J	V	90.9
Total	TRITIUM	B410789	01/26/93	206		A	111	U	A	
Total	TRITIUM	6187	01/29/93	95	U	A	-59	U	A	
Total	TRITIUM	1586	02/05/93	120	U	A	182	U	A	
Total	TRITIUM	1786	02/01/93	750		A	660		A	13
Total	TRITIUM	5686	03/17/93	71.49	J	V	68.59	J	V	4.14
Total	TRITIUM	3486	03/05/93	19	U	V	-31	U	V	
Total	TRITIUM	P210189	04/16/93	760			1000			-27
Total	TRITIUM	P207689	04/12/93	320			280			13
Total	TRITIUM	6187	04/16/93	320	U	V	190	U	V	
Total	TRITIUM	1586	04/13/93	170	U	A	250	U	A	
Total	TRITIUM	1786	04/16/93	880		V	890		V	-1
Total	TRITIUM	B410789	04/15/93	8.95			286.3			-187.9
Total	TRITIUM	5686	05/24/93	330	U		290	U		
Total	TRITIUM	P209789	07/16/93	490			400			20
Total	TRITIUM	P210189	07/27/93	540			840			-43
Total	TRITIUM	B410789	07/26/93	130	U		220	U		
Total	TRITIUM	3486	09/22/93	-280	U	Y	210	U	Y	
Total	TRITIUM	71893	03/29/93	177.8	J	V	204.8	J	V	-14.1
Total	URANIUM-233,-234	5686	05/24/93	.88	B		.65	B		30.07
Total	URANIUM-235	5686	05/24/93	-.008	U		0	U		
Total	URANIUM-238	5686	05/24/93	.53	BJ		.48	BJ		9.90

[1] Total (unfiltered) or Dissolved (filtered)
[2] Well number
[3] Date sample was collected
[4] Result of real sample
[5] Lab qualifier for real result
[6] Validation code for real sample
[7] Result of lab replicate
[8] Qualifier for lab replicate
[9] Validation code for lab replicate
[10] Relative percent difference between real and lab replicate

Equipment-Rinsate Blanks

Analytical Detect Information

Nondetects replaced with 1/2 the detection limit for mean calculation

S Type[1]	QC[2]	Analyte	Freq Hits[3]	Min Result	Max Result	Mean Result	Units
GW	RNS	1,1,1,2-TETRACHLOROETHANE	0/3				
GW	RNS	1,1,1-TRICHLOROETHANE	0/22				
GW	RNS	1,1,2,2-TETRACHLOROETHANE	0/22				
GW	RNS	1,1,2-TRICHLOROETHANE	0/22				
GW	RNS	1,1-DICHLOROETHANE	0/22				
GW	RNS	1,1-DICHLOROETHENE	0/22				
GW	RNS	1,1-DICHLOROPROPENE	0/3				
GW	RNS	1,2 DICHLOROETHANE -D4	0/2				
GW	RNS	1,2,3-TRICHLOROBENZENE	0/3				
GW	RNS	1,2,3-TRICHLOROPROPANE	0/2				
GW	RNS	1,2,4-TRICHLOROBENZENE	0/5				
GW	RNS	1,2-DIBROMOETHANE	0/3				
GW	RNS	1,2-DICHLOROBENZENE	0/5				
GW	RNS	1,2-DICHLOROETHANE	0/22				
GW	RNS	1,2-DICHLOROETHENE	0/19				
GW	RNS	1,2-DICHLOROPROPANE	0/22				
GW	RNS	1,3-DICHLOROBENZENE	0/5				
GW	RNS	1,3-DICHLOROPROPANE	0/3				
GW	RNS	1,4-DICHLOROBENZENE	0/5				
GW	RNS	2,2-DICHLOROPROPANE	0/3				
GW	RNS	2,4,5-TRICHLOROPHENOL	0/2				
GW	RNS	2,4,6-TRICHLOROPHENOL	0/2				
GW	RNS	2,4-DICHLOROPHENOL	0/2				
GW	RNS	2,4-DIMETHYLPHENOL	0/2				
GW	RNS	2,4-DINITROPHENOL	0/2				
GW	RNS	2,4-DINITROTOLUENE	0/2				
GW	RNS	2,6-DINITROTOLUENE	0/2				
GW	RNS	2-BUTANONE	0/10				
GW	RNS	2-CHLORONAPHTHALENE	0/2				
GW	RNS	2-CHLOROPHENOL	0/2				
GW	RNS	2-HEXANONE	0/19				
GW	RNS	2-METHYLNAPHTHALENE	0/2				
GW	RNS	2-METHYLPHENOL	0/2				
GW	RNS	2-NITROANILINE	0/2				
GW	RNS	2-NITROPHENOL	0/2				
GW	RNS	3,3'-DICHLOROBENZIDINE	0/1				
GW	RNS	3-NITROANILINE	0/2				

Equipment-Rinsate Blanks

Analytical Detect Information

Nondetects replaced with 1/2 the detection limit for mean calculation

S Type[1]	QC[2]	Analyte	Freq Hits[3]	Min Result	Max Result	Mean Result	Units
GW	RNS	4,6-DINITRO-2-METHYLPHENOL	0/2				
GW	RNS	4-BROMOPHENYL PHENYL ETHER	0/2				
GW	RNS	4-CHLORO-3-METHYLPHENOL	0/2				
GW	RNS	4-CHLOROANILINE	0/1				
GW	RNS	4-CHLOROPHENYL PHENYL ETHER	0/2				
GW	RNS	4-METHYL-2-PENTANONE	1/19	7	10	5	UG/L
GW	RNS	4-METHYLPHENOL	0/2				
GW	RNS	4-NITROANILINE	0/2				
GW	RNS	4-NITROPHENOL	0/1				
GW	RNS	ACENAPHTHENE	0/2				
GW	RNS	ACENAPHTHYLENE	0/2				
GW	RNS	ACETONE	0/18				
GW	RNS	ALUMINUM	3/24	13	38.9	72	UG/L
GW	RNS	AMERICIUM-241	23/23	-0.001	0.042	0.005	PCI/L
GW	RNS	AMMONIA	5/9	100.0	200.0	128.9	UG/L
GW	RNS	ANTHRACENE	0/2				
GW	RNS	ANTIMONY	0/24				
GW	RNS	ARSENIC	2/24	1	15.3	4	UG/L
GW	RNS	BARIUM	0/24				
GW	RNS	BENZENE	0/22				
GW	RNS	BENZENE, 1,2,4-TRIMETHYL	0/3				
GW	RNS	BENZENE, 1,3,5-TRIMETHYL-	0/3				
GW	RNS	BENZO(a)ANTHRACENE	0/2				
GW	RNS	BENZO(a)PYRENE	0/2				
GW	RNS	BENZO(b)FLUORANTHENE	0/2				
GW	RNS	BENZO(ghi)PERYLENE	0/2				
GW	RNS	BENZO(k)FLUORANTHENE	0/2				
GW	RNS	BENZOIC ACID	0/2				
GW	RNS	BENZYL ALCOHOL	0/2				
GW	RNS	BERYLLIUM	0/24				
GW	RNS	BICARBONATE AS CACO3	12/19	1000	15000	4000	UG/L
GW	RNS	BIS(2-CHLOROETHOXY)METHANE	0/2				
GW	RNS	BIS(2-CHLOROETHYL)ETHER	0/2				
GW	RNS	BIS(2-CHLOROISOPROPYL)ETHER	0/2				
GW	RNS	BIS(2-ETHYLHEXYL)PHTHALATE	0/2				
GW	RNS	BROMOBENZENE	0/3				
GW	RNS	BROMOCHLOROMETHANE	0/2				

Equipment-Rinsate Blanks

Analytical Detect Information

Nondetects replaced with 1/2 the detection limit for mean calculation

S Type[1]	QC[2]	Analyte	Freq Hits[3]	Min Result	Max Result	Mean Result	Units
GW	RNS	BROMODICHLOROMETHANE	0/22				
GW	RNS	BROMOFLUOROBENZENE	0/2				
GW	RNS	BROMOFORM	0/21				
GW	RNS	BROMOMETHANE	0/22				
GW	RNS	BUTYL BENZYL PHTHALATE	0/2				
GW	RNS	CADMIUM	1/24	2	4.00	2	UG/L
GW	RNS	CALCIUM	10/24	34	1470	947	UG/L
GW	RNS	CARBON DISULFIDE	0/18				
GW	RNS	CARBON TETRACHLORIDE	1/22	0.2	5	2	UG/L
GW	RNS	CARBONATE	1/19	1000	10000	1868	UG/L
GW	RNS	CESIUM	0/20				
GW	RNS	CESIUM-134	4/4	-0.179	1.68	0.69	PCI/L
GW	RNS	CESIUM-137	6/6	-0.189	0.53	0.11	PCI/L
GW	RNS	CHEMICAL OXYGEN DEMAND	0/9				
GW	RNS	CHLORIDE	0/19				
GW	RNS	CHLOROBENZENE	0/22				
GW	RNS	CHLOROETHANE	0/22				
GW	RNS	CHLOROFORM	0/22				
GW	RNS	CHLOROMETHANE	0/22				
GW	RNS	CHROMIUM	0/24				
GW	RNS	CHRYSENE	0/2				
GW	RNS	COBALT	0/24				
GW	RNS	COPPER	3/24	2	6.9	9	UG/L
GW	RNS	CUMENE	0/3				
GW	RNS	CYANIDE	0/19				
GW	RNS	DI-n-BUTYL PHTHALATE	0/2				
GW	RNS	DI-n-OCTYL PHTHALATE	0/2				
GW	RNS	DIBENZO(a,h)ANTHRACENE	0/2				
GW	RNS	DIBENZOFURAN	0/2				
GW	RNS	DIBROMOCHLOROMETHANE	0/22				
GW	RNS	DIBROMOMETHANE	0/3				
GW	RNS	DICHLORODIFLUOROMETHANE	0/3				
GW	RNS	DIETHYL PHTHALATE	0/2				
GW	RNS	DIMETHYL PHTHALATE	0/2				
GW	RNS	ETHYLBENZENE	0/22				
GW	RNS	FLUORANTHENE	0/2				
GW	RNS	FLUORENE	0/2				

Equipment-Rinsate Blanks
Analytical Detect Information

Nondetects replaced with 1/2 the detection limit for mean calculation

S Type[1]	QC[2]	Analyte	Freq Hits[3]	Min Result	Max Result	Mean Result	Units
GW	RNS	FLUORIDE	0/19				
GW	RNS	GROSS ALPHA	11/11	-0.27	0.86	0.13	PCI/L
GW	RNS	GROSS BETA	11/11	-0.20	2.47	0.6	PCI/L
GW	RNS	HEXACHLOROBENZENE	0/2				
GW	RNS	HEXACHLOROBUTADIENE	0/5				
GW	RNS	HEXACHLOROCYCLOPENTADIENE	0/2				
GW	RNS	HEXACHLOROETHANE	0/2				
GW	RNS	INDENO(1,2,3-cd)PYRENE	0/2				
GW	RNS	IRON	5/24	3.5	178	40	UG/L
GW	RNS	ISOPHORONE	0/2				
GW	RNS	LEAD	1/23	1	3.1	1	UG/L
GW	RNS	LITHIUM	0/24				
GW	RNS	MAGNESIUM	1/24	14	680	1591	UG/L
GW	RNS	MANGANESE	10/24	1	5.20	3	UG/L
GW	RNS	MERCURY	0/25				
GW	RNS	METHYLENE CHLORIDE	2/22	0.1	5	2	UG/L
GW	RNS	MOLYBDENUM	0/24				
GW	RNS	N-NITROSO-DI-n-PROPYLAMINE	0/2				
GW	RNS	N-NITROSODIPHENYLAMINE	0/2				
GW	RNS	NAPHTHALENE	0/5				
GW	RNS	NICKEL	0/24				
GW	RNS	NITRATE	0/1				
GW	RNS	NITRATE/NITRITE	5/18	20.00	190.00	43.9	UG/L
GW	RNS	NITRITE	0/2				
GW	RNS	NITROBENZENE	0/2				
GW	RNS	ORTHOPHOSPHATE	0/17				
GW	RNS	PENTACHLOROPHENOL	0/2				
GW	RNS	PHENANTHRENE	0/2				
GW	RNS	PHENOL	0/2				
GW	RNS	PLUTONIUM-239/240	23/23	-0.013	0.003	0.000	PCI/L
GW	RNS	POTASSIUM	1/24	253.00	1020	1920	UG/L
GW	RNS	PROPANE, 1,2-DIBROMO-3-CHLORO-	0/1				
GW	RNS	PYRENE	0/2				
GW	RNS	RADIUM-226	5/5	-0.05	0.27	0.08	PCI/L
GW	RNS	RADIUM-228	5/5	-0.21	8.3	2	PCI/L
GW	RNS	SELENIUM	0/24				
GW	RNS	SILICON	4/24	13	201	53	UG/L

Equipment-Rinsate Blanks
Analytical Detect Information

Nondetects replaced with 1/2 the detection limit for mean calculation

S Type[1]	QC[2]	Analyte	Freq Hits[3]	Min Result	Max Result	Mean Result	Units
GW	RNS	SILVER	1/24	3	5.2	4	UG/L
GW	RNS	SODIUM	11/24	56	2160	970	UG/L
GW	RNS	STRONTIUM	1/24	1	3.9	67	UG/L
GW	RNS	STRONTIUM-89,90	19/19	-0.146	0.785	0.2	PCI/L
GW	RNS	STYRENE	0/22				
GW	RNS	SULFATE	0/19				
GW	RNS	SULFIDE	1/3	1000	24000	8333	UG/L
GW	RNS	TETRACHLOROETHENE	0/22				
GW	RNS	THALLIUM	0/24				
GW	RNS	TIN	0/24				
GW	RNS	TOLUENE	4/22	0.2	5	2	UG/L
GW	RNS	TOLUENE - D8	0/2				
GW	RNS	TOTAL DISSOLVED SOLIDS	3/19	10000	26000	8158	UG/L
GW	RNS	TOTAL ORGANIC CARBON	1/17	1000	1000	529	UG/L
GW	RNS	TOTAL RADIOCESIUM	12/12	-0.080	0.93	0.4	PCI/L
GW	RNS	TOTAL SUSPENDED SOLIDS	3/20	4000	18000	3475	UG/L
GW	RNS	TOTAL XYLENES	0/19				
GW	RNS	TRICHLOROETHENE	1/22	0.1	5	2	UG/L
GW	RNS	TRICHLOROFLUOROMETHANE	0/3				
GW	RNS	TRITIUM	17/17	-190	130	-21	PCI/L
GW	RNS	URANIUM-233,-234	17/17	-0.015	1.5	0.4	PCI/L
GW	RNS	URANIUM-235	17/17	-0.0177	0.136	0.05	PCI/L
GW	RNS	URANIUM-238	17/17	-0.0177	1.2	0.3	PCI/L
GW	RNS	VANADIUM	0/24				
GW	RNS	VINYL ACETATE	0/18				
GW	RNS	VINYL CHLORIDE	0/22				
GW	RNS	ZINC	13/24	5.40	94.10	15	UG/L
GW	RNS	cis-1,2-DICHLOROETHENE	0/3				
GW	RNS	cis-1,3-DICHLOROPROPENE	0/20				
GW	RNS	m+p XYLENE	0/3				
GW	RNS	n-BUTYLBENZENE	0/3				
GW	RNS	n-PROPYLBENZENE	0/3				
GW	RNS	o-CHLOROTOLUENE	0/3				
GW	RNS	o-XYLENE	0/3				
GW	RNS	p-CHLOROTOLUENE	0/3				
GW	RNS	p-CYMENE	0/3				
GW	RNS	sec-BUTYLBENZENE	0/3				

Equipment-Rinsate Blanks

Analytical Detect Information

Nondetects replaced with 1/2 the detection limit for mean calculation

S Type[1]	QC[2]	Analyte	Freq Hits[3]	Min Result	Max Result	Mean Result	Units
GW	RNS	tert-BUTYLBENZENE	0/3				
GW	RNS	trans-1,2-DICHLOROETHENE	0/3				
GW	RNS	trans-1,3-DICHLOROPROPENE	0/20				

[1] Sample type; GW = groundwater

[2] Quality control sample code; RNS = rinsate

[3] Frequency of hits, displayed as Number of detections/Number of samples

APPENDIX E

1993 Field Parameters

APPENDIX E-1

Solar Evaporation Ponds - Field Parameters, 1993

APPENDIX E-1

Solar Evaporation Ponds - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
1386	GW00145WC	02/02/93	7.34	1.06	mS/cm
1386	GW00562WC	04/13/93	7.42	1.26	mS/cm
1386	GW01132WC	08/04/93	7.34	1.32	mS/cm
1386	GW01421WC	10/28/93	7.46	1.27	mS/cm
1486	GW00135WC	02/03/93	7.56	1.49	mS/cm
1486	GW00554WC	04/13/93	7.07	1.94	mS/cm
1486	GW01124WC	08/03/93	7.40	1.89	mS/cm
1486	GW01449WC	10/29/93	7.67	1.93	mS/cm
1586	GW00136WC	02/05/93	7.11	1.41	mS/cm
1586	GW00136WCLR	02/05/93			uS/cm
1586	GW00555WC	04/13/93	7.09	1.70	mS/cm
1586	GW00555WCLR	04/13/93			
1586	GW01125WC	08/02/93	7.06	1.68	mS/cm
1586	GW01125WCLR	08/02/93			uS/cm
1586	GW01415WC	10/20/93	6.98	1.69	mS/cm
1586	GW01415WCLR	10/20/93			uS/cm
1686	GW00137WC	02/02/93	7.25	1.64	mS/cm
1686	GW00556WC	04/23/93	7.30	2.07	mS/cm
1686	GW01126WC	08/03/93	7.30	2.20	mS/cm
1686	GW01450WC	10/29/93	7.46	2.21	mS/cm
1786	GW00138WC	02/01/93	6.94	4.88	mS/cm
1786	GW00138WCLR	02/01/93			
1786	GW00557WC	04/16/93	7.06	8.1	mS/cm
1786	GW00557WCLR	04/16/93			
1786	GW01127WC	08/02/93	5.75	6.92	mS/cm
1786	GW01127WCLR	08/02/93			uS/cm
1786	GW01416WC	10/29/93	7.07	5.25	mS/cm
1786	GW01416WCLR	10/29/93			uS/cm
1886	GW00207WC	01/13/93			uS/cm
1886	GW00973WC	06/23/93			uS/cm
2286	GW00001WC	02/18/93	7.34	0.90	mS/cm
2286	GW00476WC	04/07/93	7.63	0.46	mS/cm
2286	GW01031WC	07/27/93	7.25	0.77	mS/cm
2286	GW01363WC	10/13/93	7.63	0.79	mS/cm
2386	GW00002WC	02/22/93	7.67	1.50	mS/cm
2386	GW00528WC	04/13/93	7.87	1.53	mS/cm
2386	GW01045WC	07/22/93	7.40	1.41	mS/cm
2386	GW01441WC	10/29/93	8.05	1.59	mS/cm
2486	GW00003WC	01/13/93			uS/cm
2486	GW00477WC	04/14/93	8.16	.60	mS/cm
2486	GW01032WC	07/14/93			uS/cm
2486	GW01746WC	10/04/93			uS/cm
2586	GW00004WC	02/05/93	7.15	2.83	mS/cm
2586	GW00529WC	04/13/93	7.12	2.82	mS/cm
2586	GW01046WC	07/16/93	7.34	2.62	mS/cm
2586	GW01442WC	10/22/93	7.69	2.53	mS/cm
2686	GW00005WC	02/05/93	7.38	2.27	mS/cm
2686	GW00478WC	04/12/93	7.26	2.15	mS/cm
2686	GW01033WC	07/30/93	7.18	2.13	mS/cm

APPENDIX E-1

Solar Evaporation Ponds - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
2686	GW01365WC	10/11/93	7.52	2.13	mS/cm
2286	GW00001WC	02/18/93	7.34	0.90	mS/cm
2286	GW00476WC	04/07/93	7.63	0.46	mS/cm
2286	GW01031WC	07/27/93	7.25	0.77	mS/cm
2286	GW01363WC	10/13/93	7.63	0.79	mS/cm
2786	GW00014WC	02/10/93	7.96	1.40	mS/cm
2786	GW00532WC	04/20/93	8.14	1.41	mS/cm
2786	GW01054WC	07/22/93	7.74	1.47	mS/cm
2786	GW01443WC	10/25/93	8.48	1.42	mS/cm
2886	GW00077WC	01/13/93			uS/cm
2986	GW00015WC	01/14/93			uS/cm
2986	GW00485WC	04/06/93			uS/cm
2986	GW01747WC	10/04/93			uS/cm
3086	GW00047WC	02/04/93	7.50	5.82	mS/cm
3086	GW00494WC	04/21/93	7.59	5.22	mS/cm
3086	GW01059WC	08/03/93	7.01	5.27	mS/cm
3086	GW01410WC	10/20/93	7.14	5.61	mS/cm
3186	GW00078WC	01/13/93			uS/cm
3186	GW00976WC	06/22/93			mS/cm
3286	GW00048WC	02/11/93	8.64	0.78	mS/cm
3286	GW00535WC	04/23/93	8.01	0.96	mS/cm
3286	GW01060WC	07/30/93	7.63	0.88	mS/cm
3286	GW01444WC	11/03/93	7.83	0.93	mS/cm
3386	GW00062WC	02/03/93			uS/cm
3386	GW00622WC	04/14/93	7.63	0.65	mS/cm
3386	GW01036WC	07/15/93	7.21	0.92	mS/cm
3386	GW01748WC	10/04/93			uS/cm
3486	GW00261WC	03/05/93	7.48	2.28	mS/cm
3486	GW00261WCLR	03/05/93			
3486	GW00694WC	05/06/93	7.59	2.50	mS/cm
3486	GW01243WC	09/22/93	6.86	2.20	mS/cm
3486	GW01243WCLR	09/22/93			uS/cm
3486	GW01700WC	12/14/93	7.16	2.27	mS/cm
3486	GW01700WCLR	12/15/93			uS/cm
3586	GW00262WC	03/05/93	7.24	1.42	mS/cm
3586	GW00695WC	05/06/93	7.10	1.68	mS/cm
3586	GW01244WC	09/22/93	7.06	1.47	mS/cm
3586	GW01701WC	12/13/93	7.02	1.58	mS/cm
3686	GW00148WC	02/18/93	7.22	3.09	mS/cm
3686	GW00565WC	05/07/93	7.09	2.75	mS/cm
3686	GW01174WC	08/12/93			uS/cm
3686	GW01749WC	10/05/93			uS/cm
2187	GW00060WC	02/04/93	7.04	2.43	mS/cm
2187	GW00539WC	04/16/93	6.93	2.70	mS/cm
2187	GW01158WC	08/03/93	7.34	2.98	mS/cm
2187	GW01467WC	11/03/93	7.38	3.32	mS/cm
3887	GW00016WC	02/10/93	7.63	2.36	mS/cm
3887	GW00486WC	04/07/93	7.63	2.45	mS/cm
3887	GW01764WC	10/04/93			uS/cm

APPENDIX E-1

Solar Evaporation Ponds - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
5687	GW00006WC	02/12/93	7.60	1.60	mS/cm
5687	GW00479WC	04/06/93	7.46	1.56	mS/cm
5687	GW01034WC	07/15/93	7.34	1.71	mS/cm
5687	GW01366WC	10/15/93	7.51	1.74	mS/cm
B208089	GW00139WC	02/04/93	7.28	0.94	mS/cm
B208089	GW00558WC	04/23/93	7.45	0.98	mS/cm
B208089	GW01128WC	07/28/93	6.98	1.18	mS/cm
B208089	GW01417WC	10/26/93	7.14	1.26	mS/cm
P207389	GW00007WC	02/04/93	7.80	0.89	mS/cm
P207389	GW00530WC	04/15/93	7.64	0.82	mS/cm
P207389	GW01049WC	07/20/93	7.25	0.99	mS/cm
P207389	GW01367WC	10/12/93	6.94	0.81	mS/cm
P207589	GW00008WC	02/05/93	7.82	1.22	mS/cm
P207589	GW00480WC	04/12/93	7.86	1.11	mS/cm
P207589	GW01035WC	07/14/93	8.11	1.09	mS/cm
P207589	GW01368WC	10/13/93	8.12	1.19	mS/cm
P207689	GW00023WC	02/10/93	7.37	2.03	mS/cm
P207689	GW00023WCLR	02/10/93			
P207689	GW00487WC	04/12/93	7.34	1.88	mS/cm
P207689	GW00487WCLR	04/12/93			
P207689	GW01047WC	07/30/93	7.78	1.78	mS/cm
P207689	GW01374WC	10/18/93	7.44	1.53	mS/cm
P207689	GW01374WCLR	10/18/93			uS/cm
P207789	GW00017WC	02/12/93	8.14	1.81	mS/cm
P207789	GW00488WC	04/12/93	8.27	1.78	mS/cm
P207789	GW01055WC	07/30/93	8.09	1.71	mS/cm
P207789	GW01375WC	10/14/93	8.30	1.84	mS/cm
P207889	GW00018WC	02/09/93	7.92	2.13	mS/cm
P207889	GW00489WC	04/07/93	7.83	1.75	mS/cm
P207889	GW01056WC	07/20/93	7.29	1.83	mS/cm
P207889	GW01376WC	10/13/93	7.71	2.38	mS/cm
P207989	GW00019WC	02/09/93	8.14	1.81	mS/cm
P207989	GW00490WC	04/07/93	8.12	1.74	mS/cm
P207989	GW01057WC	07/20/93	7.95	1.96	mS/cm
P207989	GW01152WC	07/26/93	7.87	1.90	mS/cm
P207989	GW01377WC	10/14/93	7.88	1.82	mS/cm
B208189	GW00140WC	02/05/93	7.14	0.74	mS/cm
B208189	GW00559WC	04/23/93	7.55	0.78	mS/cm
B208189	GW01129WC	07/28/93	7.34	0.80	mS/cm
B208189	GW01418WC	10/26/93	6.83	0.80	mS/cm
B208289	GW00146WC	02/04/93	7.72	3.34	mS/cm
B208289	GW00563WC	04/12/93	8.23	4.0	mS/cm
B208289	GW01133WC	08/03/93	7.84	3.99	mS/cm
B208289	GW01422WC	10/27/93	7.60	4.01	mS/cm
B208389	GW00072WC	01/13/93			uS/cm
B208389	GW00931WC	06/23/93	6.85	1.12	mS/cm
B208489	GW00932WC	06/23/93			uS/cm
B208689	GW00142WC	02/02/93	7.14	3.63	mS/cm
B208689	GW00560WC	04/23/93	7.35	4.46	mS/cm

APPENDIX E-1

Solar Evaporation Ponds - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
B208689	GW01130WC	08/03/93	7.09	4.58	mS/cm
B208689	GW01419WC	10/28/93	7.04	4.61	mS/cm
B208789	GW00129WC	02/04/93	7.65	1.39	mS/cm
B208789	GW00934WC	06/23/93	7.20	1.35	mS/cm
P208989	GW00049WC	02/10/93	7.77	11.21	mS/cm
P208989	GW00495WC	04/23/93	6.95	13.15	mS/cm
P208989	GW01061WC	07/29/93	6.58	12.42	mS/cm
P208989	GW01411WC	10/22/93	7.04	13.18	mS/cm
P209089	GW00009WC	02/23/93	7.66	0.90	mS/cm
P209089	GW00481WC	04/14/93	8.18	0.82	mS/cm
P209089	GW01050WC	07/23/93	8.10	0.98	mS/cm
P209089	GW01369WC	10/21/93	7.10	0.96	mS/cm
P209189	GW00010WC	02/19/93	7.18	0.99	mS/cm
P209189	GW00941WC	06/08/93	7.11	0.76	mS/cm
P209289	GW00011WC	02/11/93	7.96	1.13	mS/cm
P209289	GW00482WC	04/05/93	7.74	1.17	mS/cm
P209289	GW01775WC	10/04/93			uS/cm
B210389	GW00143WC	02/02/93	7.01	3.54	mS/cm
B210489	GW00144WC	02/02/93	6.83	5.20	mS/cm
B210489	GW00637WC	04/19/93	7.22	5.57	mS/cm
B210489	GW01131WC	08/04/93	7.38	6.10	mS/cm
B210489	GW01420WC	10/20/93	7.03	6.35	mS/cm
P209389	GW00012WC	02/12/93	6.93	0.82	mS/cm
P209389	GW00531WC	04/15/93	7.14	0.80	mS/cm
P209389	GW01051WC	07/20/93	6.76	0.82	mS/cm
P209389	GW01371WC	10/19/93	7.03	0.85	mS/cm
P209489	GW00013WC	02/19/93	6.96	2.98	mS/cm
P209489	GW00483WC	04/07/93	6.90	2.57	mS/cm
P209489	GW01052WC	07/22/93	6.97	2.81	mS/cm
P209489	GW01372WC	10/15/93	7.00	2.79	mS/cm
P209589	GW00053WC	02/09/93	7.15	OO HIG	mS/cm
P209589	GW00497WC	04/22/93	7.26	1.0	mS/cm
P209589	GW01065WC	07/22/93	6.87	OO HIG	mS/cm
P209589	GW01413WC	10/19/93	7.06	1.00	mS/cm
P209689	GW00020WC	02/09/93	7.84	1.301	mS/cm
P209689	GW00491WC	04/06/93	8.08	1.30	mS/cm
P209689	GW01058WC	07/20/93	7.89	1.10	mS/cm
P209689	GW01378WC	10/12/93	7.66	1.34	mS/cm
P209789	GW00021WC	02/09/93	7.73	1.446	mS/cm
P209789	GW00493WC	04/06/93	7.61	1.32	mS/cm
P209789	GW01048WC	07/16/93	7.61	0.99	mS/cm
P209789	GW01048WCLR	07/16/93			uS/cm
P209789	GW01379WC	10/15/93	7.40	1.73	mS/cm
P209889	GW00050WC	02/11/93	7.30	OO HIG	mS/cm
P209889	GW00496WC	04/21/93	7.46	19.62	mS/cm
P209889	GW01062WC	07/23/93	7.25	18.75	mS/cm
P209889	GW01412WC	10/21/93	7.22	18.64	mS/cm
P209989	GW00071WC	01/13/93			uS/cm
P209989	GW00608WC	04/11/93			uS/cm

APPENDIX E-1

Solar Evaporation Ponds - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
P210089	GW00134WC	02/05/93	7.08	4.26	mS/cm
P210089	GW01219WC	08/20/93	6.97	4.62	mS/cm
P210089	GW01414WC	10/20/93	7.19	4.71	mS/cm
P210189	GW00022WC	02/23/93	7.28	0.92	mS/cm
P210189	GW00022WCLR	02/23/93			
P210189	GW00484WC	04/16/93	7.27	0.95	mS/cm
P210189	GW00484WCLR	04/16/93			
P210189	GW01053WC	07/27/93	7.13	0.80	mS/cm
P210189	GW01053WCLR	07/27/93			uS/cm
P210189	GW01373WC	10/22/93	7.50	0.88	mS/cm
P210189	GW01373WCLR	10/22/93			uS/cm
P213889	GW00083WC	01/15/93			uS/cm
P213889	GW01473WC	11/02/93			uS/cm
P213989	GW00084WC	01/15/93			uS/cm
P213989	GW01472WC	11/02/93			uS/cm
P218089	GW00059WC	02/09/93	7.80	0.69	mS/cm
P218089	GW00956WC	06/14/93	7.72	0.81	mS/cm
P218389	GW01522WC	11/16/93	7.37	0.71	mS/cm
P219189	GW00957WC	06/14/93	7.57	2.51	mS/cm
P219189	GW01537WC	11/18/93	7.50	2.54	mS/cm
P219489	GW01523WC	11/16/93	7.67	0.73	mS/cm
P219589	GW01524WC	11/15/93	7.71	1.34	mS/cm
75892	GW00191WC	01/20/93			uS/cm
75892	GW00567WC	04/01/93			uS/cm
75992	GW00946WC	06/07/93			uS/cm
75992	GW01169WC	08/12/93	6.99	1.52	mS/cm
76192	GW00192WC	01/20/93			uS/cm
76192	GW00849WC	05/20/93			uS/cm
76292	GW00467WC	03/22/93	6.93	0.52	mS/cm
76292	GW00533WC	04/21/93	6.98	0.58	mS/cm
76292	GW01154WC	08/04/93	7.28	0.82	mS/cm
76292	GW01465WC	10/29/93	7.34	0.80	mS/cm
05093	GW01007WC	06/15/93	7.10	7.90	mS/cm
05093	GW01156WC	08/03/93	7.01	9.96	mS/cm
05093	GW01401WC	10/18/93	7.12	12.27	mS/cm
05193	GW01008WC	06/16/93	7.21	3.90	mS/cm
05193	GW01157WC	08/02/93	7.26	3.87	mS/cm
05193	GW01402WC	10/18/93	7.28	4.20	mS/cm
05393	GW00916WC	06/01/93			uS/cm
05393	GW01019WC	06/07/93			uS/cm

APPENDIX E-2

West Spray Field - Field Parameters, 1993

APPENDIX E-2

West Spray Field - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
4686	GW00024WC	01/27/93	7.30	0.34	mS/cm
4686	GW00629WC	04/21/93	7.93	0.43	mS/cm
4686	GW01185WC	08/17/93	7.72	0.39	mS/cm
4686	GW01695WC	12/13/93	7.44	0.40	mS/cm
4786	GW00025WC	01/27/93	6.84	0.19	mS/cm
4786	GW00630WC	04/19/93	7.16	0.18	mS/cm
4786	GW01182WC	08/19/93	7.10	0.28	mS/cm
4786	GW01182WCMS	08/19/93			uS/cm
4786	GW01182WCMSD	08/19/93			uS/cm
4786	GW01183WC	08/19/93			uS/cm
4786	GW01184WC	08/19/93			uS/cm
4786	GW01645WC	12/02/93	7.46	0.49	mS/cm
4786	GW01645WCMS	12/03/93			uS/cm
4786	GW01645WCMSD	12/03/93			uS/cm
4786	GW01646WC	12/03/93			uS/cm
4786	GW01647WC	12/03/93			uS/cm
4886	GW00039WC	01/29/93	8.90	0.359	mS/cm
4886	GW00631WC	04/22/93	8.62	0.39	mS/cm
4886	GW01077WC	08/03/93	7.93	0.378	mS/cm
4886	GW01455WC	11/09/93	8.72	0.39	mS/cm
4986	GW00204WC	01/25/93	7.06	0.24	mS/cm
4986	GW00574WC	04/13/93	6.61	0.26	mS/cm
4986	GW01076WC	07/21/93	6.82	0.236	mS/cm
4986	GW01399WC	11/09/93	7.20	0.23	mS/cm
5086	GW00043WC	02/03/93	6.83	0.21	mS/cm
5086	GW00043WCMS	02/03/93			uS/cm
5086	GW00043WCMSD	02/03/93			uS/cm
5086	GW00044WC	02/03/93			
5086	GW00045WC	02/03/93			
5086	GW00578WC	04/14/93	7.00	0.25	mS/cm
5086	GW00578WCMS	04/14/93			
5086	GW00578WCMSD	04/14/93			
5086	GW00579WC	04/14/93			
5086	GW00580WC	04/14/93			
5086	GW01082WC	08/03/93	6.85	0.253	mS/cm
5086	GW01082WCMS	08/03/93			uS/cm
5086	GW01082WCMSD	08/03/93			uS/cm
5086	GW01083WC	08/03/93			uS/cm
5086	GW01084WC	08/03/93			uS/cm
5086	GW01458WC	11/05/93	7.14	0.29	mS/cm
5086	GW01458WCMS	11/05/93			uS/cm
5086	GW01458WCMSD	11/05/93			uS/cm
5086	GW01459WC	11/05/93			uS/cm
5086	GW01460WC	11/05/93			uS/cm
5186	GW00035WC	01/27/93	7.44	0.17	mS/cm
5186	GW00571WC	04/09/93	7.32	0.18	mS/cm
5186	GW01073WC	07/21/93	6.66	0.174	mS/cm
5186	GW01396WC	11/05/93	7.31	0.19	mS/cm
5286	GW00036WC	01/26/93	10.41	0.37	mS/cm
5686	GW00227WC	03/17/93	6.86	0.26	mS/cm
5686	GW00806WC	05/24/93	7.08	0.32	mS/cm
5686	GW00806WCLR	05/24/93			
5686	GW01326WC	09/17/93	7.02	0.27	mS/cm

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West Spray Field - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
5686	GW01326WCLR	09/17/93			uS/cm
B110889	GW00201WC	01/25/93	7.37	0.27	mS/cm
B110889	GW00570WC	04/09/93	7.46	0.26	mS/cm
B110889	GW01071WC	07/23/93	7.10	0.266	mS/cm
B110889	GW01394WC	11/05/93	7.33	0.26	mS/cm
B110989	GW00200WC	01/25/93	7.09	0.23	mS/cm
B110989	GW00569WC	04/15/93	7.11	0.19	mS/cm
B110989	GW01067WC	07/19/93	6.89	0.192	mS/cm
B110989	GW01393WC	11/08/93	6.90	0.19	mS/cm
B111189	GW00026WC	01/26/93	7.20	0.17	mS/cm
B111189	GW00621WC	04/13/93	7.00	0.16	mS/cm
B111189	GW01066WC	07/23/93	6.97	0.16	mS/cm
B111189	GW01392WC	11/04/93	7.33	0.15	mS/cm
B402689	GW00157WC	01/19/93			uS/cm
B402689	GW00850WC	05/26/93	7.17	0.88	mS/cm
B410589	GW00046WC	01/27/93	6.78	0.34	mS/cm
B410589	GW00577WC	04/08/93	7.70	0.32	mS/cm
B410689	GW00205WC	01/25/93	7.38	0.24	mS/cm
B410689	GW00575WC	04/12/93	7.26	0.26	mS/cm
B410689	GW01079WC	07/22/93	7.13	0.250	mS/cm
B410689	GW01456WC	11/02/93	6.90	0.29	mS/cm
B410789	GW00042WC	01/26/93	7.26	0.38	mS/cm
B410789	GW00042WCLR	01/26/93			
B410789	GW00576WC	04/15/93	7.14	0.32	mS/cm
B410789	GW00576WCLR	04/15/93			
B410789	GW01080WC	07/26/93	7.00	0.339	mS/cm
B410789	GW01080WCLR	07/26/93			uS/cm
B410789	GW01457WC	11/05/93	7.19	0.34	mS/cm
B410789	GW01457WCLR	11/05/93			uS/cm
B411289	GW00202WC	01/26/93	6.49	0.17	mS/cm
B411289	GW00572WC	04/13/93	6.69	0.16	mS/cm
B411289	GW01074WC	08/03/93	6.67	0.128	mS/cm
B411289	GW01397WC	11/04/93	6.63	0.12	mS/cm
B411289	GW01397WCLR	11/04/93			uS/cm
B411389	GW00203WC	01/25/93	6.54	0.13	mS/cm
B411389	GW00573WC	04/12/93	6.95	0.14	mS/cm
B411389	GW01075WC	07/22/93	6.84	0.138	mS/cm
B411389	GW01398WC	11/03/93	7.17	0.16	mS/cm
P415889	GW01561WC	11/18/93	7.38	0.41	mS/cm
P415989	GW01562WC	11/21/93	6.97	0.53	mS/cm
P416089	GW01563WC	11/23/93	7.05	0.35	mS/cm
P416389	GW00958WC	06/10/93	7.19	0.45	mS/cm
P416389	GW01566WC	11/23/93	7.30	0.50	mS/cm
0190	GW00453WC	03/21/93	6.80	.20	mS/cm
0190	GW00675WC	06/23/93	6.77	0.20	mS/cm
0190	GW01085WC	08/13/93	6.83	0.21	mS/cm
0190	GW01574WC	11/19/93	6.90	0.23	mS/cm
0390	GW00455WC	03/21/93	6.67	0.22	mS/cm
0390	GW00677WC	04/28/93	7.25	0.22	mS/cm
0390	GW00677WCX	06/24/93	7.17	0.21	mS/cm
0390	GW01087WC	08/12/93	6.97	0.22	mS/cm
0390	GW01576WC	11/19/93	7.06	0.21	mS/cm
1490	GW00456WC	03/21/93	6.61	0.20	mS/cm

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West Spray Field - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
1490	GW00678WC	04/28/93	6.78	0.18	mS/cm
1490	GW01088WC	08/12/93	6.92	0.16	mS/cm
1490	GW01577WC	11/21/93	6.98	0.16	mS/cm
03092	GW00196WC	01/22/93			uS/cm
03092	GW00614WC	04/01/93			uS/cm
03192	GW00197WC	01/22/93			uS/cm
03192	GW00615WC	04/01/93			uS/cm
46192	GW00034WC	01/27/93	7.53	0.19	mS/cm
46192	GW00635WC	04/16/93	7.20	0.18	mS/cm
46192	GW01072WC	07/21/93	7.26	0.174	mS/cm
46192	GW01395WC	11/04/93	6.92	0.19	mS/cm
46292	GW00027WC	01/27/93	7.32	0.22	mS/cm
46292	GW00027WCMS	01/27/93			uS/cm
46292	GW00027WCMSD	01/27/93			uS/cm
46292	GW00028WC	01/27/93			uS/cm
46292	GW00029WC	01/27/93			uS/cm
46292	GW00632WC	04/20/93	7.56	0.21	mS/cm
46292	GW00632WCMS	04/20/93			
46292	GW00632WCMSD	04/20/93			
46292	GW00633WC	04/20/93			
46292	GW00634WC	04/20/93			
46292	GW01068WC	07/19/93	6.82	0.194	mS/cm
46292	GW01068WCMS	07/19/93			uS/cm
46292	GW01068WCMSD	07/19/93			uS/cm
46292	GW01069WC	07/19/93			uS/cm
46292	GW01070WC	07/19/93			uS/cm
46292	GW01451WC	11/11/93	7.26	0.18	mS/cm
46292	GW01451WCMS	11/11/93			uS/cm
46292	GW01451WCMSD	11/11/93			uS/cm
46292	GW01452WC	11/11/93			uS/cm
46292	GW01453WC	11/11/93			uS/cm
46492	GW00206WC	01/14/93			uS/cm
46492	GW00033WC	01/26/93	6.89	0.15	mS/cm
46492	GW00636WC	04/20/93	7.16	0.16	mS/cm
46492	GW01175WC	08/16/93	6.88	0.15	mS/cm
46492	GW01696WC	12/13/93	6.89	0.21	mS/cm

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Present Landfill - Field Parameters, 1993

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Present Landfill - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
0586	GW00124WC	03/03/93	7.28	4.61	mS/cm
0586	GW00549WC	04/15/93	7.42	6.24	mS/cm
0586	GW01123WC	08/04/93	7.23	5.64	mS/cm
0586	GW01490WC	11/08/93	7.69	5.03	mS/cm
0686	GW00123WC	02/17/93			uS/cm
0886	GW00101WC	02/09/93	9.21	0.41	mS/cm
0886	GW00547WC	04/12/93	9.18	0.48	mS/cm
0886	GW01105WC	08/05/93	9.29	0.48	mS/cm
0886	GW01386WC	10/11/93	9.51	0.47	mS/cm
0986	GW00096WC	02/12/93	7.53	0.38	mS/cm
0986	GW00546WC	04/15/93	8.22	0.47	mS/cm
0986	GW01098WC	08/11/93	7.79	0.44	mS/cm
0986	GW01448WC	11/04/93	7.87	0.45	mS/cm
1086	GW00097WC	01/28/93	6.65	0.18	mS/cm
1086	GW00508WC	04/15/93	6.63	0.17	mS/cm
1086	GW01100WC	08/09/93	6.39	0.16	mS/cm
1086	GW01382WC	10/13/93	6.44	0.17	mS/cm
4087	GW00069WC	01/14/93			uS/cm
4087	GW00501WC	04/20/93	8.02	1.55	mS/cm
4087	GW01089WC	08/04/93	7.42	3.23	mS/cm
4087	GW01765WC	10/07/93			uS/cm
4187	GW00090WC	03/01/93	7.31	3.18	mS/cm
4187	GW00544WC	04/20/93	7.58	3.26	mS/cm
4187	GW01093WC	08/10/93	7.01	3.39	mS/cm
4187	GW01447WC	11/05/93	7.22	3.26	mS/cm
4287	GW00122WC	02/17/93	7.91	0.54	mS/cm
4287	GW00548WC	05/11/93	7.67	0.63	mS/cm
4287	GW01122WC	08/04/93			uS/cm
4287	GW01766WC	10/07/93			uS/cm
5887	GW00098WC	01/28/93	6.98	0.23	mS/cm
5887	GW00509WC	04/15/93	6.58	0.21	mS/cm
5887	GW01102WC	08/05/93	6.58	0.21	mS/cm
5887	GW01383WC	10/13/93	6.57	0.22	mS/cm
6087	GW00102WC	02/22/93	6.17	0.20	mS/cm
6087	GW00102WCMS	02/22/93			
6087	GW00102WCMSD	02/22/93			
6087	GW00103WC	02/22/93			
6087	GW00104WC	02/22/93			uS/cm
6087	GW00512WC	04/09/93	6.37	0.25	mS/cm
6087	GW00512WCMS	04/09/93			
6087	GW00512WCMSD	04/09/93			
6087	GW00513WC	04/09/93			
6087	GW00514WC	04/09/93			
6087	GW01106WC	08/11/93	6.15	0.23	mS/cm
6087	GW01106WCMS	08/11/93			uS/cm
6087	GW01106WCMSD	08/11/93			uS/cm
6087	GW01107WC	08/11/93			uS/cm
6087	GW01108WC	08/11/93			uS/cm
6087	GW01437WC	10/27/93	6.67	0.23	mS/cm

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Present Landfill - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
6087	GW01437WCMS	10/27/93			uS/cm
6087	GW01437WCMSD	10/27/93			uS/cm
6087	GW01438WC	10/27/93			uS/cm
6087	GW01439WC	10/27/93			uS/cm
6187	GW00105WC	01/29/93	6.33	0.23	mS/cm
6187	GW00105WCLR	01/29/93			uS/cm
6187	GW00515WC	04/16/93	6.27	0.21	mS/cm
6187	GW00515WCLR	04/16/93			
6187	GW01109WC	08/04/93	6.13	0.20	mS/cm
6187	GW01109WCLR	08/04/93			uS/cm
6187	GW01440WC	10/26/93	6.02	0.21	mS/cm
6187	GW01440WCLR	10/26/93			uS/cm
6287	GW00106WC	01/29/93	6.31	0.23	mS/cm
6487	GW00110WC	02/09/93	6.43	0.64	mS/cm
6487	GW00516WC	04/12/93	6.11	0.80	mS/cm
6487	GW01110WC	08/09/93	6.19	0.70	mS/cm
6487	GW01388WC	10/15/93	6.27	0.57	mS/cm
6587	GW00111WC	01/29/93	6.65	0.35	mS/cm
6587	GW00517WC	04/08/93	6.43	0.30	mS/cm
6587	GW01111WC	08/13/93	6.64	0.28	mS/cm
6587	GW01389WC	10/18/93	6.53	0.29	mS/cm
6687	GW00112WC	02/11/93	7.55	0.49	mS/cm
6687	GW00518WC	04/20/93	6.62	2.47	mS/cm
6687	GW01112WC	08/09/93	6.51	0.54	mS/cm
6687	GW01390WC	10/15/93	6.94	0.78	mS/cm
6887	GW00087WC	02/10/93	6.61	0.23	mS/cm
6887	GW00087WCMS	02/10/93			
6887	GW00087WCMSD	02/10/93			uS/cm
6887	GW00088WC	02/10/93			
6887	GW00089WC	02/10/93			uS/cm
6887	GW00498WC	04/16/93	5.99	0.31	mS/cm
6887	GW00498WCMS	04/16/93			
6887	GW00498WCMSD	04/16/93			
6887	GW00499WC	04/16/93			
6887	GW00500WC	04/16/93			
6887	GW01090WC	08/06/93	6.26	0.28	mS/cm
6887	GW01090WCMS	08/06/93			uS/cm
6887	GW01090WCMSD	08/06/93			uS/cm
6887	GW01091WC	08/06/93			uS/cm
6887	GW01092WC	08/06/93			uS/cm
6887	GW01423WC	10/25/93	6.13	0.27	mS/cm
6887	GW01423WCMS	10/25/93			uS/cm
6887	GW01423WCMSD	10/25/93			uS/cm
6887	GW01424WC	10/25/93			uS/cm
6887	GW01425WC	10/25/93			uS/cm
7087	GW00117WC	02/09/93	7.40	0.81	mS/cm
7087	GW00523WC	04/12/93	7.36	0.87	mS/cm
7087	GW01117WC	08/10/93	7.41	0.94	mS/cm
7087	GW01405WC	10/20/93	7.44	0.90	mS/cm

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Present Landfill - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
7187	GW00091WC	02/19/93	7.21	0.38	mS/cm
7187	GW00091WCMS	02/19/93			
7187	GW00091WCMSD	02/19/93			
7187	GW00092WC	02/19/93			
7187	GW00093WC	02/19/93			uS/cm
7187	GW00502WC	04/09/93	7.47	0.49	mS/cm
7187	GW00502WCMS	04/09/93			
7187	GW00502WCMSD	04/09/93			
7187	GW00503WC	04/09/93			
7187	GW00504WC	04/09/93			
7187	GW01094WC	08/11/93	7.44	.451	mS/cm
7187	GW01094WCMS	08/11/93			uS/cm
7187	GW01094WCMSD	08/11/93			uS/cm
7187	GW01095WC	08/11/93			uS/cm
7187	GW01096WC	08/11/93			uS/cm
7187	GW01434WC	11/03/93	7.52	0.45	mS/cm
7187	GW01434WCMS	11/03/93			uS/cm
7187	GW01434WCMSD	11/03/93			uS/cm
7187	GW01435WC	11/03/93			uS/cm
7187	GW01436WC	11/03/93			uS/cm
7287	GW00113WC	02/01/93	7.32	0.48	mS/cm
7287	GW00519WC	04/08/93	7.32	0.51	mS/cm
7287	GW01113WC	08/09/93	7.32	0.53	mS/cm
7287	GW01391WC	10/13/93	7.40	0.48	mS/cm
B106089	GW00099WC	01/28/93	6.53	0.59	mS/cm
B106089	GW00510WC	04/15/93	6.23	0.36	mS/cm
B106089	GW01103WC	08/11/93	6.40	.655	mS/cm
B106089	GW01384WC	10/13/93	6.28	0.56	mS/cm
B206289	GW00114WC	02/02/93	7.84	0.62	mS/cm
B206289	GW00520WC	04/08/93	7.70	0.65	mS/cm
B206289	GW01114WC	08/09/93	7.37	0.61	mS/cm
B206289	GW01403WC	10/28/93	7.60	0.66	mS/cm
B206389	GW00115WC	02/09/93	6.59	1.01	mS/cm
B206389	GW00521WC	04/12/93	6.27	1.19	mS/cm
B206489	GW00116WC	02/02/93	7.90	0.54	mS/cm
B206489	GW00522WC	04/08/93	7.67	0.53	mS/cm
B206489	GW01116WC	08/06/93	7.65	1.13	mS/cm
B206489	GW01404WC	10/18/93	7.66	0.65	mS/cm
B206589	GW00118WC	02/02/93	7.52	0.88	mS/cm
B206589	GW00524WC	04/16/93	7.54	1.04	mS/cm
B206589	GW01118WC	08/12/93	7.19	0.99	mS/cm
B206589	GW01406WC	11/05/93	7.35	1.04	mS/cm
B206689	GW00119WC	02/11/93	8.04	0.94	mS/cm
B206689	GW00525WC	04/21/93	8.02	0.96	mS/cm
B206689	GW01119WC	08/10/93	7.89	0.92	mS/cm
B206689	GW01407WC	10/18/93	8.00	1.04	mS/cm
B206789	GW00120WC	02/09/93	7.53	1.48	mS/cm
B206789	GW00526WC	04/12/93	7.54	1.64	mS/cm
B206789	GW01120WC	08/05/93	7.81	1.67	mS/cm

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Present Landfill - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
B206789	GW01325WC	09/01/93			uS/cm
B206789	GW01408WC	10/19/93	7.79	1.69	mS/cm
B206889	GW00121WC	02/17/93	7.80	4.18	mS/cm
B206889	GW00527WC	04/22/93	7.74	4.26	mS/cm
B206889	GW01121WC	08/09/93	7.56	4.32	mS/cm
B206889	GW01409WC	10/19/93	7.60	4.26	mS/cm
B206989	GW00094WC	02/12/93	7.26	4.97	mS/cm
B206989	GW00505WC	04/20/93	7.63	5.52	mS/cm
B206989	GW01097WC	08/09/93	7.71	5.52	mS/cm
B206989	GW01380WC	10/12/93	7.38	5.58	mS/cm
B207089	GW00364WC	03/02/93	7.09	3.08	mS/cm
B207089	GW00506WC	04/20/93	7.22	3.09	mS/cm
B207089	GW01099WC	08/13/93	7.27	2.87	mS/cm
B207089	GW01381WC	10/12/93	7.18	3.11	mS/cm
76792	GW00085WC	01/14/93			uS/cm
76792	GW00595WC	04/01/93			uS/cm
76992	GW00086WC	01/14/93			uS/cm
76992	GW00596WC	04/01/93			uS/cm
77392	GW00194WC	01/20/93			uS/cm
77392	GW00847WC	05/20/93			uS/cm
70093	GW70011ST	03/25/93	6.24	0.200	mS/cm
70093	GW70013ST	03/25/93	6.24	0.200	mS/cm
70093	GW00638WC	04/20/93	6.15	0.19	mS/cm
70093	GW00830WC	05/24/93	6.26	10.5	mS/cm
70093	GW00988WC	06/14/93	5.97	0.21	mS/cm
70093	GW01136WC	07/30/93	6.05	0.193	mS/cm
70093	GW01502WC	11/10/93	6.26	0.20	mS/cm
70093	GW01502WCLR	11/10/93			uS/cm
70193	GW70012ST	03/25/93	6.71	0.257	mS/cm
70193	GW00639WC	04/20/93	7.19	0.23	mS/cm
70193	GW00831WC	05/25/93	7.08	0.25	mS/cm
70193	GW00994WC	06/16/93	6.87	0.22	mS/cm
70193	GW01137WC	07/29/93	6.93	0.23	mS/cm
70193	GW01503WC	11/11/93	6.78	0.20	mS/cm
70293	GW70015ST	03/27/93	8.91	0.385	mS/cm
70293	GW00640WC	04/28/93	8.52	0.30	mS/cm
70293	GW00832WC	05/25/93	8.62	0.34	mS/cm
70293	GW00990WC	06/15/93	7.49	0.40	mS/cm
70293	GW01138WC	07/30/93	8.34	0.33	mS/cm
70293	GW01506WC	11/19/93	8.32	0.34	mS/cm
70393	GW70010ST	03/24/93	6.62	0.199	mS/cm
70393	GW00641WC	04/23/93	6.84	0.19	mS/cm
70393	GW00833WC	06/02/93	6.76	0.20	mS/cm
70393	GW00991WC	06/15/93	6.55	0.19	mS/cm
70393	GW01139WC	07/27/93	6.58	0.20	mS/cm
70393	GW01507WC	11/12/93	6.68	0.20	mS/cm
70493	GW70017ST	03/27/93	7.12	0.330	mS/cm
70493	GW00834WC	05/25/93	7.57	0.41	mS/cm
70493	GW01140WC	07/30/93	7.00	0.253	mS/cm

APPENDIX E-3

Present Landfill - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
70493	GW01508WC	11/19/93	7.70	0.40	mS/cm
70593	GW70026ST	04/02/93	9.49	0.353	mS/cm
70593	GW00643WC	04/29/93	8.82	0.38	mS/cm
70593	GW00835WC	06/02/93	7.22	0.41	mS/cm
70593	GW00995WC	06/16/93	8.14	0.48	mS/cm
70593	GW01141WC	08/04/93	8.21	0.41	mS/cm
70593	GW01509WC	11/11/93			uS/cm
70593	GW01593WC	11/19/93	7.93	0.52	mS/cm
70693	GW70014ST	03/26/93	6.39	0.207	mS/cm
70693	GW00644WC	04/27/93	6.16	0.22	mS/cm
70693	GW00836WC	05/25/93	6.53	0.24	mS/cm
70693	GW00996WC	06/15/93	6.34	0.38	mS/cm
70693	GW01142WC	07/28/93	6.24	0.22	mS/cm
70693	GW01504WC	11/11/93	6.30	0.22	mS/cm
70893	GW70027ST	04/02/93	11.08	0.745	mS/cm
70893	GW00645WC	04/27/93	10.83	0.79	mS/cm
70893	GW00837WC	05/25/93	10.99	0.78	mS/cm
70893	GW00997WC	06/15/93	10.37	0.75	mS/cm
70893	GW01143WC	07/29/93	10.32	0.69	mS/cm
70893	GW01510WC	11/12/93	9.44	0.64	mS/cm
71193	GW70016ST	03/27/93	6.78	0.240	mS/cm
71193	GW00646WC	04/29/93	7.22	0.37	mS/cm
71193	GW00838WC	05/26/93	6.52	0.33	mS/cm
71193	GW00998WC	06/18/93	6.70	0.32	mS/cm
71193	GW01144WC	07/28/93	6.57	0.28	mS/cm
71193	GW01511WC	11/16/93	6.98	0.55	mS/cm
71493	GW70018ST	03/30/93	8.16	0.254	mS/cm
71493	GW00647WC	04/29/93	7.92	0.24	mS/cm
71493	GW00839WC	05/26/93	8.00	0.26	mS/cm
71493	GW00999WC	06/17/93	7.54	0.26	mS/cm
71493	GW01145WC	07/27/93	7.82	0.25	mS/cm
71493	GW01512WC	11/16/93	7.68	0.29	mS/cm
71693	GW00620WC	04/02/93			uS/cm
71693	GW00915WC	05/28/93	6.59	0.86	mS/cm
71693	GW01000WC	06/17/93	6.55	1.66	mS/cm
71693	GW01146WC	07/26/93	6.75	2.48	mS/cm
71693	GW01516WC	11/15/93			uS/cm
71893	GW70019ST	03/29/93	5.35	0.301	mS/cm
71893	GW70019STMS	03/29/93	6.73	0.301	mS/cm
71893	GW70019STMSD	03/29/93	6.73	0.301	mS/cm
71893	GW70021ST	03/29/93	6.73	0.301	mS/cm
71893	GW70022ST	03/29/93	6.73	0.301	mS/cm
71893	GW00654WC	04/26/93	6.42	0.31	mS/cm
71893	GW00654WCMS	04/26/93			
71893	GW00654WCMSD	04/26/93			
71893	GW00655WC	04/26/93			
71893	GW00656WC	04/26/93			
71893	GW00841WC	05/27/93	6.55	0.30	mS/cm
71893	GW01001WC	06/18/93	6.51	0.30	mS/cm

APPENDIX E-3

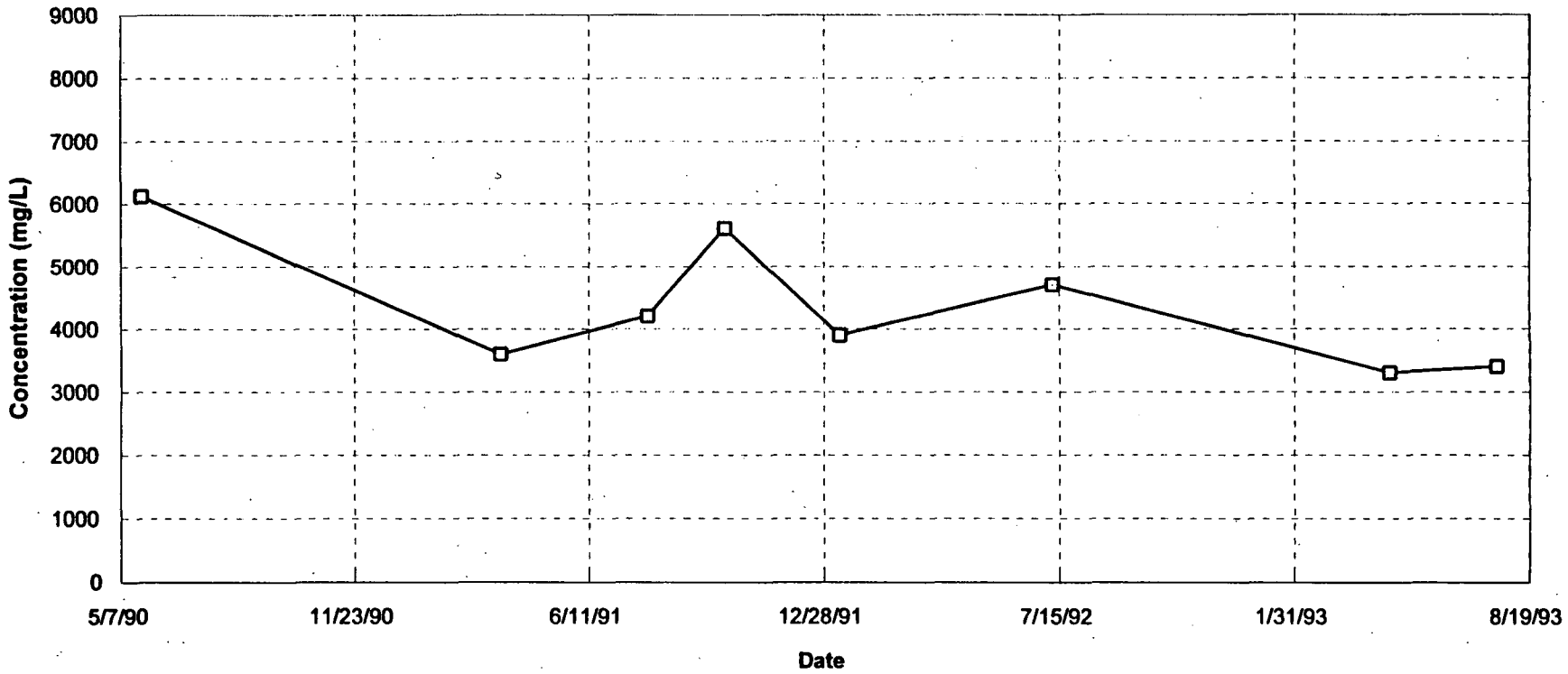
Present Landfill - Field Parameters, 1993

Well Number	Sample Number	Sample Date	pH	Specific Conductivity	
71893	GW01147WC	07/27/93	6.28	0.29	mS/cm
71893	GW01513WC	11/16/93	6.48	0.38	mS/cm
71893	GW01513WCMS	11/16/93			uS/cm
71893	GW01513WCMSD	11/16/93			uS/cm
71893	GW01514WC	11/16/93			uS/cm
71893	GW01515WC	11/16/93			uS/cm
72093	GW70024ST	03/31/93	6.83	2.14	mS/cm
72093	GW70025ST	03/31/93	NA	NA	mS/cm
72093	GW00649WC	04/26/93	6.78	2.11	mS/cm
72093	GW00842WC	05/27/93	6.60	2.08	mS/cm
72093	GW01002WC	06/21/93	6.54	2.02	mS/cm
72093	GW01149WC	07/29/93	6.66	2.03	mS/cm
72093	GW01517WC	11/16/93	7.24	2.21	mS/cm
72293	GW70023ST	03/31/93	6.96	2.70	mS/cm
72293	GW00650WC	04/27/93	6.99	4.10	mS/cm
72293	GW00843WC	05/28/93	6.80	3.45	mS/cm
72293	GW01003WC	06/16/93	6.92	3.32	mS/cm
72293	GW01150WC	07/29/93	7.08	3.05	mS/cm
72293	GW01518WC	11/16/93	7.00	2.70	mS/cm
72393	GW70020ST	03/29/93	6.85	2.28	mS/cm
72393	GW00651WC	04/27/93	6.70	2.21	mS/cm
72393	GW00844WC	05/27/93	6.84	2.23	mS/cm
72393	GW01004WC	06/16/93	6.84	2.11	mS/cm
72393	GW01151WC	07/26/93	6.75	2.15	mS/cm
72393	GW01519WC	11/12/93	6.79	2.14	mS/cm
72493	GW00745WC	04/02/93			uS/cm
72493	GW00922WC	05/27/93			uS/cm
72493	GW01793WC	10/06/93			uS/cm

APPENDIX F

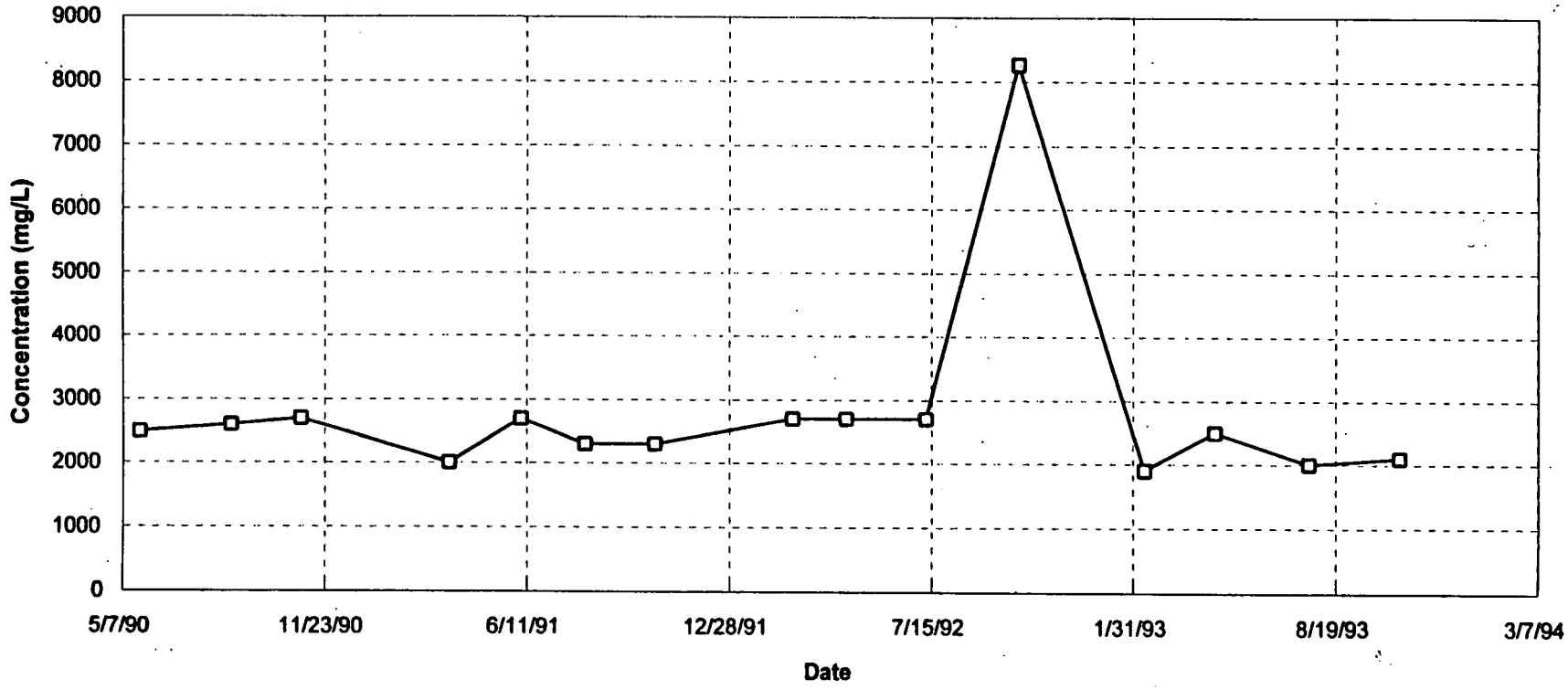
Time-Series Plots for Selected Analytes in Selected Monitoring Wells

Solar Evaporation Ponds
Nitrate/Nitrite
Well P209589



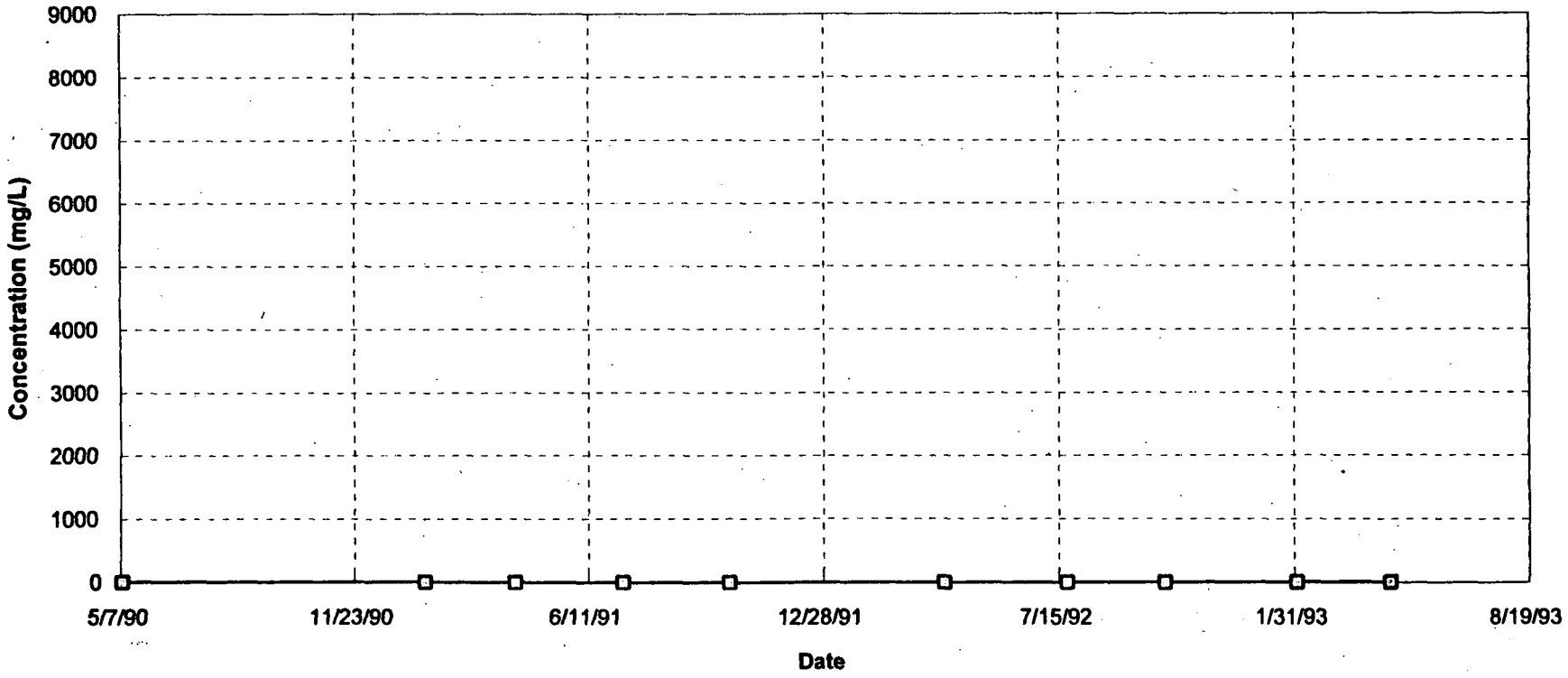
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Nitrate/Nitrite
Well P209889

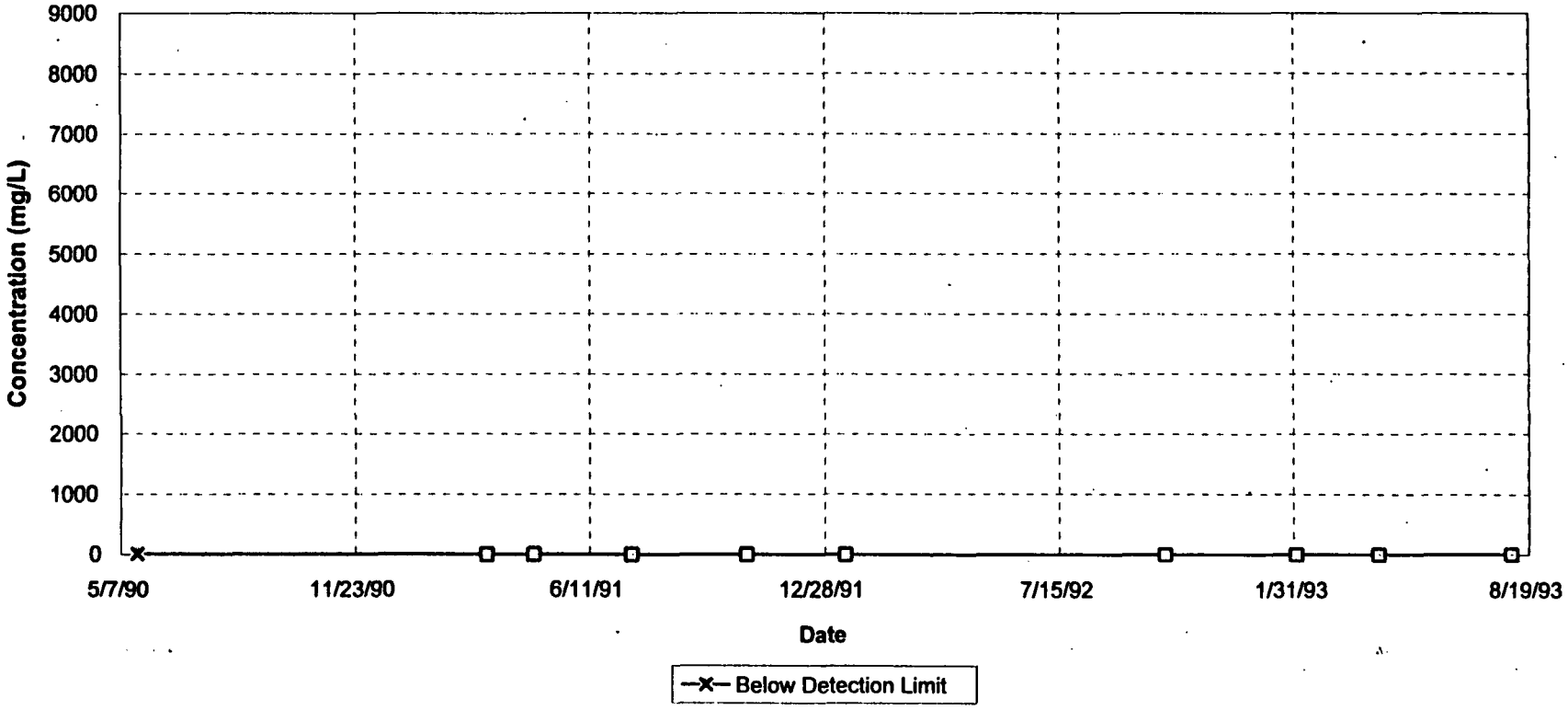


SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Nitrate/Nitrite
Well B208689

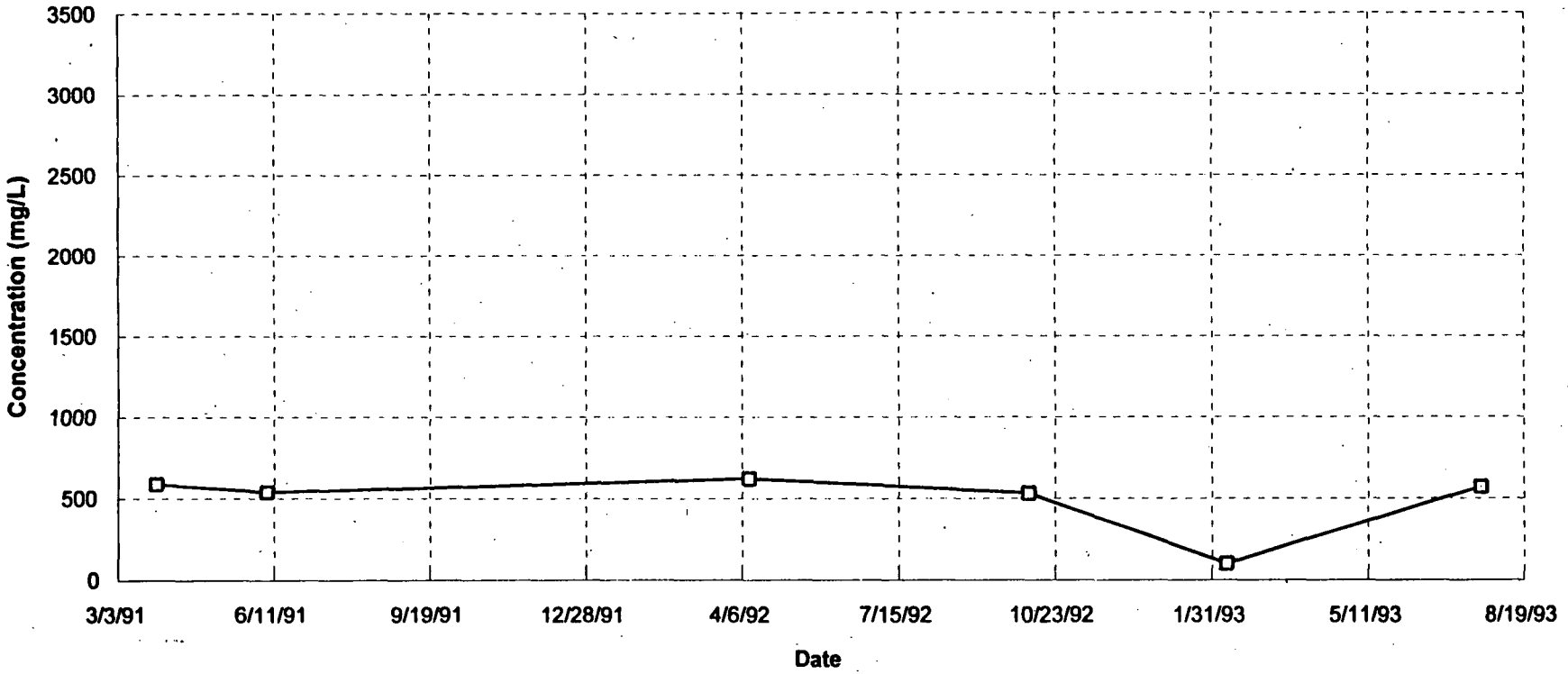


Solar Evaporation Ponds
Nitrate/Nitrite
Well 1386

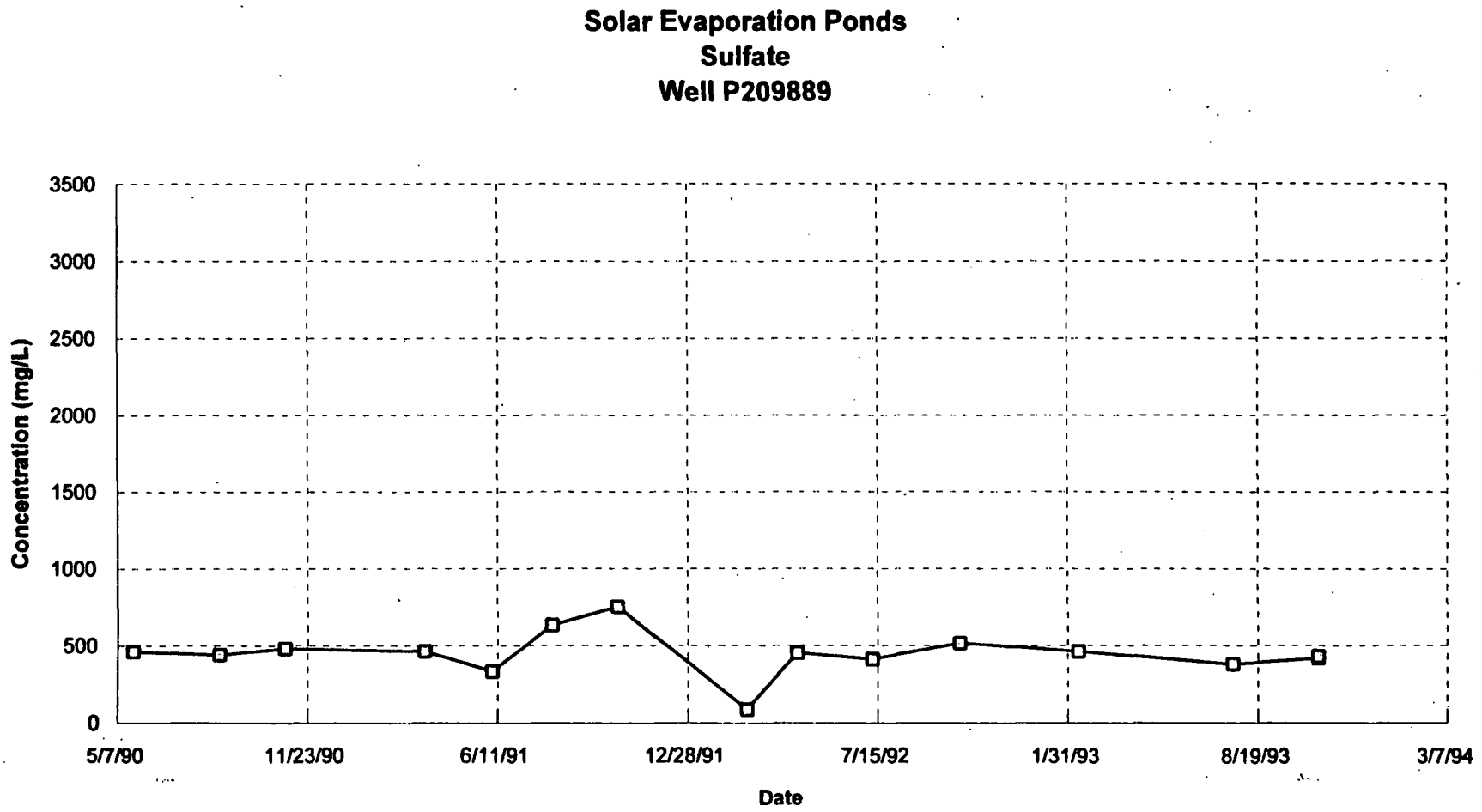


SEP_PLOT.XLS 2/18/94

Solar Evaporation Ponds
Sulfate
Well P209589

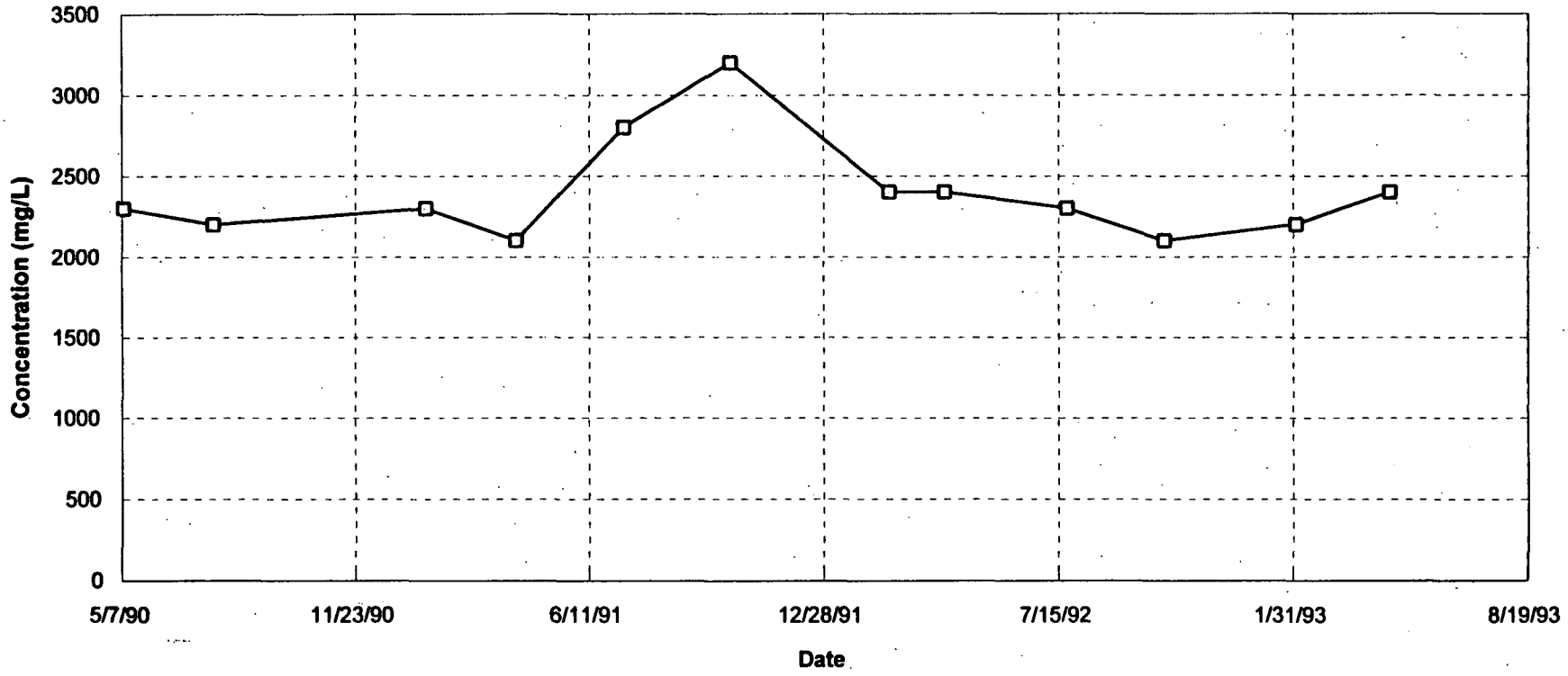


SEP_PLOT.XLS 2/17/94



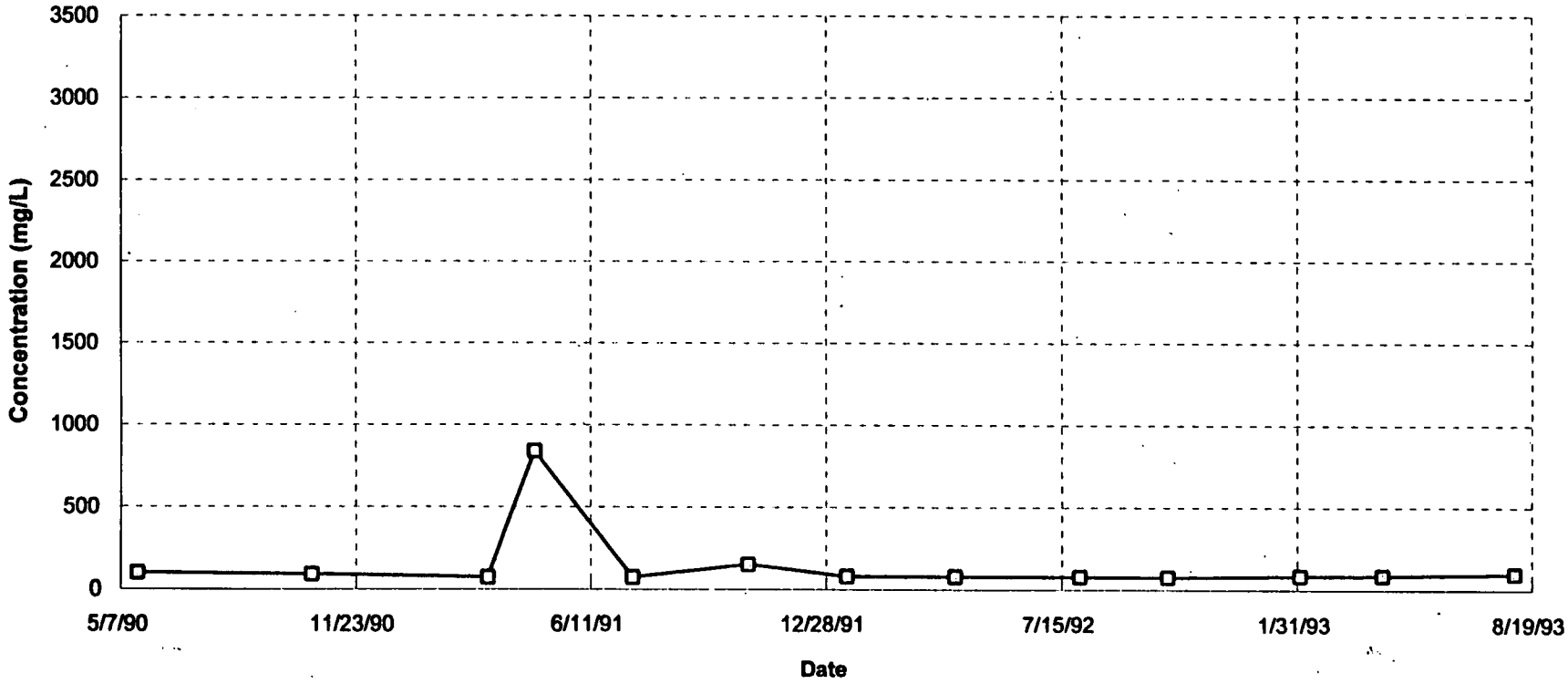
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Sulfate
Well B208689



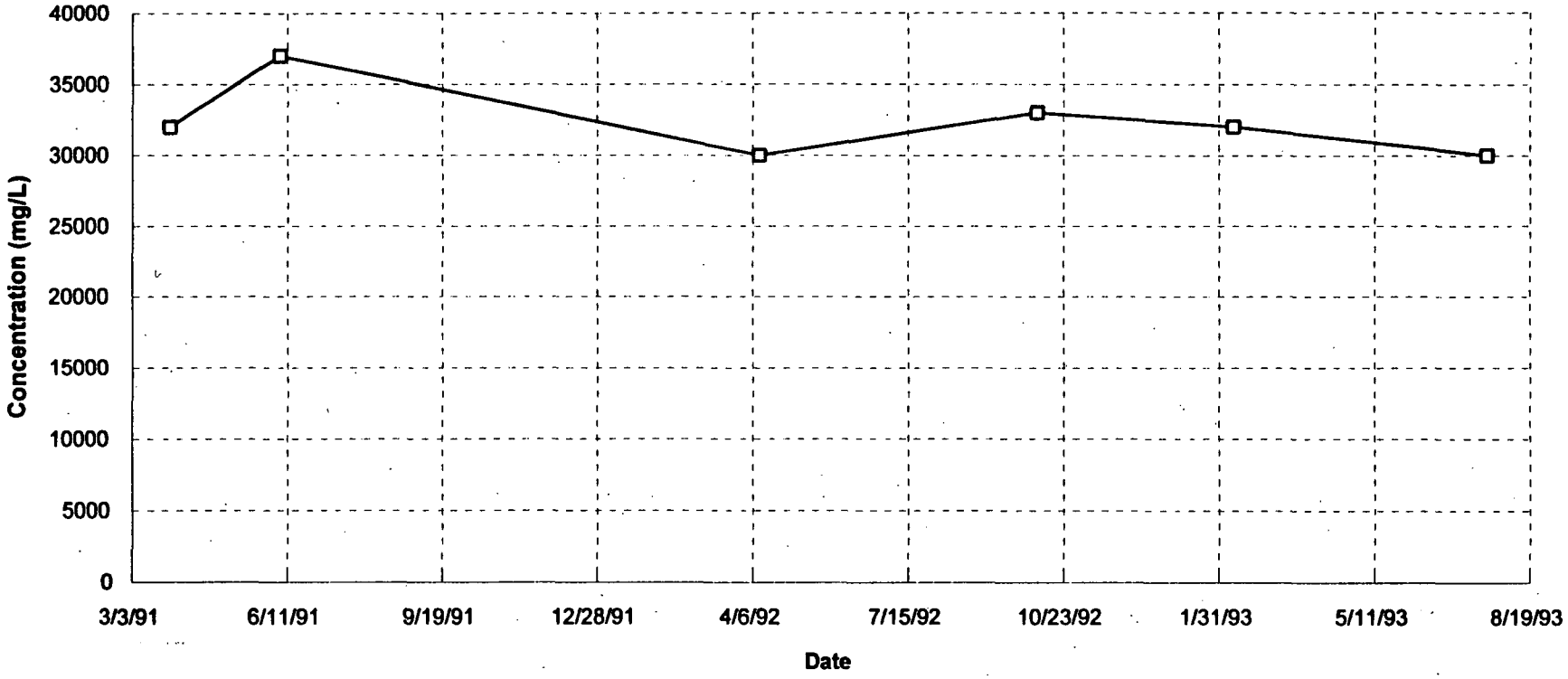
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Sulfate
Well 1386



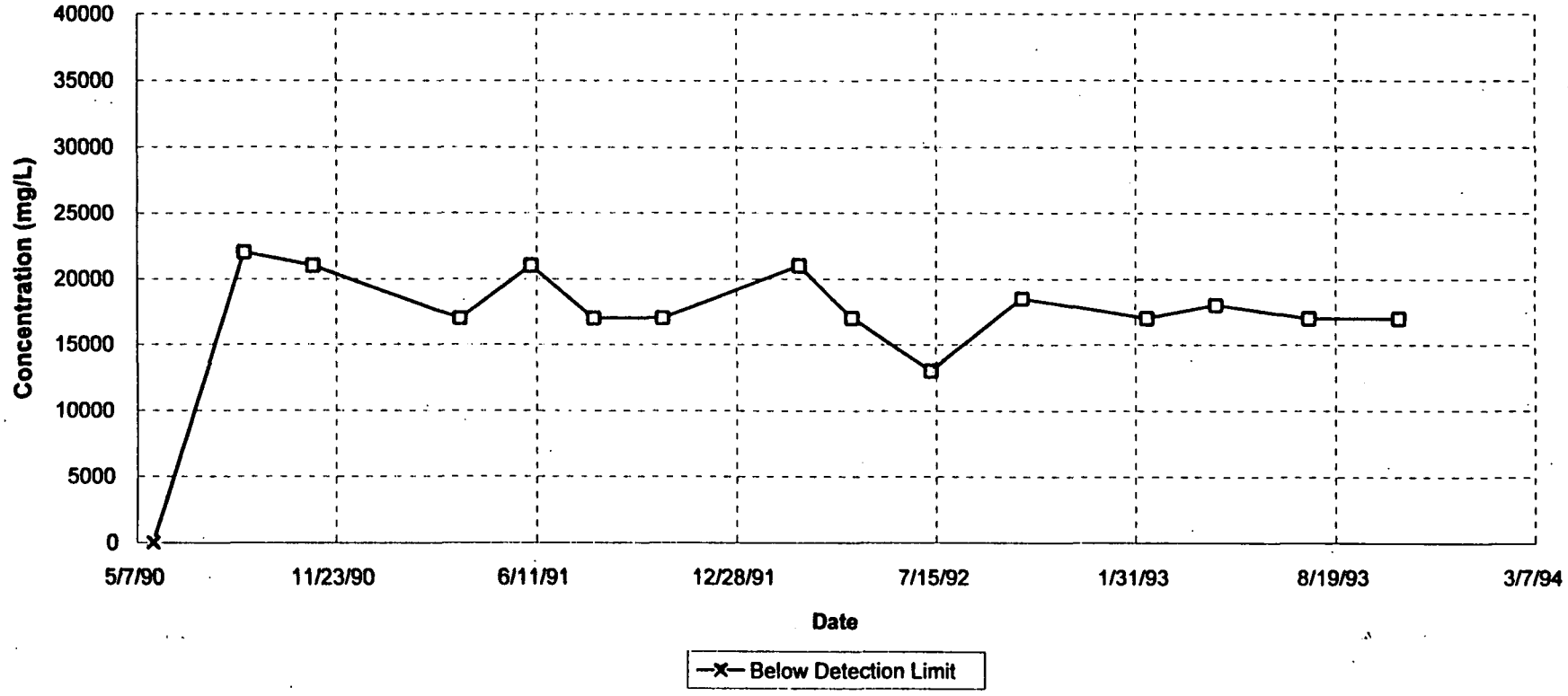
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Total Dissolved Solids
Well P209589



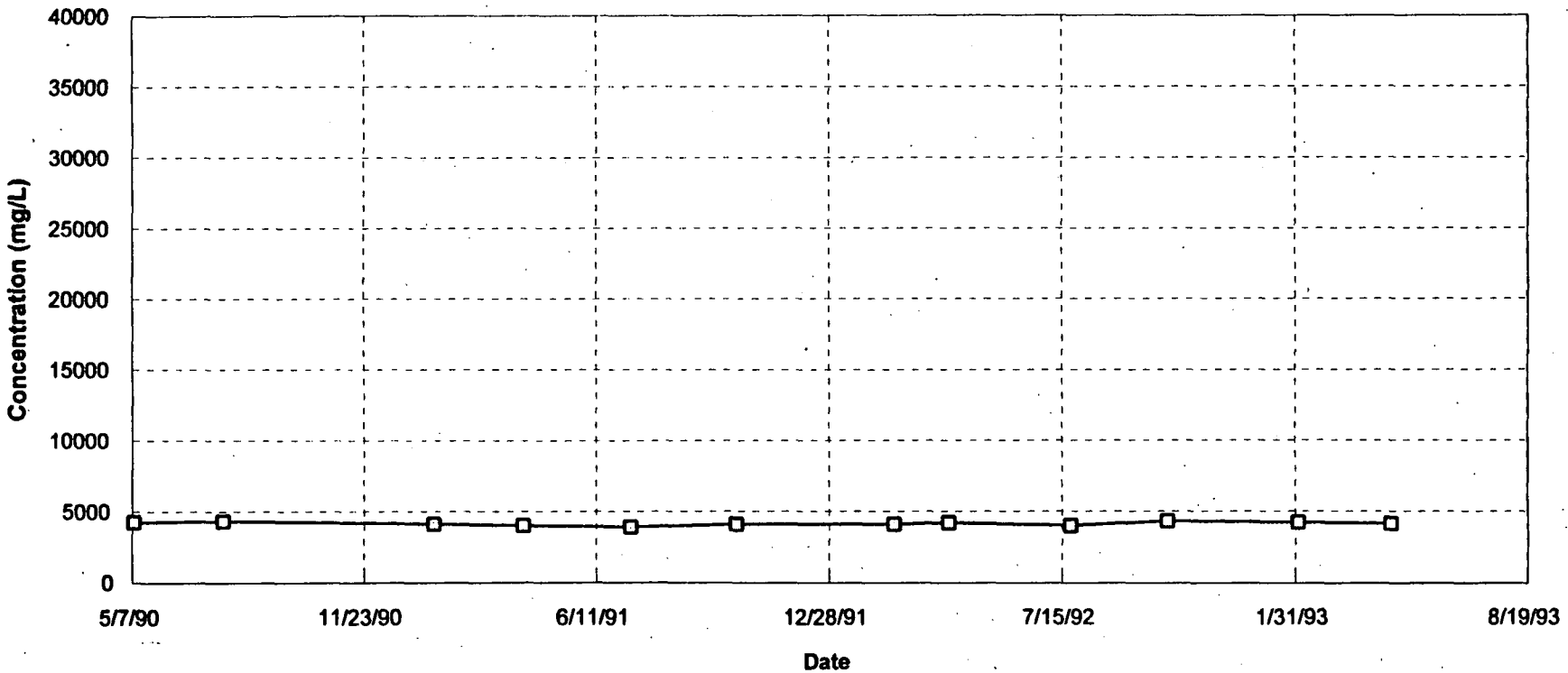
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Total Dissolved Solids
Well P209889



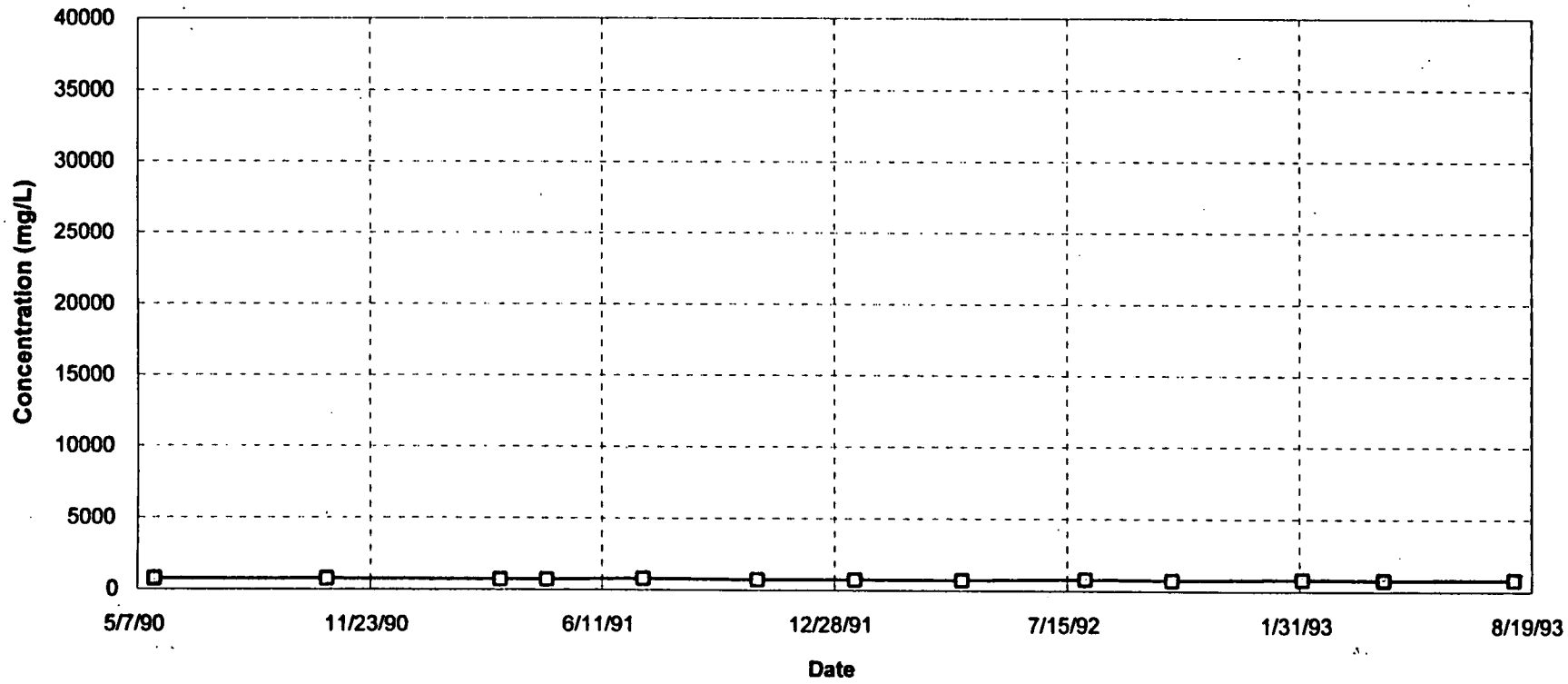
SEP_PLOT.XLS 2/18/94

Solar Evaporation Ponds
Total Dissolved Solids
Well B208689



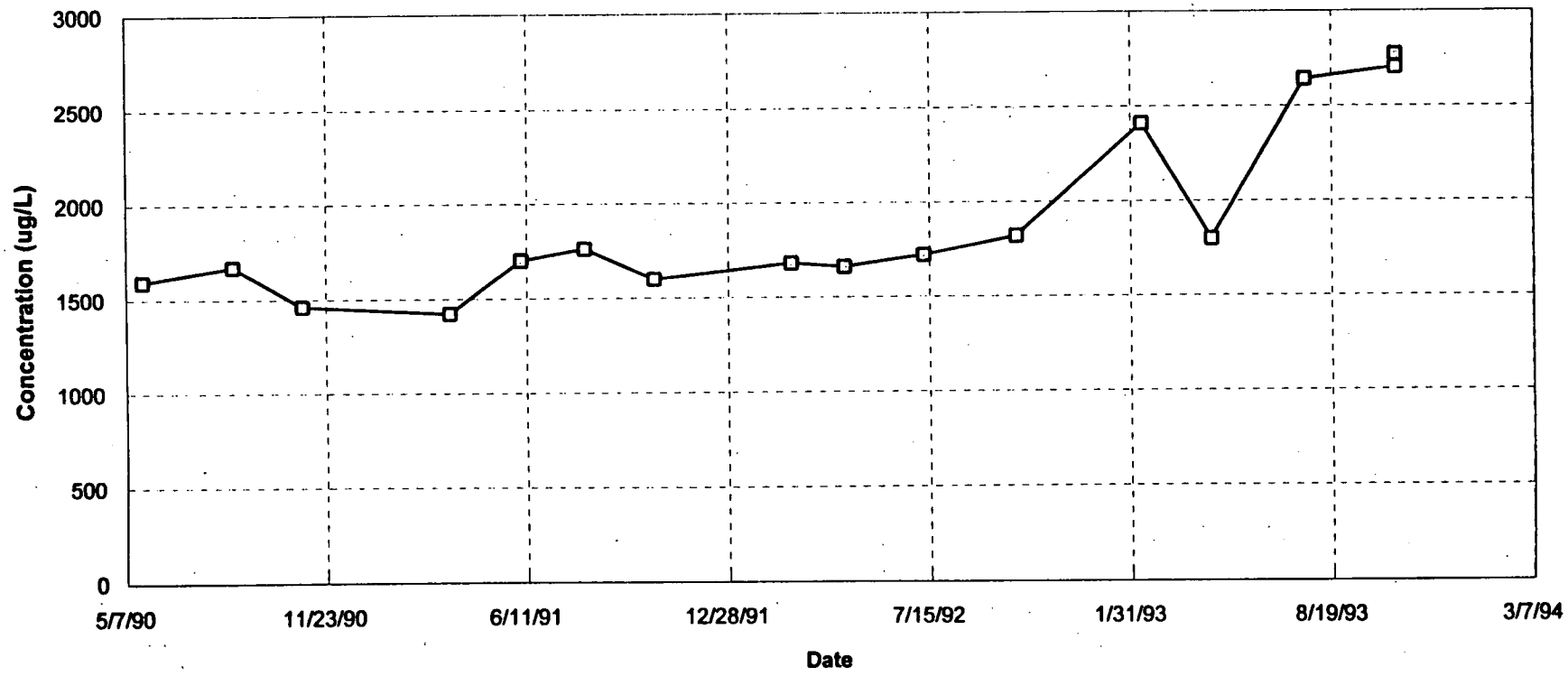
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Total Dissolved Solids
Well 1386



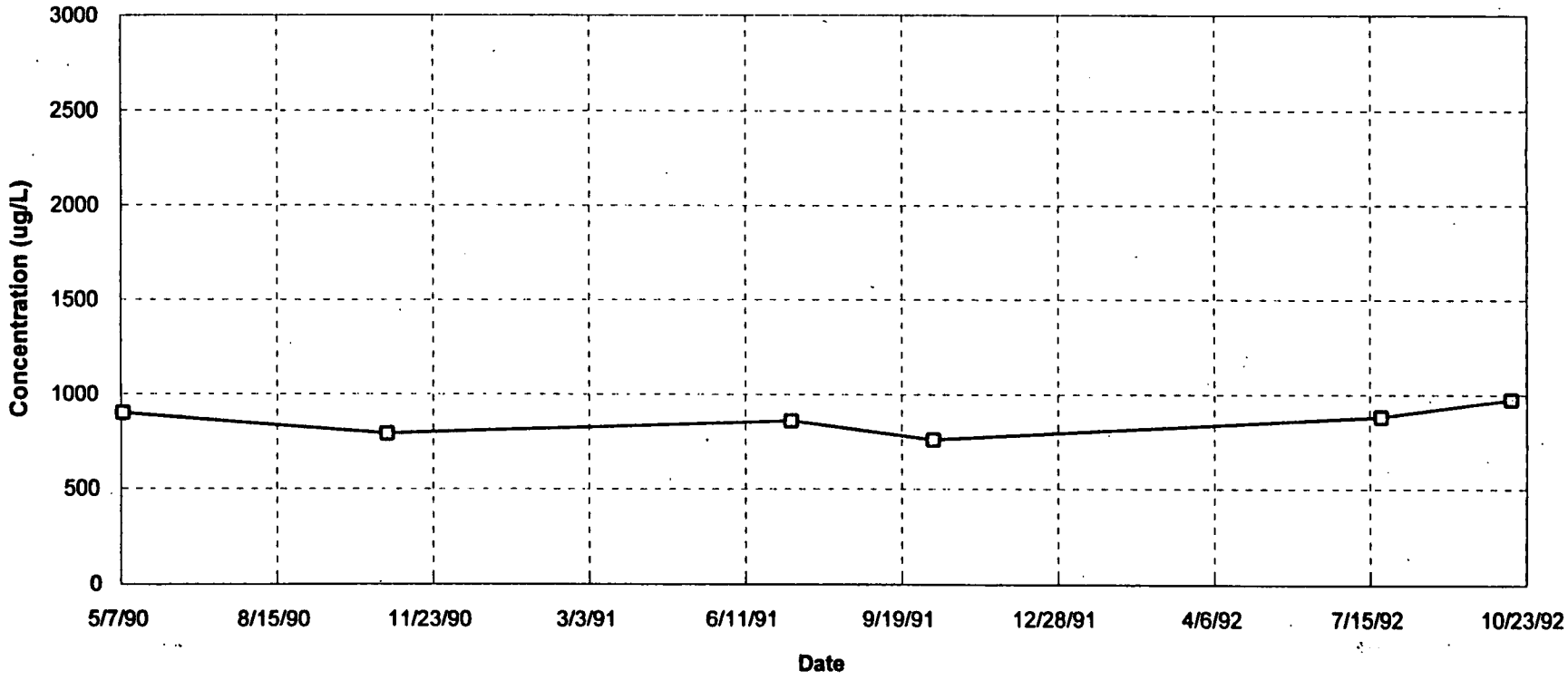
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Lithium
Well P209889



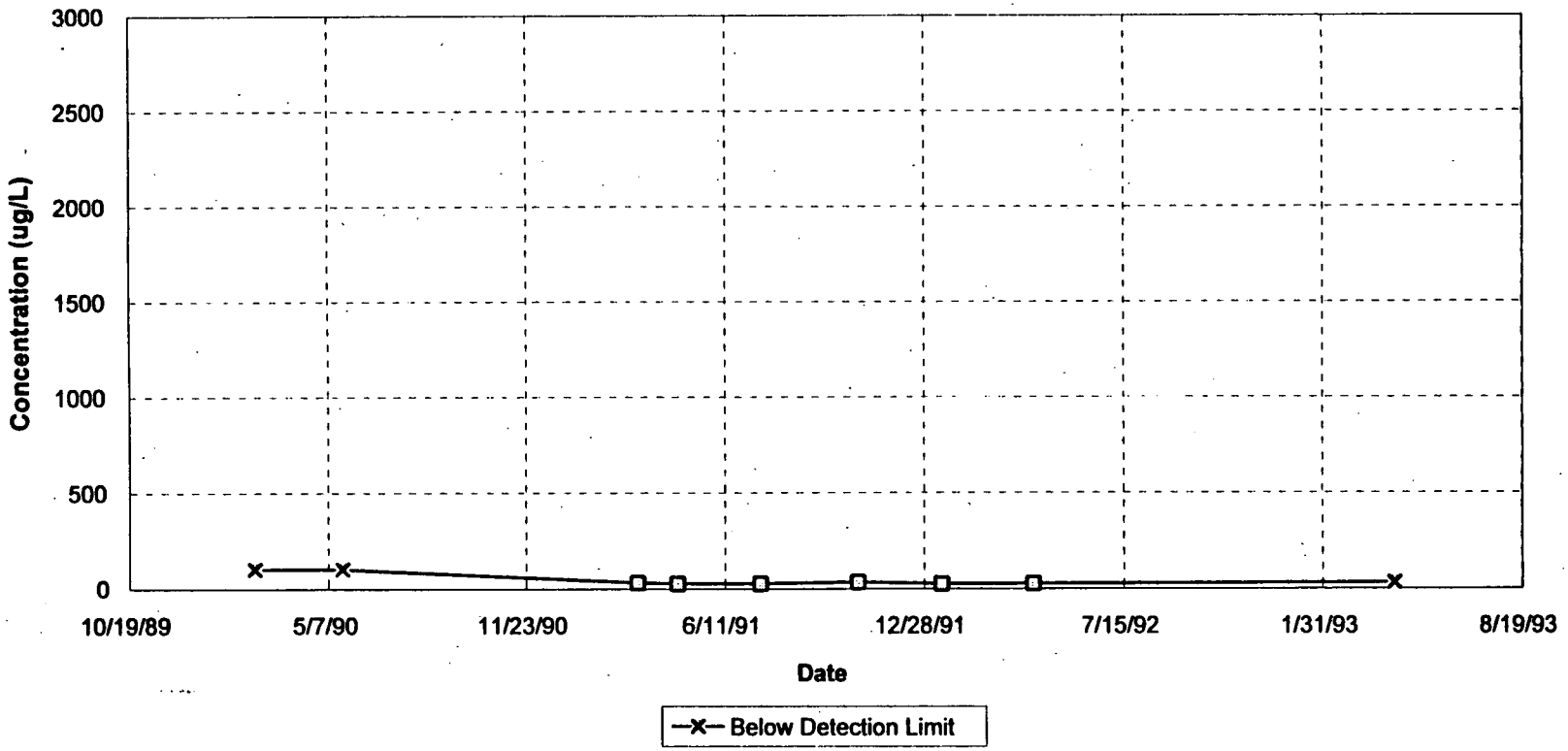
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Lithium
Well B208689



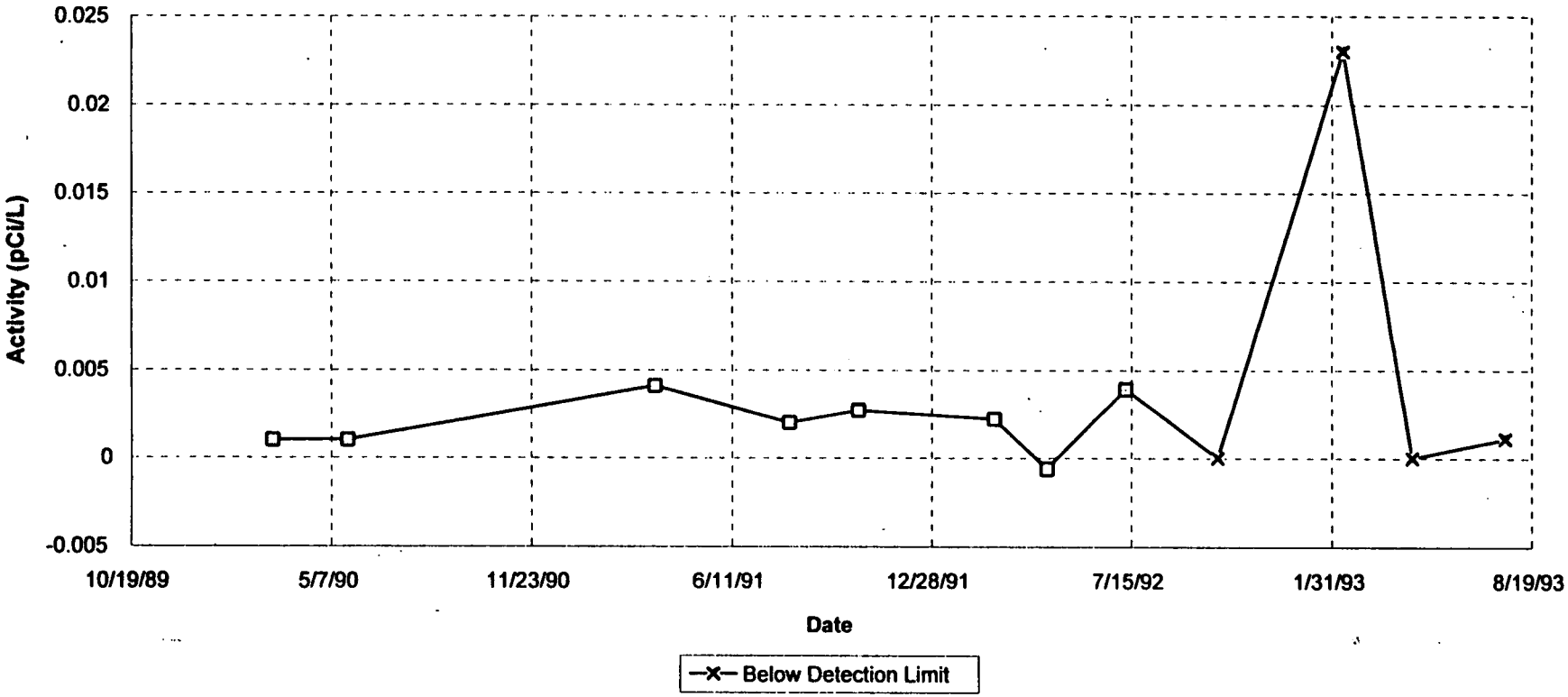
SEP_PLOT.XLS 2/18/94

Solar Evaporation Ponds
Lithium
Well 1386



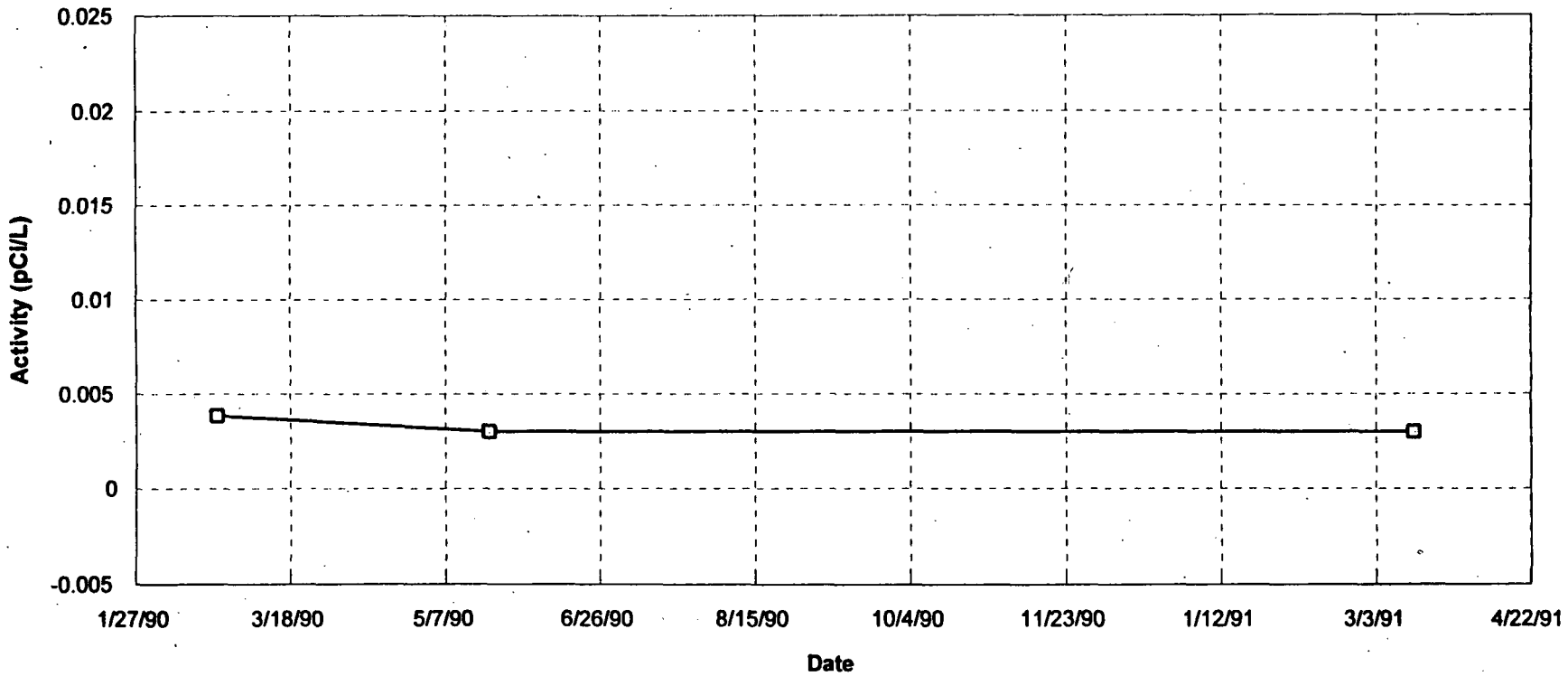
SEP_PLOT.XLS 2/18/94

Solar Evaporation Ponds
Plutonium-239,240
Well P209889



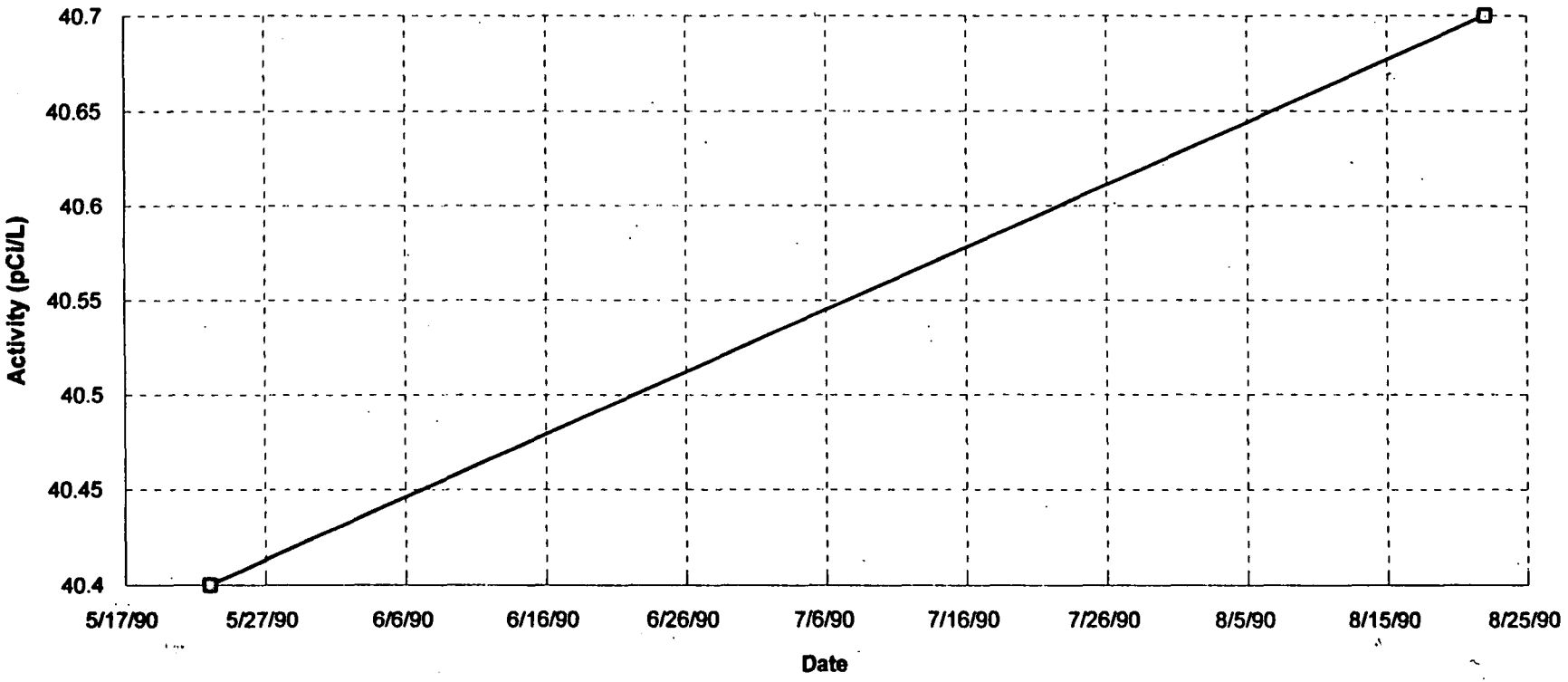
SEP_PLOT.XLS 2/18/94

Solar Evaporation Ponds
Plutonium-239,240
Well 1386



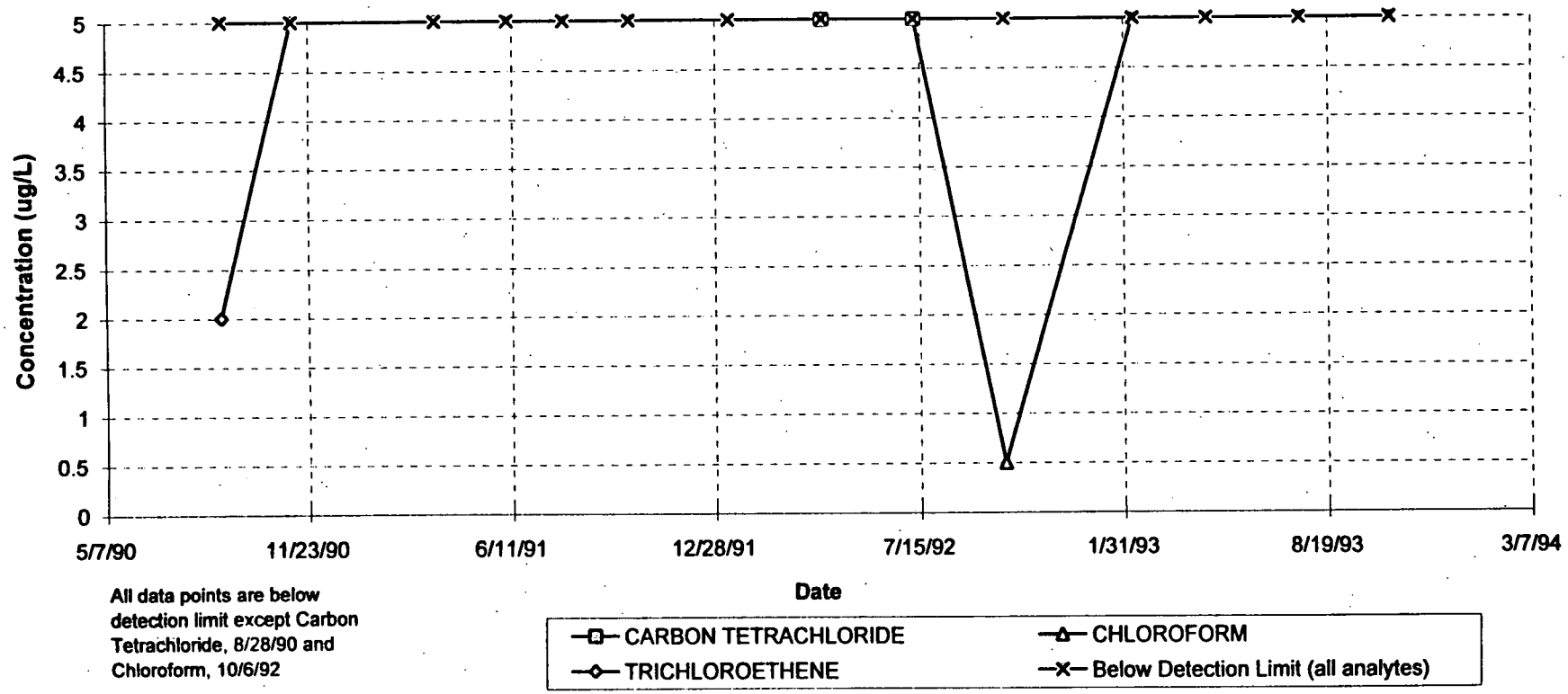
SEP_PLOT.XLS 2/17/94

Solar Evaporation Ponds
Uranium-233,234
Well P209889



SEP_PLOT.XLS 2/17/94

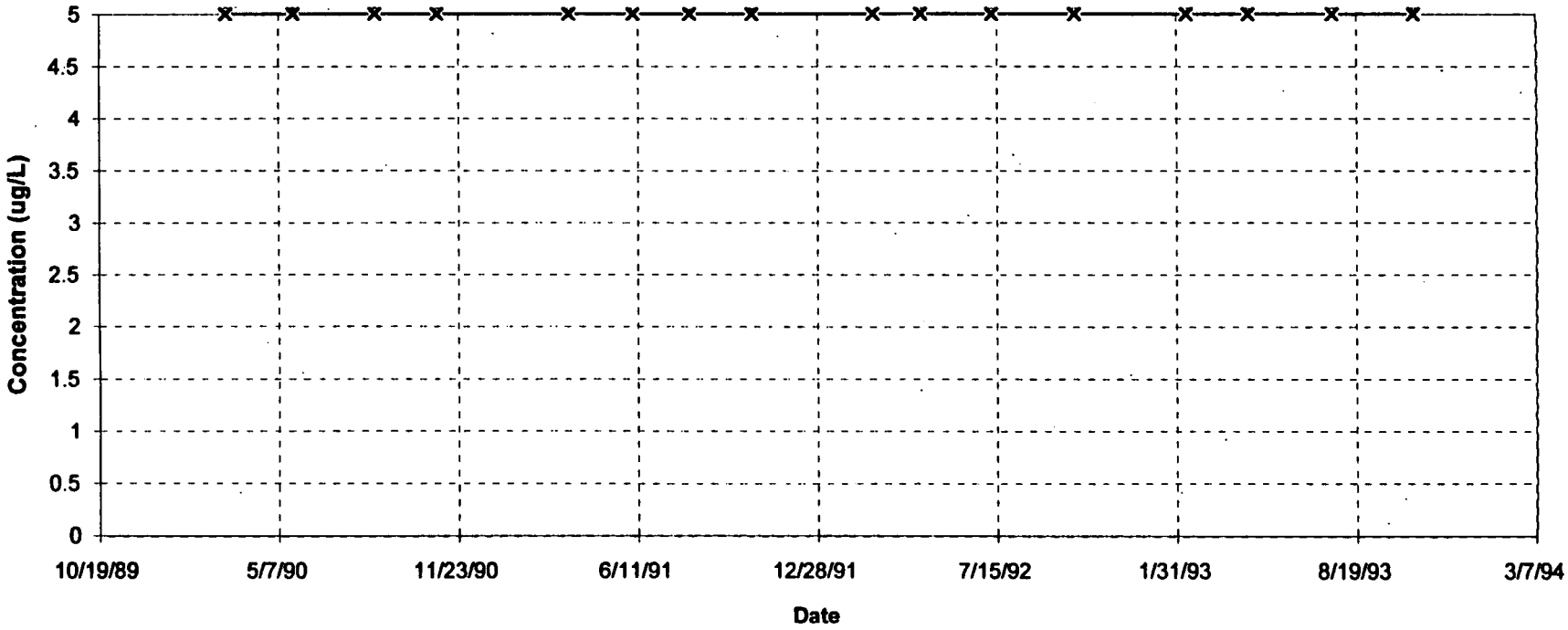
Solar Evaporation Ponds
Trichloroethene, Carbon Tetrachloride, Chloroform
Well P209589



All data points are below detection limit except Carbon Tetrachloride, 8/28/90 and Chloroform, 10/6/92

SEP_PLOT.XLS 2/18/94

Solar Evaporation Ponds
Trichloroethene, Carbon Tetrachloride, Chloroform
Well P209889

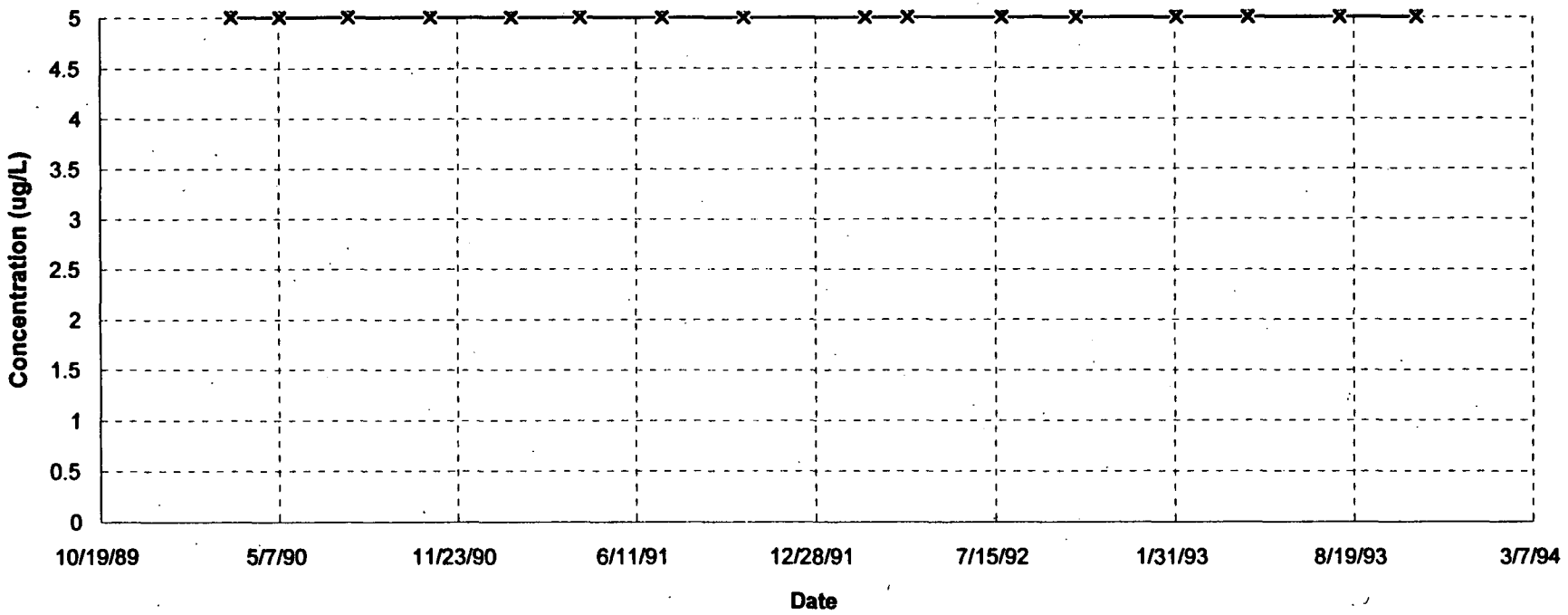


All data points are below detection limit

—□— CARBON TETRACHLORIDE	—△— CHLOROFORM
—◇— TRICHLOROETHENE	—X— Below Detection Limit (all analytes)

SEP_PLOT.XLS 2/16/94

Solar Evaporation Ponds
Trichloroethene, Carbon Tetrachloride, Chloroform
Well B208689

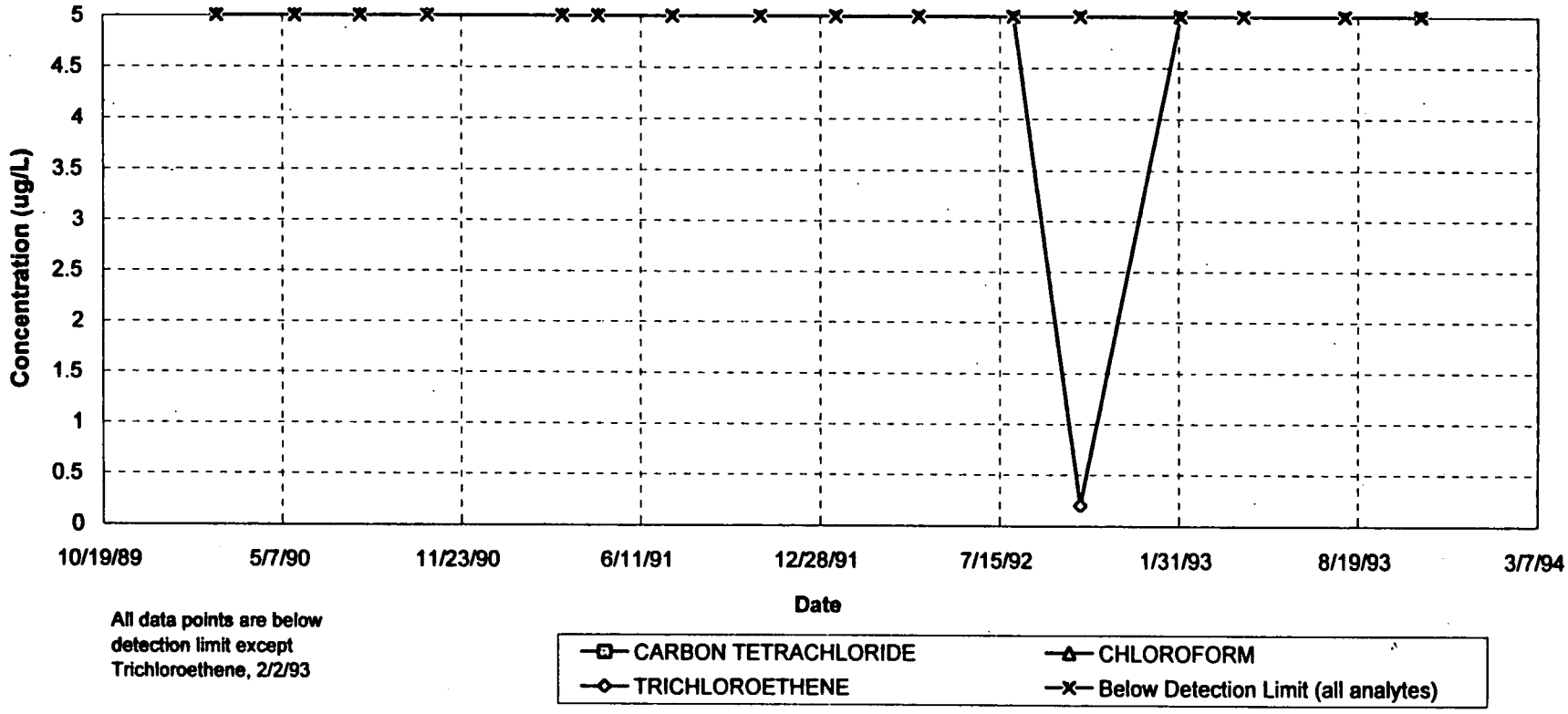


All data points are below detection limit

CARBON TETRACHLORIDE	CHLOROFORM
TRICHLOROETHENE	Below Detection Limit (all analytes)

SEP_PLOT.XLS 2/18/94

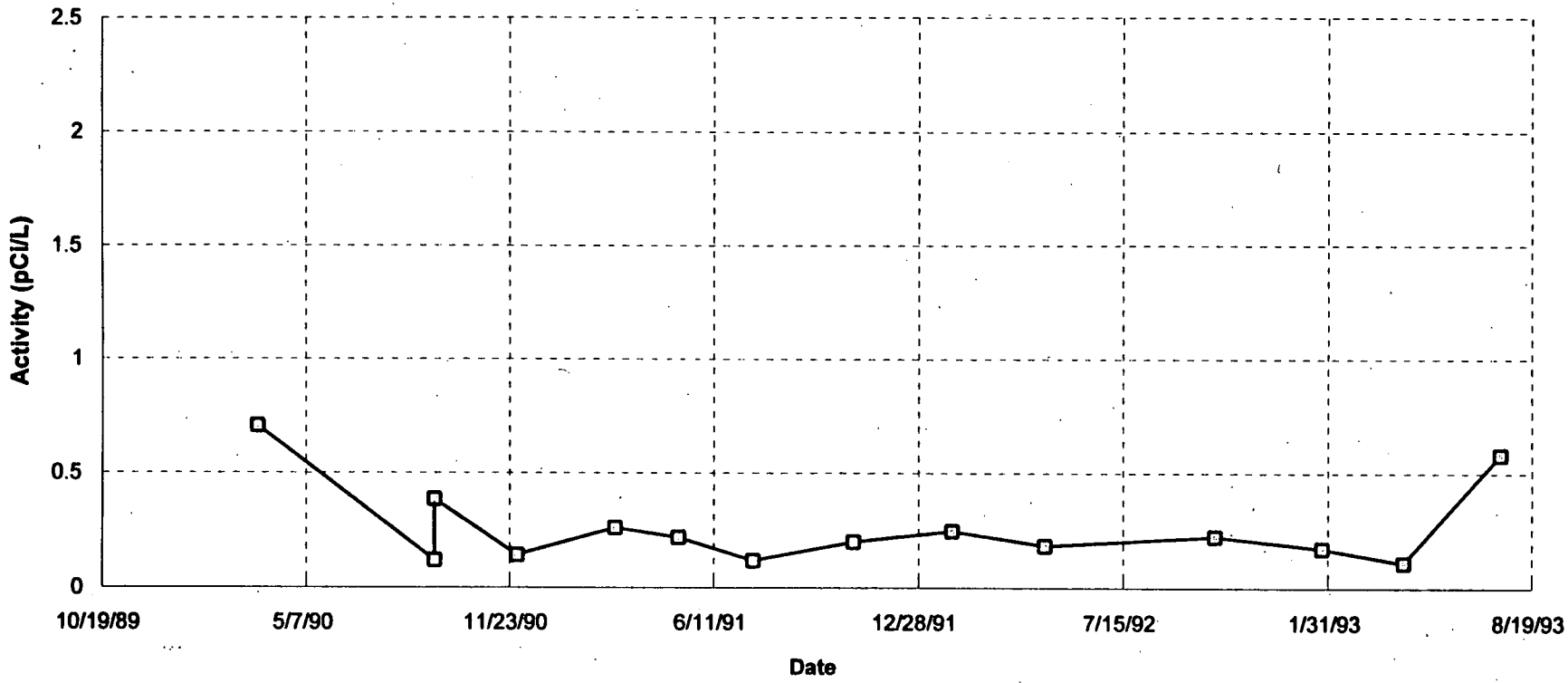
Solar Evaporation Ponds
Trichloroethene, Carbon Tetrachloride, Chloroform
Well 1386



All data points are below detection limit except Trichloroethene, 2/2/93

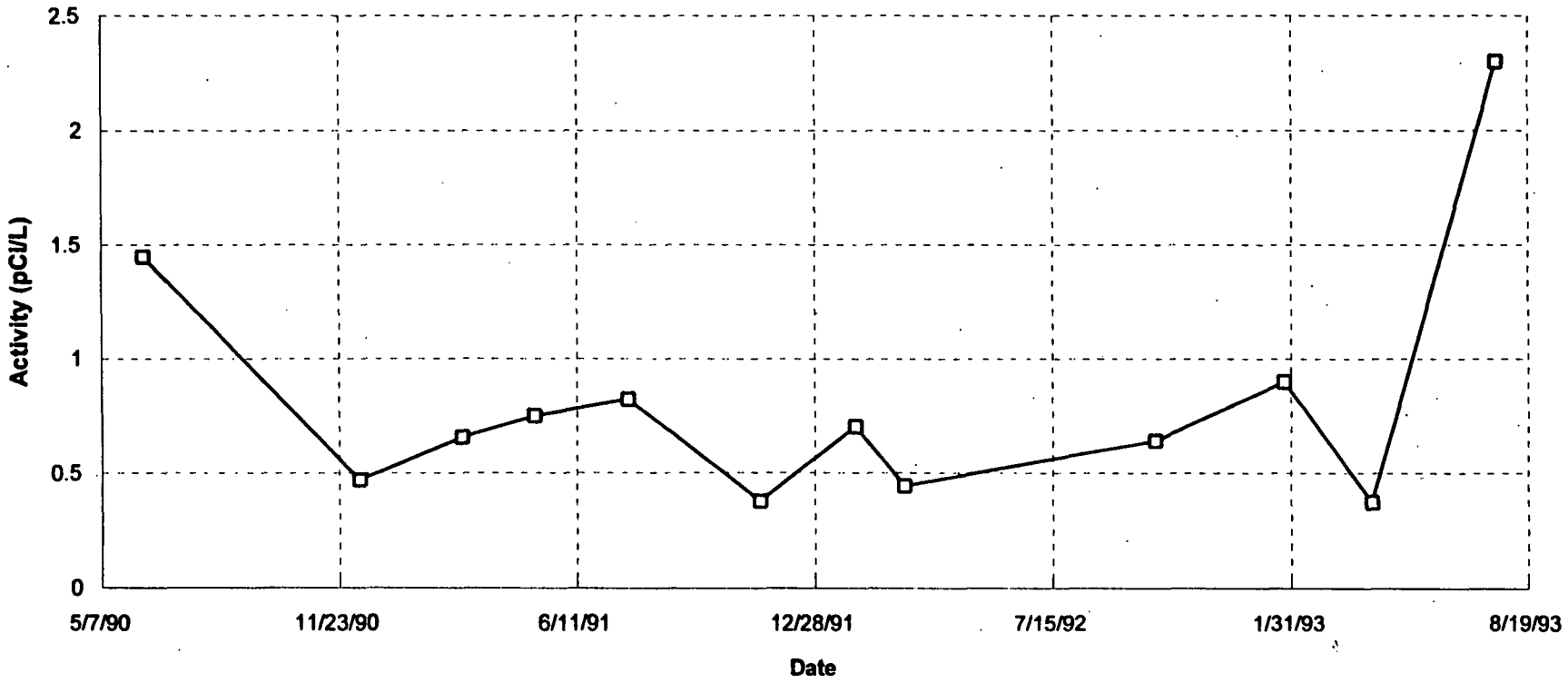
SEP_PLOT.XLS 2/18/94

West Spray Field
Uranium-233,234
Well B110989

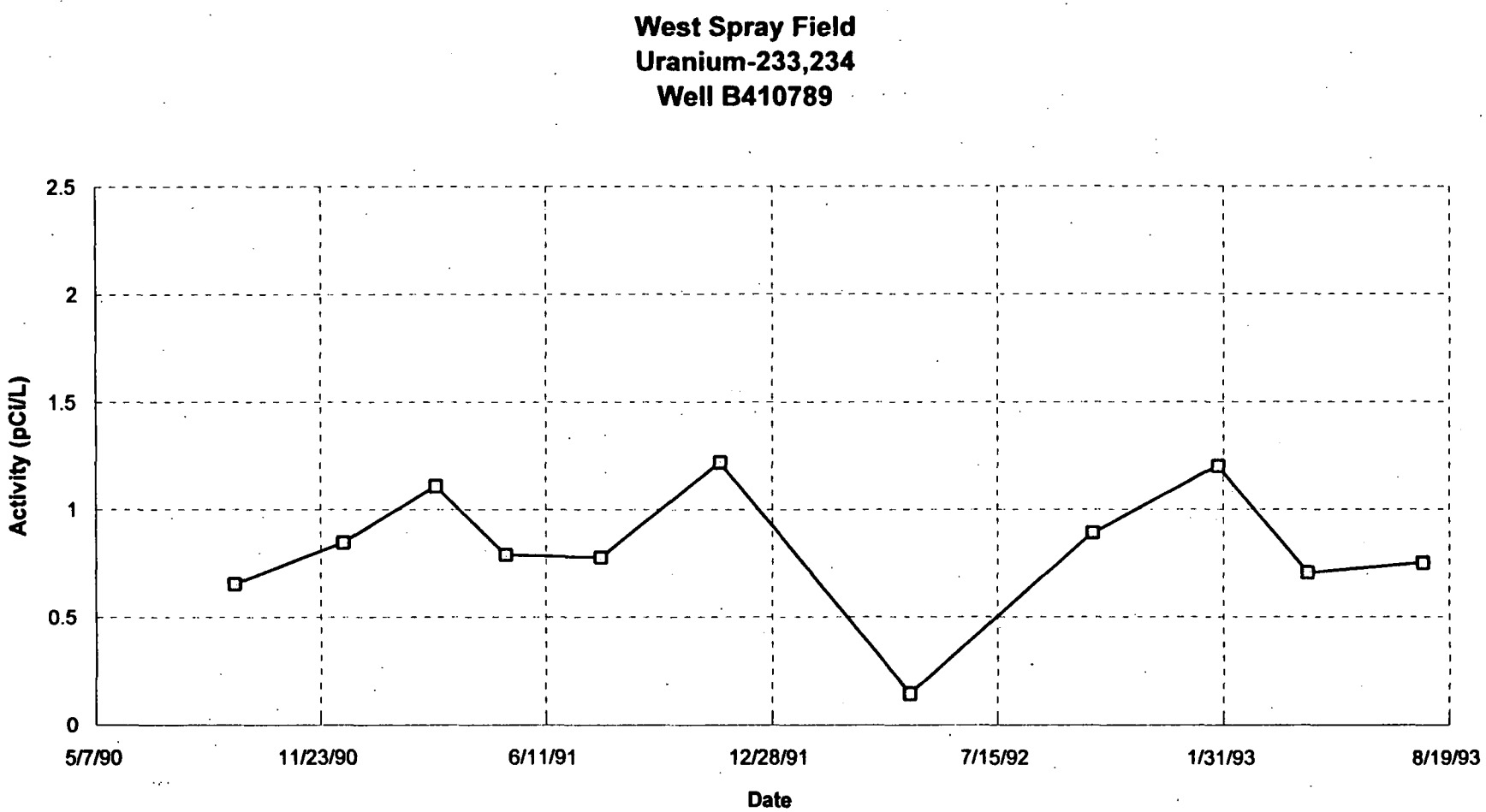


WSF_PLOT.XLS 2/18/94

West Spray Field
Uranium-233,234
Well B110889

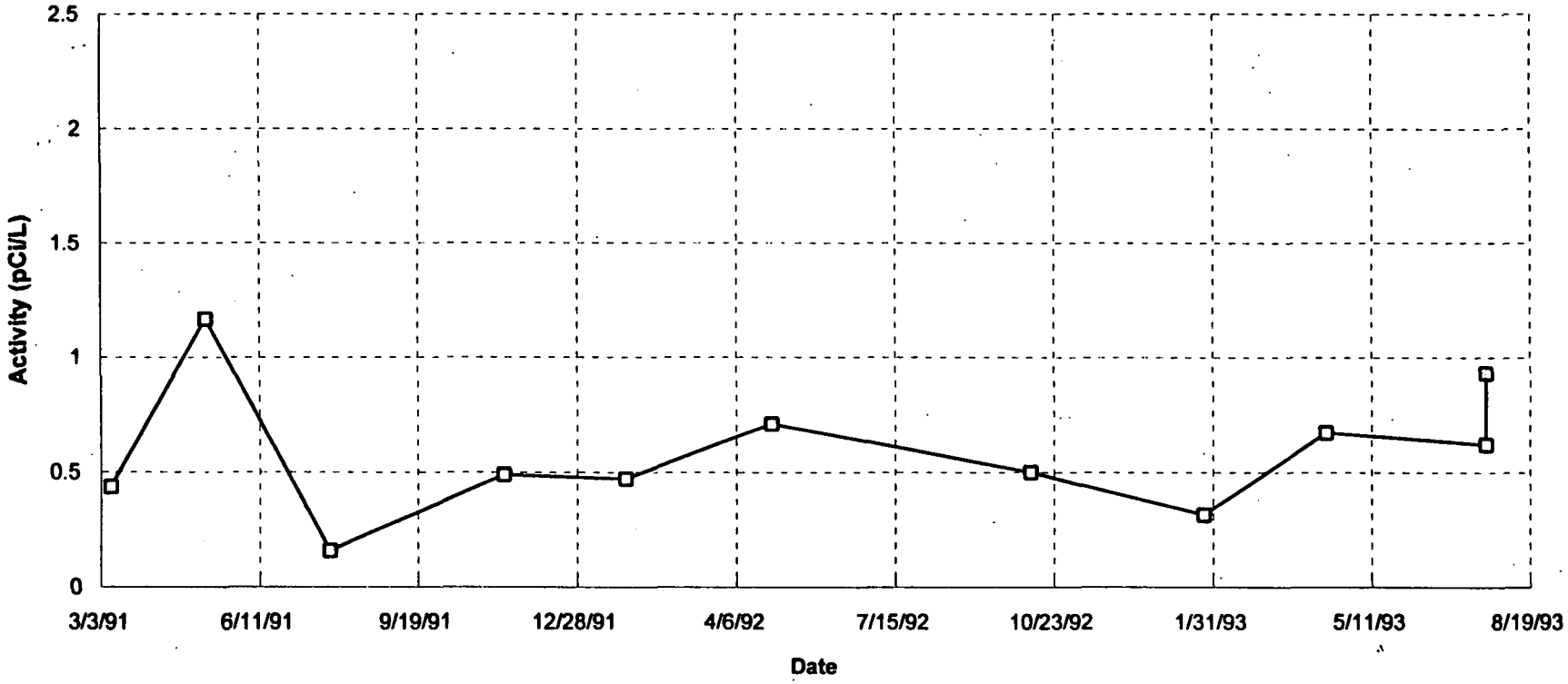


WSF_PLOT.XLS 2/18/94



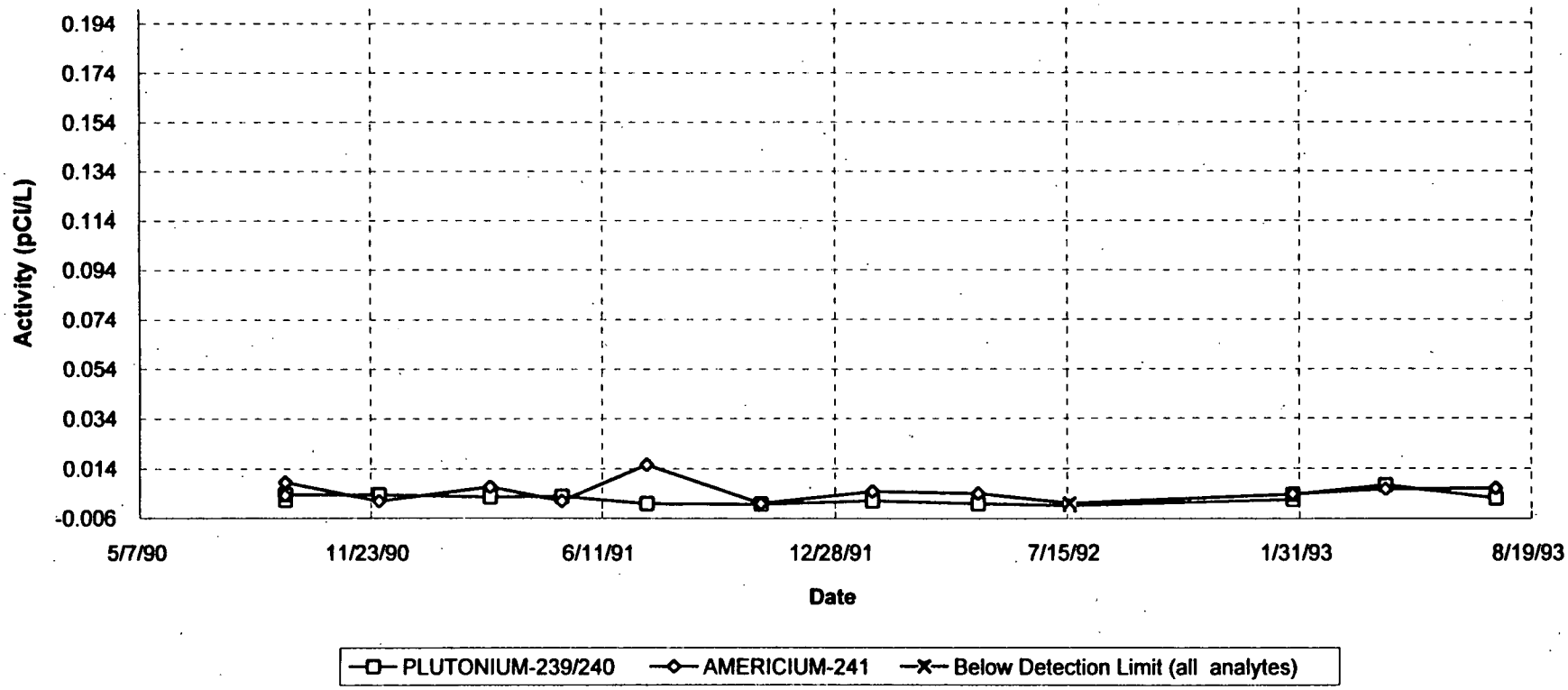
WSF_PLOT.XLS 2/18/94

West Spray Field
Uranium-233,234
Well B410689



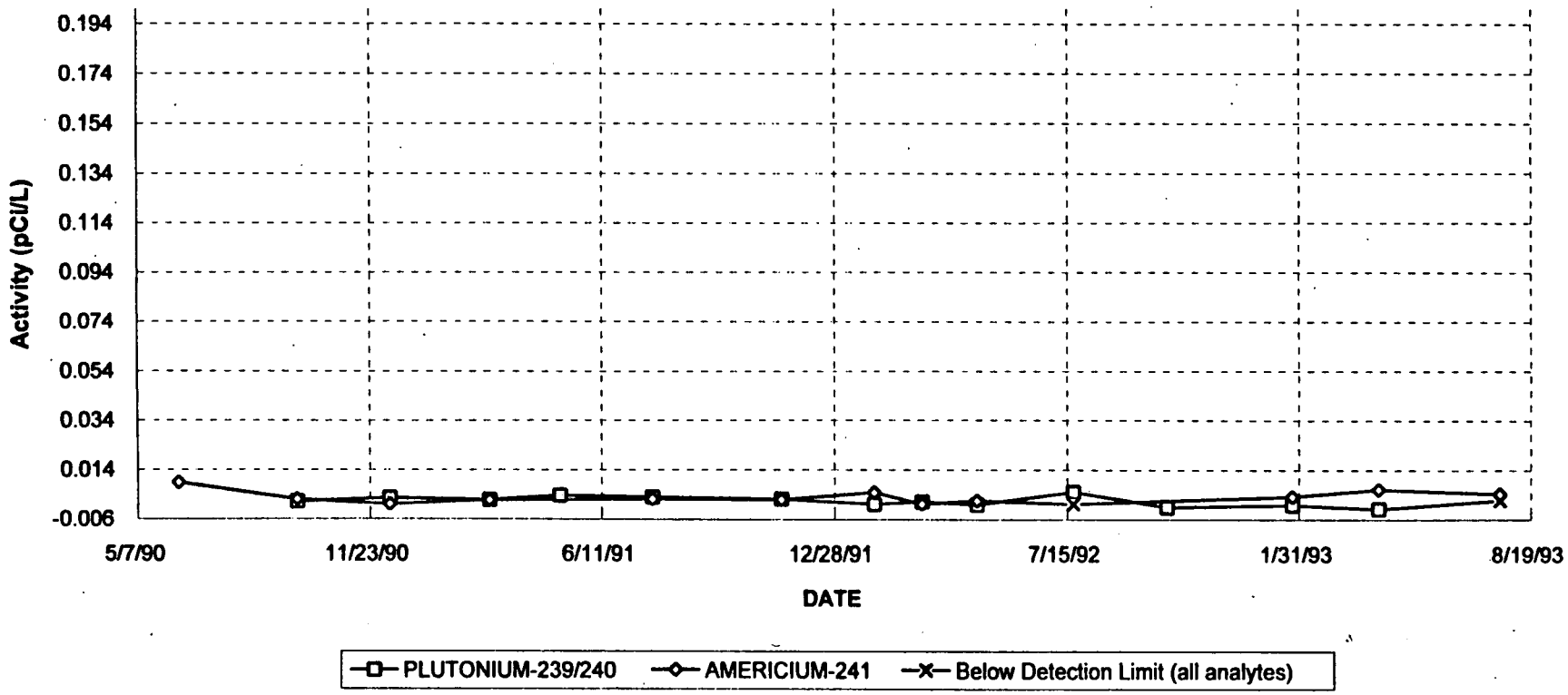
WSF_PLOT.XLS 2/18/94

West Spray Field
Plutonium-239,240, Americium-241
Well B110989



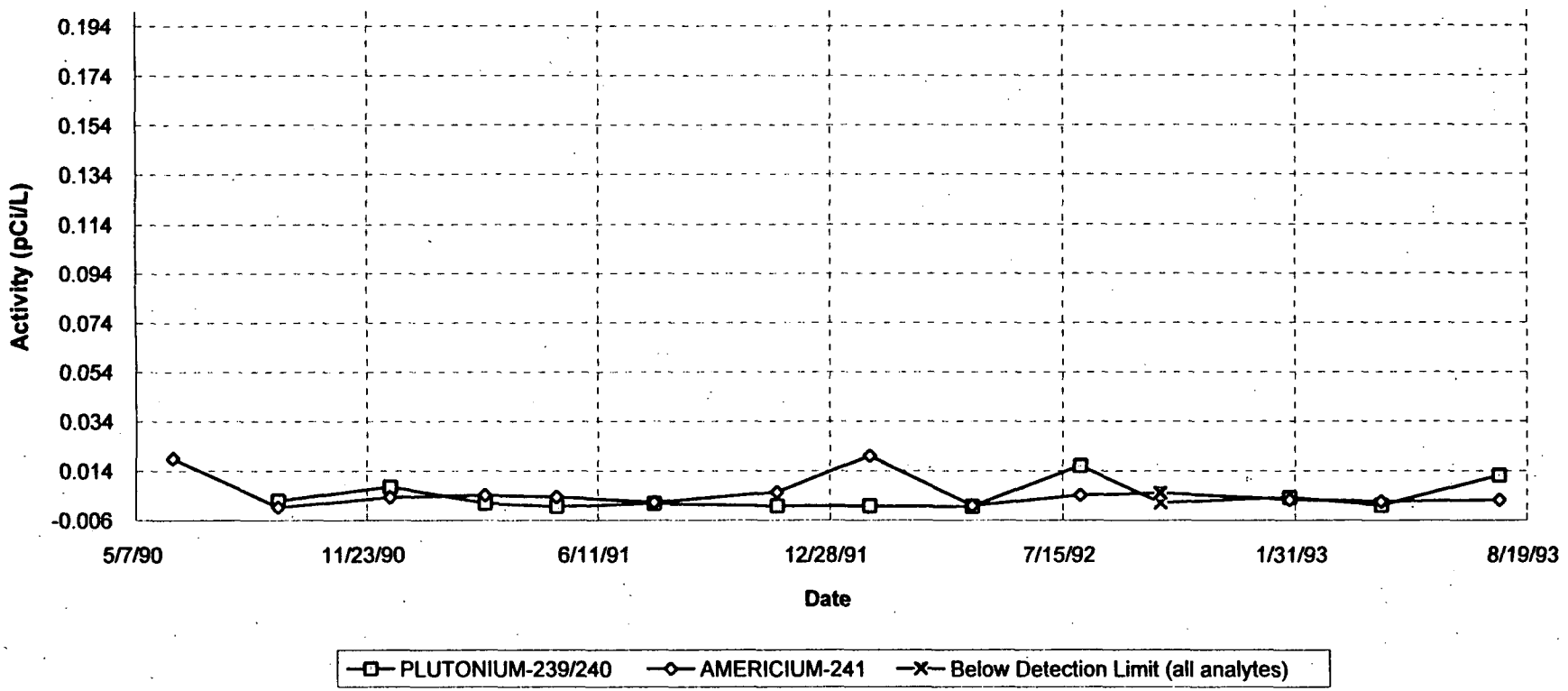
WSF_PLOT.XLS 2/18/94

West Spray Field
Plutonium-239,240, Americium-241
Well B110889



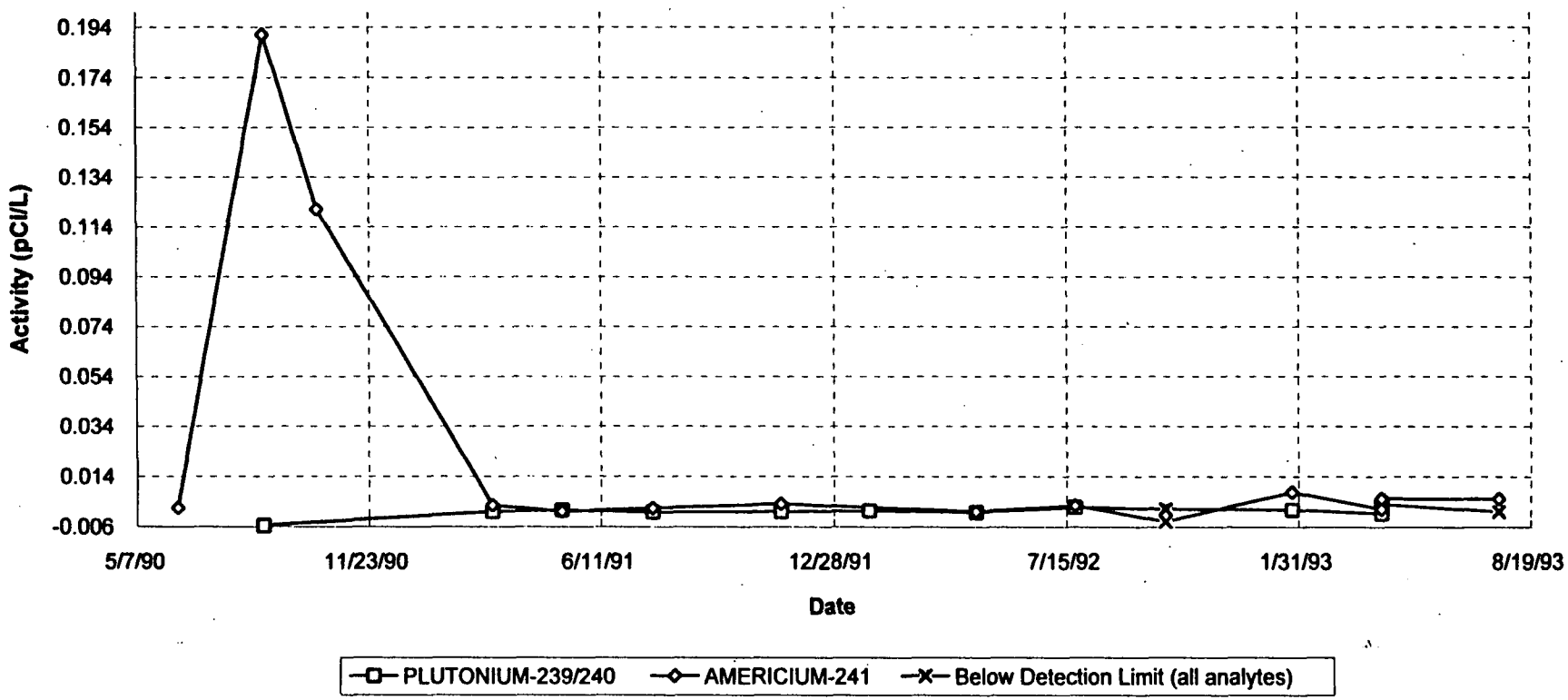
WSF_PLOT.XLS 2/18/94

West Spray Field
Plutonium-239,240, Americium-241
Well B410789



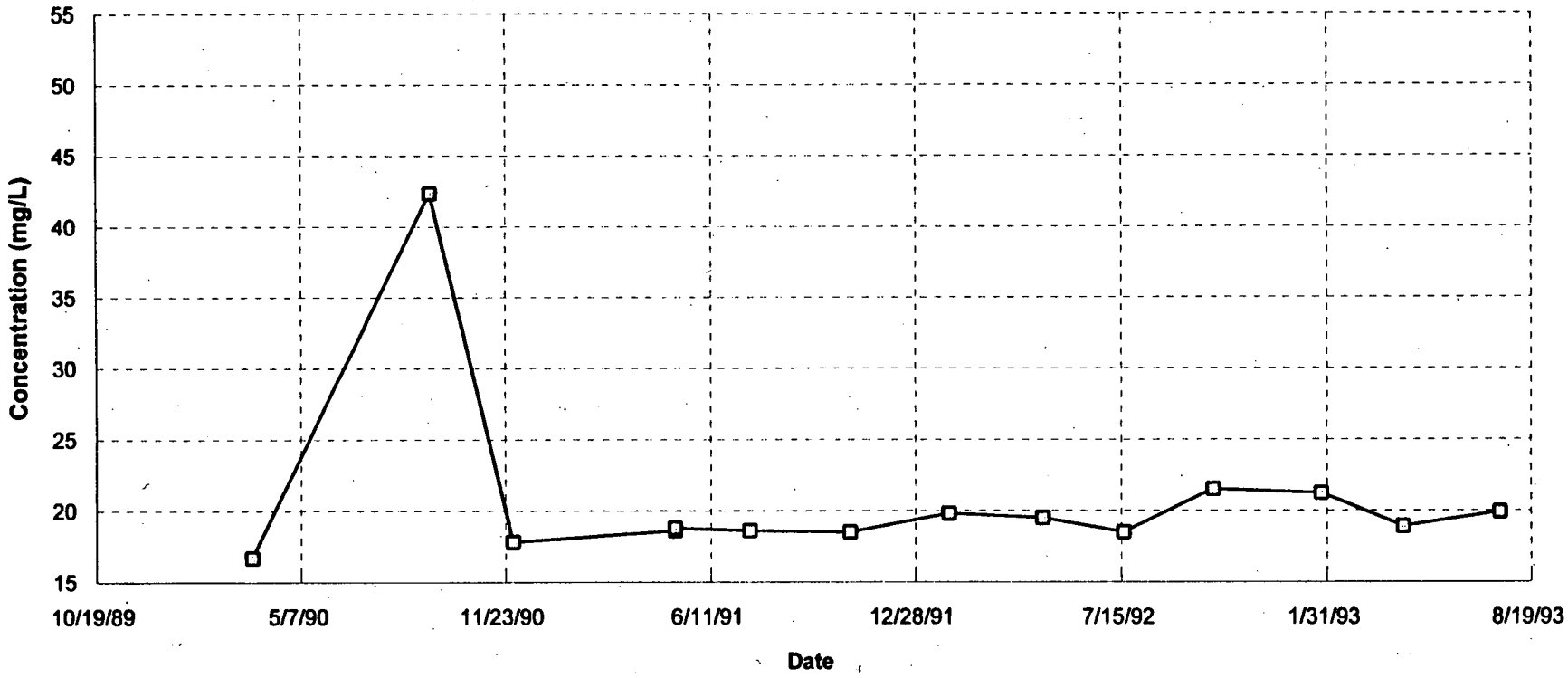
WSF_PLOT.XLS 2/18/94

West Spray Field
Plutonium-239,240, Americium-241
Well B410689



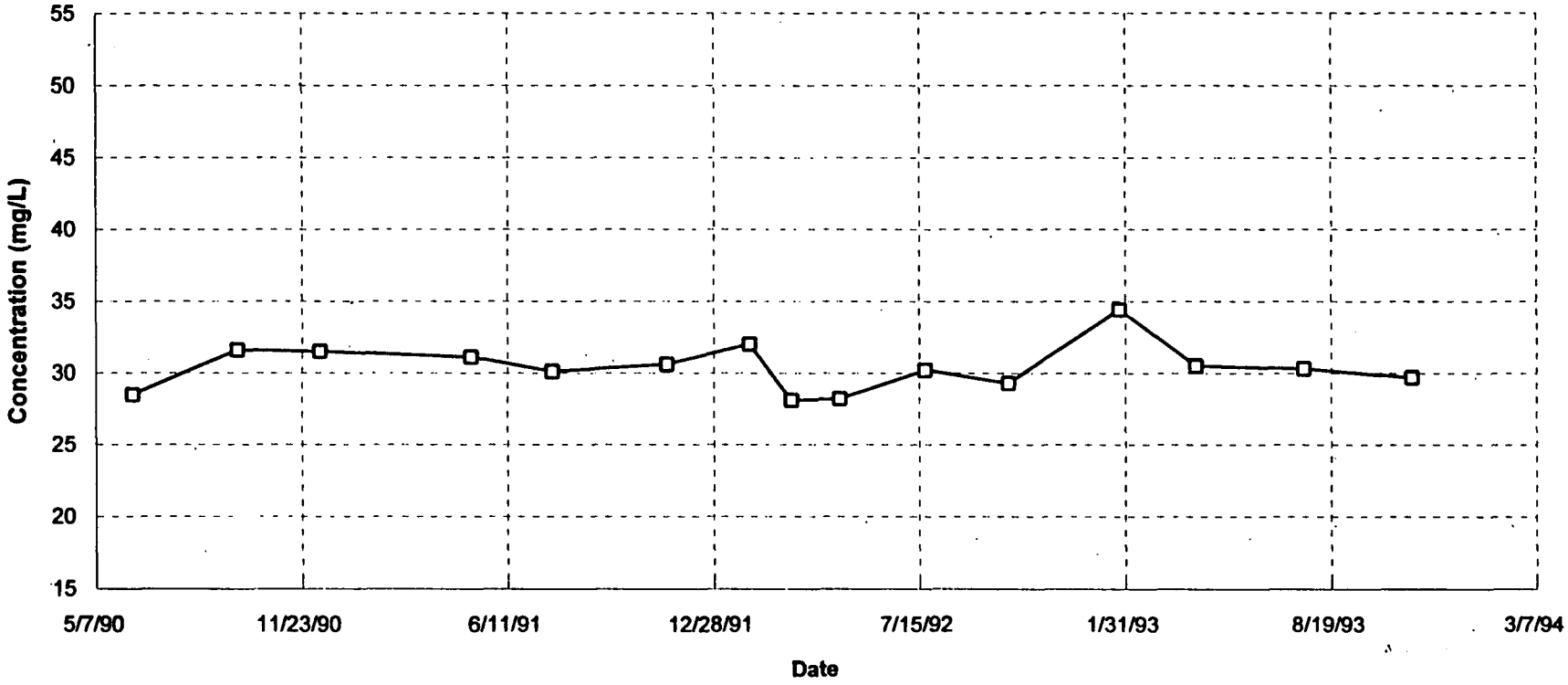
WSF_PLOT.XLS 2/18/94

West Spray Field
Calcium
Well B110989

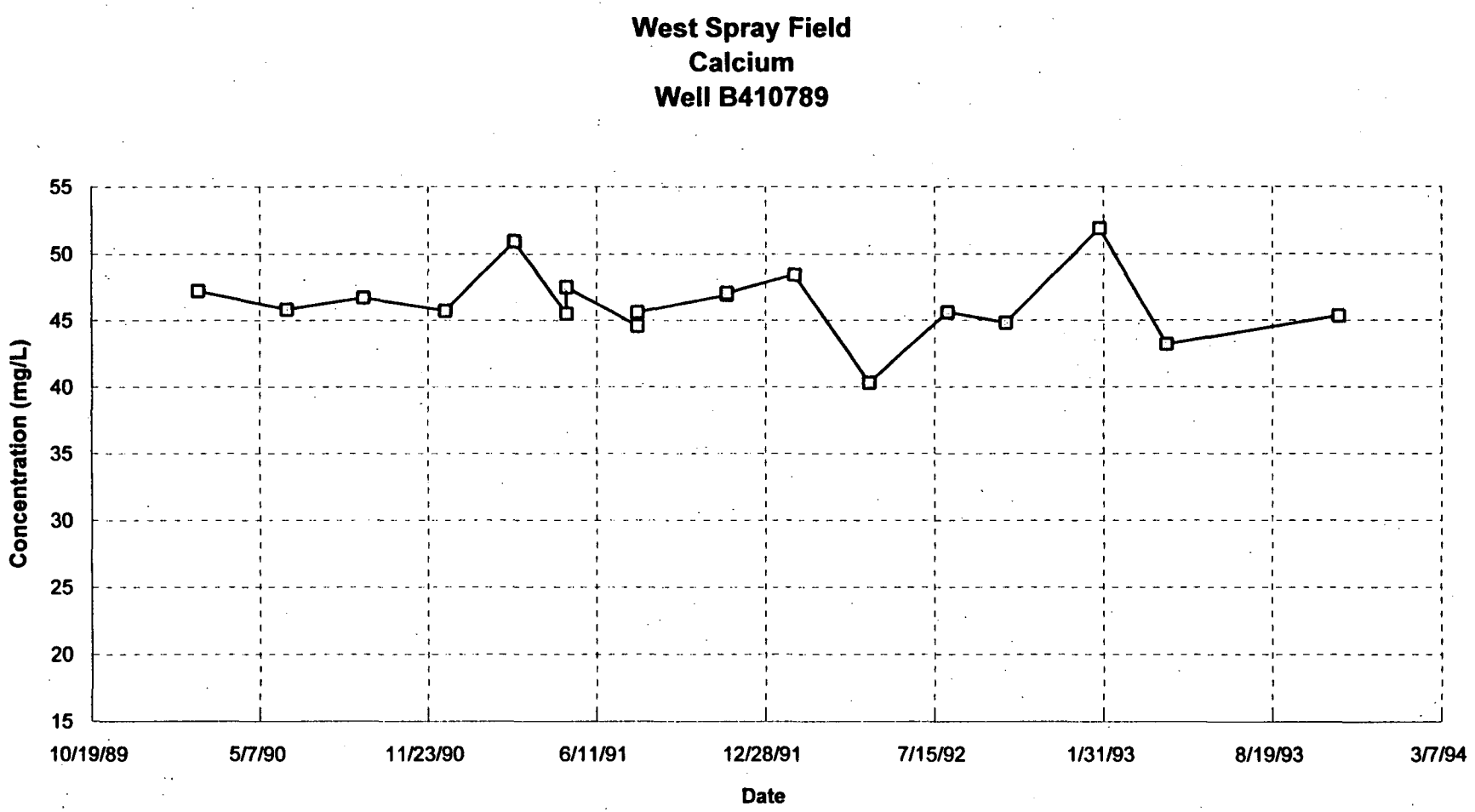


WSF_PLOT.XLS 2/18/94

West Spray Field
Calcium
Well B110889

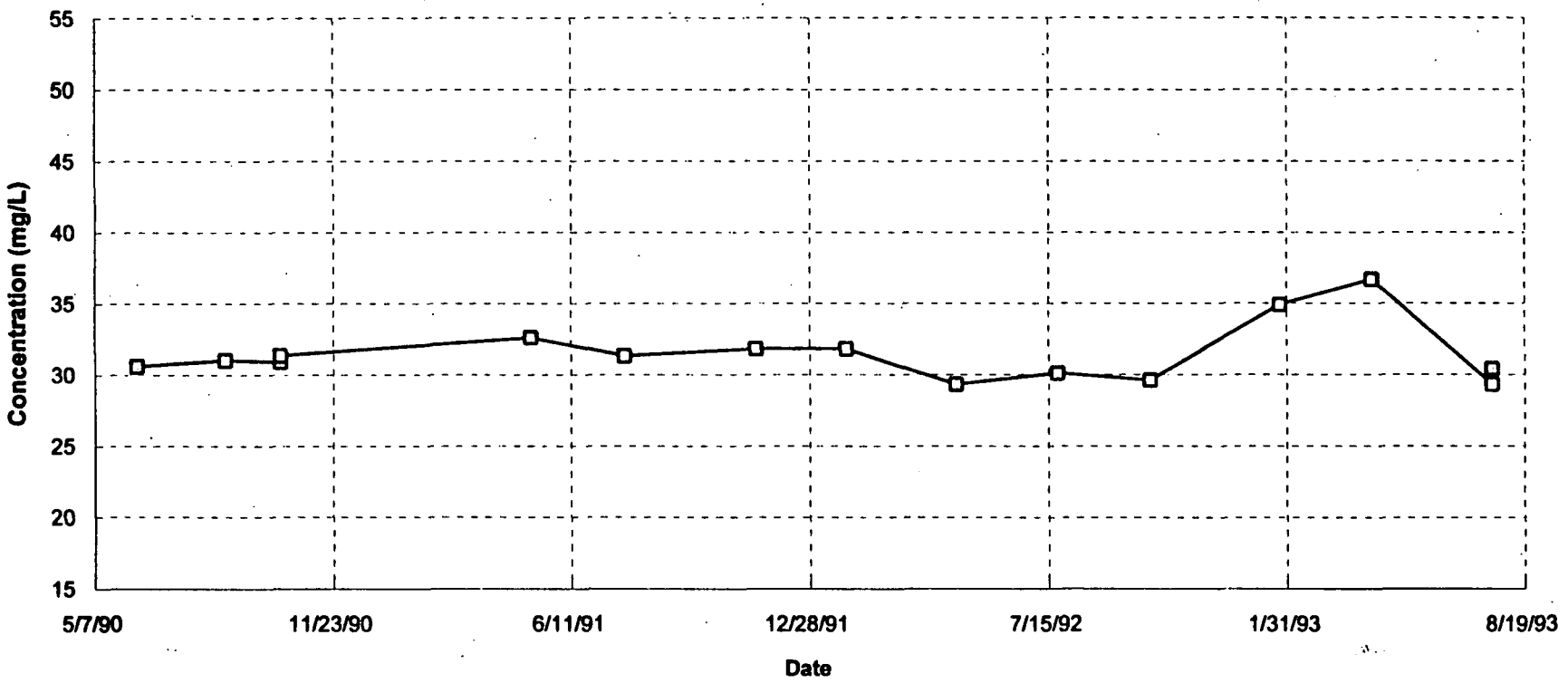


WSF_PLOT.XLS 2/18/94



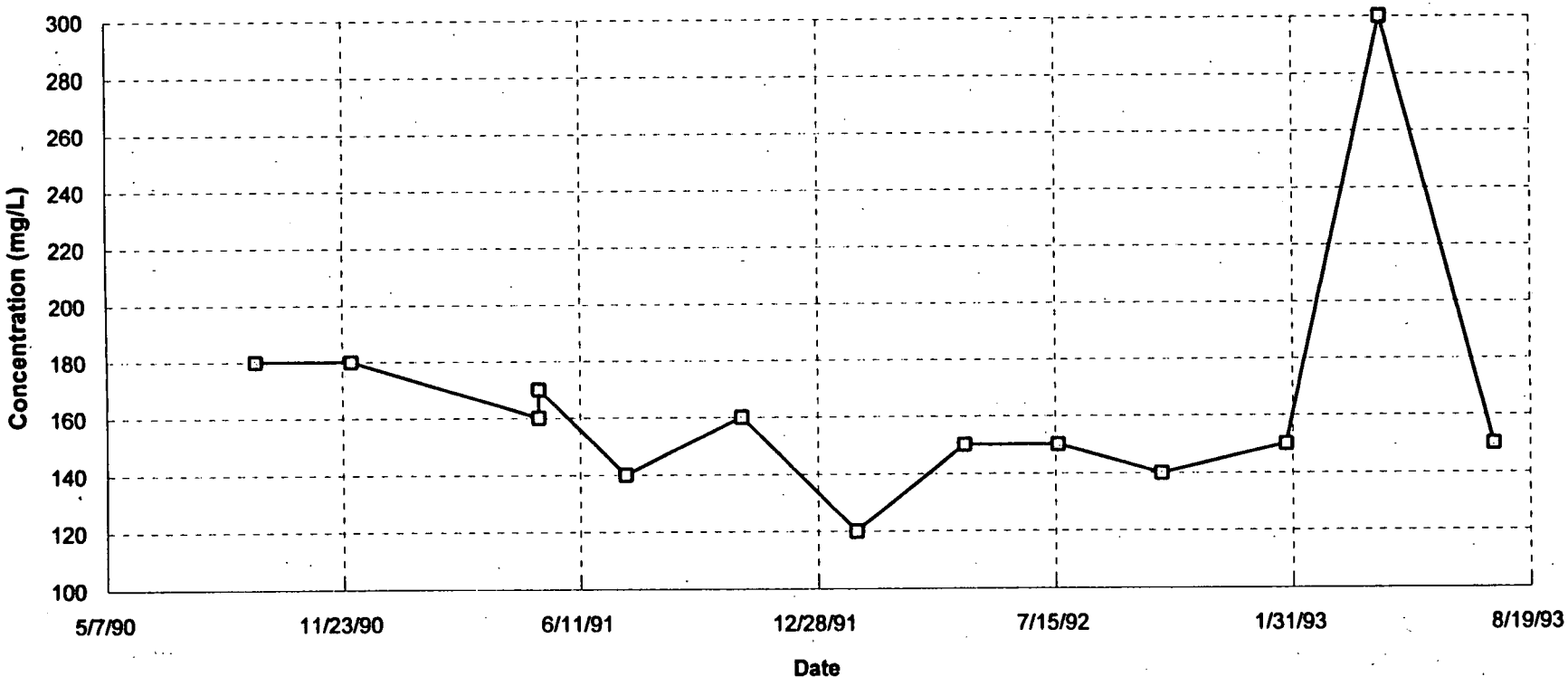
WSF_PLOT.XLS 2/18/94

West Spray Field
Calcium
Well B410689



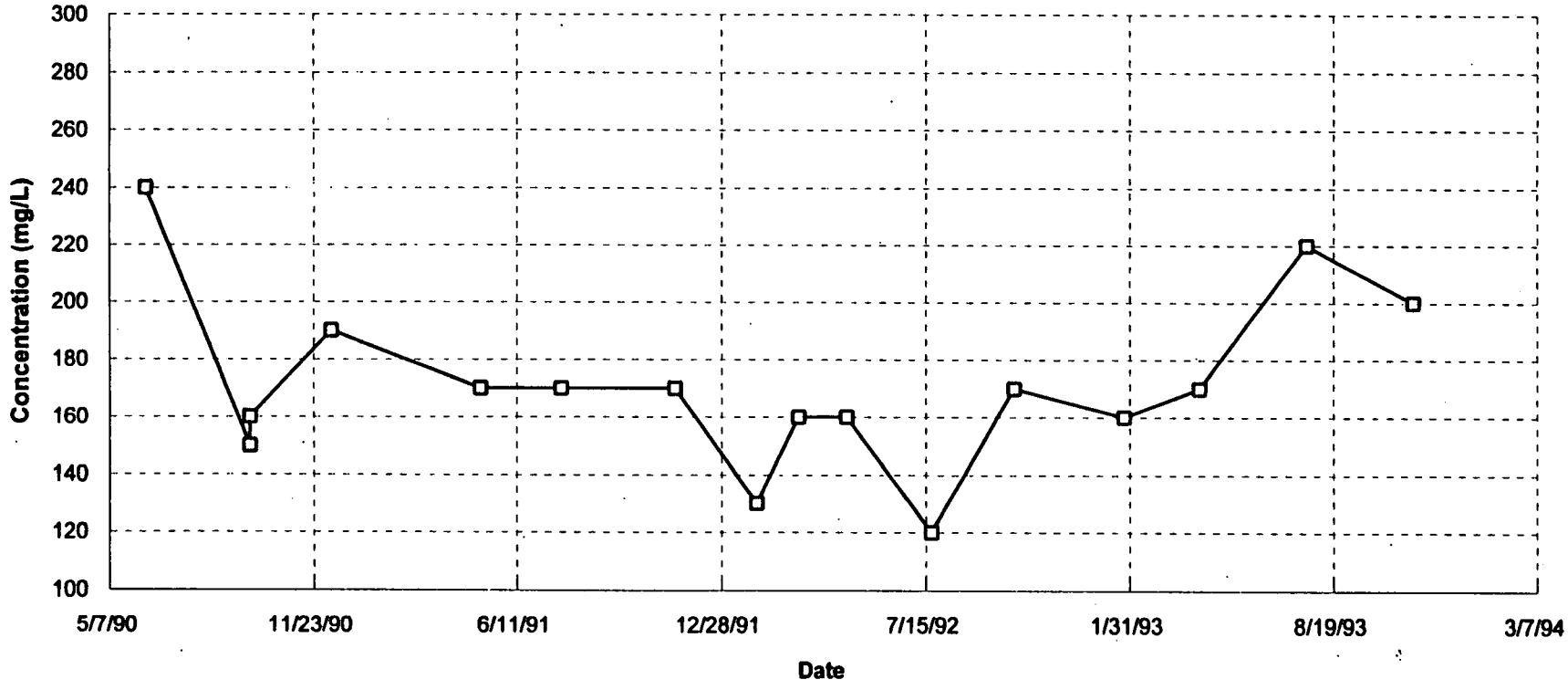
WSF_PLOT.XLS 2/18/94

West Spray Field
Total Dissolved Solids
Well B110989



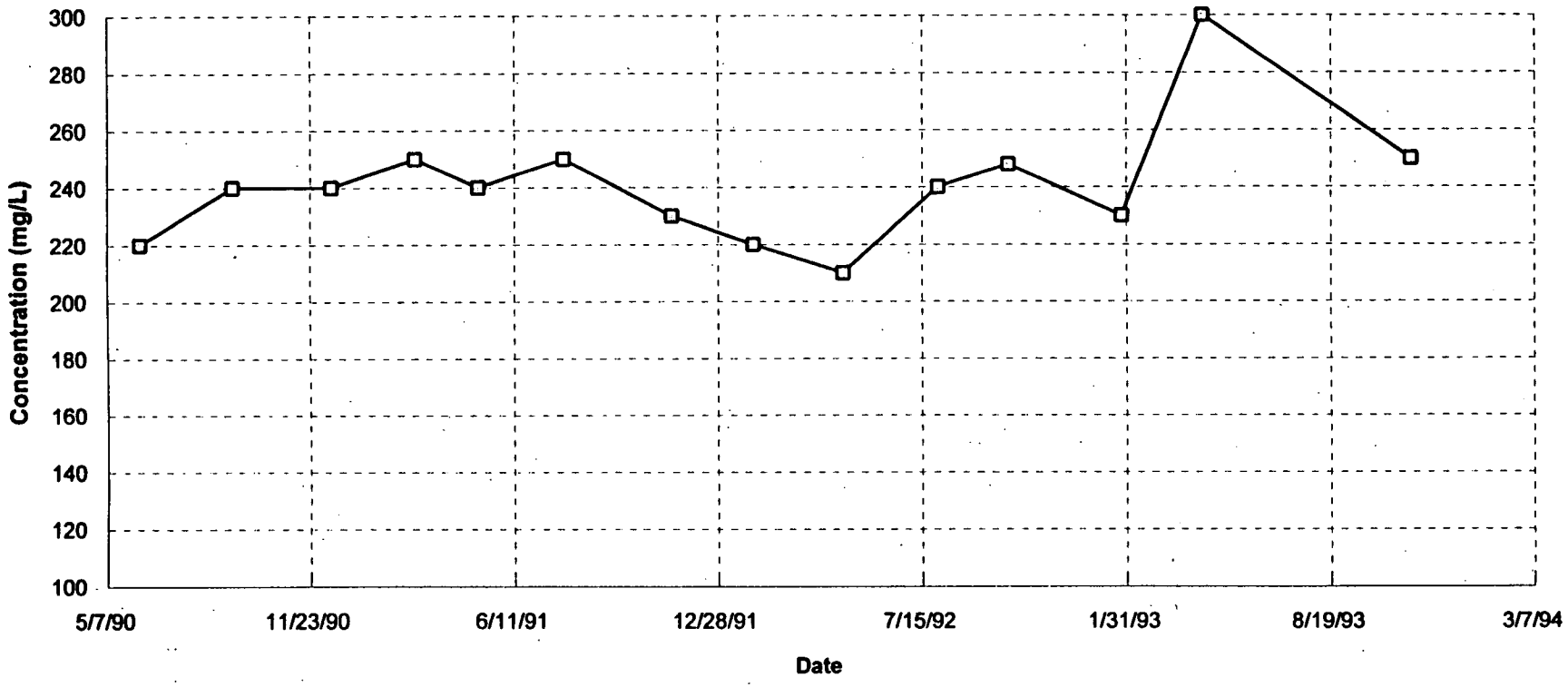
WSF_PLOT.XLS 2/18/94

West Spray Field
Total Dissolved Solids
Well B110889



WSF_PLOT.XLS 2/18/94

West Spray Field
Total Dissolved Solids
Well B410789



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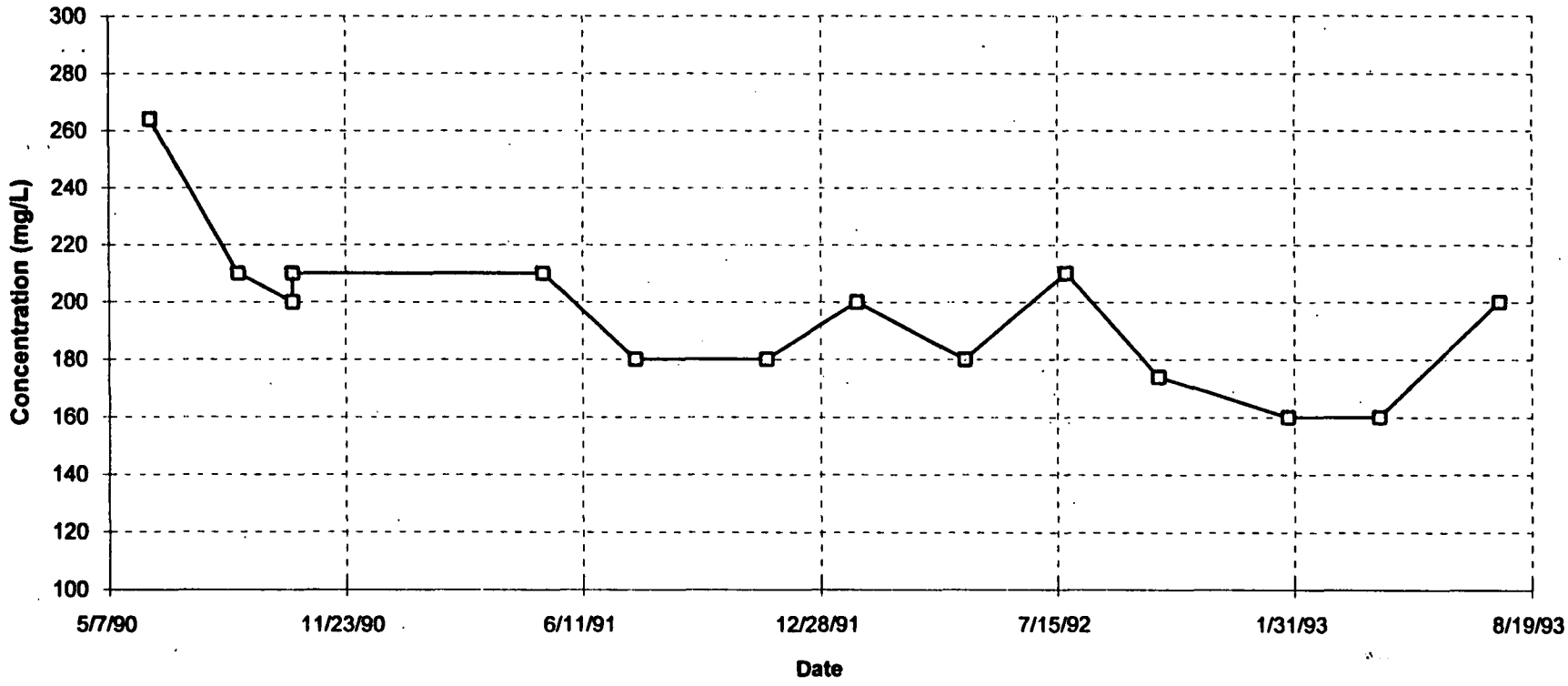
West Spray Field
Total Dissolved Solids
Well B410689



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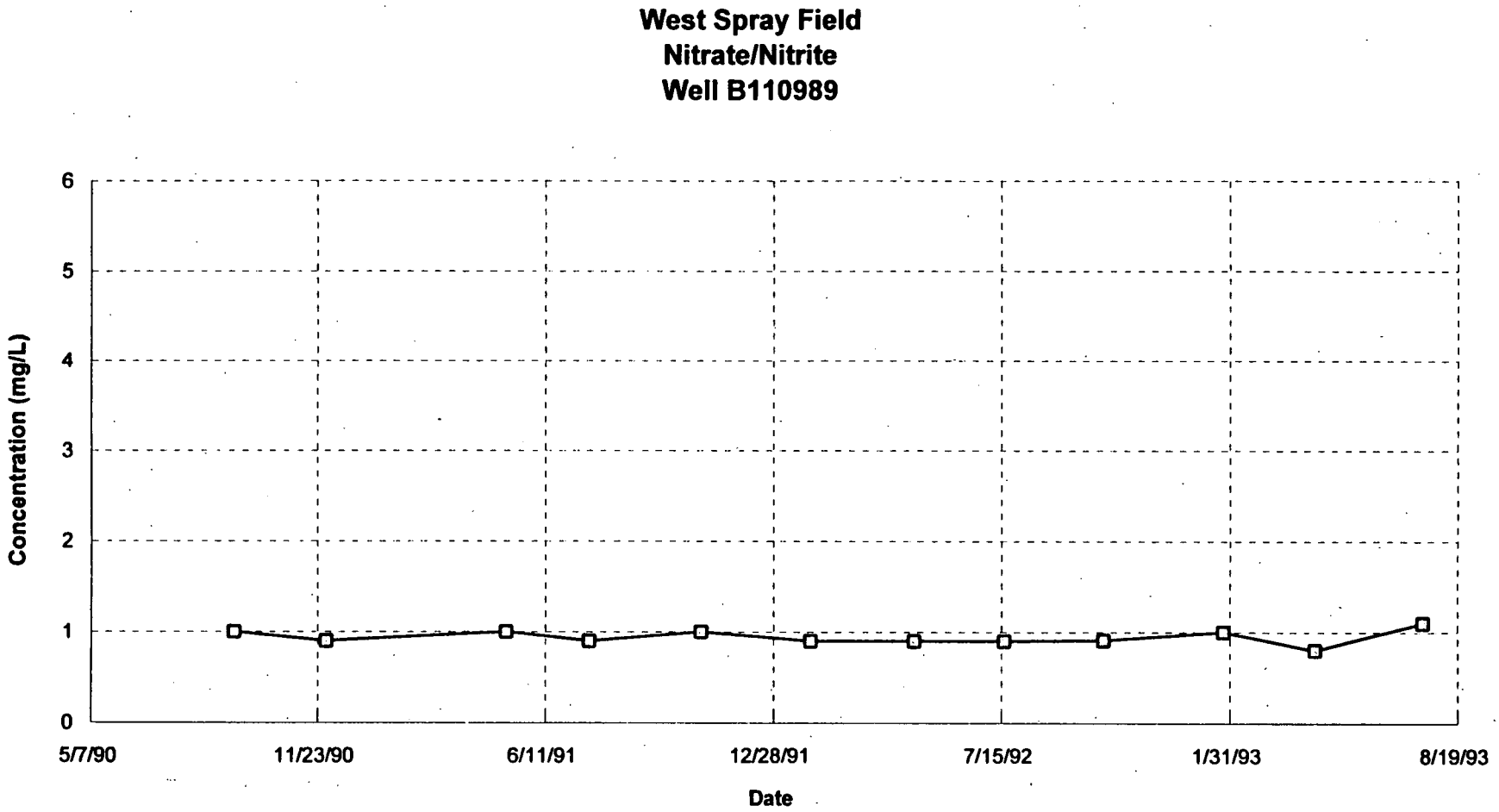

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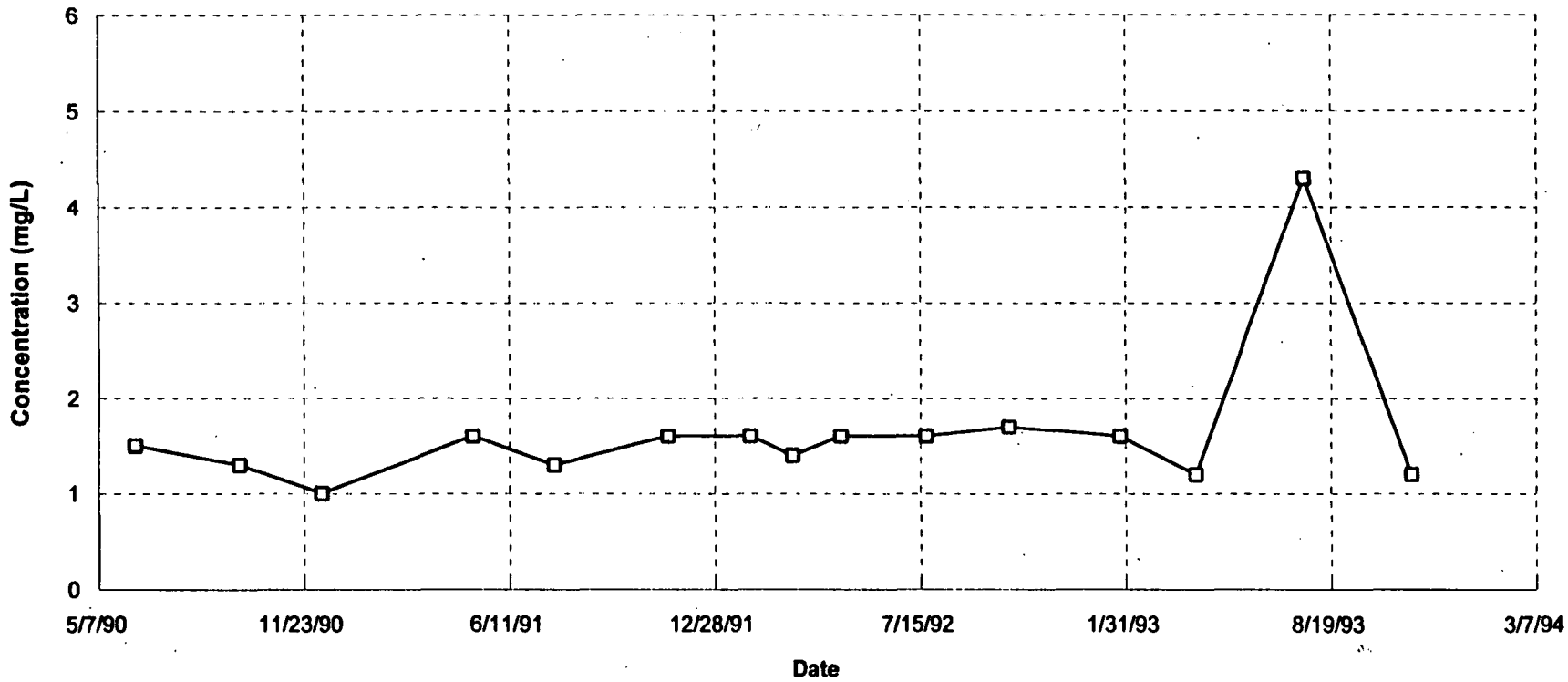
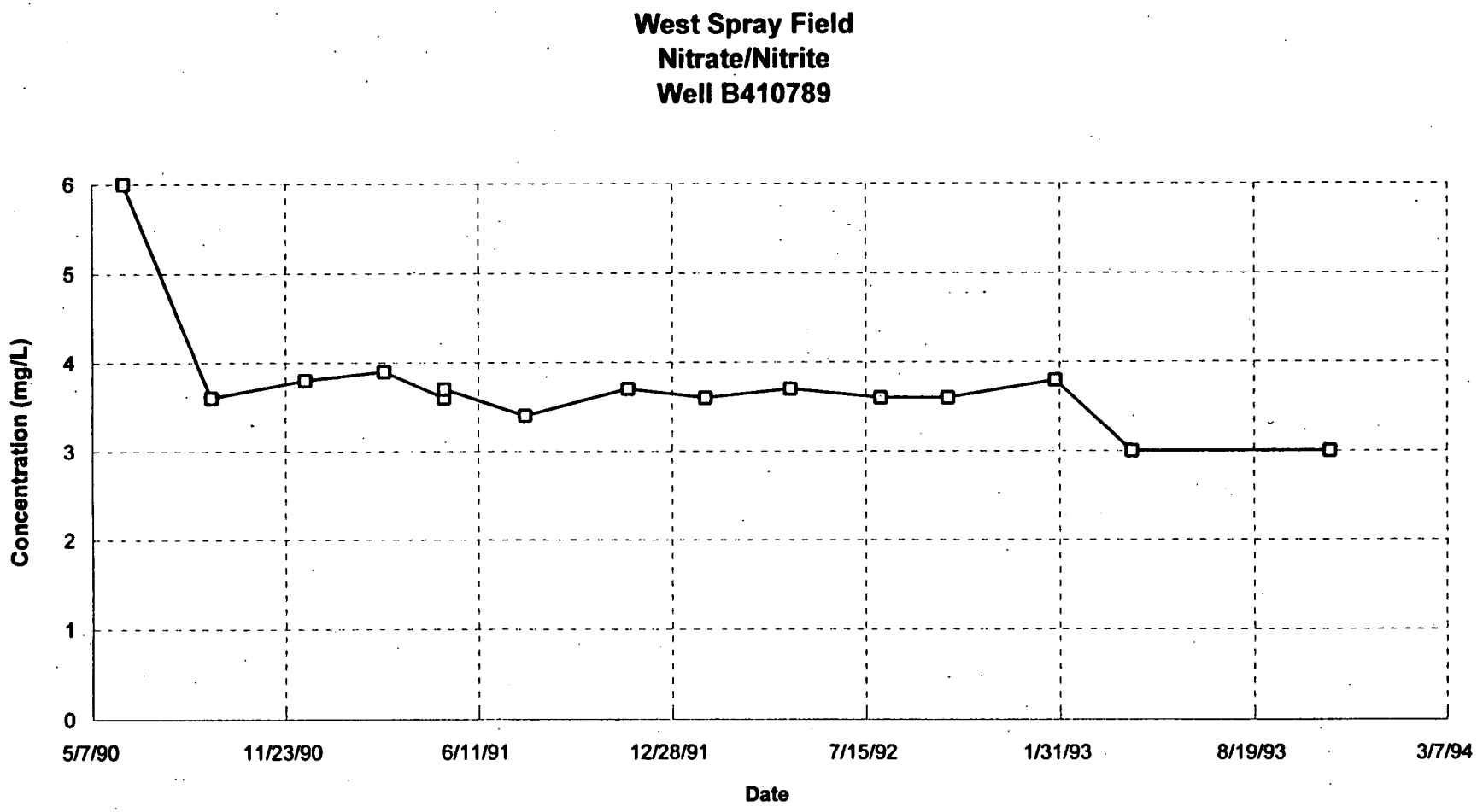
West Spray Field
Nitrate/Nitrite
Well B110889

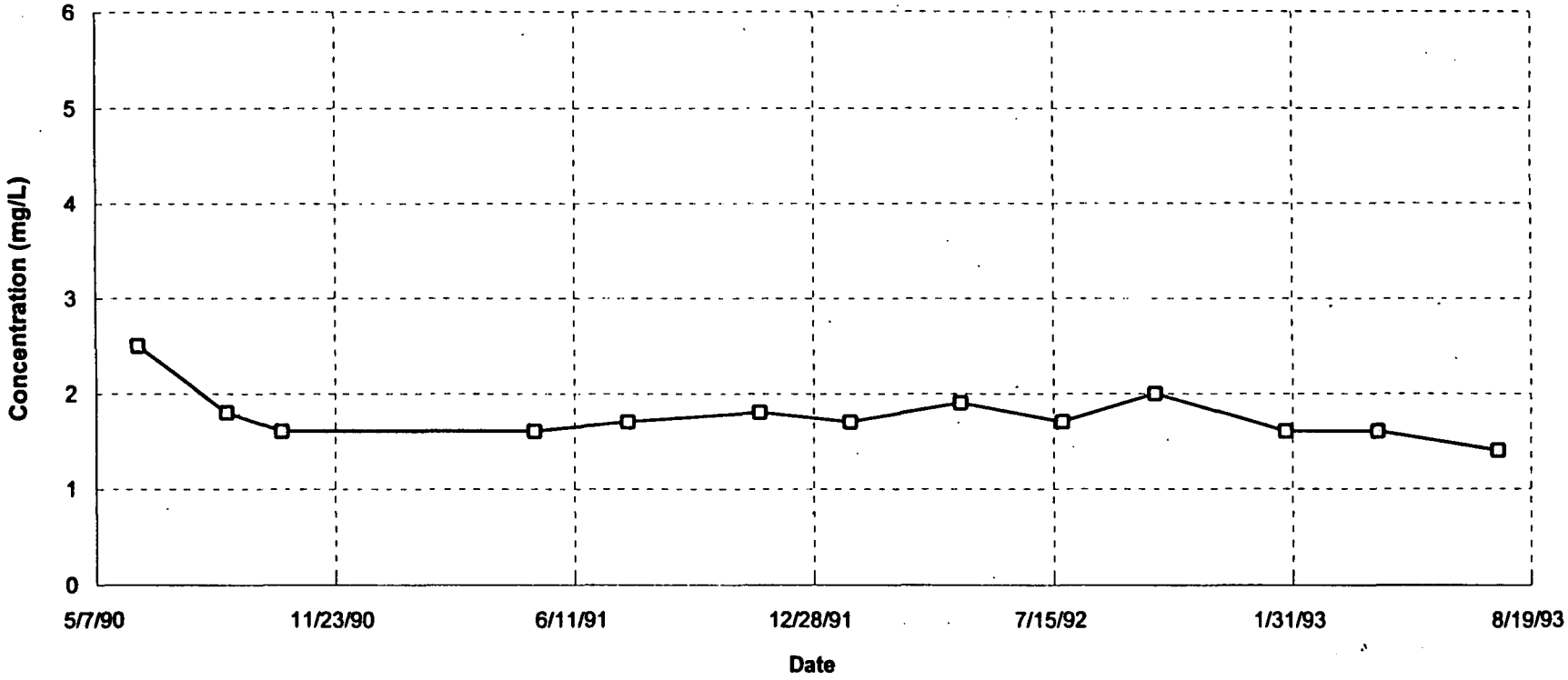


WSF_PLOT XLS 2/18/94



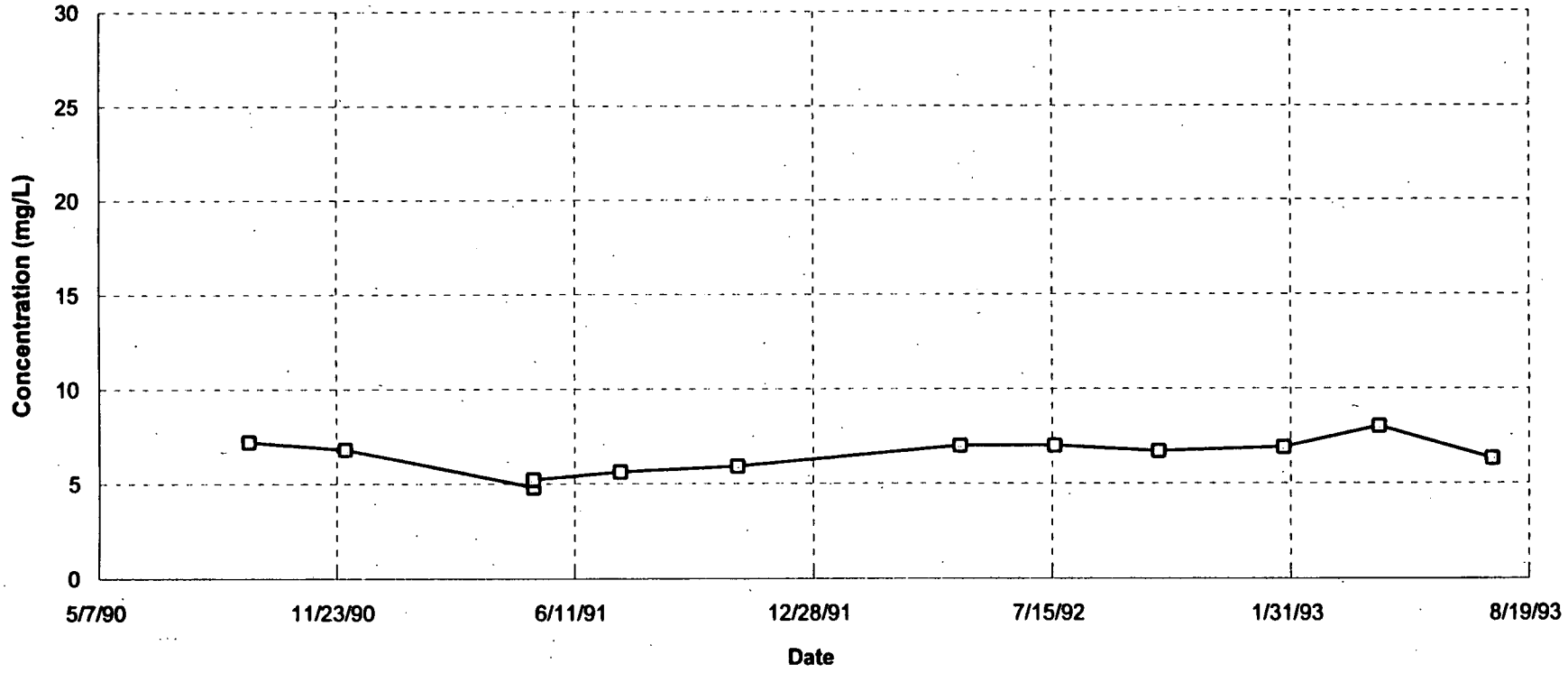
WSF_PLOT.XLS 2/18/94

West Spray Field
Nitrate/Nitrite
Well B410689



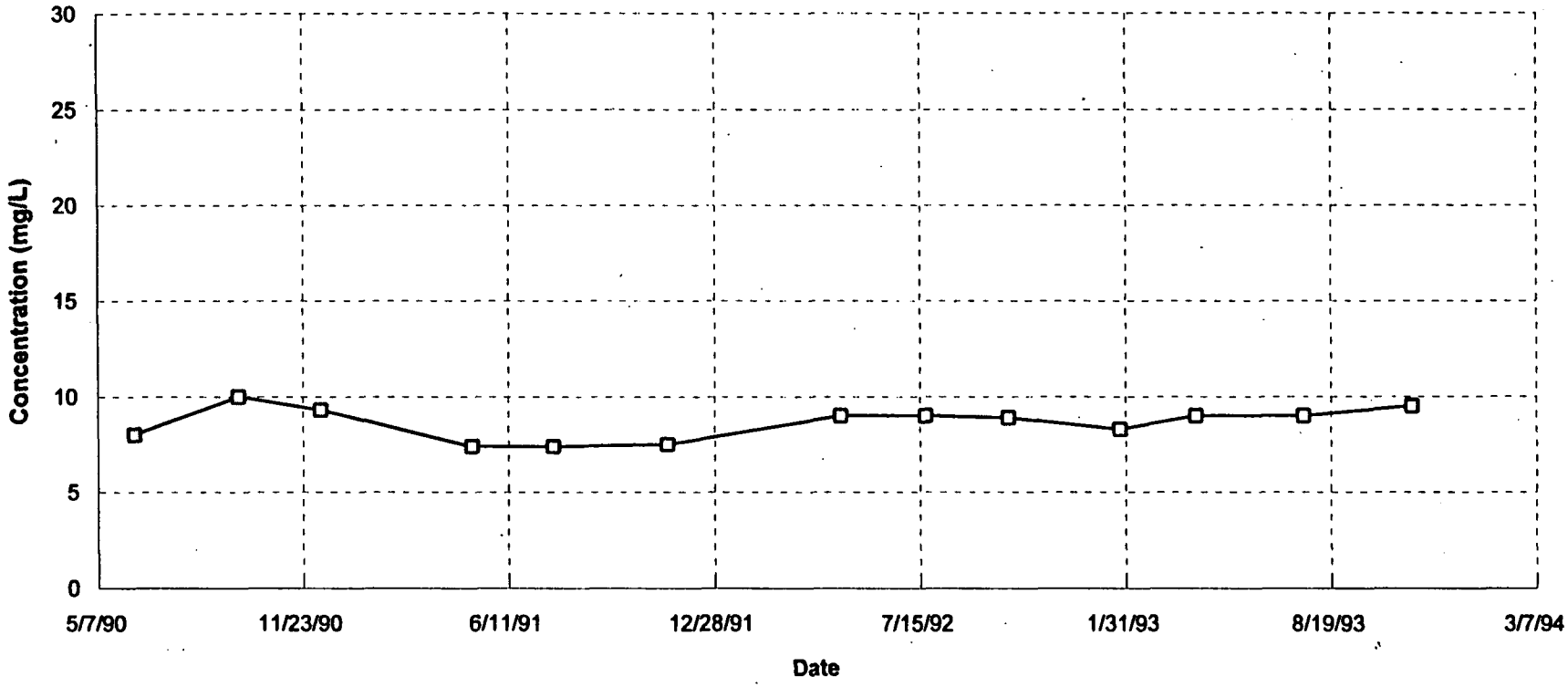
WSF_PLOT.XLS 2/18/94

West Spray Field
Chloride
Well B110989



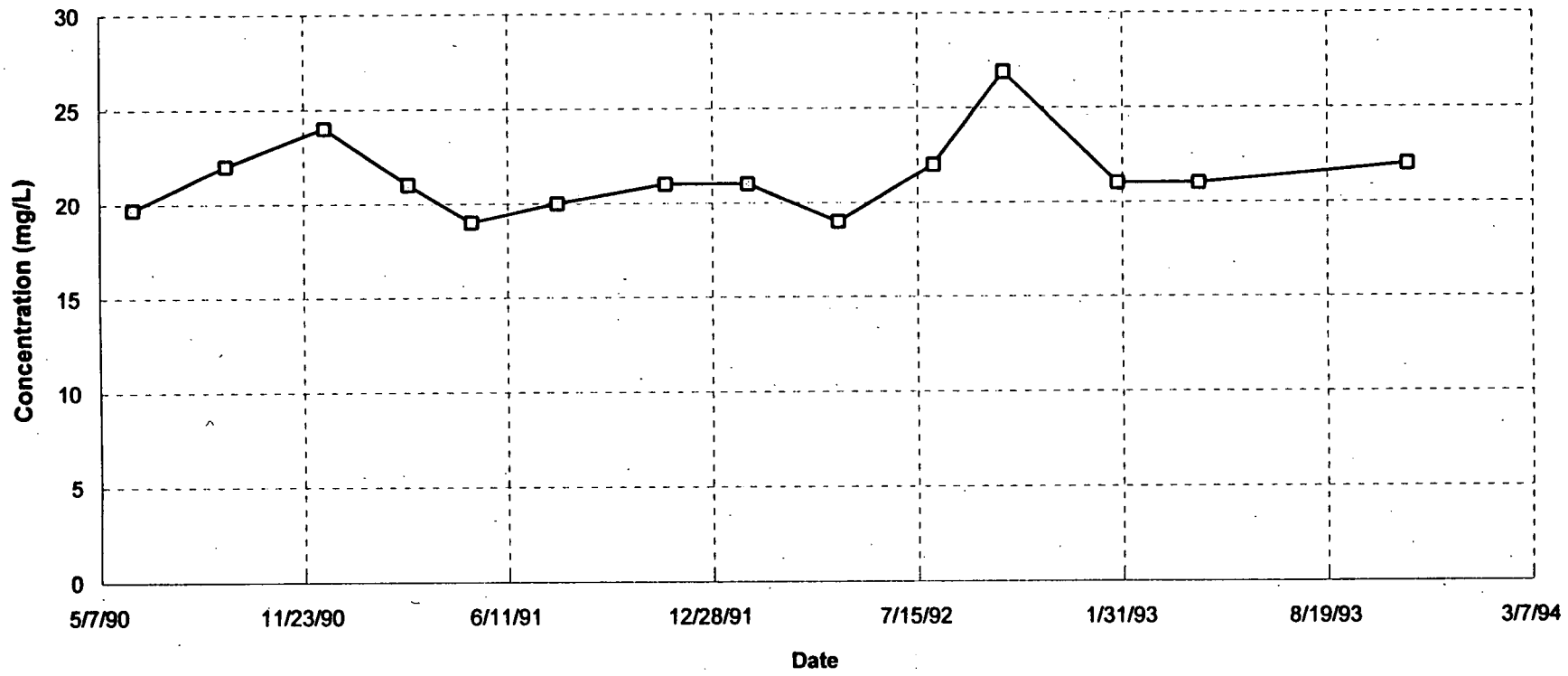
WSF_PLOT.XLS 2/18/94

West Spray Field
Chloride
Well B110889



WSF_PLOT.XLS 2/18/94

West Spray Field
Chloride
Well B410789



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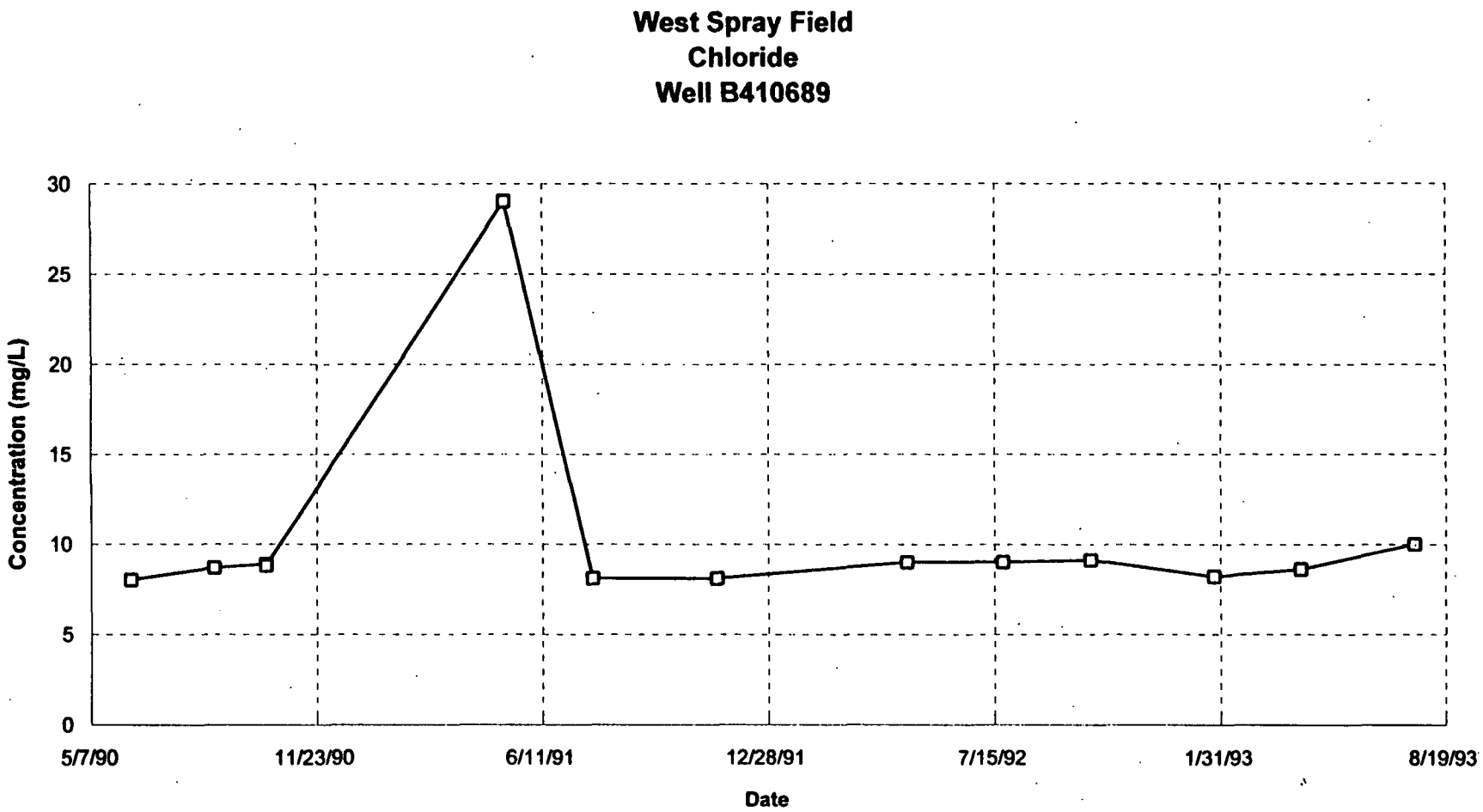
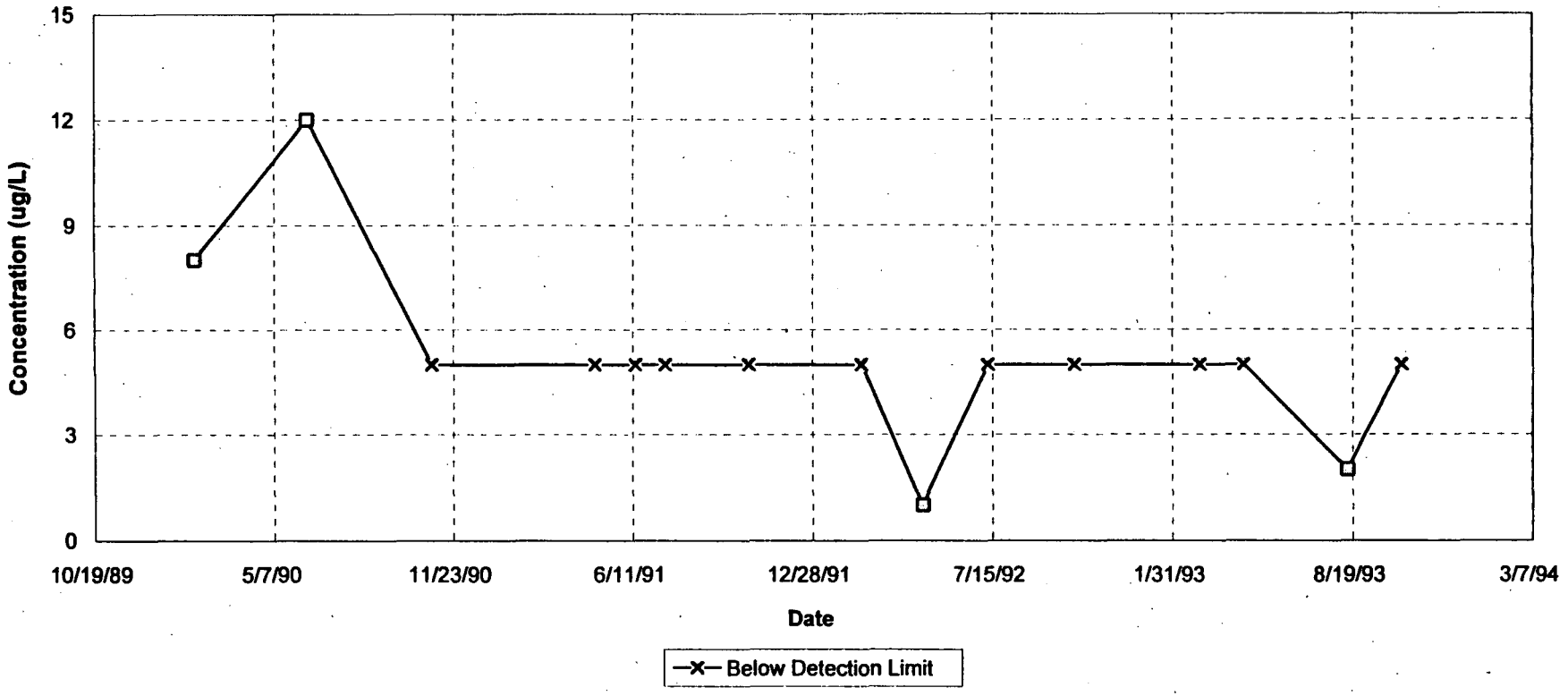


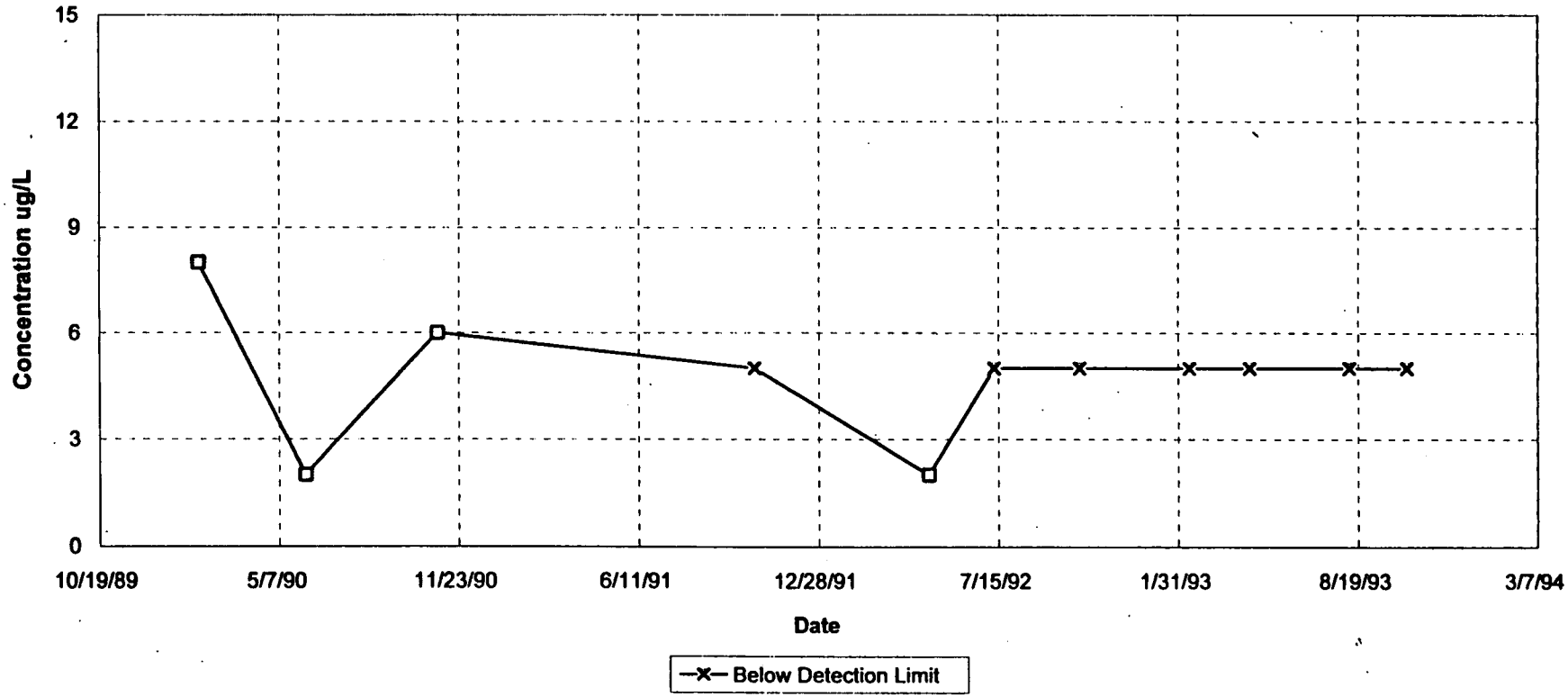
WSF_PLOT.XLS 2/18/94

Present Landfill
Methylene Chloride
Well B207089



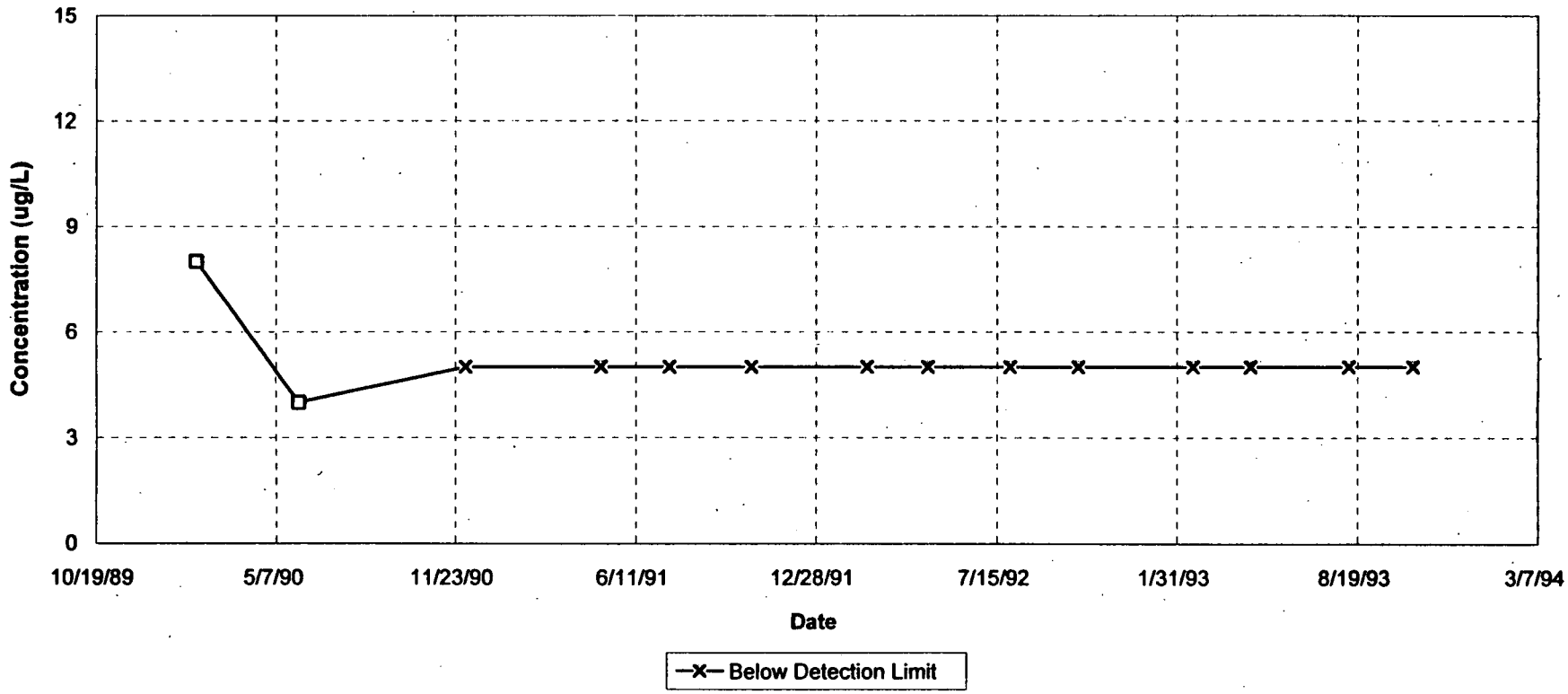
PLF_PLOT.XLS 2/18/94

Present Landfilll
Methylene Choloride
Well B206989



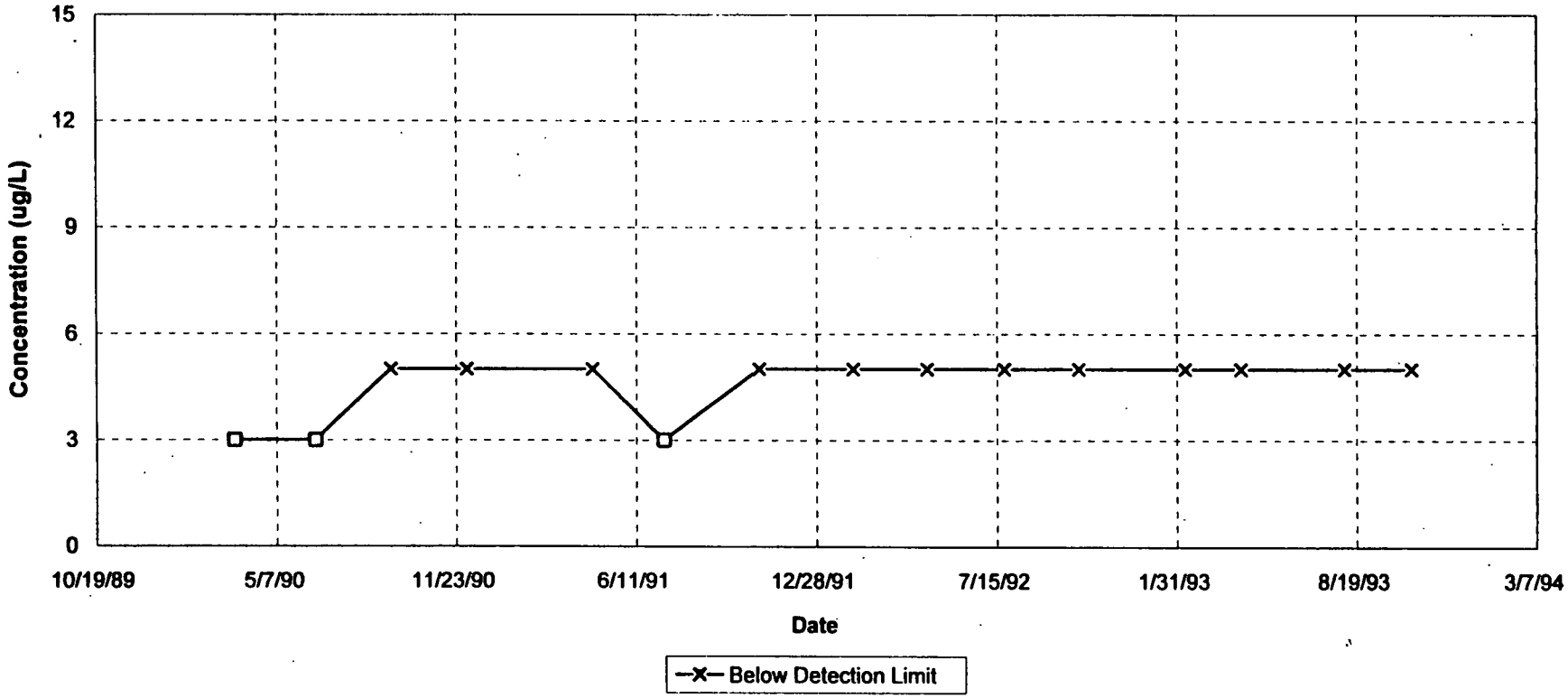
PLF_PLOT.XLS 2/18/94

Present Landfill
Methylene Chloride
Well B206889



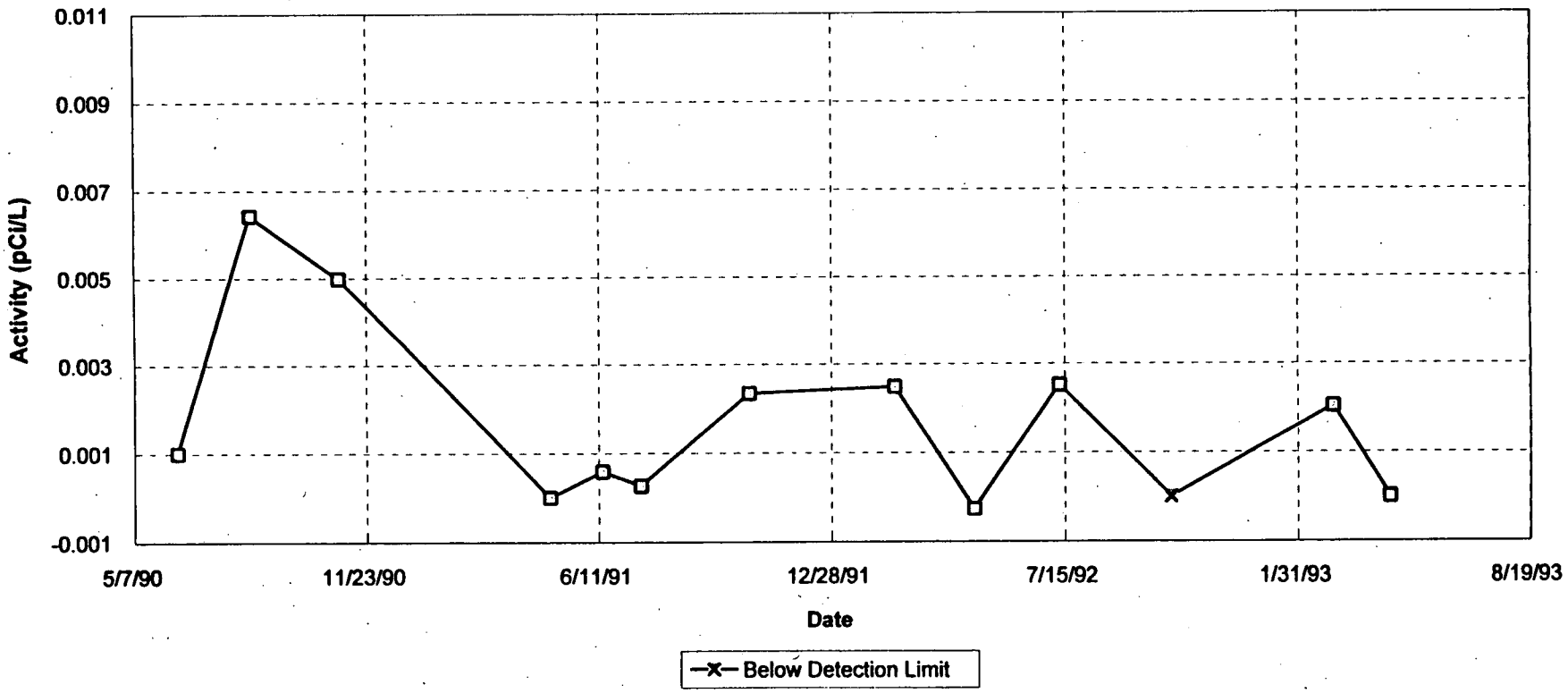
PLF_PLOT.XLS 2/18/94

Present Landfill
Methylene Chloride
Well B206789



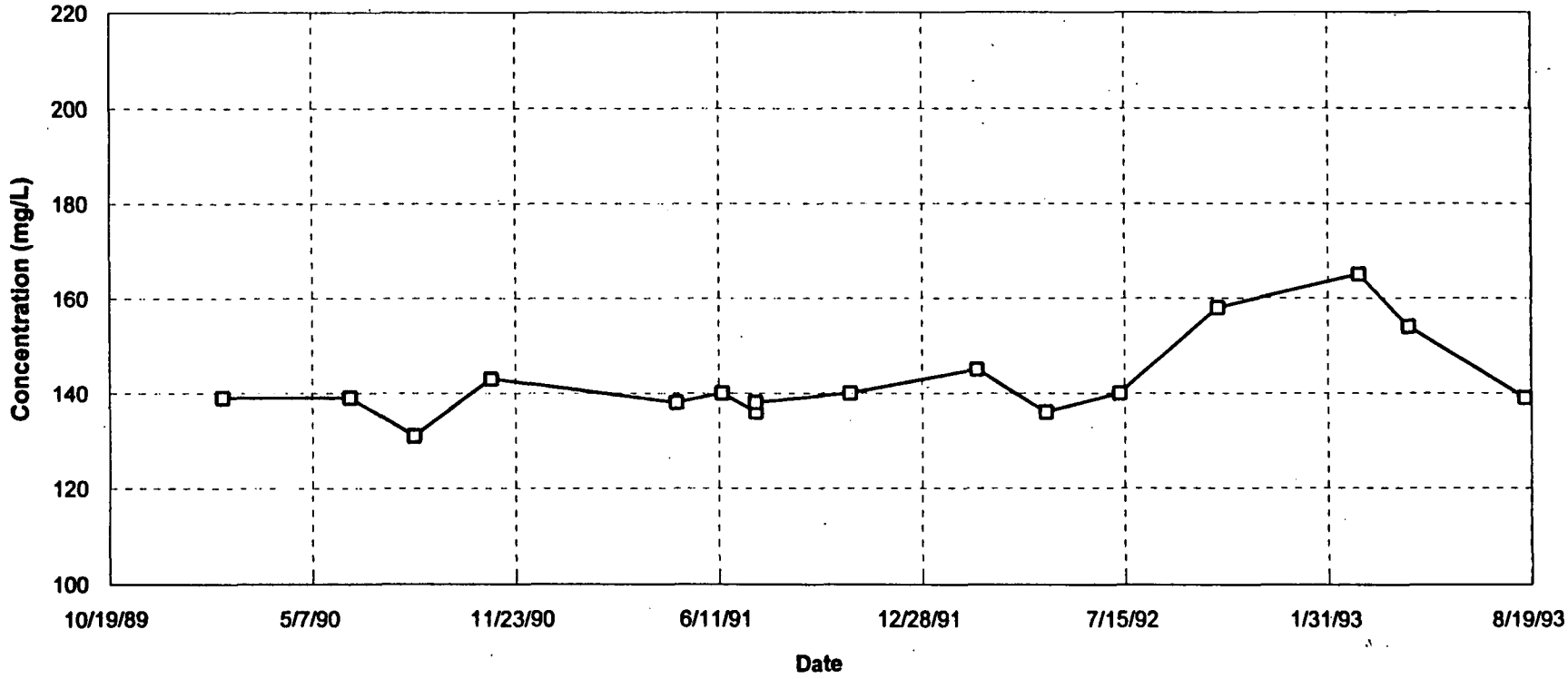
PLF_PLOT.XLS 2/18/94

Present Landfill
Plutonium-239,240
Well B207089



PLF_PLOT.XLS 2/18/94

Present Landfill
Calcium
Well B207089



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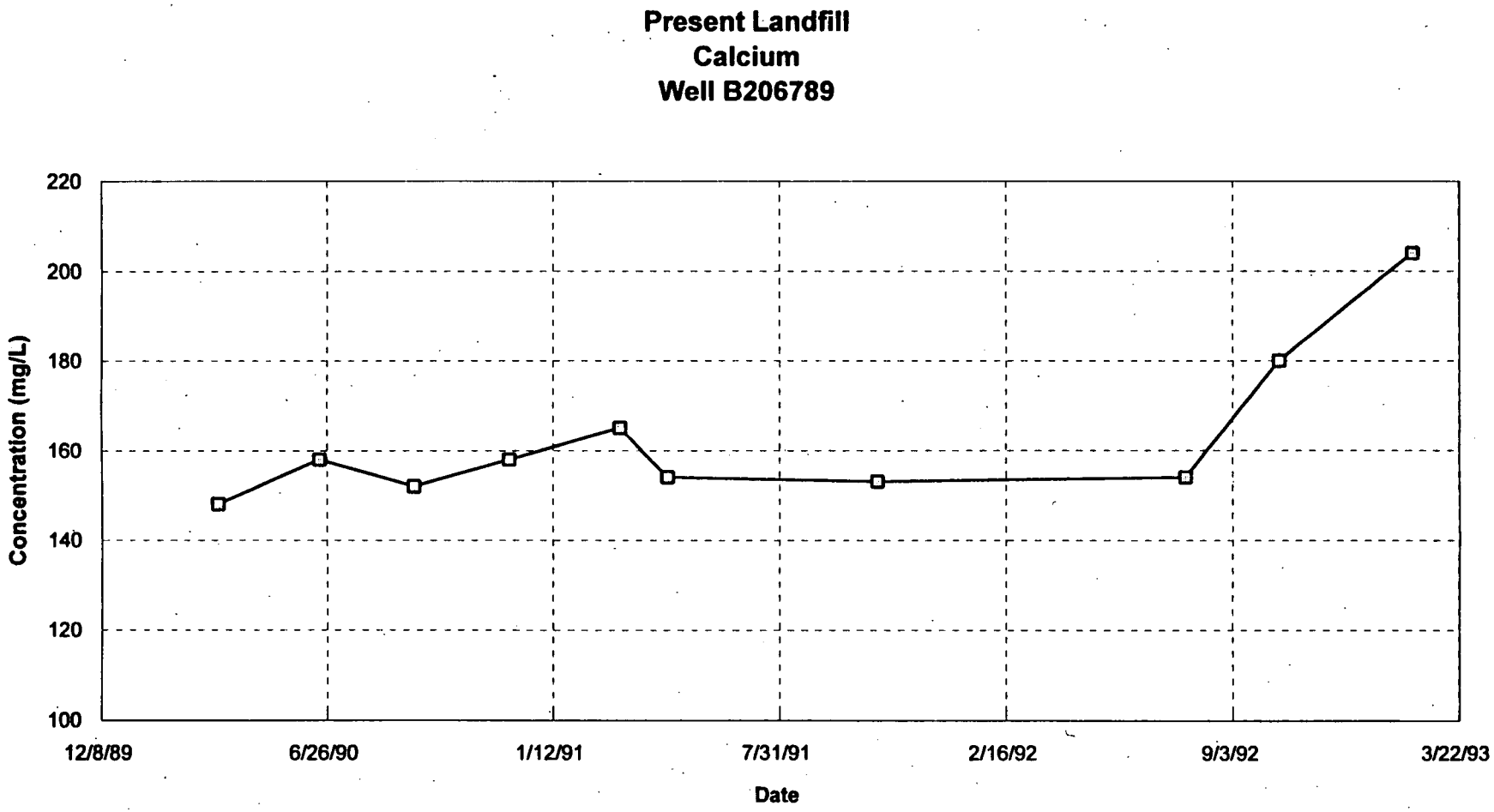
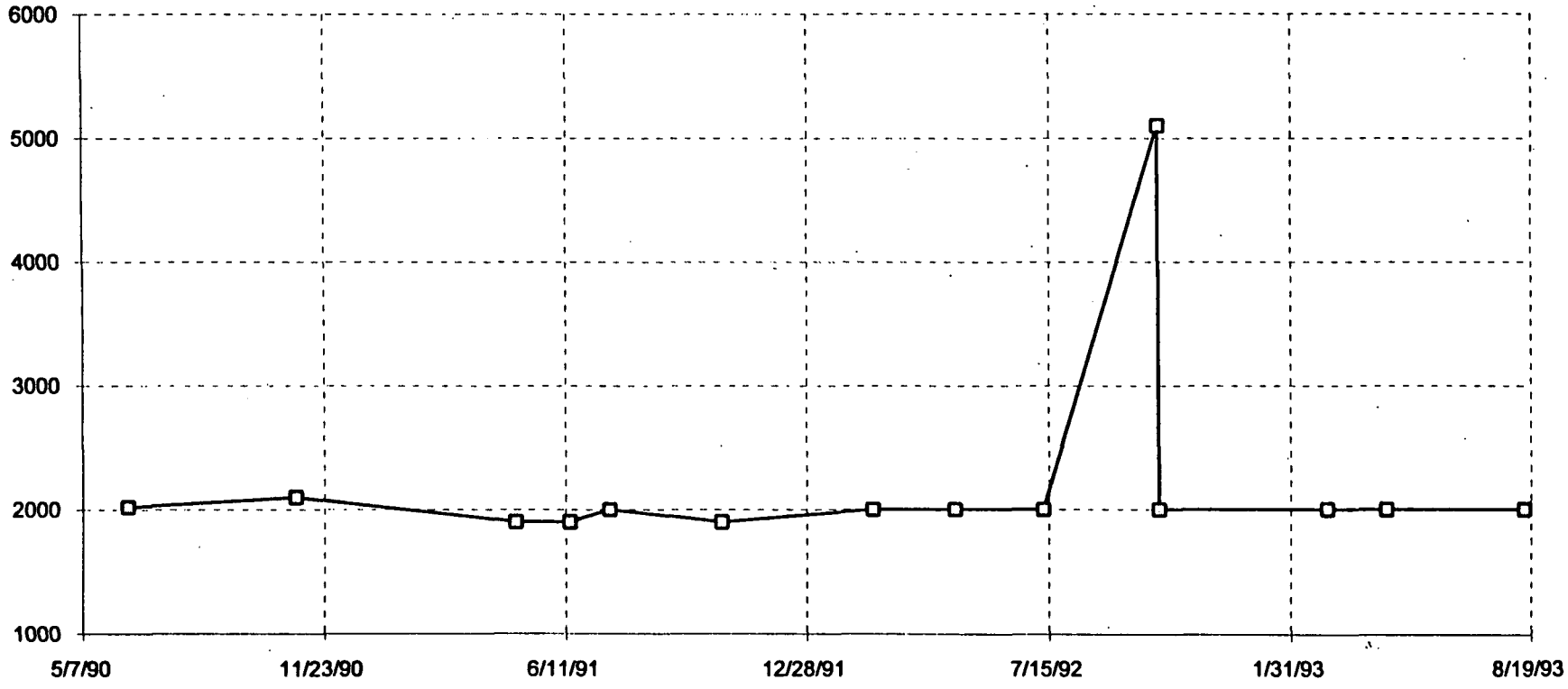


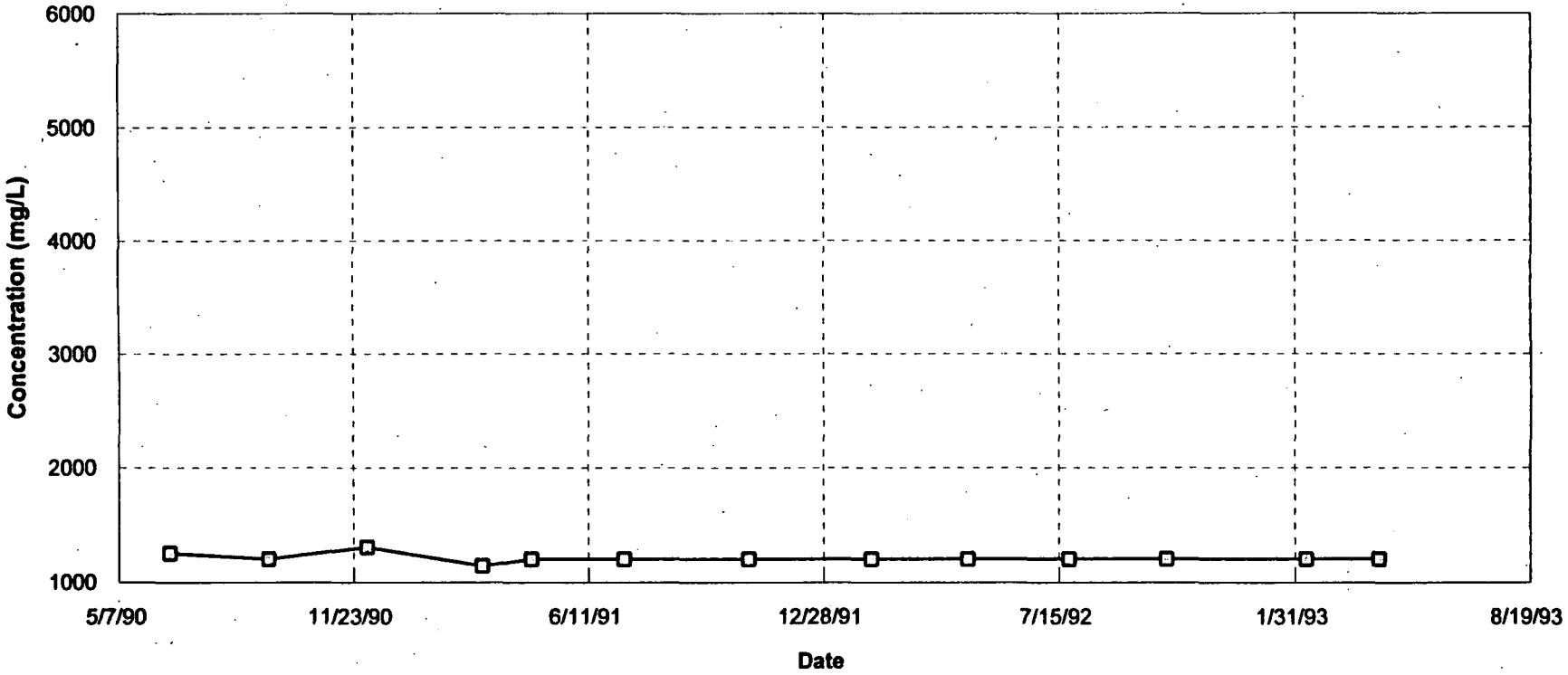
PLF_PLOT.XLS 2/18/94

Present Landfill
Total Dissolved Solids
Well B207089



PLF_PLOT.XLS 2/18/94

Present Landfill
Total Dissolved Solids
Well B206789



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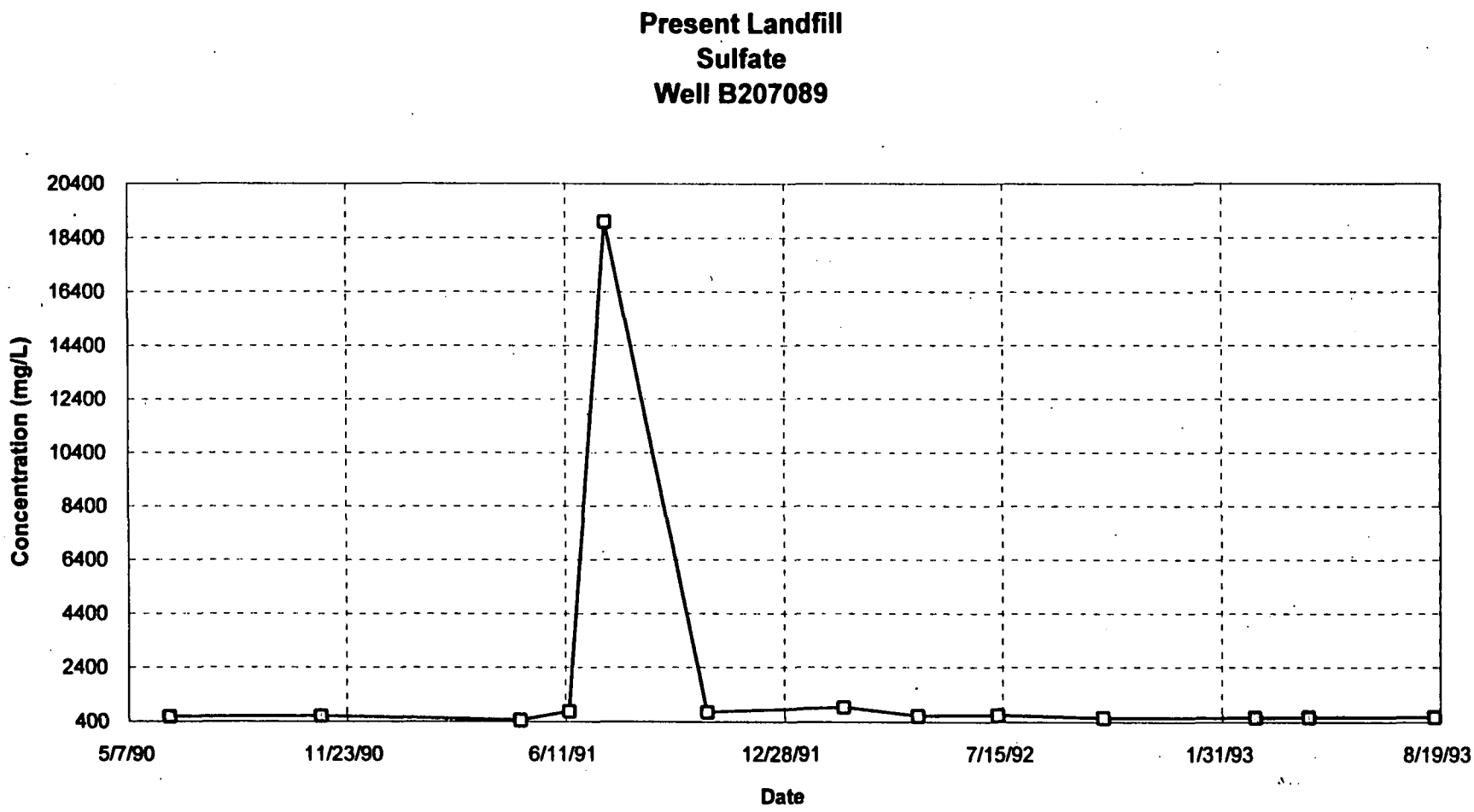
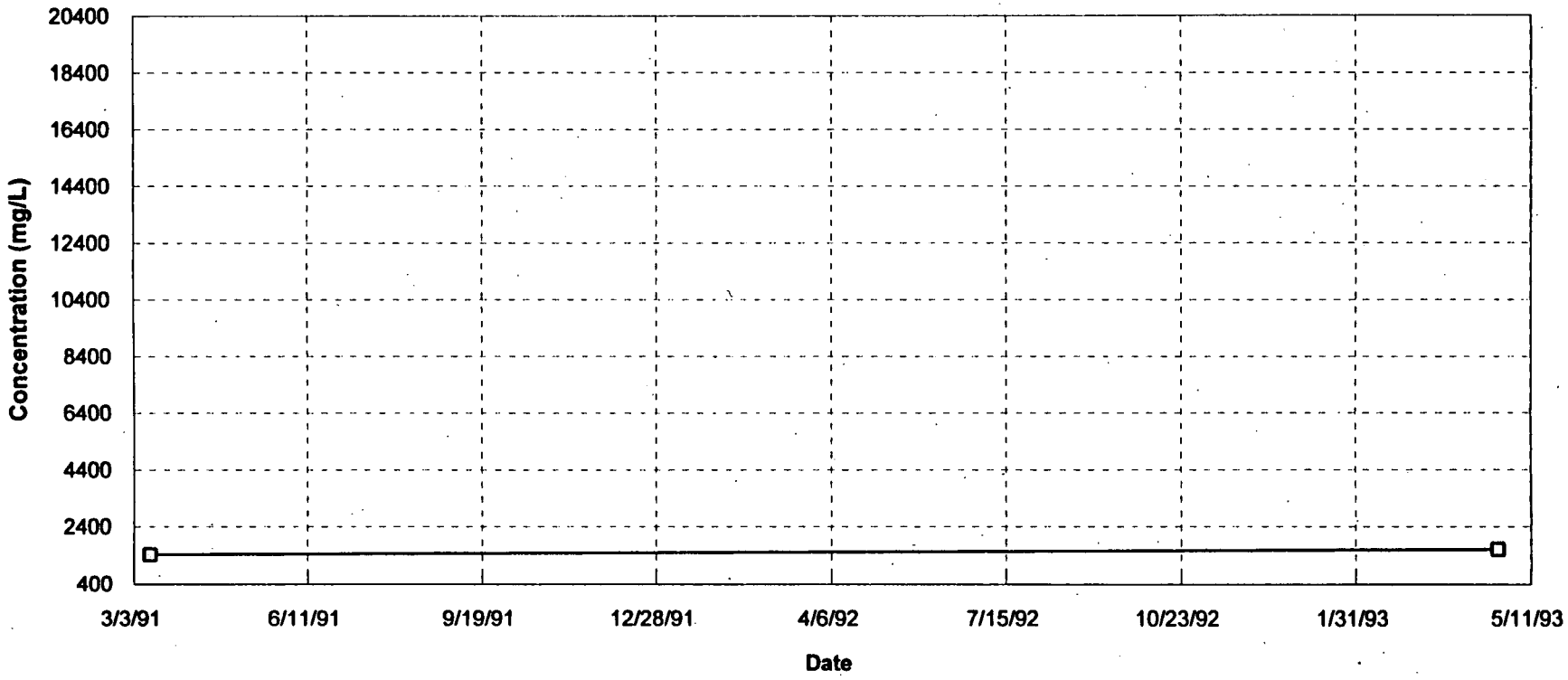


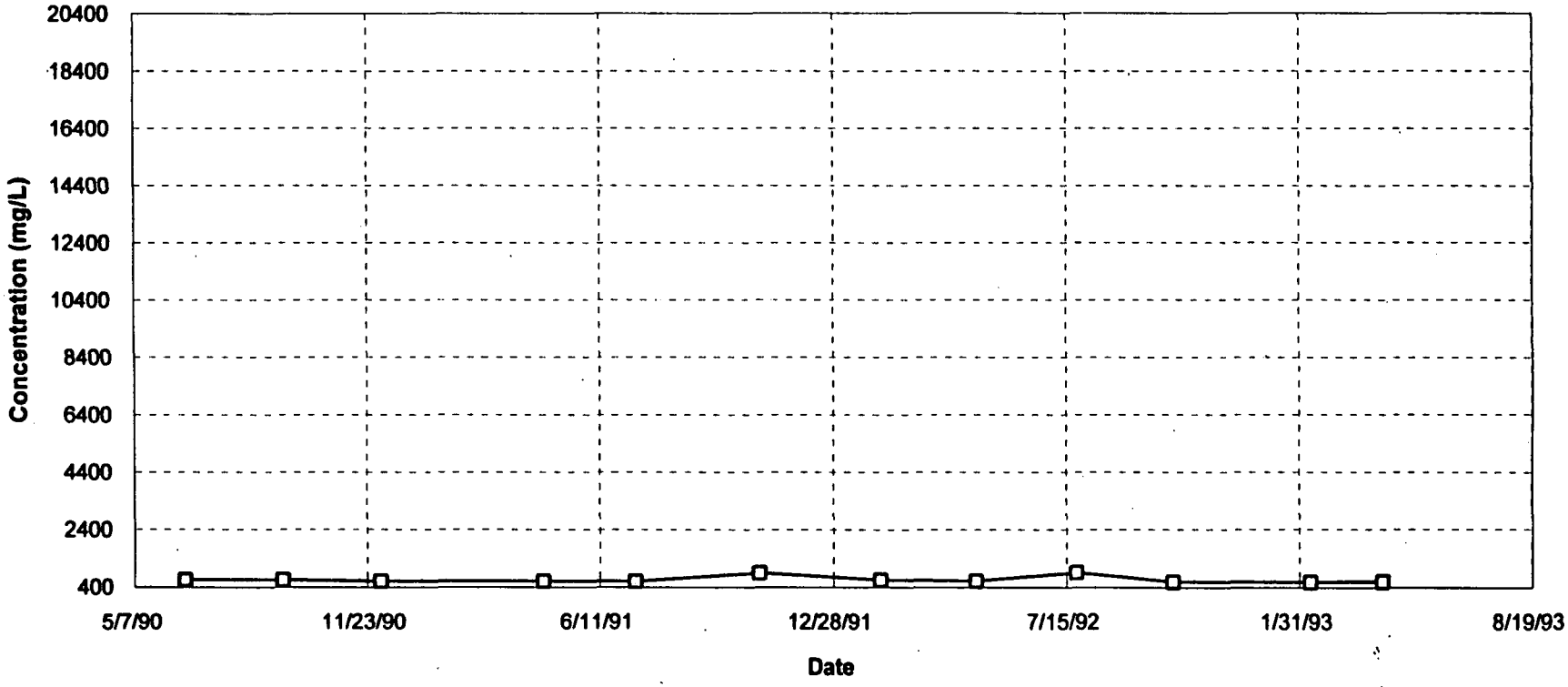
PLF_PLOT.XLS 2/18/94

Present Landfill
Sulfate
Well B206889



PLF_PLOT.XLS 2/18/94

Present Landfill
Sulfate
Well B206789



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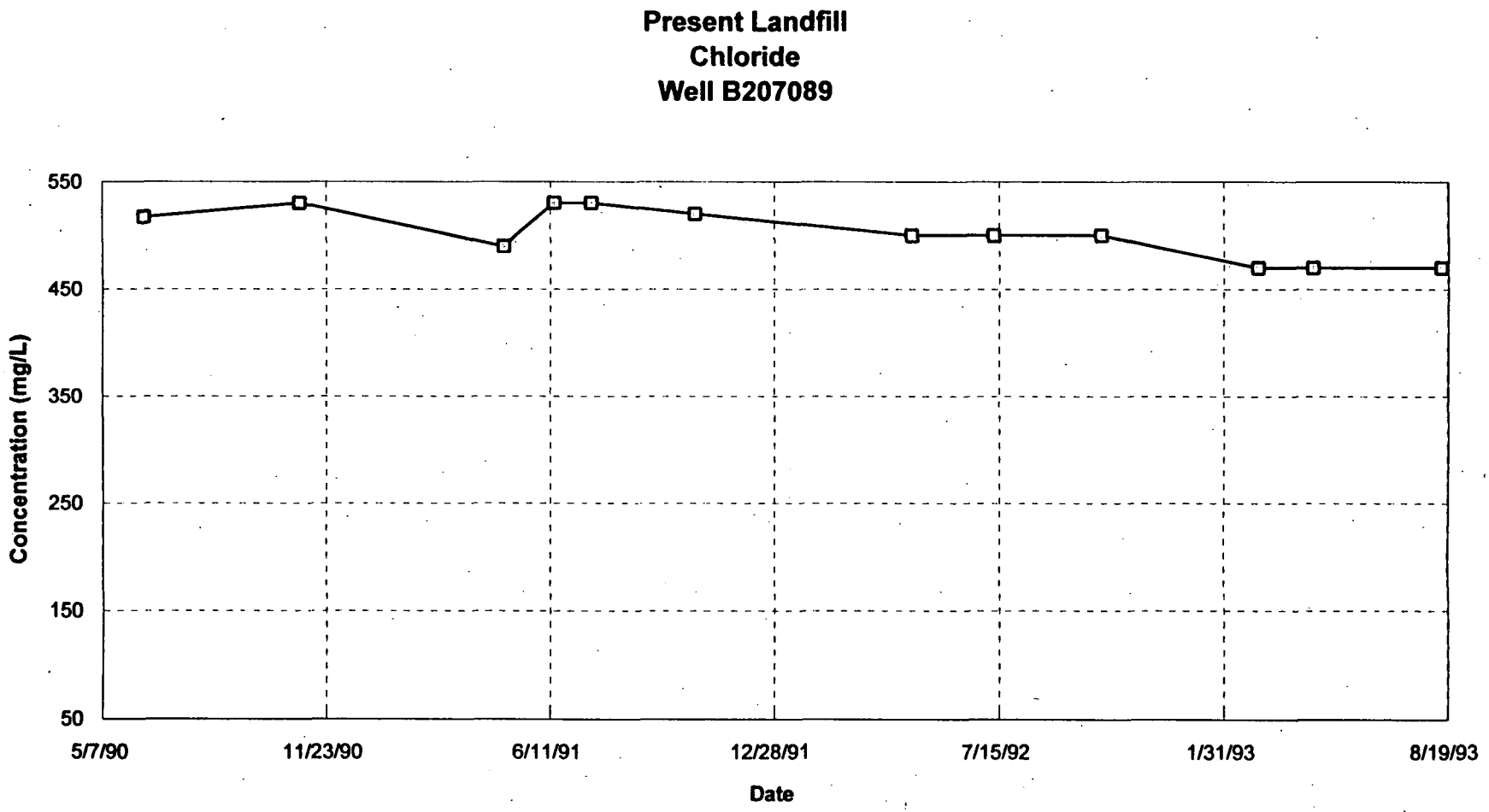
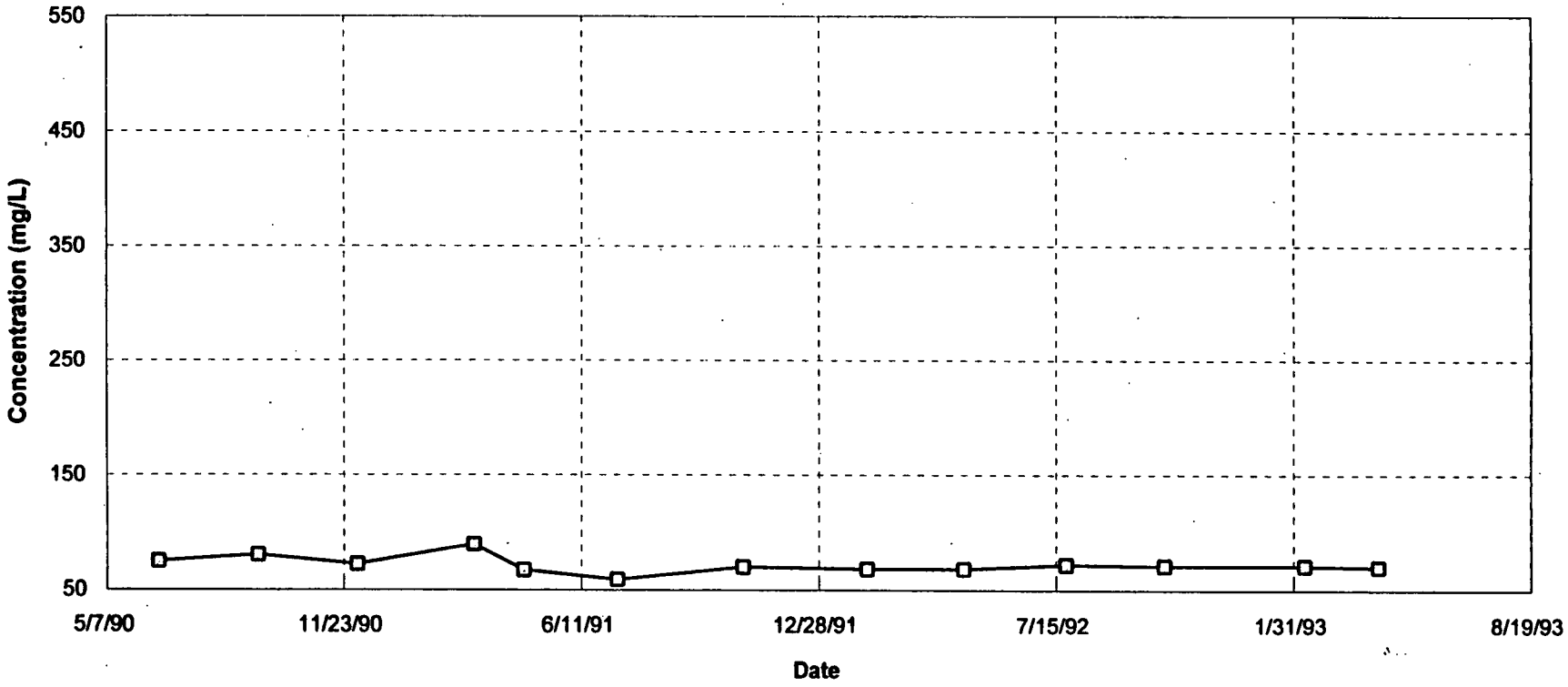


PLF_PLOT.XLS 2/18/94

Present Landfill
Chloride
Well B206789



PLF_PLOT.XLS 2/18/94

APPENDIX G

Cumulative Sum (CUSUM) Control Charts for Selected Groundwater Monitoring Wells

Combined Shewhart and cumulative-sum (CUSUM) control charts are used to provide a visual tool for detecting trends and abrupt changes in concentration levels for an analyte within a well. At each well, the CUSUM and standard mean for an analyte are based on a "target" mean (μ) and standard deviation (σ) of eight independent observations. The eight observations are concentration values for an analyte from eight consecutive quarters, in this case, the first eight quarters of available data (1990 - 1991). The values used to construct the combined Shewhart-CUSUM control chart are individual concentration values for the analyte (measured quarterly). The values of the upper control limit (h=5) and the Shewhart Control Limit (SCL = 4.5) were selected based upon recommendations made in the Interim Final Guidance for Statistical Analysis of Groundwater at RCRA Facilities (EPA, 1989). A trend or an anomalous value is indicated when an individual CUSUM exceeds the upper control limit (h) or when the standard mean exceeds the Shewhart Control Limit (SCL). Below is a brief summary of some of the CUSUM charts which indicate a statistical exceedance of the control limits.

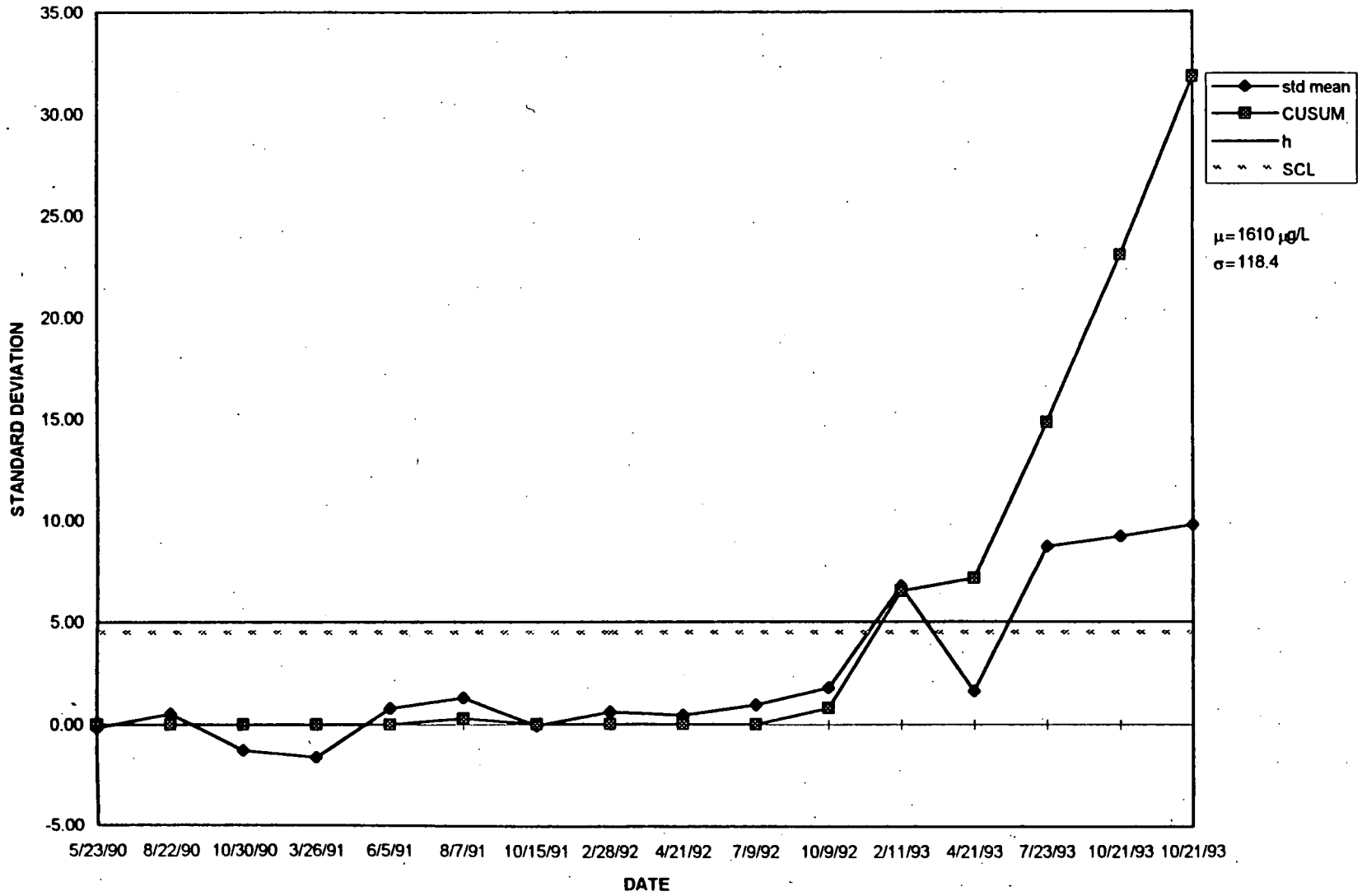
At Well P209889, located downgradient of the Solar Evaporation Ponds, three analytes had concentrations above the upper control limit or the SCL. The CUSUM chart for lithium displays an upward trend indicating significant increases in concentration over time. However, the CUSUM chart for plutonium-239,240 only displays one value greater than the control limits. This value of 0.023 pCi/L is an order of magnitude greater than the target mean for the well (0.0019 pCi/L). A similar situation is displayed in the CUSUM chart for nitrate/nitrite. The value 8,260 mg/L is three times greater than the target mean for the well of 2,474 mg/L. Although plutonium-239,240 and nitrate/nitrite each show concentrations elevated above the target mean, no trend is maintained and the concentrations of these analytes quickly return below the control limits. In cases such as these, the concentration value that exceeds the control limits should be considered an anomalous value.

At Wells B110889 and B110989, located at the West Spray Field, concentrations of two analytes, nitrate/nitrite and TDS, each exceeded control limits once. The nitrate/nitrite

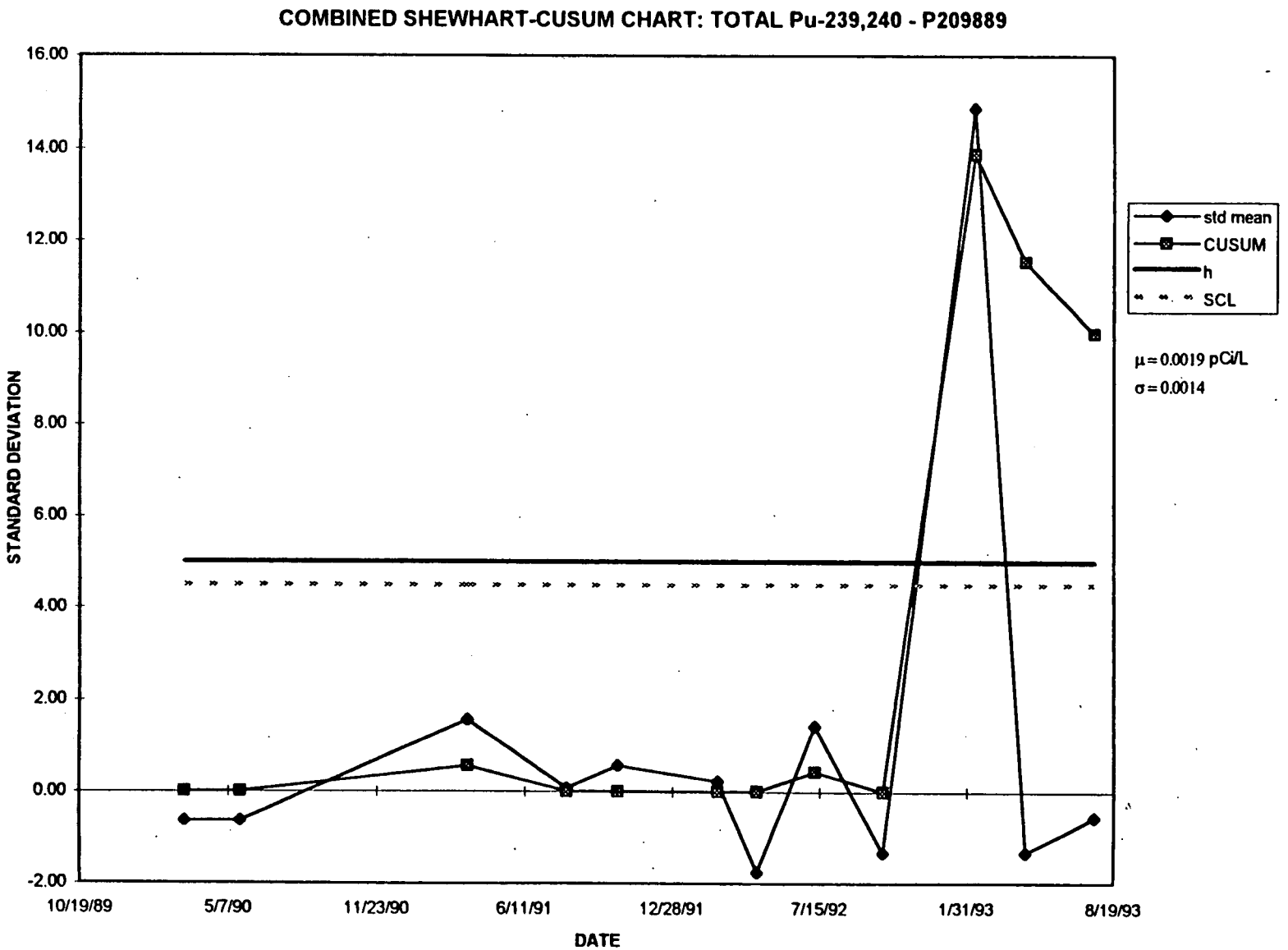
concentration of 4.3 mg/L at B110889 is only slightly greater than the target mean of 1.4 mg/L. The elevated TDS concentration of 300 mg/L at B110989 is two times greater than the target mean of 158 mg/L. The hypothesis that neither of these concentrations represents a significant trend is supported by fact that neither of these analytes was found to be present at significantly higher concentrations in downgradient groundwater than in upgradient groundwater (refer to Section 4.4.1).

During 1993, dissolved calcium concentrations exceeded control limits at Well B207089 located downgradient of the Present Landfill. The CUSUM remained above the control limits through 1993, but the standard mean returned to within the control limits. At this well, the highest concentration of calcium reported in 1993 (158 mg/L) is only slightly higher than the target mean (138 mg/L). The trend towards higher calcium in groundwater from this well appeared to end during 1993.

COMBINED SHEWHART CUSUM-CHART: DISSOLVED LITHIUM-P209889

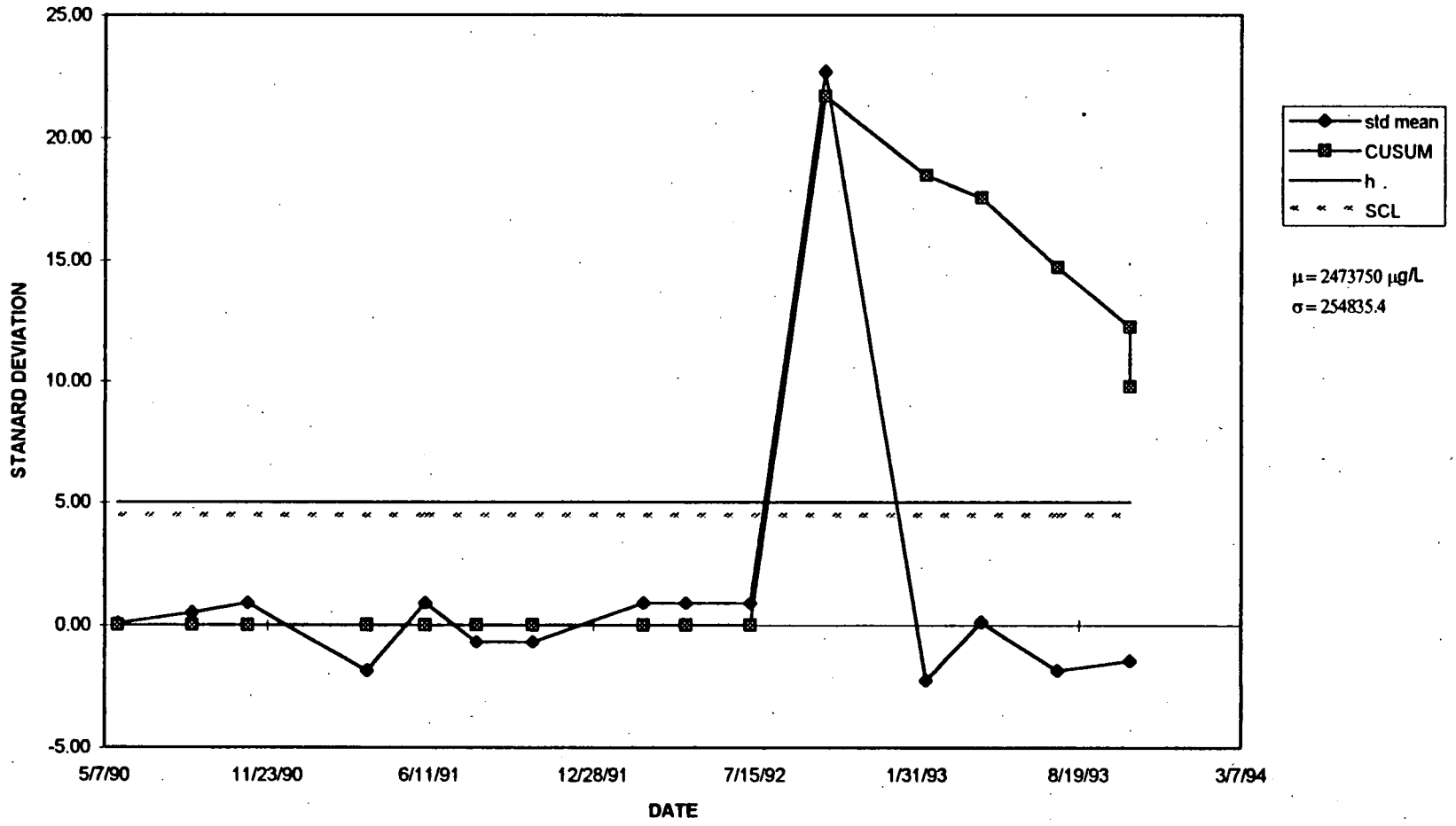


SOLAR EVAPORATION PONDS



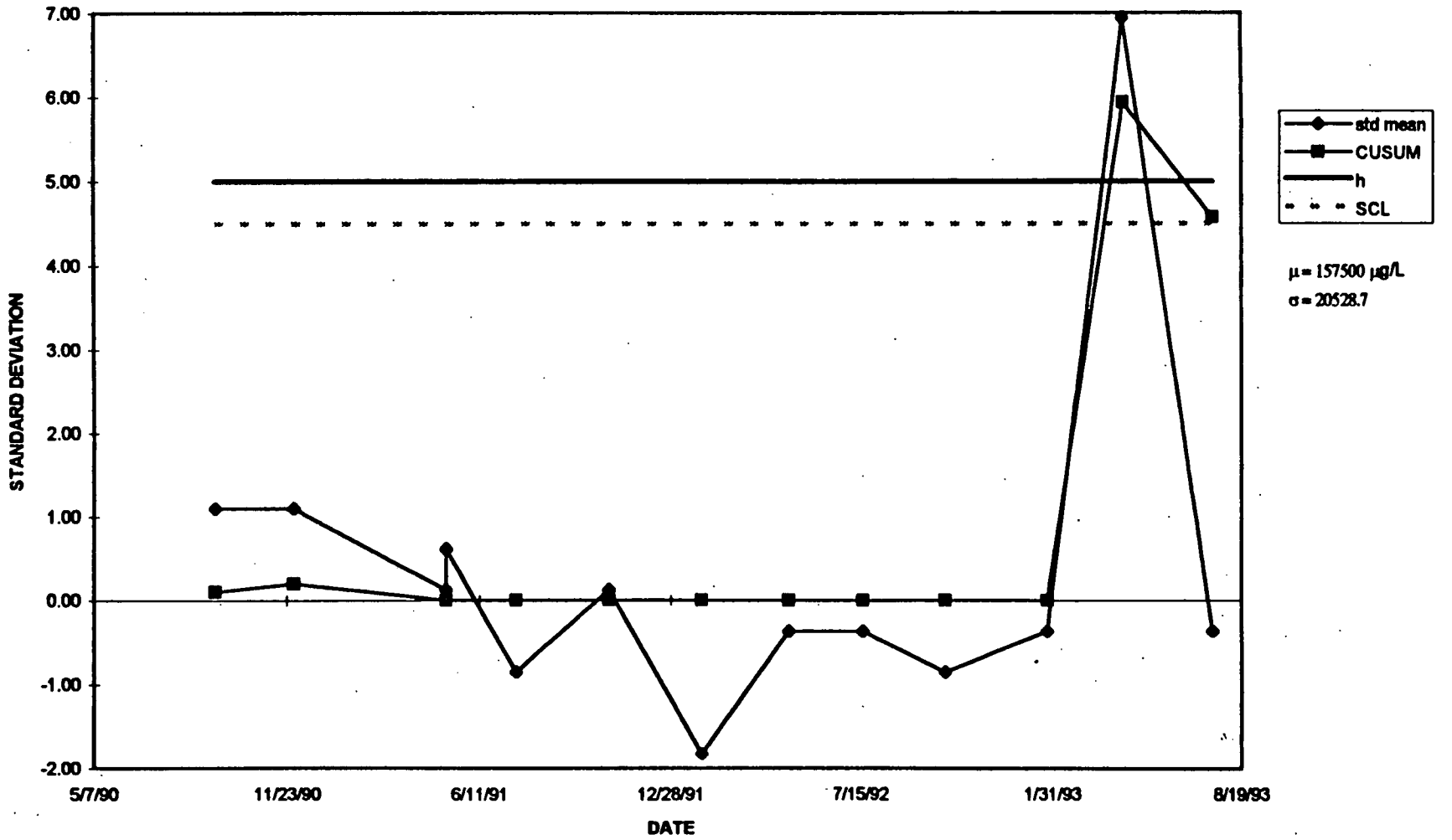
SOLAR EVAPORATION PONDS

COMBINED SHEWHART-CUSUM CHART: TOTAL NITRATE/NITRITE- P209889



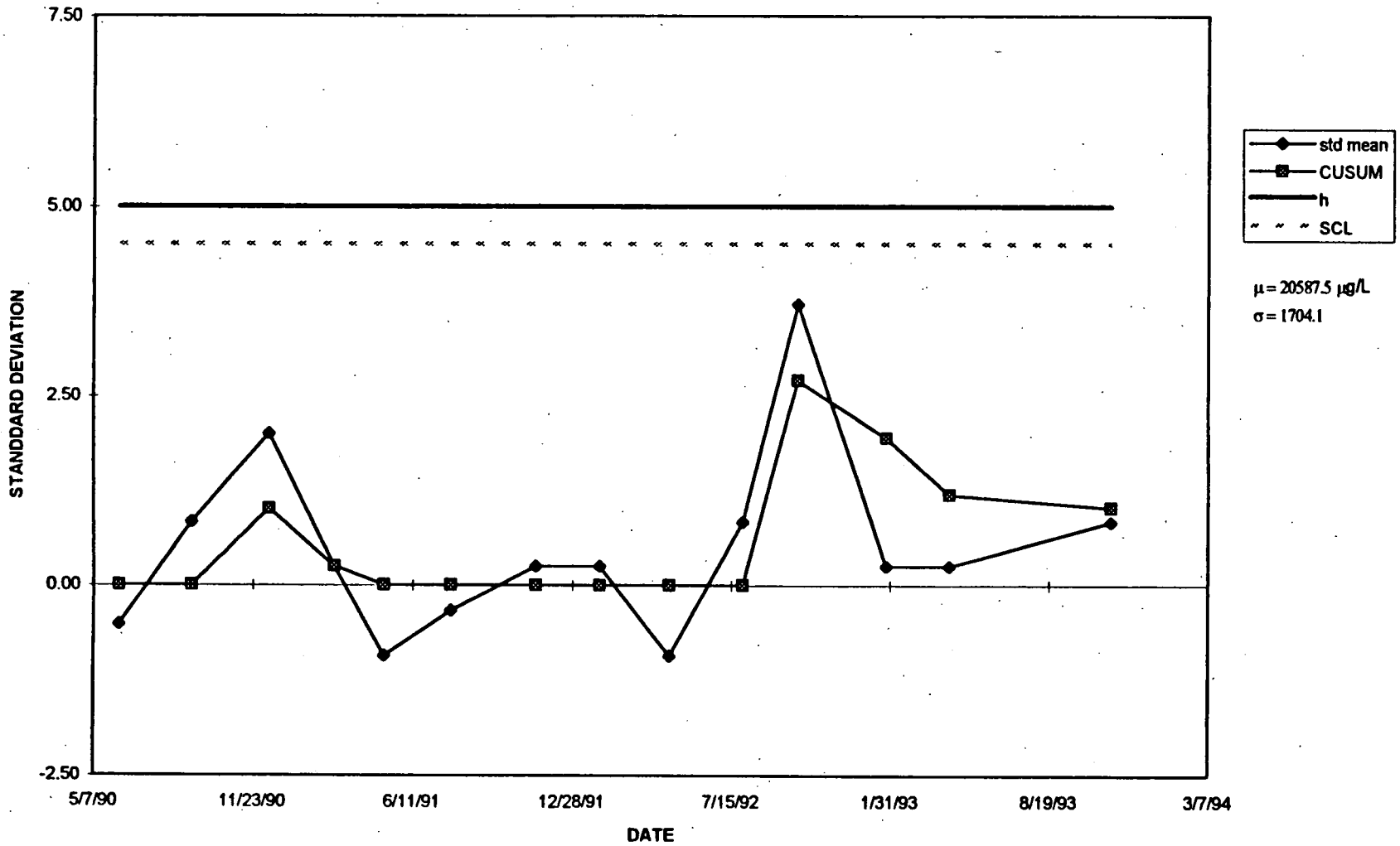
WEST SPRAY FIELD

COMBINED SHEWHART-CUSUM CHART: TOTAL DISSOLVED SOLIDS-B110989



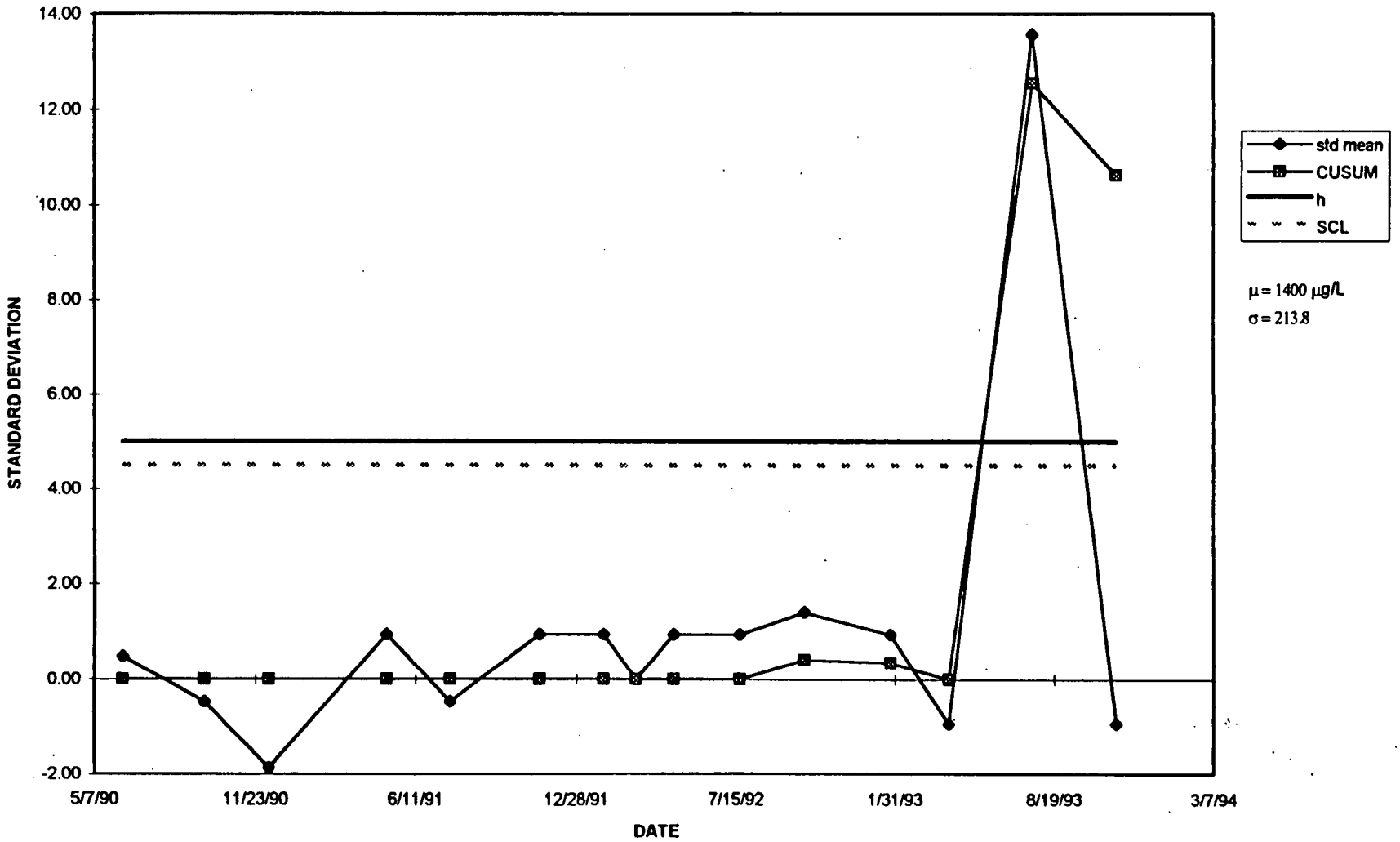
WEST SPRAY FIELD

COMBINED SHEWHART-CUSUM CHART: TOTAL CHLORIDE-B410789



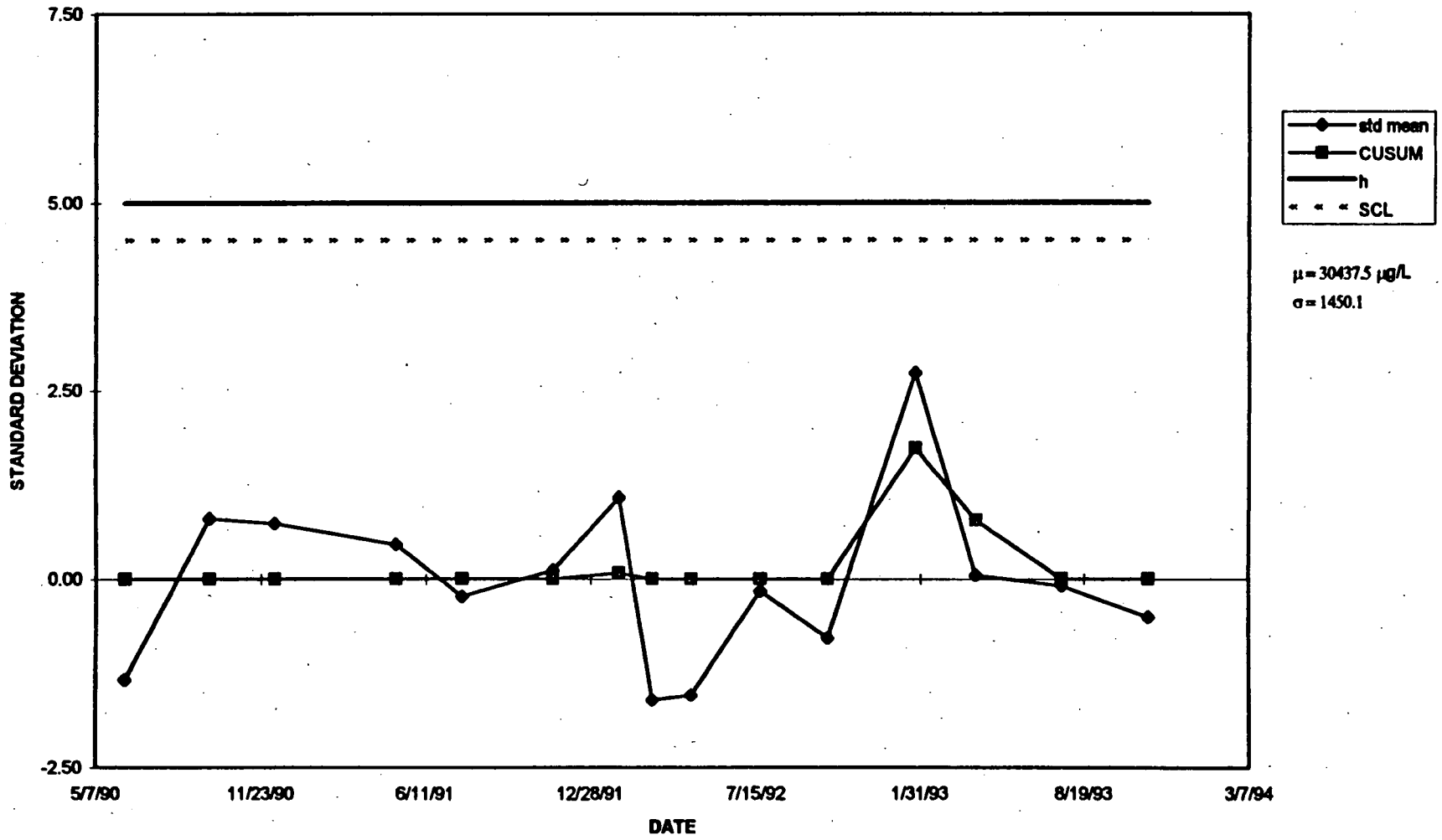
WEST SPRAY FIELD

COMBINED SHEWHART-CUSUM CHART: TOTAL NITRITE/NITRATE-B110889

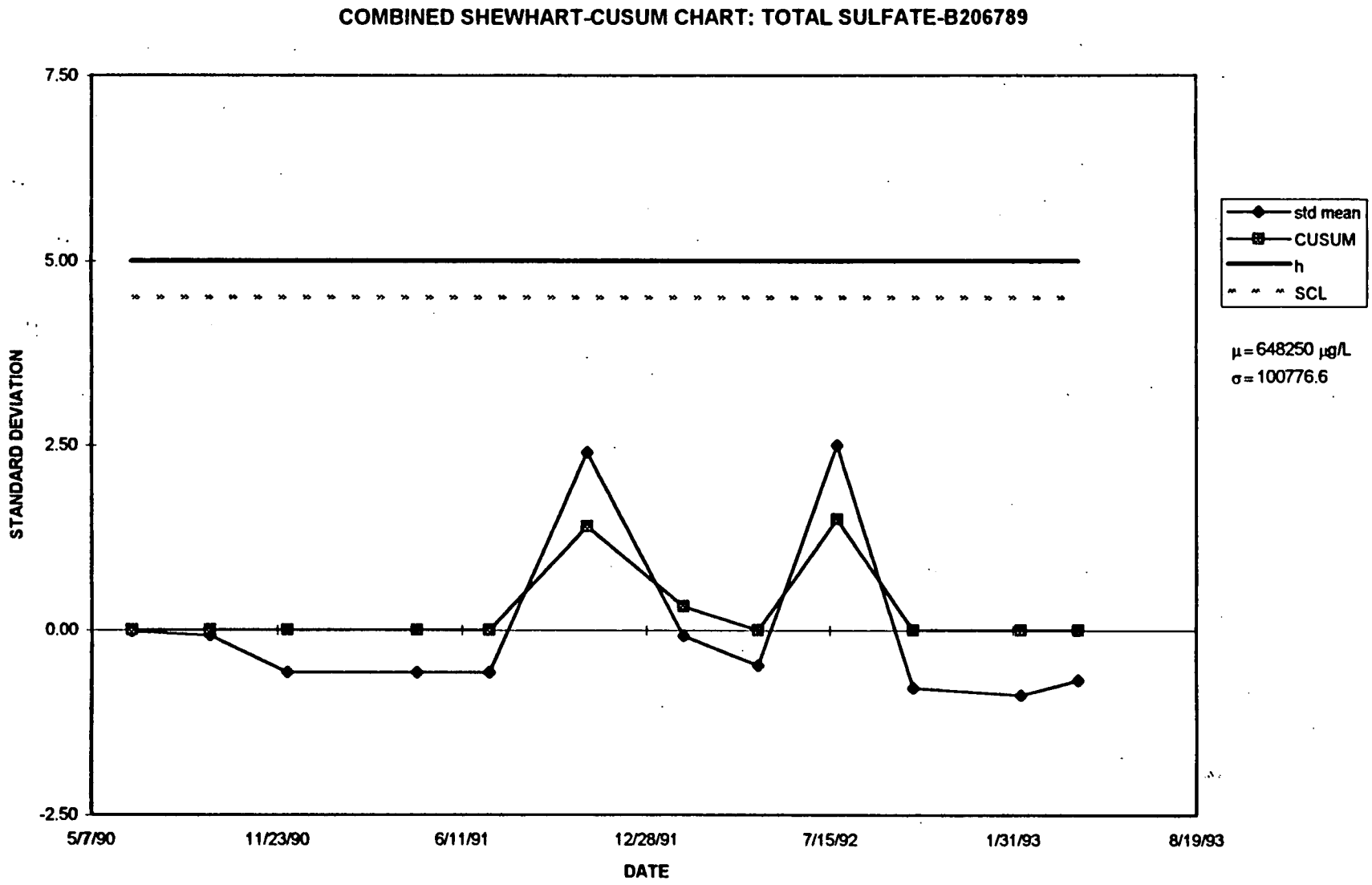


WEST SPRAY FIELD

COMBINED SHEWHART-CUSUM CHART: DISSOLVED CALCIUM-B110889

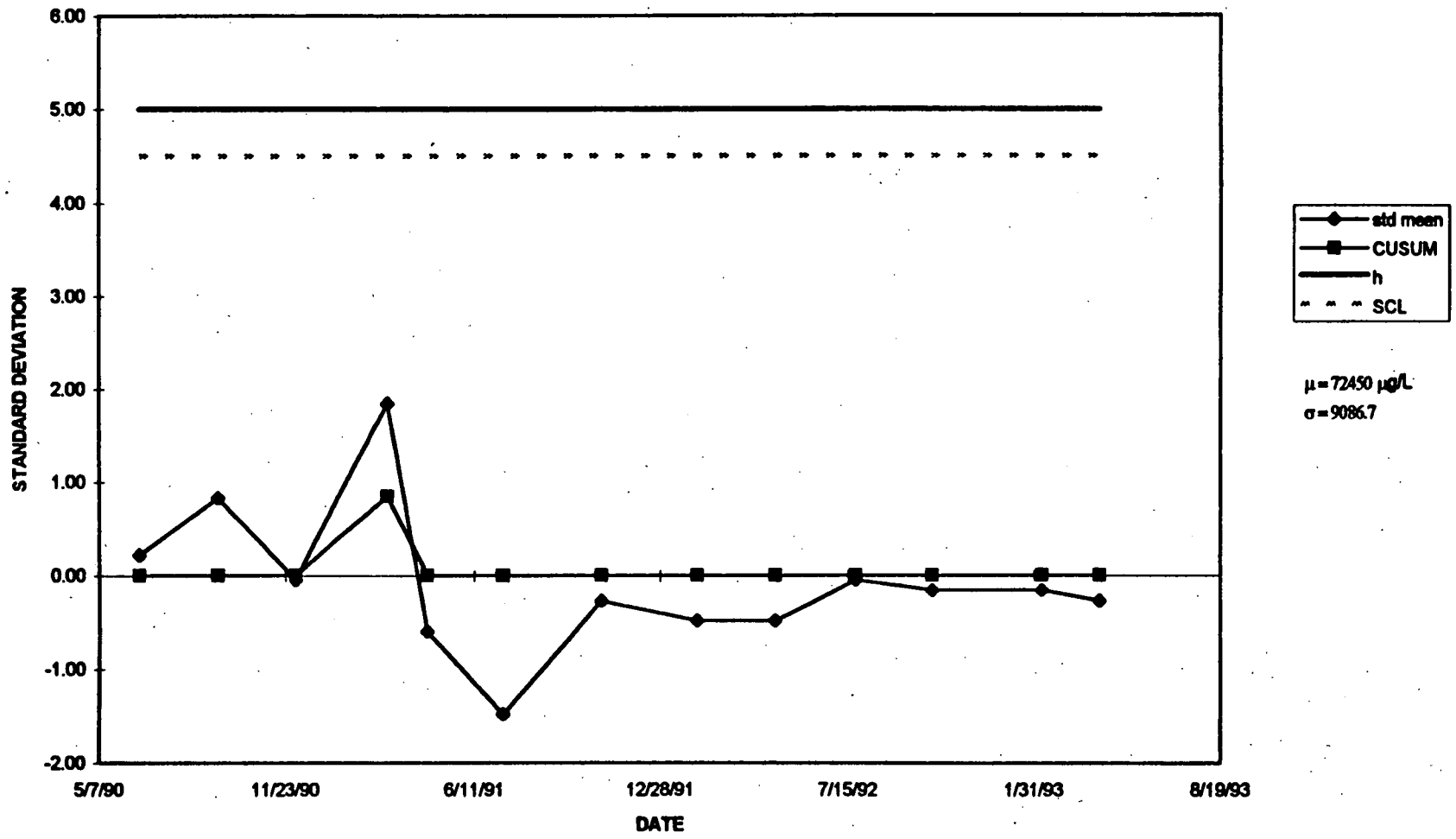


PRESENT LANDFILL



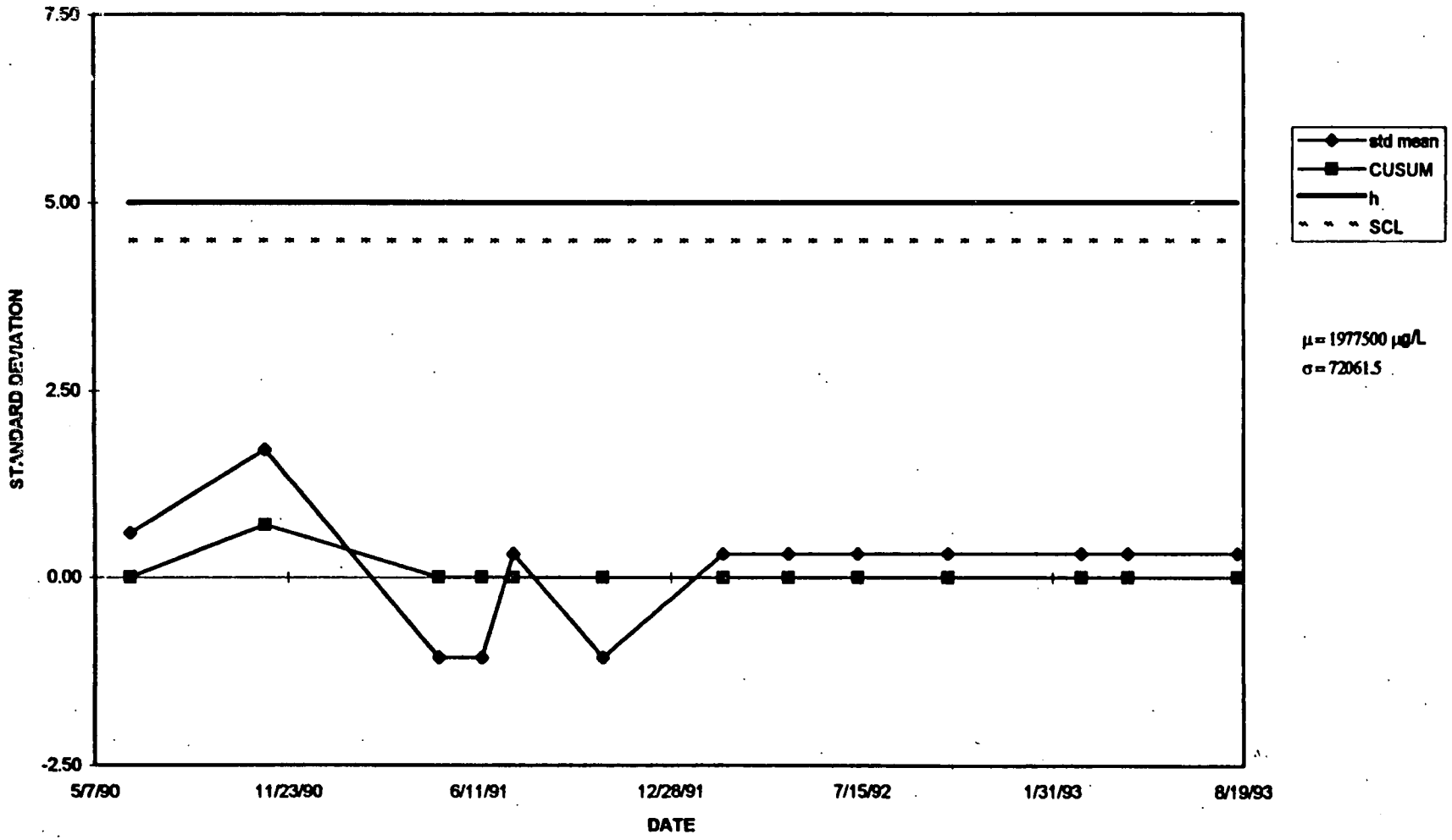
PRESENT LANDFILL

COMBINED SHEWHART-CUSUM CHART: TOTAL CHLORIDE-B206789



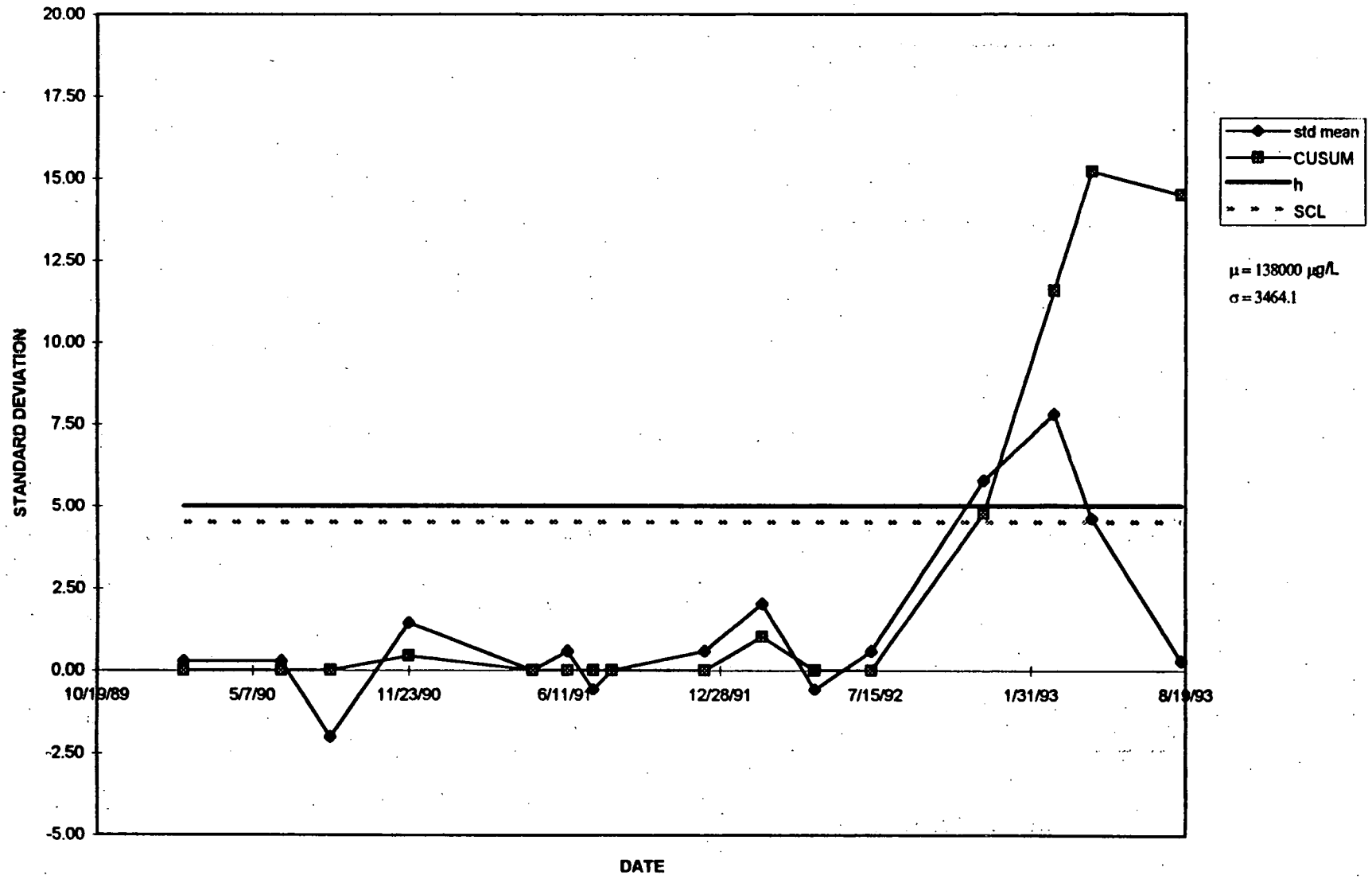
PRESENT LANDFILL

COMBINED SHEWHART-CUSUM CHART: TOTAL DISSOLVED SOLIDS-B207089



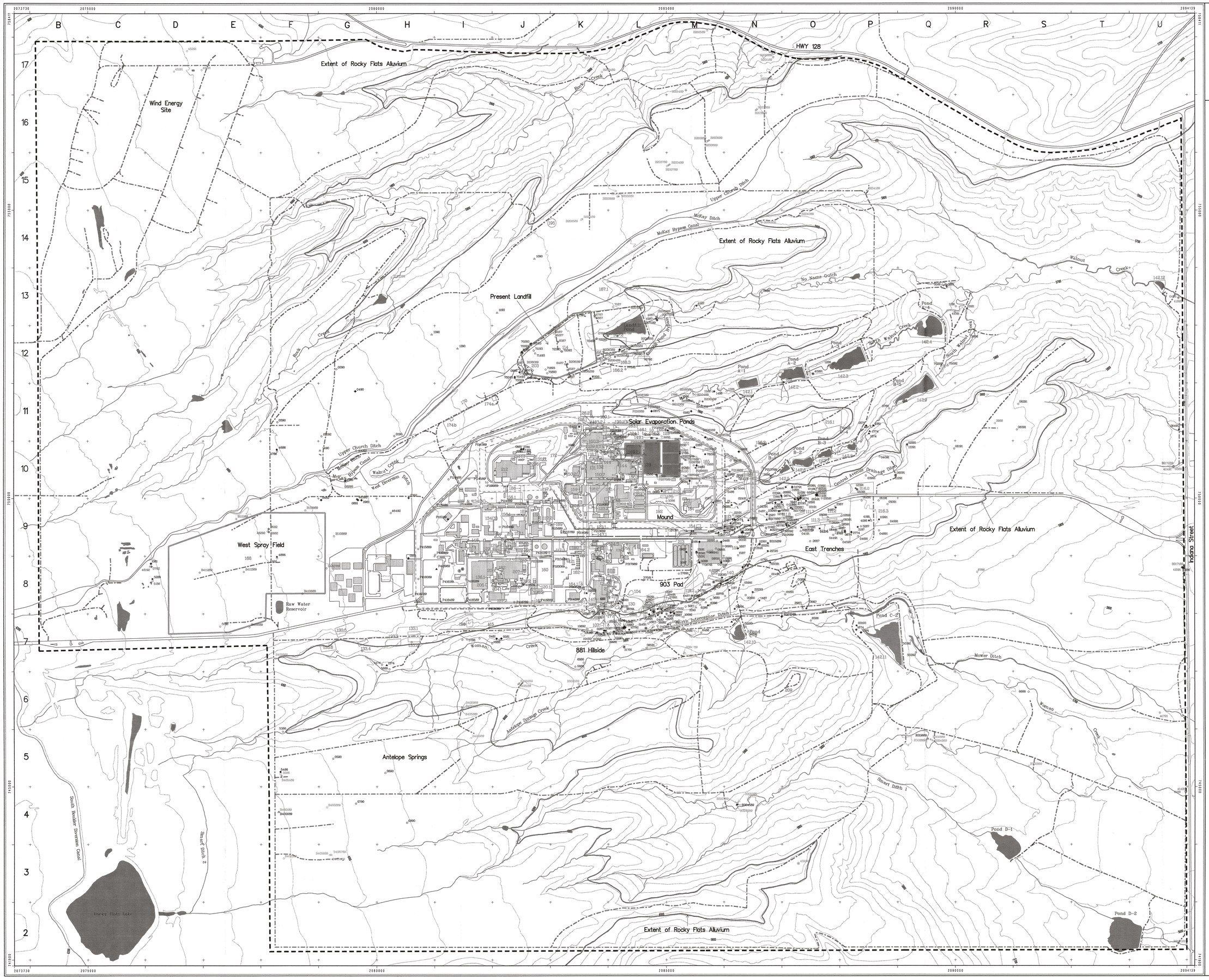
PRESENT LANDFILL

COMBINED SHEWHART-CUSUM CHART: DISSOLVED CALCIUM-B207089



256/256

SW-A-005532



U.S. Department of Energy

Rocky Flats Plant

Plate 1

1993 Annual RCRA Groundwater Monitoring Report for Regulated Units at Rocky Flats Plant

Location of Monitoring Wells and RCRA Waste Management Areas

- Paved roads
- Unimproved dirt roads
- Streams, ditches, and other drainage features
- Individual Hazardous Substance Sites
- RCRA Waste Management Areas
- Limit of Rocky Flats alluvium
- Rocky Flats Plant boundary
- Ponds and lakes
- Buildings and other structures

WELL TYPES

- Background Characterization Wells
- Boundary Wells
- CERCLA Characterization Wells
- RCRA Regulatory Wells
- RCRA Characterization Wells
- Special Purpose Wells

Active Wells

- Bedrock
- Alluvium
- Alluvium/Bedrock

Inactive Wells

- Bedrock
- Alluvium
- Alluvium/Bedrock

- Abandoned Wells

Mapscale = 1 : 6000
1 inch = 500 feet

500 0 1000 2000ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

Prepared by:

EG&G ROCKY FLATS

Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

Date: February 09, 1994