1988 ANNUAL RCRA GROUND-WATER MONITORING REPORT FOR REGULATED UNITS AT ROCKY FLATS PLANT

Rockwell International

1 MARCH 1989

VOLUME - I TEXT and APPENDICES

ADMIN RECORD

REVIEWED FOR CLASSIFICATION/UCNI
By V A. Muenchow
Date 2/25/91

A-SW-000247

1988 ANNUAL RCRA

GROUND-WATER MONITORING REPORT

FOR REGULATED UNITS AT

ROCKY FLATS PLANT

1 March 1989

ADMIN RECORD

TABLE OF CONTENTS

SECTION NO.	TITLE	PAGE
1	INTRODUCTION	1-1
	1 1 Ground-water Monitoring at Rocky Flats Plant	1-2
	1 2 Purpose and Scope	1-5
	1 3 Ground-water Quality Assessment Approach	1-6
	1 3 1 Interpretation of Uppermost Aquifer	1-6
	1 3 2 Ground-water Quality Assessment	1-7
2	GROUND-WATER MONITORING AT THE SOLAR EVAPORATION PONDS	2-1
	2 1 Summary of Previous Investigations	2-3
	2 1 1 Nature and Extent of Ground-water Contamination	2-4
	2 2 Uppermost Aquifer	2-5
	2 3 Ground-water Flow Directions .	2-7
	2 4 Ground-water Chemistry	2-8
	2 4 1 Alluvial Ground-water Chemistry	2-8
	2 4 2 Bedrock Ground-water Chemistry	2-15
	2 5 Contaminant Migration Rates	2-17
	2 6 Conclusions and Recommendations . .	2-18
	2 6 1 Conclusions	2-18
	2 6 2 Recommendations .	2-19
3	GROUND-WATER MONITORING AT THE WEST SPRAY FIELD .	3-1
	3 1 Summary of Previous Investigations .	3-1
	3 1 1 Nature and Extent of Ground-water Contamination .	3-2
	3 2 Uppermost Aquifer	3-3
	3 3 Ground-water Flow Directions .	3-4
	3 4 West Spray Field Ground-water Chemistry	3-5
	3 4 1 Alluvial Ground-water Quality at the Upgradient Wells .	...3-5
	3 4 2 Alluvial Ground-water Quality within the West Spray Field .	3-6
	3 4 3 Alluvial Ground-water Quality Side Gradient and North of the West Spray Field . .	. 3-8
	3 4 4 Alluvial Ground-water Quality Downgradient and Adjacent to North Walnut Creek	3-8
	3 4 5 Alluvial Ground-water Quality Downgradient and along Woman Creek	3-9

REVIEWED FOR CLASSIFICATION/UCNI
By V A Muenchow
Date 2/25/91

TABLE OF CONTENTS
(CONTINUED)

SECTION NO	TITLE	PAGE
	3 5 Contaminant Migration Rates	3-10
	3 6 Conclusions and Recommendations	3-11
	3 6 1 Conclusions .	3-11
	3 6 2 Recommendations	3-11
4	GROUND-WATER MONITORING AT THE PRESENT LANDFILL .	4-1
	4 1 Summary of Previous Investigations	4-2
	4 1 1 Nature and Extent of Ground-water Contamination . .	4-3
	4 2 Uppermost Aquifer .	4-4
	4 3 Ground-water Flow Directions .	4-5
	4 4 Ground-water Chemistry at the Landfill	4-7
	4 4 1 Alluvial Ground-water Quality .	4-7
	4 4 2 Downgradient Alluvial Ground-water Quality	4-8
	4 4 3 Bedrock Ground-water Quality .	4-9
	4 5 Contaminant Migration Rates .	4-10
	4 6 Conclusions and Recommendations .	4-11
	4 6 1 Conclusions .	4-11
	4 6 2 Recommendations . .	4-12
5	REFERENCES .	5-1

ATTACHMENT 1
TABLES

TABLE NO.	TITLE
1	Ground-water Sampling Parameters
2	Background Ground-water Chemistry
3	Depth of Weathering, Arapahoe Claystone Solar Evaporation Ponds Area
4	Results of Packer Tests in Arapahoe Formation Solar Evaporation Ponds Area
5	Results of Hydraulic Conductivity Tests in Arapahoe Formation, Solar Evaporation Ponds Area
6	Solar Evaporation Ponds Alluvial Ground Water Volatile Organics Concentrations above Detection Limits
7	Solar Evaporation Ponds Alluvial Ground Water Inorganics Concentrations above Estimated Background
8	Solar Evaporation Ponds Alluvial Ground Water Dissolved Metals Concentrations above Estimated Background
9	Solar Evaporation Ponds Alluvial Ground Water Dissolved Radionuclides Concentrations above Estimated Background
10	Solar Evaporation Ponds Bedrock Ground Water Volatile Organics Concentrations above Detection Limits
11	Solar Evaporation Ponds Bedrock Ground Water Inorganics Concentrations above Estimated Background
12	Solar Evaporation Ponds Bedrock Ground Water Dissolved Metals Concentrations above Estimated Background
13	Solar Evaporation Ponds Bedrock Ground Water Dissolved Radionuclide Concentrations above Estimated Background
14	Solar Evaporation Ponds Area Proposed Monitoring Wells
15	Results of Hydraulic Conductivity Tests in Rocky Flats Alluvium, West Spray Field Area

ATTACHMENT 1
TABLES
(CONTINUED)

TABLE NO.	TITLE
16	Results of Packer Tests in the Upper Laramie Formation, West Spray Field Area
17	Results of Hydraulic Conductivity Tests in the Upper Laramie Formation, West Spray Field Area
18	West Spray Field Alluvial Ground Water Volatile Organics above Detection Limits
19	West Spray Field Alluvial Ground Water Inorganics above Estimated Background
20	West Spray Field Alluvial Ground Water Dissolved Metals above Estimated Background
21	West Spray Field Alluvial Ground Water Dissolved Radionuclides above Estimated Background
22	West Spray Field Area Proposed Monitoring Wells
23	Depth of Weathering in the Arapahoe Claystone, Present Landfill Area
24	Results of Hydraulic Conductivity Tests of Surficial Materials, Present Landfill Area
25	Results of Packer Tests in Arapahoe Formation, Present Landfill Area
26	Results of Hydraulic Tests in Arapahoe Formation, Present Landfill Area
27	Present Landfill Alluvial Ground-water Volatile Organic Concentrations above Detection Limits
28	Present Landfill Alluvial Ground-water Inorganic Concentrations Above Background
29	Present Landfill Alluvial Ground-water Dissolved Metals Concentrations above Estimated Background
30	Present Landfill Alluvial Ground-water Dissolved Radionuclide Concentrations above Background

ATTACHMENT 1
TABLES
(CONTINUED)

TABLE NO.	TITLE
31	Present Landfill Bedrock Ground-water Inorganic Concentrations above Background
32	Present Landfill Bedrock Ground-water Dissolved Metals Concentrations above Estimated Background
33	Present Landfill Bedrock Ground-water Dissolved Radionuclide Concentrations above Background
34	Present Landfill Bedrock Ground-water Volatile Organics above Detection Limits
35	Present Landfill Area Proposed Monitoring Wells

ATTACHMENT 2
PLATE

Plate I Rocky Flats Plant Monitor Well Locations

ATTACHMENT 3
FIGURES

FIGURE NO.	TITLE
1	Solar Evaporation Ponds Bedrock Geology and Waste Management Areas
2	Solar Evaporation Ponds Water Table Elevation, March 1988
3	Solar Evaporation Ponds Water Table Elevation, June 1988
4	Solar Evaporation Ponds Water Table Elevation, August 1988
5	Solar Evaporation Ponds Water Table Elevation, November 1988
6	Solar Evaporation Ponds Total Dissolved Solids Concentrations in Shallow Monitoring Wells, First Quarter 1988
7	Solar Evaporation Ponds Nitrate Concentrations in Shallow Ground Water, First Quarter 1988
8	Solar Evaporation Ponds Total Uranium Concentrations in Shallow Ground Water, First Quarter 1988
9	Solar Evaporation Ponds Proposed Monitoring Well Locations
10	West Spray Field Water Table Elevation within Surficial Materials, February 1988
11	West Spray Field Water Table Elevation within Surficial Materials, June 1988
12	West Spray Field Water Table Elevation within Surficial Materials, August 1988
13	West Spray Field Water Table Elevation within Surficial Materials, November 1988
14	West Spray Field Nitrate Concentrations in Alluvial Ground Water, Second Quarter 1988
15	West Spray Field Proposed Monitoring Well Locations
16	Present Landfill Bedrock Geology and Waste Management Areas
17	Present Landfill Water Table Elevation within Surficial Materials, February 1988

ATTACHMENT 3
FIGURES
(CONTINUED)

FIGURE NO	TITLE
18	Present Landfill Water Table Elevation within Surficial Materials, June 1988
19	Present Landfill Water Elevations, August 1988
20	Present Landfill Water Table Elevation within Surficial Materials, November 1988
21	Present Landfill Total Dissolved Solids Concentrations in Alluvial Ground Water, Second Quarter 1988
22	Present Landfill Total Dissolved Solids Concentrations in Alluvial Ground Water, Second Quarter 1988
23	Present Landfill Sulfate Concentrations in Alluvial Ground Water, First Quarter 1988
24	Present Landfill Sulfate Concentrations in Alluvial Ground Water, Second Quarter 1988
25	Present Landfill Strontium Concentrations in Alluvial Ground Water, First Quarter 1988
26	Present Landfill Strontium Concentrations in Alluvial Ground Water, Second Quarter 1988
27	Present Landfill Proposed Monitoring Well Locations

APPENDICES

VOLUME I

Appendix A	Background Ground-water Quality Data
Appendix B	Solar Evaporation Ponds Ground-water Quality Data
Appendix C	West Spray Field Alluvial Ground-water Quality Data

VOLUME II

Appendix D	Present Landfill Ground-water Quality Data
Appendix E	Ground-water Level Data
Appendix F	Ground-water Quality Data, First Quarter 1988
Appendix G	Ground-water Quality Data, Second Quarter 1988
Appendix H	Ground-water Quality Data, Third Quarter 1988
Appendix I	Ground-water Quality Data, Fourth Quarter 1988

1 0 INTRODUCTION

This report presents 1988 ground-water monitoring data as required under the Colorado Hazardous Waste Act regulations, 6 CCR 1007-3, Subpart F, 265 94 for RCRA interim status units at Rocky Flats Plant The referenced regulations apply to the interim status regulated units undergoing closure at the Plant These units include the Solar Evaporation Ponds, Present Landfill, West Spray Field, and the Original Process Waste Line An assessment monitoring program is ongoing at the Solar Evaporation Ponds in accordance with 6 CCR 1007-3 and 40 CFR Parts 265 93(d), and alternate monitoring programs are being conducted at the Present Landfill, West Spray Field, and Original Process Waste Line pursuant to 6 CCR 1007-3 and 40 CFR Part 265 90(d)

Revised Closure Plans for the Solar Evaporation Ponds and Present Landfill were submitted to the U S Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) on 1 July 1988, and Revised Closure Plans for the West Spray Field and Original Process Waste Lines were submitted to EPA and CDH on 5 October 1988 as part of the Revised RCRA Post-Closure Care Permit Application (U.S DOE, 1988) Appended to each of these revised closure plans is a hydrogeologic characterization report These reports present additional results of 1986, 1987, and 1988 ground-water investigations at these four sites. Each report also contains recommendations for field work to further characterize the hydrogeologic setting at each regulated unit.

Section E (Ground-water Monitoring and Protection) of the Revised Post-Closure Care Permit Application (U S DOE, 1988) addresses the ground-water

monitoring requirements of 6 CCR 1007-3, Part 265, Subpart F, for interim status monitoring and 6 CCR 1007-3, Part 264, Subpart F, for the post-closure care period for regulated units Presented in Section E are results of interim status monitoring at that time and plans for continued interim status monitoring Also presented are descriptions of the uppermost aquifer and contaminant plumes based on data available at that time

1 1 GROUND-WATER MONITORING AT ROCKY FLATS PLANT

Ground-water monitoring for radionuclides and other parameters has been conducted at Rocky Flats Plant since the first monitoring wells were installed in 1960 A total of 56 wells were installed at the Plant between 1960 and 1985 These wells were routinely sampled for radionuclides, and beginning in 1985, they were sampled for other chemical parameters (volatile organics, metals, and inorganics) There are no well completion data for any of the wells installed prior to 1986

In late 1986, Phase I of a comprehensive program of site characterizations, remedial investigations, feasibility studies, and remedial/corrective actions began at the Rocky Flats Plant. These investigations were 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, the EPA, and the CDH on 31 July 1986 CEARP is now known as the Environmental Restoration (ER) Program

Sixty-nine (69) monitoring wells were installed in 1986 to characterize the hydrogeology and ground-water quality of the entire Plant and to satisfy RCRA Subpart F requirements The work plan for installation, sampling, and analysis of these wells is presented in the Geological and Hydrological Site Characterization

Draft Work Plan for Rocky Flats Plant (Rockwell International, 1986a). Site characterization and plume delineation wells were installed at the Solar Evaporation Ponds (assessment monitoring program), and site characterization wells were constructed at the West Spray Field and Present Landfill (alternate monitoring programs) as part of the Plant-wide characterization program

Phase I investigations included

1) detailed characterization of ground-water flow and quality in the vicinity of the solar evaporation ponds;
2) preparation of the ground-water monitoring and protection section of the Rocky Flats Plant RCRA Part B permit application (Rockwell International, 1986b),
3) preparation of closure plans for the West Spray Field, Present Landfill, and Solar Evaporation Ponds; and
4) preparation of a RCRA Post-Closure Care Permit Application for regulated units undergoing closure

An additional 67 wells were installed at Rocky Flats Plant in 1987 to characterize ground-water quality and flow at various Solid Waste Management Units (SWMUs) and at the RCRA regulated units. The designation, Solid Waste Management Unit, is equivalent to the term CERCLA site This equivalency applies to all SWMUs other than the regulated units The work plans for installation, sampling, and analysis of these wells are presented in the CEARP Installation Generic and Site Specific (Remedial Investigation) Work Plans (U S DOE, 1987a and U S DOE, 1987b)

Quarterly sampling of monitoring wells at Rocky Flats Plant is initiated immediately upon their completion and development In general, the 1986 wells were sampled once during 1986 and quarterly during 1987 and 1988 The 1987 wells were sampled once during 1987 and quarterly during 1988 Water levels are measured monthly as well as at the time of sampling The unconfined water table in surficial materials at Rocky Flats Plant is dynamic, thus, some wells are dry upon inspection for quarterly sampling, and no sample is collected

Ground-water samples are analyzed for the parameters listed in Table 1 During 1986 ground-water samples were analyzed for HSL volatiles, semi-volatiles, and metals as well as major ions and radionuclides In 1987 and 1988 analyses were performed by an on-site Rockwell International laboratory During the first three quarters of 1987, the volatile organic analyte list was reduced to the nine volatile compounds previously detected in ground water at the Plant Ground-water sample analytes consisted of nine volatile organic compounds, dissolved metals, major ions, and dissolved radionuclides (Table 1) During the fourth quarter of 1987, the Rockwell laboratory obtained a gas chromatograph/mass spectrometer and began analyzing for Hazardous Substances List (HSL) volatile organic compounds

Again, due to the dynamic nature of the unconfined water table at the Plant, there was sometimes insufficient water in wells to analyze for the entire parameter list Samples are collected in the following order when this situation occurs

- Volatile Organic Compounds,
- Plutonium, Uranium, and Americium;
- Nitrate,
- Metals,
- Other Major Ions, and
- Other Radionuclides

Sampling and analysis records are maintained quarterly in compliance with 6 CCR 1007-3 and 40 CFR 265 94(b) An annual report was compiled in March, 1988, which described ground-water elevations, ground-water migration rates, and included the results of the ground-water sample analyses for 1987 (Rockwell International, 1988)

1 2 PURPOSE AND SCOPE

This report presents interim status 1988 quarterly ground-water monitoring results for the Solar Evaporation Ponds, Present Landfill, and West Spray Field in accordance with 6 CCR 1007-3, Part 265 94 Included are analytical ground-water quality data for the first through fourth quarters of 1988 (Appendices F through I) and an evaluation of these data in accordance with 6 CCR 1007-3, Part 264 94(b). Of the radionuclide results, only tritium data are available from the laboratory for third and fourth quarter 1988 Also, metals analyzed by atomic absorption spectrophotometry were not available for fourth quarter 1988, and volatile organic laboratory blank data for first through fourth quarters 1988 are currently not available. As not all data are available for report submission, an addendum will be submitted at a later date providing all the 1988 data and revised interpretation of the data if so warranted

Plans for an Original Process Waste Line interim status alternate monitoring system are presented in Section E of the Post-Closure Care Permit Application (U S DOE, 1988) Although these investigations have begun, there are insufficient data at this time for a report submittal Therefore, the Original Process Waste Line regulated unit is not addressed in this report.

1 3 GROUND-WATER QUALITY ASSESSMENT APPROACH

1 3 1 Interpretation of Uppermost Aquifer

Aquifer and uppermost aquifer are specifically defined in the RCRA regulations An aquifer "means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs" The uppermost aquifer "means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary" Because there are many water bearing units at the Rocky Flats Plant, it is necessary that these definitions be interpreted for development of practical ground-water monitoring systems which are in keeping with the intent of the Subpart F ground-water protection regulations

The water bearing units at the Rocky Flats Plant consist of alluvium, colluvium, valley fill alluvium, and sandstones and weathered and unweathered claystones of the Laramie and Arapahoe Formations The alluvium, colluvium, and valley fill alluvium fit the RCRA definition of the uppermost aquifer based on their proximity to the ground surface and high hydraulic conductivities relative to the other units Conversely, the unweathered claystone is not an aquifer because of its low hydraulic conductivity (generally on the order of 1×10^{-7} to 1×10^{-8} centimeters per second [cm/sec]) This leaves for interpretation whether sandstones and weathered claystones, which are hydraulically interconnected with the alluvial systems, are a part of the uppermost aquifer. In some locations weathered claystones and sandstones exhibit hydraulic conductivities similar to the unweathered claystone and therefore should not be considered a part of the uppermost aquifer However,

because hydraulic conductivities for these units vary across the Plant site, and in some instances these units crop out beneath the regulated units, weathered claystones and sandstones will be considered part of the uppermost aquifer when·

1) they crop out beneath the regulated unit, or
2) they subcrop in saturated surficial materials that have been contaminated by the regulated unit, regardless of location with respect to the regulated unit

The above interpretation of the uppermost aquifer provides the basis for the ground-water monitoring systems described in this report for detecting releases at the point of compliance, and plume characterization

1 3 2 Ground-Water Quality Assessment

For assessment and alternate ground-water monitoring programs, the operator is required, at the minimum, to determine

1) whether hazardous waste or hazardous waste constituents have entered the ground water,
2) the rate and extent of migration of the hazardous waste or hazardous waste constituents in the ground water; and
3) the concentrations of the hazardous waste or hazardous waste constituents in the ground water (6 CCR 1007-3 265.93 (a), 40 CFR 265 93(d)(4))

The 1988 results of this assessment are the subject of this annual report. Hazardous constituents are identified in Appendix IX (52 FR 25947) Because

inorganic hazardous constituents occur naturally in ground water, only those that are above apparent background levels are discussed and evaluated as potential site contaminants Also included is a discussion of listed non-Appendix IX constituents (Table 1, 52 FR 25944) These constituents, which are primarily major ions, are also potential site contaminants Lastly, radionuclides are discussed and evaluated as potential site contaminants if concentrations are above apparent background levels

The term apparent background levels is used because at the time of this evaluation a thorough characterization of background ground-water chemistry was not available A plan for background characterization has been prepared (Rockwell International, 1989) and is currently being implemented For this evaluation, data from alluvial well 55-86 and bedrock well 54-86 (Plate I) have been used to establish the upper limit of the background range for inorganic constituents in alluvial and bedrock ground water, respectively (Appendix A) These wells are upgradient of all known Solid Waste Management Units (SWMUs) Data available from quarterly monitoring in 1987 and 1988 were used to establish the limits shown in Table 2

Also shown in Table 2 are proposed concentration limits for these constituents Although "proposed concentration limits" is a term applicable only to permitted facilities, the significance, in terms of protection of human health and the environment, of constituents above apparent background levels is discussed in this report based on these limits The basis for these limits is discussed below

The ground-water protection standards established in 6 CCR 1007-3 264 94 (40 CFR 264 94) for hazardous constituents are based on either background levels or the Safe Drinking Water Act (SDWA) primary drinking water standards for SDWA metals. It should be noted that background levels are only estimates and subject to change

once background characterization has been completed Alternate concentration limits may be established if approved by the Regional Administrator

Concentration limits may be established for non-Appendix IX constituents where necessary to protect human health and the environment These are the Federal Register, Table 1 constituents (52 FR 25944) Concentration limits are also proposed for other nonhazardous constituents and radionuclides

Since two reservoirs are located downgradient of the Plant, drinking water and human health standards are considered primary when setting concentration limits for hazardous and nonhazardous constituents The ground-water protection standard in 6 CCR 1007-3 264 94 (40 CFR 264 94) is used for the SDWA metals specified (standards equivalent to the SDWA drinking water standards) The major ions and non-Appendix IX metals have concentration limits set by the Colorado Department of Health (CDH) as ground-water standards for the protection of human health, or for the protection of agriculture if human health standards have not been established For non-SDWA Appendix IX metals where no standards have been established, apparent background water quality for Rocky Flats Plant is used

The limits for radionuclides have been taken from a variety of sources. The plutonium and americium limits are the proposed drinking water standards for these compounds (51 FR 34859) The uranium limit is a CDH surface water standard (5 CCR 1002-8, Sec. 3 8 5 (3)) The other radionuclide limits are the SDWA maximum contaminant levels

2.0 GROUND-WATER MONITORING AT THE SOLAR EVAPORATION PONDS

The Solar Evaporation Ponds are located on the northeast side of the Perimeter Security Zone (PSZ) at the Rocky Flats Plant (Figure 1) The Solar Evaporation Pond Waste Management Unit includes Ponds 207-A, 207-C, 207-B North, 207-B Center, 207-B South, and the french drain system associated with the Solar Evaporation Ponds The Solar Evaporation Ponds were used to store mixed wastes, therefore, they are regulated units

A detailed description of the purpose, construction, and operation of the ponds and the french drain system is presented in the Closure Plan for the Solar Evaporation Ponds (U S DOE, 1988) The Solar Evaporation Ponds were constructed primarily to store and treat (by evaporation) low level radioactive process wastes containing high nitrates 207-A was placed in service in August, 1956, Ponds 207-B North, Center, and South were placed in service in June, 1960, and Pond 207-C was placed in service in December, 1970 (U S DOE, 1988)

Pond 207-A previously contained liquid with high concentrations of nitrate, metals, and radionuclides, which were approximately two orders of magnitude greater than those in Ponds 207-B North and Center Specifically, Pond 207-A liquid was characterized by high levels of aluminum, chromium, copper, iron, potassium, sodium, nickel, tin, plutonium, americium, uranium, tritium, and nitrates Pond 207-A liquid was generally more contaminated than Pond 207-C except for plutonium and americium The liquid had particularly high levels of chromium and nickel and a slightly to very alkaline pH ranging from 8 3 to 11 0 Pond 207-A sludge analyses

showed high levels of nitrates, metals, and radionuclides similar to the pond liquids. In addition to the high analyte concentrations found in the liquid, calcium and magnesium were also found in high concentrations in the sludge (U S DOE, 1988). Pond 207-A is presently nearly empty and cleaned of sludge, it contains only water derived from incident precipitation (U S DOE, 1988)

Ponds 207-B North, Center, and South 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 ground water pumped back from the Solar Evaporation Ponds french drain system. Ponds 207-B North and Center have generally low concentrations of nitrates, metals, and radionuclides. Nitrate concentrations in these ponds averaged 380 milligrams per liter in 1984 and 1985 Metal concentrations in the pond liquids were at or below drinking water standards during the same time period (U S DOE, 1988) All 207-B ponds are currently used to store intercepted ground water collected by the french drain system north of the ponds

Pond 207-C was constructed to provide additional storage capacity and to enable the transfer and storage of liquids from the other ponds while they were repaired Pond 207-C contaminants are approximately two orders of magnitude higher than those in Pond 207-B North and Center for nitrate metals, and radionuclides Pond 207-C liquid is generally less contaminated than the analyzed liquids in Pond 207-A, except for plutonium and americium which are approximately ten times higher in Pond 207-C. Pond 207-C is currently used for emergency storage (U S DOE, 1988)

A french drain system was constructed on the hillside north of the Solar Evaporation Ponds to prevent natural ground-water seepage and pond leakage from entering North Walnut Creek (Figure 1) This system was constructed in stages during the 1970s Liquid collected in the system flows by gravity to the interceptor trench pump house and is then pumped to Pond 207-B North (U S DOE, 1988)

The Solar Evaporation Ponds are being closed in accordance with the closure plan presented in the Post-Closure Care Permit Application for Rocky Flats Plant (U S DOE, 1988) Post-closure inspection, maintenance, and monitoring of the Solar Evaporation Ponds will be conducted in compliance with 6 CCR 1007-C Part 264 (40 CFR Part 264)

2 1 SUMMARY OF PREVIOUS INVESTIGATIONS

An assessment monitoring program is being implemented at the Solar Evaporation Ponds in accordance with 6 CCR 1007-3 and 40 CFR Part 265 93(d) A ground-water quality assessment plan, which included the numbers of proposed wells, well locations and depths, sampling and analytical plans, evaluation procedures, and a schedule for implementation, was submitted in the Draft Work Plan, Geological and Hydrological Site Characterization (Rockwell International, 1986a) The CEARP Phase 2 Site Specific Monitoring Plan (U S DOE, 1987b) contained additional guidance on ground-water monitoring at the Solar Evaporation Ponds Also included in the CEARP Phase 2 Site Specific Monitoring Plan (U S DOE, 1987b) were procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, and custody control

uranium, tritium, and trace metals Volatile organic contamination is limited to the upgradient wells 22-86 and 56-87 indicating another source for this contamination Total dissolved solids (TDS), sulfate, chloride, nitrate, uranium, and volatile organics all occur above the proposed concentration limits within the Solar Evaporation Ponds Area

Ground water in shallow sandstones also appears to be impacted by the ponds There are several subcropping sandstones (Figure 1) in the area, however, the extent of sandstones and thus ground-water quality degradation is poorly defined at this time (U S DOE, 1988) The subcropping sandstone at well 31-86 is dry, and the near surface sandstone at well 32-86 contained concentrations of major ions, metals, and uranium above background concentrations The sandstone in which well 39-87 is completed contains nitrate, chloride, and sulfate above background levels Ground water in deeper sandstones which do not subcrop within the waste management unit does not appear to be impacted by the ponds The extent of bedrock contamination at the Solar Evaporation Ponds is poorly defined at this time Section 2 6 presents recommendations for further field work which will provide additional information on the extent of underlying Arapahoe sandstones and bedrock ground-water quality at the Solar Evaporation Ponds

2 2 UPPERMOST AQUIFER

The uppermost aquifer in the Solar Evaporation Pond Area is comprised of the saturated surficial materials Rocky Flats Alluvium, disturbed ground, colluvium, and North Walnut Creek valley fill alluvium In addition, the uppermost aquifer includes weathered claystone outcroppings and those sandstones and weathered claystones of the Arapahoe Formation which subcrop beneath the waste management

area Any subcropping sandstone or weathered claystone that is found to be in contact with contaminated alluvial ground water originating from the Solar Evaporation Ponds will also be considered part of the uppermost aquifer. The weathered claystone and subcropping sandstones are included within the definition of the uppermost aquifer because these portions of the Arapahoe Formation are in direct contact with saturated contaminated surficial materials and also crop out at the ground surface in the Solar Evaporation Ponds Area Each sandstone subcropping is a part of the uppermost aquifer to such depth where the sandstone pinches out Weathered claystone subcrops are a part of the uppermost aquifer to the base of weathering Table 3 lists the base of weathering for monitor wells and boreholes within the waste management unit

Specifically, subcropping Arapahoe sandstones that are part of the uppermost aquifer are encountered in wells 14-86, 16-86, 22-86, 31-86, 32-86, 39-87BR, and in boreholes SP01-87, SP02-87, and SP04-87 (Figure 1) In addition, an Arapahoe sandstone encountered between 11 5 and 13 5 feet below ground surface (between 8 8 and 10 8 feet below top of bedrock) in borehole SP13-87 is part of the uppermost aquifer Assuming a seven degree dip to the east and a continuous sandstone, it is possible that this sandstone would subcrop approximately 72 to 88 feet west of SP13-87 in an area within the waste management area Additional sandstones occur at depth in wells 23-86, 27-86, and 39-87BR, however, calculations indicate none of these sandstones subcrop within the waste management area. Consequently, these sandstones are not a part of the uppermost aquifer If any other sandstones which subcrop within the waste management area are encountered during the installation of the monitoring system, these sandstones will be included in the description of the uppermost aquifer

Unweathered claystone is not considered a part of the uppermost aquifer because of the low hydraulic conductivities calculated for claystone in the Solar Evaporation Ponds Area As shown in Tables 4 and 5, hydraulic conductivities for unweathered claystone range from 1 34x10^{-6} cm/s for well 14-86 to 4x10^{-8} cm/s in wells 25-86 and 39-87BR Arapahoe sandstones which do not subcrop beneath the contaminated surficial materials at the waste management unit are not considered a part of the overlying aquifer because of the low hydraulic conductivity of the claystone separating these sandstones from surficial materials

2 3 GROUND-WATER FLOW DIRECTIONS

Ground water flows toward the east and northeast in the Solar Evaporation Ponds Area in surficial materials and in the underlying sandstones and weathered claystones Alluvial ground-water flow is locally influenced by topography, the configuration of the base of weathering, and the operation of the ground-water intercept system north of the ponds Consistent with the regional recharging of the Arapahoe Formation in this locality, it is assumed that ground water flows eastward within the subcropping sandstones

Figures 2 through 5 present water table maps for first through fourth quarters 1988, respectively, for the Solar Evaporation Ponds Area Water level data are presented in Appendix E During all four quarters, ground water moved east and north through the waste management area Areas of unsaturated or absent surficial materials are present to the south (wells 26-86, 38-87, and 33-86), to the east (well 29-86), to the northeast (well 18-86), to the northwest (wells 31-86 and 20-86), and to the west (well 24-86) of the ponds These unsaturated surficial materials reflect bedrock

highs and the action of the ground-water intercept system located on the slope north of the ponds

Seasonal variation of the water table is evident from Figures 2 through 5 The maximum extent of unsaturated conditions occurs in March, 1988, when several wells in the area are dry (24-86, 38-87, 33-86, 29-86, 18-86, and 20-86) These wells bound an area of saturation at the ponds, and their lack of saturation implies that ground water flows east and then north out of the area and into the North Walnut Creek drainage during periods of low flow During the spring runoff, recharge increases, and saturated conditions are more extensive in surficial materials at the Solar Evaporation Ponds (Figure 3) Ground water appears to flow further to the east in Rocky Flats Alluvium at this time of year as evidenced by saturated conditions in wells 29-86 and 18-86 The area of saturation decreases again during the summer and fall of 1988 (Figures 4 and 5)

2 4 GROUND-WATER CHEMISTRY

2 4 1 Alluvial Ground-water Chemistry

The ground-water system in the vicinity of the Solar Evaporation Ponds is divided into five areas, grouped and described according to their relationship to surface water features as in the Hydrogeologic Characterization Report (U S DOE, 1988) The ground-water data for 1988 generally corroborate the conclusions in that report and are described here Appendix B includes the 1988 data, and Tables 6 through 9 present detectable concentrations of volatile organics as well as above background concentrations of inorganics, metals, and dissolved radionuclides, respectively, for alluvial ground water in the area during 1988

Metals, major ions, and uranium are the contaminants that have been released to ground water from the Solar Evaporation Ponds As discussed in this section, there is a limited extent of volatile organic ground-water contamination Furthermore, this contamination presumably originates from the original solar pond or process waste line system TDS, nitrate, and uranium have been chosen as indicator parameters to graphically present the extent of the plume because of their mobility and presence significantly above proposed concentration limits

Figures 6, 7, and 8 show TDS, nitrate, and dissolved uranium concentrations, respectively, in shallow ground water for first quarter 1988 at the Solar Evaporation Ponds Area The general pattern of high concentrations in and around well 30-86, with rapid decreases away from the ponds and a plume to the northeast of the ponds, is consistent for all of these indicator constituents.

Upgradient Alluvial Ground-water Chemistry

The upgradient wells, 22-86 and 56-87, do not contain the array of contaminants that is typical of the Solar Evaporation Ponds Together with soil analyses of associated boreholes, it appears that constituents from the original solar pond or the Original Process Waste Line system may have entered these wells (U S. DOE, 1988)

Several volatile organics consistently appear in ground water at wells 22-86 and 56-87 In well 22-86, chloroform ($CHCl_3$), 1,1,1-trichloroethane (1,1,1-TCA), carbon tetrachloride (CCl_4), and trichloroethene (TCE) occurred at concentrations between 100 and 1000 micrograms per liter (ug/l) during both 1987 and 1988 However, of these organics, only $CHCl_3$ and TCE are consistently elevated In well 56-87, 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), $CHCl_3$, 1,1,1-TCA,

and tetrachloroethene (PCE) occurred at concentrations less than 100 ug/l during both 1987 and 1988 TCE occurred consistently at concentrations greater than 100 ug/l This is not characteristic of contamination from the ponds as volatile organic ground-water contamination occurs infrequently and is not extensive downgradient of the Solar Evaporation Ponds

Uranium continues to be consistently present in 1988 above estimated background concentrations The concentration of dissolved uranium is less than 10 picoCuries per liter (pCi/l) in well 22-86, which is considerably less than the proposed concentration limit of 40 pCi/l Considerably higher levels of uranium occur in alluvial ground water downgradient of the Solar Evaporation Ponds As in the case of volatile organics, this appears to indicate a source other than the ponds for the uranium contamination in well 22-86. In 1987 and 1988, well 56-87 was either dry or contained insufficient water for radiochemical analysis

At least two of the four quarters of 1988 data for well 22-86 show elevated concentrations of barium, calcium, iron, potassium, magnesium, manganese, sodium, and strontium This is typical of the 1987 observations Generally, concentrations are two to three times greater than estimated background levels. This is not characteristic of alluvial ground water downgradient of the Solar Evaporation Ponds where some of these metals are at considerably higher concentrations Well 56-87 was either dry, or insufficient water was present for metal analysis during 1988

Major anions and TDS were two to three times above estimated background levels in well 22-86 in 1988 Again, as for the metals and radionuclides, considerably higher concentrations of these inorganics occur in alluvial ground water downgradient of the Solar Evaporation Ponds

Ground-water Quality South of the Ponds

Although well 26-86 was dry at the time of all 1988 sampling events, 1987 data indicate contamination by several constituents (Appendix B) The concentrations indicate less contamination than in the wells farther to the northeast Chloride, bicarbonate, and TDS exceeded estimated background levels, and nitrate and sulfate were an order of magnitude above the levels in upgradient well 22-86 The only volatile organic compound detected at 26-86 was TCE at 6 and 8 ug/l for first and second quarters 1987, respectively Uranium, sulfate, nitrate, and TDS exceeded proposed concentration limits The data suggest that 26-86 may derive some contamination from ground-water flow through part of Pond 207-A leakage, but that the dominant flow from the ponds is northerly and not southerly

Ground-water Quality to the East and North

Wells 28-86 and 30-86 exhibit the most severe ground-water contamination in the Solar Evaporation Ponds Area Metals, major ions, and uranium were notably above estimated background levels Although well 30-86 is completed in weathered claystone bedrock, it is reported with the alluvial well group because of its very shallow, unconfined status

Infrequently occurring low concentrations of volatile organics in wells 30-86 and 28-86, are attributed to laboratory contamination The 1988 analyses did not indicate the trace TCE and PCE detected in samples from 1987 for well 28-86. $CHCl_3$, PCE, and toluene infrequently occurred in well 30-86 at estimated concentrations below detection limits during 1988. Methylene chloride occurred in

samples from three of the four quarters for well 30-86; however, laboratory blank data were unavailable to determine if the concentrations are attributable to laboratory contamination.

Results of metals analyses indicate that barium, calcium, potassium, magnesium, manganese, molybdenum, sodium, antimony, and strontium occurred above estimated background concentrations in both wells 28-86 and 30-86 Concentrations of these metals are generally higher in well 30-86 than in well 28-86 Only antimony exceeds the proposed concentration limit which is the estimated background concentration Concentrations of metals are typical of those observed in 1987

As in 1987, uranium and 1988 concentrations of tritium far exceed the estimated background concentrations in both well 28-86 and 30-86. Uranium concentrations exceed the proposed concentration limit of 40 pCi/l.

Major anions and TDS are all above background concentrations in 1988, and all were generally within the ranges of the 1987 data. Concentrations of these constituents are similar in both wells 28-86 and 30-86 Chloride, sulfate, nitrate, and TDS exceeded the proposed concentration limits

Ground-water Quality Adjacent to North Walnut Creek

Wells 17-86, 15-86 and 13-86 are northeast of the Solar Evaporation Ponds and are completed in North Walnut Creek valley fill alluvium. The water quality generally improves with increasing distance from the ponds base on both 1987 and 1988 data The data also suggest that the contaminant plume progressed farther to the northeast in 1988

Volatile organic compounds appear to be present in ground water at well 13-86 but not at wells 15-86 and 17-86 In 1988, methylene chloride, $CHCl_3$, TCE, PCE, and toluene occurred inconsistently in either well 15-86 or 17-86, but these occurrences were estimated below detection limits Although the same is true for well 13-86, TCE was present at 55 ug/l in first quarter 1988 $CHCl_3$ was present at 125 ug/l in 1987 The absence of consistent detection of these compounds does not allow definitive conclusions to be made regarding volatile organic contamination at well 13-86, however, the higher volatile organic concentrations at this well versus wells 15-86 and 17-86 are more convincing of this condition Drainage from the Triangle Area (SWMU 165) adjacent to the 207-B ponds (Figure 1), is the suggested source of this contamination This low priority SWMU is scheduled for investigation in 1989.

Results of radionuclide analyses indicate that elevated uranium concentrations occur in wells 17-86 and 15-86, but elevated tritium concentrations occur in well 17-86 only Concentrations of uranium are higher in well 17-86 than 15-86 and exceed the proposed concentration limit This is typical of the 1987 data There was insufficient ground water in well 13-86 for radiochemical analysis in 1988

Barium, calcium, potassium, magnesium, sodium, antimony, selenium, and strontium all occurred above estimated background concentrations in wells 17-86 and 15-86 Of these metals, only selenium did not occur at elevated concentrations upgradient at wells 28-86 and 30-86 This implies that the major source of contamination at this location is the Solar Evaporation Ponds. Selenium exceeds the proposed concentration limit of 0 01 milligrams per liter (mg/l) in both wells 17-86 and 15-86. There was insufficient ground water for metal analyses in well 13-86 in 1988.

The major anions have all increased in well 17-86 but less so in well 15-86 in comparing 1987 and 1988 data. This is particularly true for nitrate, sulfate, and TDS in well 17-86 The proposed concentration limits for nitrate and TDS are exceeded in both wells, and the sulfate limit is exceeded in well 17-86 Again, there was insufficient sample volume from well 13-86 for these chemical analyses in 1988

The elevated constituents at the downgradient wells generally match the list of contaminants at well 30-86 The data indicate that the intervening french drain system has failed to collect all of the contaminated ground water during high precipitation events Contamination appears to be increasing at well 17-86 and to a lesser extent at well 15-86

Ground-water Quality to the Southeast

Wells 35-86 and 21-87 are located in South Walnut Creek just north of the Mound Area, an area being investigated under CERCLA There is insufficient ground-water elevation data to establish the degree of hydraulic interconnection between alluvial water at the Solar Evaporation Ponds and at this location (additional wells are proposed for this purpose in Section 2 6). The existing data suggest that the intervening surficial materials are dry However, the organics observed in well 22-86, and the inorganics above estimated background levels in alluvial ground water at the ponds are also observed at elevated concentrations at well 35-86 PCE was the only volatile organic compound occurring in alluvial ground water at well 21-87, and insufficient water was present for other inorganic analyses. Although this may suggest a component of ground-water flow into the South Walnut Creek drainage from the Solar Evaporation Ponds, the conspicuous absence of elevated nitrate at this location renders this inconclusive Also, manganese concentrations are approximately

4 mg/l (one to two orders of magnitude higher than at the Solar Evaporation Ponds) which suggests another source for this contamination, presumably the Mound Area Alluvial ground water at the Mound Area contains high concentrations of volatile organic compounds

2 4 2 Bedrock Ground-water Chemistry

The bedrock monitoring wells include 14-86 and 16-86 in the North Walnut Creek drainage, 34-86 near South Walnut Creek, 39-87 northeast of Pond 207B-north, and another five wells distributed around the Solar Evaporation Ponds. Bedrock ground-water quality data are presented in Appendix B Volatile organic, inorganic, metal, and dissolved radionuclide concentrations above estimated background levels are presented in Tables 10, 11, 12, and 13, respectively.

With the exception of methylene chloride, volatile organics occur infrequently and at concentrations estimated below detection limits. The absence of laboratory blank data do not allow evaluation of whether the concentrations of methylene chloride reflect laboratory contamination. Even if some of the measurements represent actual contamination, bedrock contaminant entry via subcrops west of the Solar Evaporation Ponds Area is more plausible than entry via the alluvium within the area where volatile organics appear to be absent.

Uranium is the only radionuclide occurring above estimated background concentrations in bedrock ground water in 1988 It occurred in wells 23-86, 25-86, 22-87, and 39-87 in the range of three to six pCi/l. The high uranium concentrations seen in ground water at the landfill suggest this may represent natural variation as opposed to contamination

Except for aluminum, strontium, and occasionally molybdenum and antimony, trace elements in all of the bedrock wells were generally not above background levels. Those that were above background concentrations were less than two to three times background, and they showed no systematic distribution Strontium occurred at concentrations between one and three mg/l at wells 23-86, 25-86, 34-86, 16-86, and 14-86

Several major ions occurred at above-background concentrations in the bedrock wells Sodium, calcium, chloride, sulfate, and nitrate occurred above estimated background levels in wells 16-86 and 14-86 and did not increase in 1988 Wells 22-87 and 39-87 are screened in lower deep sandstones. Virtually all of the major ions also occurred above background concentrations. The low nitrate concentrations in this area, suggest that no ground-water contamination has occurred.

The major ion concentrations in 16-86 and 14-86 may be due to soluble salts in the Arapahoe Formation rather than contamination; the placement of background wells in the Laramie Formation could account for the apparent elevation of salt concentrations near the Solar Evaporation Ponds (U.S DOE, 1988) The very low nitrate and uranium concentrations are consistent with the assessment that bedrock wells are uncontaminated

Data on subcropping sandstones are insufficient for assessing shallow bedrock contamination. The Solar Evaporation Ponds Closure Plan (U.S. DOE, 1988) recommended that wells be established in the subcropping sandstone in the vicinity of wells 22-87 and 39-87. Until this data and background data are available, the limit of the plume will remain poorly defined

2 5 CONTAMINANT MIGRATION RATES

Alluvial Ground Water

A ground-water velocity estimate of 1 5 feet per year (ft/yr) was made based on a hydraulic conductivity of 4 8 x 10^{-6} cm/s, an assumed effective porosity of 0 1, and a hydraulic gradient of 0 03 feet per foot (ft/ft) for the North Walnut Creek valley fill alluvium (U S DOE, 1988) The estimate is conservatively based on the upper end of hydraulic conductivities measured by drawdown recovery and pump tests in 1986 wells in surficial materials Table 5-1 and Appendix B of the Characterization Report (U S DOE, 1988) document the conductivities which range from 4 x 10^{-8} cm/s to 9 x 10^{-6} cm/s

An alternative approach to assessing contaminant migration rates near the Solar Evaporation Ponds is to calculate the velocity required to reach the furthest well with known contamination, based on the ponds' age. Thus the presence of contaminants at well 13-86, approximately 1240 feet from the northeastern corner of Pond 207-B North, suggests that the migration rate has averaged approximately 39 ft/yr since 1956 (the date of Pond 207-A construction) Assuming the extent of contamination in 1988 is only to the closer well, 15-86 (1100 feet), yields a migration rate of approximately 34 ft/yr This empirical approach to migration provides perhaps more accurate information on the average contaminant migration rate from the solar ponds

Much of the colluvium has been removed from the hillside north of the ponds facilitating overland flow of shallow ground water in the area. This overland flow effectively increases ground-water flow rates on the slope north of the Solar Evaporation Ponds Flow rates are reduced downgradient of the slope and the french

drain system in the North Walnut Creek drainage where ground water again flows through the subsurface The ground-water velocity of 1 5 ft/yr is probably representative of flow conditions once ground water from the Solar Evaporation Ponds Area reaches the North Walnut Creek valley fill alluvium. However, the hydraulic conductivity for the North Walnut Creek valley fill alluvium is low compared to hydraulic conductivity values for alluvium in other areas of the Plant site Additional slug testing will be conducted to further define ground-water velocities in this drainage

Bedrock Ground Water

Hydraulic conductivity measurements in bedrock sandstones, siltstones, and claystones range from 1 x 10^{-8} to 5 x 10^{-6} cm/s, with a mean of 4 x 10^{-7} cm/s for sandstones (U S. DOE, 1988) With an assumed porosity of 0 1 and the average hydraulic gradient of 0 09 (ft/ft), the maximum conductivity yields a maximum horizontal ground-water velocity of 5 2 ft/yr in sandstone Analogous computations suggest that ground-water moves 0 3 and 0 4 ft/yr in siltstones and claystones, respectively (U S DOE, 1988)

2 6 CONCLUSIONS AND RECOMMENDATIONS

2.6 1 Conclusions

Ground-water contamination from the Solar Evaporation Ponds is migrating primarily in a northeasterly direction and has reached the North Walnut Creek drainage Nitrate and dissolved uranium represent the most distinctive contamination, although most major anions exceed the proposed concentration limits and some metals exceed background concentrations northeast of the ponds. The 1988

alluvial ground-water data indicate that this contamination is continuing to progress downgradient of the french drain system, thereby supporting the recommendations for more detailed evaluation of the french drain deficiencies outlined in the Hydrogeologic Characterization Report (U S DOE, 1988) Similarly, 1988 results confirm previous indications that leakage from the solar ponds in non-northerly directions is minimal, and that some wells are influenced by remains of other waste sources

There are currently no definite indications of bedrock water quality degradation due to the Solar Evaporation Ponds with the exception of high uranium and salinity (especially nitrate) at well 30-86 near the waste sources Recommendations for further investigation of subcropping sandstones northeast of the ponds are presented below

Two mid-level bedrock wells (screened in upper, but not subcropping sandstones), show increases in several major and trace ions in 1988. The results are not definite enough to imply contamination, but they do suggest the need for additional monitoring of sandstones

2 6 2 Recommendations

The current ground-water monitoring program at the Solar Evaporation Ponds has indicated the presence of HSL metals, radionuclides, and non-hazardous major ions above background levels in the downgradient wells Therefore, interim status monitoring will continue as assessment monitoring. Recommendations for additional field investigations at the Solar Evaporation Ponds are presented in the Hydrogeologic Characterization Report (U S. DOE, 1988), and additional interim status monitoring

wells are also proposed in Section E of the Post-Closure Care Permit Application (U.S. DOE, 1988) Further recommendations for additional assessment monitoring were also provided by CDH in their comments on the Solar Evaporation Ponds Closure Plan (U S DOE, 1988) The proposed wells discussed below incorporate all recommendations and wells proposed to date

Quarterly monitoring of the 28 existing wells upgradient, within, and downgradient of the Solar Evaporation Ponds will continue Thirty-three additional wells are also proposed in and around the ponds to further define the extent of saturation and contaminants in surficial materials, weathered claystone bedrock, and subcropping sandstones Well locations are shown on Figure 9, and additional well construction details are presented in Table 14

Slug tests will be conducted in all newly installed wells in addition to wells 11-86, 12-86, 13-86, 15-86, 17-86, 22-86, 26-86, 28-86, 30-86, 35-86, 36-86, 37-86, and 56-87. Results of these tests will be used to re-evaluate the hydraulic conductivity values currently available for surficial materials in the Solar Evaporation Ponds Area

Proposed Upgradient Wells

Three additional upgradient alluvial wells are proposed for the Solar Evaporation Pond Area Well SEP-20 will be located east (up alluvial gradient) of Pond 207-C and completed in Rocky Flats Alluvium. Ground-water sampling results from this well will be used to clarify the extent of volatile organic contamination upgradient of the ponds Alluvial wells SEP-01 and SEP-15 will be completed in surficial materials upgradient of existing wells in the drainages of South Walnut Creek and North Walnut Creek, respectively Well SEP-01 will help determine the extent of saturation south of the ponds in South Walnut Creek. Well SEP-15 will

provide ground-water quality data from the North Walnut Creek drainage upgradient of the french drain system.

Wells SEP-02 and SEP-21 will be completed in weathered Arapahoe Formation claystone and will be paired with wells SEP-01 and SEP-20, respectively These wells will provide ground-water quality data as well as information on the extent of weathered claystone saturation upgradient of the Solar Evaporation Ponds

Proposed Wells South and East of the Solar Evaporation Ponds

Nine new wells are proposed south and east of Ponds 207-A and 207-B South to better define the extent of saturation and ground-water contamination in this area In addition, these wells will serve to evaluate the hydraulic connection between the Solar Evaporation Ponds and South Walnut Creek

Alluvial wells SEP-04, SEP-25, and SEP-06 will be located east of Pond 207-B South to investigate ground-water conditions in this area. Well SEP-25 will replace the pre-1986 well 4-60, for which there are no well construction details Paired with these new alluvial wells and with existing alluvial well 26-86 will be new bedrock wells (SEP-03, SEP-05, SEP-24, and SEP-07) completed in weathered claystone bedrock. In addition, wells SEP-18 and SEP-31 will be completed in the Arapahoe Formation sandstone which subcrops between Ponds 207-A and 207-B South.

Proposed Wells North of Solar Evaporation Ponds

Six new bedrock wells are proposed for the slope north of the ponds All of these wells will be completed in sandstones which subcrop within the area. Wells SEP-19 and SEP-30 will be completed in the subcropping sandstone south of Pond 207-C, and well SEP-22 will be completed in the subcropping sandstone east of Pond 207-

C. Neither of these sandstones is currently being monitored, so these wells will serve to evaluate bedrock ground-water quality adjacent to Pond 207-C Well SEP-17 will be installed east of well 31-86BR and will be completed in the same sandstone as 31-86BR Well 31-86BR is dry most of the year By moving down gradient, saturated conditions will hopefully be encountered in the sandstone at this location Well SEP-16 will be drilled into the subcropping sandstone encountered while drilling 39-87BR. If saturated conditions are encountered in this sandstone during drilling, well SEP-16 will be completed in the subcropping sandstone. If unsaturated conditions are encountered, well SEP-16 will be completed in the middle sandstone encountered in well 39-87BR Well SEP-23 will be drilled east of well 39-87BR and completed in the sandstone which subcrops at 39-87BR As with well SEP-17, saturated conditions are anticipated in the sandstone at the location of well SEP-23 downgradient of the sandstone subcrop.

Six new alluvial wells are proposed for the hillside and North Walnut Creek valley fill alluvium north and northeast of the Solar Evaporation Ponds for plume delineation. Much of the natural materials on this slope were removed during construction of the ponds and the french drain system. Wells SEP-26 and SEP-28 will be completed in colluvial and/or artificial fill materials on the slope north of the ponds if sufficient thickness is present Proposed alluvial wells SEP-08, SEP-10, and SEP-11 will be completed in colluvium to further define the extent of saturation and ground-water contamination in surficial materials northeast of the ponds. Alluvial well SEP-13 will be completed in North Walnut Creek valley fill alluvium between existing wells 17-86 and 15-86 to evaluate the extent of ground-water contaminants in the valley fill alluvium

Bedrock wells completed in weathered claystone will be installed adjacent to alluvial wells northeast of the Solar Evaporation Ponds to determine the extent of saturation within weathered claystones as well as ground-water quality Well SEP-27 will be paired with proposed alluvial well SEP-26, well SEP-29 will be paired with proposed alluvial well SEP-28, well SEP-14 will be paired with existing alluvial well 17-86, well SEP-09 will be paired with proposed alluvial well SEP-08; and well SEP-12 will be paired with proposed alluvial well SEP-11

Two bedrock wells (SEP-32 and SEP-33) are also proposed northeast of the ponds to monitor sandstones which potentially subcrop beneath the ground-water plume from the Solar Evaporation Ponds Well SEP-32 will be installed updip and presumably upgradient of existing well 16-86 and will be completed in the same Arapahoe sandstone unit. Well SEP-33 will be installed updip (and upgradient) of existing bedrock well 14-86 and will be completed in the same unit as well 14-86 These wells will provide additional bedrock ground-water chemistry data for sandstones subcropping in North Walnut Creek.

3.0 GROUND-WATER MONITORING AT THE WEST SPRAY FIELD

The West Spray Field is located in the western portion of the Rocky Flats Plant Buffer Zone This site was identified as a regulated unit because liquids contaminated with listed hazardous wastes were spray irrigated at the West Spray Field

The West Spray Field was in operation from April 1982 to October 1985 During operation, excess liquids from Solar Evaporation Ponds 207-B North and Center were periodically pumped via pipeline to the West Spray Field for spray application. Based on interviews and aerial photographs, direct application of the liquids occurred in portions of the spray field designated as Areas 1, 2, and 3 (see Figure 14 for reference).

The West Spray Field is no longer in operation and will be closed in accordance with the closure plan presented by U S DOE (1988) Post-closure inspection, maintenance, and monitoring of the West Spray Field will be performed in accordance with 6 CCR 1007-3, Part 264

3 1 SUMMARY OF PREVIOUS INVESTIGATIONS

An alternate monitoring program is being implemented at the West Spray Field in accordance with 6 CCR 1007-3 and 40 CFR Part 265 90(d). The submitted plan, Draft Work Plan, Geological and Hydrological Site Characterization (Rockwell International, 1986a), included a plan for the installation and quarterly sampling and analysis of upgradient and downgradient wells. The plan also included the

procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, and chain of custody control

Five alluvial wells (45-86, 47-86, 49-86, 50-86, and 51-86) and three bedrock wells (46-86, 48-86, and 52-86) were installed at the West Spray Field during the fall and winter of 1986 Quarterly monitoring of these wells was initiated immediately upon their completion and development Wells 45-86, 46-86, 47-86, 49-86, 50-86, and 51-86 were sampled once during 1986, however, wells 48-86 and 52-86 were not completed in time for the 1986 sampling The 1986 wells were sampled quarterly during 1987 and 1988, except well 45-86 for which first quarter 1988 data have not yet been received from the laboratory In addition, pre-1986 wells 8-81, 9-81, 10-81, 3-82, 5-82, 6-82, and 7-82 were sampled quarterly during 1987 and 1988

Water levels were measured monthly at all wells and at the time of sampling. Ground-water samples were analyzed for the parameters listed in Table 1 The records of the analyses and evaluations are maintained in compliance with 6 CCR 1007-3 and 40 CFR 265 94(b) An annual report was compiled in March, 1988 which described ground-water elevations, ground-water migration rates, and included the results of the ground-water sample analyses (Rockwell International, 1988) In addition, ground-water sampling results for the West Spray Field are presented in the West Spray Field Hydrogeologic Characterization Report (U.S DOE, 1988)

3 1 1 Nature and Extent of Ground-water Contamination

Previous hydrogeologic investigations of the West Spray Field indicate that the impact of the West Spray Field operation on alluvial ground-water quality is a modest increase in total dissolved solids (primarily sodium and sulfate) and the occurrence of

above background nitrate concentrations beneath the unit Above background concentrations of nitrate occur in immediately upgradient wells 10-81 and 51-86, and in wells 5-82 and 49-86, which are located within the waste management unit

Bedrock ground water at the West Spray Field does not appear impacted by the waste management activities Above background major ion, metal, and radionuclide concentrations may represent natural geochemical variations in ground water because of their infrequent occurrence above background levels and their near background concentrations

3 2 UPPERMOST AQUIFER

The uppermost aquifer in the West Spray Field is comprised of the saturated Rocky Flats Alluvium. Hydraulic conductivities for Rocky Flats Alluvium are presented in Table 15. Hydraulic conductivities range from 2 1 x 10^{-5} to 5 3 x 10^{-4} cm/s.

The Upper Laramie Formation is not included in the uppermost aquifer definition at the West Spray Field at this time as discussed below First, releases from the West Spray Field occurred at the ground surface, therefore, impacts to ground water beneath the spray irrigation areas should first be detected at the alluvial water table. Second, because of the large hydraulic conductivity contrast between the Rocky Flats Alluvium and the underlying bedrock, the alluvium is the preferential flow path Average hydraulic conductivities for the Upper Laramie Formation lithologies are· 4 x 10^{-8} cm/s for claystone (Tables 16 and 17), 1 6 x 10^{-7} cm/s for siltstone, and 6 x 10^{-8} cm/s for sandstone If it is determined that the contamination within the Rocky Flats Alluvium extends to bedrock, weathered claystone and any subcropping Upper Laramie sandstone encountered in the area of contamination will be considered part

of the uppermost aquifer, and the extent of the contamination within the sandstone will be investigated Weathered claystone ground-water quality will also be monitored under this condition

3 3 GROUND-WATER FLOW DIRECTIONS

In the West Spray Field Area, ground water enters from the west and generally flows east-northeastwardly following the base of the Rocky Flats Alluvium. In the southern portion of the area, ground water flows southeastward toward the Woman Creek drainage North of the West Spray Field, ground water flows northeast toward the Rock Creek drainage

Figures 10 through 13 present water table maps constructed for February, June, August, and November, 1988, respectively Water level data are presented in Appendix E. When the water table is relatively high (February and June, 1988, Figures 10 and 11), ground-water flow is more easterly than in periods when the water table is lower (August and November, 1988, Figures 12 and 13)

Water table elevations in monitor well 45-86 indicate that the water table is being recharged by surface water from Walnut Creek during spring and early summer. Walnut Creek is not incised in the Rocky Flats Alluvium but flows across its surface through the West Spray Field Thus, during the wetter spring and early summer months, a ground-water mound occurs along the alignment of Walnut Creek (Figures 10 and 11) This mound is not present in the water table during the drier months of August and November when there is no surface water flow in Walnut Creek (Figures 12 and 13)

The water level elevation of the raw water supply pond located south of monitor well 49-86 was not used in the construction of the water table maps This pond is lined and consequently not hydraulically connected with the ground-water system in the Rocky Flats Alluvium

3 4 WEST SPRAY FIELD GROUND-WATER CHEMISTRY

In general, 1988 data support the conclusions in Section E of the revised Post Closure Care Permit Application, (U S DOE, 1988) i e, there is apparent nitrate contamination in alluvial ground water beneath the unit, and possibly a more widespread occurrence of modest increases in TDS, primarily due to sodium and sulfate, and to a lesser extent chloride Tables 18, 19, 20, and 21 show the detected concentrations of volatile organics, and above background inorganic concentrations, dissolved metal concentrations, and dissolved radionuclides, respectively, for alluvial ground water at the West Spray Field The tables are based on available data from first through fourth quarters 1988 (Appendix C) Figure 14 presents nitrate concentrations in alluvial ground water for second quarter 1988

3 4 1 Alluvial Ground-Water Quality at the Upgradient Wells

Alluvial wells 10-81, 51-86, and well 7-82 (7-82 had only had sufficient water to collect samples for volatile organics in 1988, and has otherwise been dry) appear to be upgradient from the West Spray Field based on surface topography and ground-water elevations (Figures 10 through 13) This may not have always been the case as evidenced by the elevated nitrate in wells 10-81 and 51-86 (Figure 14) Dewatering of the gravel/clay pits just west of the site may reverse the gradient in this area, and/or

artificial recharge from the West Spray Field produced a ground-water mound which may have temporarily changed the hydraulic gradient toward these alluvial wells

There is no significant change with regard to inorganic chemistry of alluvial ground water upgradient of the West Spray Field over the past two years Nitrate concentrations have been approximately 6 mg/l in well 10-81 throughout 1987 and 1988, and between 4 and 5 mg/l over this time period at well 51-86 Of the other major ions, only sulfate is somewhat elevated above estimated background levels upgradient of the West Spray Field (well 51-86) and shows an apparent decreasing trend in 1988 Metals have been at or near estimated background levels in these wells Radionuclides are not above background levels

Methylene chloride was detected at 25 ug/l and 23 ug/l in wells 10-81 and 7-82, respectively, during the second quarter of 1988 However, historical data and subsequent data do not support volatile organic contamination of alluvial ground water at the West Spray Field

3 4 2 Alluvial Ground-Water Quality within the West Spray Field

Alluvial wells 5-82, 6-82, 49-86 and 50-86 all are within the West Spray Field The ground-water quality data from these wells support the conclusion that nitrate, and to a lesser extent sodium and sulfate, appear to be indicators of contamination from the West Spray Field operation

Data from wells 5-82 and 49-86 show the historical presence of elevated nitrate concentrations In 1987, nitrate concentrations in well 5-82 were generally about 3 mg/l but the concentration has decreased to at or near background levels in 1988 The nitrate concentration at well 49-86 has been just above and below the proposed

concentration limit of 10 mg/l throughout 1987 and into 1988 Nitrate is at background levels in wells 6-82 and 50-86 It is hypothesized that well 50-86 is not within the main flow path of nitrate contaminated water, and that ground water at wells 5-82 and 49-86 was more severely impacted because of their spatial relation to Area 2, a historically high application area in the West Spray Field (Figure 14) The lack of nitrate in ground water at well 6-82 is not understood at this time Sodium, sulfate, and thus TDS also continue to be somewhat elevated above estimated background concentrations at these wells which may imply an impact of the West Spray Field operation from infiltration or soil leaching of these constituents

Metals analyses indicate that barium and to a lesser extent iron, manganese, and strontium historically have been above estimated background levels on a regular basis This continues to be true during 1988, although manganese was at background levels during this time Similar to sodium and sulfate, this may suggest an impact of the West Spray Field operation from infiltration of spray irrigated water or leaching of these constituents from soils

Results of radionuclide analyses indicate that only uranium is a possible contaminant of ground water at the West Spray Field Of the wells within the unit, only well 50-86 had detectable concentrations during 1988 (total uranium = 0 4 pCi/l, second quarter) Historical data for well 6-82 has shown uranium concentrations above background levels that cannot be attributed to "outliers" The sporadic occurrence of uranium spatially or temporally in alluvial ground water does not support a definitive conclusion of uranium contamination in this area It is further noted that uranium is not significantly elevated in soils of the West Spray Field, and it should have been effectively removed through adsorption to the soils if present in the application liquids during the West Spray Field operation (U S DOE, 1988)

3 4 3 Alluvial Ground-Water Quality Side Gradient and North of the West Spray Field

Well 47-86 is the only well in the sub-group Contamination has not been and is currently not evident

3 4 4 Alluvial Ground-Water Quality Downgradient and Adjacent to North Walnut Creek

Wells 8-81, 9-81, 45-86, and 3-82 are the wells downgradient of the West Spray Field in the vicinity of North Walnut Creek (Plate I) There are no well construction details for the pre-1986 wells 8-81, 9-81, and 3-82 However, based on their total depths (less than 35 feet), wells 9-81 and 3-82 are completed in Rocky Flats Alluvium Well 8-81 is approximately 101 feet deep, and is likely completed in both Rocky Flats Alluvium and Upper Laramie bedrock

Major ions, strontium, and uranium appear elevated at wells 8-81 and 9-81 With the exception of elevated aluminum and iron at well 45-86, alluvial ground-water quality is at background levels at this location With the exception of elevated potassium, and occasional elevated concentrations of nitrate (3 91 mg/l, first quarter 1988) and uranium (12 7 pCi/l, first quarter 1988), alluvial ground-water quality is at background levels at well 3-82

Ground water at wells 8-81 and 9-81 has historically shown similar inorganic chemistry with consistently elevated calcium, sodium, potassium, and TDS Differences include elevated magnesium only in well 8-81, and elevated chloride and sulfate only in well 9-81 These findings continue to be true during 1988

Of the metals, historically only strontium has been somewhat consistently elevated in wells 8-81 and 9-81 This continues to be true in 1988

Total uranium was elevated in wells 8-81 (5 to 6 pCi/l, first and second quarters), 9-81 (1 3 pCi/l, second quarter), and 3-82 (12 7 pCi/l, first quarter) in 1988 The historical occurrence of elevated uranium at 9-81 and nitrate at 3-82 may be indicative of contamination from the West Spray Field, however, the presence of elevated nitrate levels at 3-82 (farther downgradient) and not at 9-81, and the sporadic occurrence of elevated uranium upgradient within the West Spray Field makes this inconclusive Furthermore, calculated contaminant migration rates suggest contaminants should not have migrated this distance from the West Spray Field (Section 3 5)

3 4 5 Alluvial Ground-Water Quality Downgradient and along Woman Creek

Well 56-86 is completed in Woman Creek valley fill alluvium downgradient of the West Spray Field During 1987 and 1988 the following general statements can be made with regard to ground-water quality at this location Barium and strontium appeared slightly elevated on several occasions and other metals less frequently There has been no consistent detection of radionuclide concentrations above background levels (none in 1988) The major ions that are consistently elevated in this well are magnesium, sodium, and bicarbonate, with TDS consistently above the estimated background level Chloride values have been observed above background concentrations on several occasions in the past as well as during 1988 It is noted that no constituent is dramatically above background levels which may imply these levels represent natural geochemical variability

3 5 CONTAMINANT MIGRATION RATES

Hydraulic conductivity values for the Rocky Flats Alluvium at the West Spray Field range from $2\ 1 \times 10^{-5}$ cm/s (3 5 ft/yr) to $5\ 3 \times 10^{-4}$ cm/s (87 8 ft/yr) based on drawdown-recovery and slug tests performed on 1986 wells (U S DOE, 1988) Results of these tests are summarized in Table 15 Using a horizontal hydraulic gradient of 0 016 ft/ft, measured from the June 1988 water level map, and an assumed effective porosity of 0 1, ground-water flow velocities at the West Spray Field range from 3 5 ft/yr to 87 8 ft/yr

Operations at the West Spray Field began in April, 1982 (U S DOE, 1988) Thus, a maximum of six years is the time frame for migration of nitrate in ground water from the spray irrigation areas Based on ground-water sampling results, nitrate contamination in alluvial ground water is restricted to well 49-86 Spray Area 2 is the assumed source of this contamination (Figure 14) Using the maximum ground-water flow velocity of 87 8 ft/yr for six years, the nitrate plume has traveled a maximum of 527 feet from Area 2 These calculations, as well as ground-water sampling results, indicate that the nitrate plume from Area 2 is contained within the West Spray Field Waste Management Area (Figure 14)

Area 3 is farthest downgradient spray irrigation area within the West Spray Field Assuming spray irrigated water has been flowing away from Area 3 at the maximum calculated velocity for six years, it would not yet have reached wells 8-81 and 9-81 which are approximately 800 feet northeast of Area 3

3 6 CONCLUSIONS AND RECOMMENDATIONS

3 6 1 Conclusions

Results of hydrogeologic investigations at the West Spray Field suggest that spray application of liquids from the Solar Evaporation Ponds 207-B North and Center may have resulted in elevated levels of nitrate in the alluvial ground water Sulfate and sodium ions were also somewhat elevated above background concentrations TDS showed generally higher values than background levels in the potentially impacted areas Only nitrate occurs at concentrations above the proposed concentration limit, but this appears to be confined to within the waste management area

Alluvial ground-water flow in the West Spray Field Area reflects regional and local topography Ground water enters the West Spray Field Area from the west and generally flows east-northeastward following the base of surficial materials Ground-water flow is more eastward within the West Spray Field during the spring and early summer months when Walnut Creek recharges the flow system

3 6 2 Recommendations

Current ground-water monitoring data indicate the presence of nitrate above background concentrations in alluvial ground water beneath the West Spray Field Therefore, interim status monitoring will continue as alternate monitoring As outlined in Section E of the Post-Closure Care Permit Application (U S DOE, 1988), additional alluvial monitoring wells will be installed at the West Spray Field to define the extent of nitrate contamination

Eight new alluvial wells will be installed in and around the waste management unit (Figure 15 and Table 22) Six of these wells (SF-1, SF-2, SF-3, SF-4, SF-5, and SF-6) will be completed at the downgradient edges of the spray field to monitor ground-water quality leaving the unit Wells SF-7 and SF-8 will be installed near the west central portion of the waste management unit to evaluate water quality within the unit The wells will be completed in the upper 15 feet of saturated Rocky Flats Alluvium, where a release from the West Spray Field would be first detected and will be constructed according to the procedures described in Section E of the Revised Post Closure Care Permit Application (U S DOE, 1988)

4 0 GROUND-WATER MONITORING AT THE PRESENT LANDFILL

The Present Landfill is located on the western end of an unnamed tributary to North Walnut Creek The landfill was placed in operation on August 14, 1968, after a study determined that a landfill operation would be the most efficient and economical means to dispose of the Plant's solid waste A number of available sites within the Plant boundaries were evaluated, and the site at the west end of the North Walnut Creek unnamed tributary was selected The drainage was filled with five feet of soil borrowed from on-site Aerial photographs from August, 1969, show that landfill operations had commenced by that time

Currently, the landfill is accepting nonhazardous solid waste at a rate of approximately 115 cubic yards per workday Records indicate some hazardous waste was disposed at the landfill, rendering it a RCRA-regulated unit However, hazardous constituent disposal in the landfill was eliminated in November 1986 Solid wastes will no longer be accepted at the landfill after June 1, 1989 As of July 1988, the landfill covered approximately 765,000 square feet of land In order to reduce wind dispersion and infiltration, approximately three feet of compacted soil has been placed on top of the waste in areas where disposal is no longer occurring

Sometime after the Present Landfill went into operation in 1968, excess water from the landfill pond was pumped atop a ridge south of the pond. The sprayed water collected on the roadway and flowed into North Walnut Creek. The spraying was moved north of the landfill pond adjacent to the irrigation ditch (SWMU 167 1, Figure 16) when this was discovered The spray water then collected in local drainage channels and flowed around the landfill pond to the main drainage The

spraying was 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 landfill pond

The landfill will be closed in accordance with the closure plan presented in the Post-Closure Care Permit Application for Rocky Flats Plant (U S DOE, 1988) 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)

4 1 SUMMARY OF PREVIOUS INVESTIGATIONS

Pursuant to 6 CCR 1007-3 and 40 CFR 265 90(d), a specific plan for the installation, maintenance, and operation of the alternate ground-water monitoring system at the Present Landfill was submitted to CDH and EPA The submitted plan, Comprehensive Environmental Assessment and Response Program (CEARP) Phase 2 Site Specific Monitoring Plan (U S DOE, 1987), included a plan for the installation and quarterly sampling, and analysis of upgradient and downgradient wells The plan also included the procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, and chain of custody control

Two alluvial wells (7-86 and 10-86) and two bedrock wells (8-86 and 9-86) were installed at the Present Landfill as part of Plant-wide hydrogeologic site investigations in 1986 Three additional wells (alluvial wells 40-87 and 42-87 and bedrock well 41-87BR) were installed in and around the landfill in 1987 according to the CEARP Phase 2 Site Specific Monitoring Plan Alluvial wells 58-87, 59-87, 60-87, 61-87, 62-87, 63-87, 64-87, 65-87, 66-87, 67-87, 68-87, 60-87, and 72-87 were completed

in and around the landfill to evaluate the performance of the ground-water intercept system and the slurry wall (Figure 16)

Quarterly monitoring of wells at the landfill was initiated immediately upon their completion and development The 1986 wells were sampled once during 1986 and quarterly during 1987 and 1988 The 1987 wells were sampled once during 1987 and quarterly during 1988 Ground-water samples are analyzed for the parameters listed in Table 1 as discussed in Section 1 1 Water levels are measured monthly as well as at the time of sampling

4 1 1 Nature and Extent of Ground-water Contamination

Results of hydrogeologic investigations of the Present Landfill suggest that the ground-water intercept system may not completely isolate the landfill from the surrounding ground-water Based upon an examination of alluvial water quality data from wells within and surrounding the landfill it appeared the landfill contributes calcium, bicarbonate, and to a lesser extent sodium, sulfate, iron, manganese, and strontium to the ground water Ground water to the north of the north slurry wall had similar concentrations of these analytes, which may be due to the historical spray irrigation operation, north and upgradient of this location With respect to the public health significance of the water quality directly downgradient of the landfill (well 42-87), only iron and manganese exceeded the proposed concentration limits However, manganese also exceeds the limit (maximum concentration of 0 63 mg/l) in upgradient ground water, and it was not elevated downgradient with respect to upgradient conditions High salt concentrations further down the drainage (wells 6-86 and 5-86) appear to result from another yet unidentified and presumably natural source

Bedrock ground-water quality appears to be largely influenced largely by mineral dissolution within the sandstones and claystone High salt concentrations observed in bedrock wells are not seen in alluvial ground water within the landfill

4 2 UPPERMOST AQUIFER

The uppermost aquifer in the Present Landfill Area is comprised of the saturated surficial materials Rocky Flats Alluvium and disturbed ground occur upgradient of and within the landfill, colluvium and North Walnut Creek valley fill alluvium are present downgradient of the Present Landfill

In addition, the uppermost aquifer includes weathered claystones of the Arapahoe Formation which crop out or subcrop beneath the surficial materials within the waste management area At present, there are limited data on the extent of saturation and hydraulic conductivity of weathered claystones at the Present Landfill However, weathered claystone is included within the definition of the uppermost aquifer because these portions of the Arapahoe Formation are more permeable than unweathered bedrock, and they are in direct contact with the saturated surficial materials within the waste management unit The depth of weathering varies within the claystone subcropping under this waste management area Table 23 lists the depth of weathering for monitoring wells within the waste management unit

Arapahoe sandstones which potentially crop out or subcrop beneath saturated surficial materials within the waste management unit of the Present Landfill have been encountered in wells 65-87, 8-86, 41-87, 64-87BR, and 70-87 (Figure 16) These sandstones are also included as part of the uppermost aquifer Each subcropping Arapahoe sandstone which is included in the uppermost aquifer based on the above

criteria will be considered part of the uppermost aquifer to such depth where the sandstone pinches out.

Unweathered claystone is not considered a part of the uppermost aquifer because of its low hydraulic conductivity Arapahoe sandstones which do not subcrop beneath the surficial materials of the waste management unit are not considered a part of the overlying aquifer because of the low hydraulic conductivity claystone separating these sandstones from surficial materials

Hydraulic conductivity data for the Present Landfill area are listed in Tables 24, 25, and 26 The geometric mean for Rocky Flats Alluvium varies from 1 8 x 10^{-5} cm/s for drawdown/recovery tests to 4 6 x 10^{-4} cm/s for slug tests These values are two to three orders of magnitude in excess of the geometric mean for the unweathered claystone of the Arapahoe Formation at the Present Landfill, 6 2 X 10^{-7} cm/s Although Arapahoe sandstones exhibit conductivities similar to the unweathered claystone, they will be included in the definition of the uppermost aquifer if they subcrop within the waste management unit

4 3 GROUND-WATER FLOW DIRECTIONS

In order to control ground-water flow around the landfill, a two-part leachate and ground-water collection system was constructed in 1974 (Figure 16) This system was designed to collect and divert ground water around the outside of the landfill and to collect leachate generated in the landfill The ground-water collection portion of the system is located on the exterior of the excavation and is separated from the leachate collection portion of the system by a 4 5-foot wide zone of clayey soil

Field reconnaissance and a review of the borehole logs, topographic maps, and previous reports have shown that the landfill wastes bury the leachate collection system and extend beyond the system Therefore, leachate generated outside the landfill trench would be collected by the ground-water diversion system In addition, the clay cutoff wall no longer extends to the surface of the landfill, this would allow ground water to flow across the clay cutoff wall if the water table elevation increases

Along the eastern end of the landfill, slurry trenches have been emplaced (Figure 16) These trenches may also be influencing ground-water flow, future pumping tests are planned to evaluate the effectiveness of the slurry trenches as hydraulic barriers

The following conclusions regarding the effectiveness of the leachate/ground-water intercept system have been made based on water level and ground-water quality data (U S DOE, 1988)

1) The ground-water intercept system is diverting ground water away from the west end of the landfill

2) The ground-water intercept system is not diverting ground water away from the north and south sides of the landfill

3) The clay barrier is holding ground water in the landfill along the west and north sides

4) The clay barrier is ineffective on the south side of the landfill and is allowing contaminated ground water to leave the landfill at times

5) The leachate collection system appears to function intermittently on the north side of the landfill

In general, ground water flows eastwardly in surficial materials toward the landfill pond This general pattern of ground-water flow is evidenced by the water

table maps constructed for February, June, August, and November, 1988 (Figures 17 through 20, respectively)

Of the four months evaluated, November, 1988 appears to be the driest month (Figure 20) This is illustrated by four dry wells (7-86, 72-87, 40-87, and 42-87) and relatively lower water table elevations In contrast, June 1988 appears to be the wettest month, with comparatively higher water table elevations and no dry wells (Figure 18)

4 4 GROUND-WATER CHEMISTRY AT THE LANDFILL

4 4 1 Alluvial Ground-water Quality

Tables 27, 28, 29, and 30 (summarized from ground-water quality data presented in Appendix D) show that alluvial ground water at the landfill appears to have elevated concentrations of barium, calcium, iron potassium, magnesium, manganese, sodium, strontium, zinc, bicarbonate, sulfate, nitrate, TDS, and uranium However, well 10-86 is an upgradient alluvial well where ground water also has elevated levels of several of these constituents This, in itself, suggests that background concentrations may be more variable than depicted for well 55-86 south and upgradient of the West Spray Field Constituents elevated in ground water downgradient of the landfill that are not elevated in the immediate upgradient well include calcium, iron, potassium, magnesium, manganese (occasionally elevated in upgradient well), sodium, strontium, zinc, bicarbonate, and TDS Typical of most sanitary landfills, the Present Landfill is observed to impact ground water quality through increased major ion, iron, manganese, and zinc concentrations Strontium concentrations are also elevated Manganese is the only constituent that is ubiquitous

and that consistently exceeds the proposed concentration limit, however, it historically has been and still exceeds the limit in ground water at the upgradient well 10-86 As shown in Figures 21, 22, 23, 24, 25, and 26, landfill contaminants migrate with the flow directly toward the landfill pond and along the leachate collection systems toward the landfill pond

Volatile organic contamination is of little significance Only sporadic and low concentrations of methylene chloride, acetone, 1,1-DCA, $CHCl_3$, CCl_4, TCE, PCE, and toluene were present in samples during 1988 Carbon tetrachloride was not present in samples from 1987 Methylene chloride , chloroform and toluene were present in the upgradient well, 10-86 This suggest these contaminant concentrations may be due to laboratory artifact, however, an evaluation of laboratory blank data is needed to verify this assertion

4 4 2 Downgradient Alluvial Ground-Water Quality

Wells 7-86, 40-87, 42-87, 6-86, and 5-86 are located progressively downgradient of the Present Landfill Well 7-86 is usually dry and only organic chemistry data exist for this well Well 40-87 is also dry Well 42-87 was dry during the third and fourth quarter 1988 Analytes exceeding the estimated background range during the first quarter of 1988 include barium, calcium, iron, potassium, magnesium, manganese, sodium, strontium, sulfate, and TDS Of these analytes, only iron (0 4 mg/l), and manganese (0 57 mg/l) exceed the proposed concentration limits Iron was not above the proposed concentration limit in 1987, and as previously mentioned, manganese is above the limit in the upgradient well 10-86

As shown in Tables 28, 29, and 30, the concentrations of analytes at wells 6-86 and 5-86 do not indicate a release from the landfill These high concentrations of constituents are not seen within the landfill ground water or immediately downgradient of the landfill (well 42-87), indicating that another source of high TDS water exists downgradient of the landfill As no SWMUs are known to be located downgradient of the landfill, this source may be due to natural saline mineral dissolution Because gross alpha (110 pCi/l), gross beta (54 pCi/l), and total uranium (169 pCi/l) exceed the proposed concentration limits at well 5-86, the source of this ground water will be investigated

4 4 3 Bedrock Ground-water Quality

Three bedrock wells currently exist to monitor bedrock ground-water quality Well 9-86 is located immediately west of the landfill, 8-86 is located immediately east of the landfill, and 41-87BR is downgradient of the landfill embankment in the unnamed tributary of North Walnut Creek Tables 31, 32, 33, and 34 summarize above background inorganics, metals, radionuclides, and volatile organic concentrations during 1988 Ground-water quality data are presented in Appendix D

Inspection of Tables 31, 32, and 33 indicates that bedrock ground water at the landfill has apparently elevated concentrations of barium, molybdenum, sodium, strontium, uranium, sulfate, and TDS However, as with alluvial ground water in this vicinity, the upgradient bedrock ground water has apparent elevated concentrations of some of these constituents At times, well 9-86 has had above background concentrations of barium, iron, zinc, mercury, sodium, nitrate, and sulfate, suggesting the background ranges for these constituents are higher than that depicted for well 54-86 Relative to ground water at well 9-86, ground water at well 8-86 is similar in

composition In contrast, ground water at well 41-87 is notably elevated in calcium, sodium, chloride, strontium, and TDS relative to well 9-86 Total uranium also was present at 7 4 pCi/l in the second quarter, however, uranium was not detected during the first quarter The high concentrations of major ions and metals at 41-87 are not observed in alluvial ground water within, adjacent to, or immediately downgradient of the landfill Although it is possible the sandstone in well 41-87 subcrops beneath the landfill, it is concluded that the quality of the ground water in this sandstone reflects dissolution of minerals within the sandstone and claystone

As shown on Table 34, methylene chloride, chloroform, and toluene were detected in all fourth quarter 1988 bedrock ground-water samples for the Present Landfill Methylene chloride was the only volatile organic compound detected in the third quarter samples, and volatile organics were undetected during first and second quarters 1988 in the landfill bedrock wells These occurrences of volatile organic compounds are likely due to laboratory artifact, although laboratory blank data are currently not available

4 5 CONTAMINANT MIGRATION RATES

Based on slug tests of wells completed within the landfill (wells 62-87 and 63-87), the hydraulic conductivity of landfill materials ranges from $6\,2 \times 10^{-4}$ cm/s to $6\,7 \times 10^{-4}$ cm/s (Table 24) Using the maximum hydraulic conductivity of $6\,7 \times 10^{-4}$ cm/s (694 ft/yr), an assumed effective porosity of 0 1, and a horizontal hydraulic gradient of 0 027 ft/ft, ground water within the landfill is moving at a rate of 185 ft/yr Thus, approximately eight years are required for ground water in the west end of the landfill (well 59-86) to reach the landfill pond (1,500 feet) Although hydraulic conductivity values for wells 62-86 and 63-86 are quite similar, fill

materials are presumably heterogeneous, and flow conditions no doubt vary considerably within the landfill

Once ground water within the landfill discharges to the landfill pond, it is retained within the pond where it either evaporates directly from the pond or evaporates via spray irrigation onto the hillside north of the pond

Alluvial ground water within the valley fill alluvium downgradient of the landfill pond (well 42-87) appears to be impacted by the landfill Alluvial ground water from the landfill may reach the valley fill by flowing through the ground-water intercept system which can discharge to the unnamed tributary, or past releases may have occurred via the spray irrigation of landfill pond water north of the landfill at SWMU 167 1 (Figure 16)

There are no site-specific hydraulic conductivity data available for valley fill alluvium in the unnamed tributary of Walnut Creek In addition, the alluvium is dry during portions of the year Therefore, ground-water flow rates in the unnamed tributary valley fill alluvium cannot be characterized at this time

4 6 CONCLUSIONS AND RECOMMENDATIONS

4 6 1 Conclusions

Hydrogeologic investigation results of the Present Landfill suggest that the ground-water intercept system may not completely isolate the landfill from ground water exterior to the waste management unit Hydraulic assessments for specific areas on the west, north, and south sides of the ground-water intercept system indicate ground water does migrate into the landfill at the west or northwest and may

be exiting the landfill on the southwest at times of the year However, water balance calculations indicate ground-water inflow probably occurs around the landfill The intersection of the ground-water intercept system and the slurry walls may be the location of this inflow

Based upon an examination of alluvial water quality data from wells within and surrounding the landfill, it appears the landfill may be impacting downgradient ground water with major ions, manganese, and iron This is typical of any sanitary landfill Strontium and barium are also elevated downgradient of the landfill Of these analytes, only manganese is consistently higher than the proposed concentration limit, however, manganese is also higher than this limit in upgradient alluvial ground water High salt concentrations further down the drainage (wells 6-86 and 5-86) appear to result from another yet unidentified and presumably natural source

Bedrock ground-water quality is conjectured to be influenced largely by mineral dissolution within the sandstones and claystone High salt concentrations observed in bedrock wells are not seen in alluvial ground water within the landfill

4 6 2 Recommendations

The current ground-water monitoring program at the Present Landfill has not detected a contaminant plume However, ground-water monitoring at the Present Landfill will continue as alternate monitoring Recommendations for additional monitoring wells at the Present Landfill are presented in the Hydrogeologic Characterization Report (U S DOE, 1988), and additional interim status monitoring wells are also proposed in Section E of the Post-Closure Care Permit Application (U S

DOE, 1988) Recommendations for proposed monitoring wells discussed below include the recommendations from both of these referenced documents

Quarterly monitoring of the 21 existing wells upgradient, within, and downgradient of the Present Landfill will continue Fifteen additional monitoring wells are also proposed in and around the Present Landfill to further define the extent of saturation and the ground-water quality in surficial materials, weathered claystone bedrock, and subcropping sandstones Slug tests will be conducted in all newly installed wells in addition to wells 40-87 and 42-87 to obtain additional hydraulic conductivity data for various materials at the landfill Proposed well locations are shown on Figure 27, and additional well construction details are presented in Table 35

Five new alluvial wells are proposed at the Present Landfill Well LF-01 will effectively replace well 59-86 The Hydrogeologic Characterization Report (U S DOE, 1988) recommends that this well be replaced, as it penetrates the clay surface seal of the ground-water/leachate collection system Proposed alluvial wells LF-07, LF-10, and LF-14 will be installed south, southeast, and north, respectively of the waste management area to monitor ground water potentially exiting the landfill via Rocky Flats Alluvium Proposed alluvial well LF-04 will be constructed inside the south slurry wall opposite existing well 72-87 This well will be used to evaluate the effectiveness of the south slurry wall

Three bedrock wells will be installed around the Present Landfill to assess the extent of saturation within the weathered claystone Well LF-08 will be located on the south side of the landfill adjacent to proposed alluvial well LF-07, well LF-11 will be located east of the landfill pond adjacent to existing wells 40-87 and 41-87BR,

and well LF-15 will be completed in weathered claystone adjacent to proposed alluvial well LF-14

Seven additional bedrock wells are proposed for monitoring subcropping sandstones at the Present Landfill Wells LF-02 and LF-03 will monitor the sandstone which subcrops at existing wells 64-87 and 65-87, and wells LF-05 and LF-06 will be installed in the sandstone which subcrops at existing well 72-87 Proposed well LF-09 will be completed in the sandstone subcrop predicted beneath the landfill pond. The remaining two proposed bedrock wells, LF-12 and LF-13 will be completed in the upper and middle sandstones, respectively, encountered in existing well 41-87BR.

An impermeable cap will be placed on the Present Landfill area during closure to eliminate precipitation infiltration This cap will aid in removing water currently present by reducing recharge to the landfill However, the effectiveness of this plan is dependent upon the ability of the in-place ground-water collection system to effectively divert ground water away from the landfill Therefore, single hole pump tests will be conducted in wells 63-87, 64-87, and the replacement well for 59-87 with wells 62-87, 65-87, and 58-87 serving as the observation wells, respectively These tests will serve to establish if a hydraulic connection exists between alluvial ground water inside and outside the landfill at these locations

Alluvial ground-water quality near wells 5-86 and 6-86 will be further investigated in order to determine the source and extent of the high TDS water

5 0 REFERENCES

Rockwell International, 1986b, Resource Conservation and Recovery Act Part B - Operating Permit Application for U S. DOE Rocky Flats Plant, Hazardous and Radioactive Mixed Wastes U S Department of Energy, unnumbered report

Rockwell International, 1986a, Draft Work Plan, Geological and Hydrological Site Characterization, U S Department of Energy, Rocky Flats Plant, Golden, Colorado, July 21, 1986

Rockwell International, 1988, Ground-water Monitoring at Regulated Units, Rocky Flats Plant, Golden, Colorado, March 31, 1988

Rockwell International, 1989, Background Hydrogeochemical Characterization and Monitoring Plan, Environmental Restoration Program, Rocky Flats Plant, January, 1989

U S DOE, 1987a, Comprehensive Environmental Assessment and Response Program Phase 2 Rocky Flats Plant, Draft Installation Generic Monitoring Plan U S Department of Energy

U S DOE, 1987b, Comprehensive Environmental Assessment and Response Program Phase 2 Rocky Flats Plant, Draft Site Specific Monitoring Plan for High Priority Site U S Department of Energy

U S DOE, 1988, Resource Conservation and Recovery Act Post-Closure Care Permit Application for U S DOE Rocky Flats Plant Hazardous and Mixed Wastes, October 5, 1988

Section 1

ATTACHMENT 1

TABLES

TABLE 1

GROUND-WATER SAMPLING PARAMETERS

FIELD PARAMETERS
pH
Specific Conductance
Temperature

INDICATORS
Total Dissolved Solids

METALS
Hazardous Substance List - Metals
- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Potassium
- Selenium
- Silver
- Sodium
- Thallium
- Vanadium
- Zinc

Cesium
Chromium (hexavalent)
Lithium
Molybdenum
Strontium

TABLE 1

GROUND-WATER SAMPLING PARAMETERS
(continued)

ANIONS
Carbonate
Bicarbonate
Chloride
Sulfate
Nitrate
Cyanide
Phosphate

ORGANICS
Hazardous Substance List - Volatiles*
- Chloromethane
- Bromomethane
- Vinyl Chloride
- Chloroethane
- Methylene Chloride
- Acetone
- Carbon Disulfide
- 1,1-Dichloroethene
- 1,1-Dichloroethane
- trans-1,2-Dichloroethene
- Chloroform
- 1,2-Dichloroethane
- 2-Butanone
- 1,1,1-Trichloroethane
- Carbon Tetrachloride
- Vinyl Acetate
- Bromodichloromethane
- 1,1,2,2-Tetrachloroethane
- 1,2-Dichloropropane
- trans-1,3-Dichloropropene
- Trichloroethene
- Dibromochloromethane
- 1,1,2-Trichloroethane
- Benzene
- cis-1,3-Dichloropropene
- 3-Chloroethyl Vinyl Ether
- Bromoform
- 2-Hexanone
- 4-Methyl-2-pentanone
- Tetrachloroethene
- Toluene
- Ethyl Benzene
- Styrene
- Total Xylenes

Oil and Grease

TABLE 1

GROUND-WATER SAMPLING PARAMETERS
(continued)

Hazardous Substance List - Semi-Volatiles

2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2-Chloronaphthalene
2-Nitroaniline
Dimethyl Phthalate
Acenaphthylene
2,4-Dinitrophenol
4-Nitrophenol
Dibenzofuran
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Diethyl Phthalate
4-Chlorophenyl-phenylether
Fluorene
4-Nitroaniline
4,6-Dinitro-2-methylphenol
N-Nitrosodiphenylamine
4-Bromophenyl-phenylether
Hexachlorobenzene
Pentachlorophenol
Phenanthrene
Anthracene
di-n-Butyl Phthalate
Fluoranthene
Pyrene
Butyl Benzyl Phthalate
3,3'-Dichlorobenzidine
Benzo(a)Anthracene
bis(2-ethylhexyl)Phthalate
Chrysene
di-n-Octyl Phthalate
Benzo(b)Fluoranthene
Benzo(k)Fluoranthene
Benzo(a)Pyrene
Indeno(1,2,3-cd)Pyrene
Dibenz(a,h)Anthracene
Benzo(g,h,i)Perylene
bis(2-Chloroethyl)Ether
2-Chlorophenol
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Benzyl Alcohol
1,2-Dichlorobenzene
2-Methylphenol
bis(2-Chloroisopropyl)Ether

TABLE 1

GROUND-WATER SAMPLING PARAMETERS
(continued)

Hazardous Substance List - Semi-Volatiles
(continued)

- 4-Methylphenol
- N-Nitroso-di-n-propylamine
- Hexachloroethane
- Nitrobenzene
- Isophorone
- 2-Nitrophenol
- 2,4-Dimethylphenol
- Benzoic Acid
- bis(2-Chloroethoxy)Methane
- 2,4-Dimethylphenol
- 1,2,4-Trichlorobenzene
- Naphthalene
- 4-Chloroaniline
- Hexachlorobutadiene
- 4-Chloro-3-methylphenol
- 2-Methylnaphthalene
- Hexachlorocyclopentadiene

Hazardous Substance List - Pesticides and PCBS

- Alpha-BHC
- Beta-BHC
- Delta-BHC
- Gamma-BHC (Lindane)
- Heptachlor
- Aldrin
- Heptachlor Epoxide
- Endosulfan I
- Dieldrin
- 4,4'-DDE
- Endrin
- Endosulfan II
- 4,4'-DDD
- Endosulfan Sulfate
- 4,4'-DDT
- Methoxychlor
- Chlordane
- Toxaphene
- Arochlor-1016
- Arochlor-1221
- Arochlor-1232
- Arochlor-1242
- Arochlor-1248
- Arochlor-1254
- Arochlor-1260

TABLE 1

GROUND-WATER SAMPLING PARAMETERS
(continued)

RADIONUCLIDES
Gross Alpha
Gross Beta
Uranium 233+234, 235, and 238
Americium 241
Plutonium 239+240
Strontium 90
Cesium 137
Tritium

* Ground-water samples from the first quarter of 1987 were analyzed for 9 of the HSL 2nd, 3rd, and Part of 4th volatiles These volatiles are the chlorinated solvents historically detected in the ground water and are as follows PCE, TCE, 1,1-DCE, 1,2-DCA, t-1,2-DCE, 1,1,1-TCA, 1,1,2-TCA, CCl_4, and $CHCl_3$

Strontium 89,90 was not analyzed during first quarter 1988

Cyanide was not analyzed during fourth quarter 1987

Lithium was analyzed for in fourth quarter 1987 and first quarter 1988 only

Phosphate and total suspended solids were determined for ground-water samples analyzed in 1986

HSL semi-volatiles, pesticides, and PCBs were analyzed during 1986 analyses only

Chromium VI was analyzed in fourth quarter 1987 ground-water samples only

TABLE 2

BACKGROUND GROUND-WATER CHEMISTRY*

Constituent	CONCENTRATION			
Water	Alluvial Ground Water		Bedrock Ground	
	Upper Limit of Range	Proposed Conc Limit	Upper Limit of Range	Proposed Conc. Limit
Dissolved Metals (mg/l)				
++Ag	0 083	0 083	0 008	0 05**
Al	0.223	5.0@	0 038	5.0@
++As	0 01U	0 05**	0.01U	0.05**
++Ba	0.071	1 0**	0 106	1 0**
+Be	0 005U	0 005U	0 005U	0 005U
Ca	34	NS	110	NS
++Cd	0.005U	0 01**	0 005U	0 01**
+Co	0.022U	0 022U	0.022U	0 022U
++Cr	0.026	0 05**	0.033	0.05**
Cs	0.02U	0.02U	0 02U	0 02U
+Cu	0.046	0 046	0 048	0 048
Fe	0 162	0 3***	0.161	0.3***
++Hg	0.0002U	0 002**	0 0002U	0 002**
K	0 8	NS	5 2	NS
+Li	0 1U	0 1U	0 1U	0.1U
Mg	6	NS	25	NS
Mn	0.066	0.066	0 228	0 228
Mo	0 022U	0 1@	0 022U	0.1@
Na	13	NS	36	NS
+Ni	0.370	0 370	0.054	0 2@
++Pb	0.016	0 05**	0 019	0 05**
+Sb	0.06U	0 06U	0.06U	0.06U
++Se	0.005U	0 01**	0.005U	0 01**
Sr	0.15	NS	0 87	NS
+Tl	0 01U	0 01U	0.01U	0.01U
+V	0.024U	0 024U	0.024U	0.024U
+Zn	0 164	0 164	0 098	0 098
Other Inorganics (mg/l)				
HCO_3	79	NS	347	NS
Cl	19	250 ***	4	250 ***
SO_4	27	250 ***	92	250 ***
NO_3	1.5	10 ***	07	10 ***
TDS	167	400 **+	467	400 **+

TABLE 2

BACKGROUND GROUND-WATER CHEMISTRY*
(CONTINUED)

Constituent	CONCENTRATION Alluvial Upper Limit of Range	Alluvial Proposed Conc. Limit	Bedrock Upper Limit of Range	Bedrock Proposed Conc Limit
Dissolved Radionuclides (pCi/l)·				
Gross Alpha	<MDA(34)*++	15 **	<MDA(40)	15 **
Gross Beta	<MDA(75)	50 **	<MDA(76)	50 **
Pu 239, 240	<MDA(0 3)	40 +***	<MDA(64)	40 +***
Am 241	<MDA(1 6)	4 +***	<MDA(4 6)	4 +***
Total U	<MDA(1 3)	40 ++*	2 42	40 ++*
Sr 89,90	<1	8	<1	8
Cs 137	ND	NS	ND	NS
H3	<593	20,000 **	<593	20,000 **

* Based on data from 1987 and 1988 for wells 55-86 (alluvial) and 54-86 (bedrock)(see Appendix A).

** Primary Drinking Water Standard.

*** Secondary Drinking Water Standard

**+ Colorado Ground Water Standard

+** Proposed Drinking Water Standard (51FR 34859)

++* Colorado Surface Water Standard [5CCR 1002 8, Sec. 3 8 5(3)]

*++ MDA - Minimum Detectable Activity, MDA noted in parentheses

+ Appendix IX constituent

++ Appendix IX constituent and SDWA metal.

@ Colorado Ground Water Agricultural Standard

ND = No data
NS = No standard

TABLE 3

DEPTH OF WEATHERING IN ARAPAHOE CLAYSTONE:
SOLAR EVAPORATION PONDS AREA

	Below Ground Surface (ft)	Below Top of Bedrock (ft)
Well		
20-86 (a)	22.5+	10+
22-86	21.0	9
27-86	15.5	6.3
28-86 (a)	15.5+	7.1+
30-86 (a)	16.0+	14+
31-86 (a)	22+	21.1+
32-86	72	71.2
37-87 (a)	13.0+	10.3+
39-87BR	39.0	33.8
56-87 (a)	13.4+	4.0+
Borehole		
SP01-87 (b)	25.9+	12.7+
SP02-87 (c)	NA	NA
SP03-87 (b)	18+	4.8+
SP04-87 (a)	32.0+	22.5+
SP05-87 (a)	21.8+	4.0+
SP06-87 (a)	30.7+	12.7+
SP07-87 (a)	31.0+	9.7+
SP09-87 (a)	11.0+	5.0+
SP10-87 (a)	27.7+	25.3+
SP13-87 (a)	16.5+	13.8+
SP15-87 (a)	19.5+	4.6+

(a) Minimum value: weathering to total depth of well.
(b) Minimum value: weathering at base of lowermost clay.
(c) No Arapahoe claystone encountered.

TABLE 4

RESULTS OF PACKER TESTS IN ARAPAHOE FORMATION SOLAR EVAPORATION PONDS AREA

Well Number	Interval (ft)	Lithology	Test 1 (cm/s)	Test 2 (cm/s)	Test 3 (cm/s)	Geometric Mean (cm/s)
14-86	32.46-43.64	Claystone	7.8×10^{7}	3.47×10^{-6}	8.8×10^{-7}	1.34×10^{6}
	43.26-54.44	Sandstone	2.11×10^{-6}	7.34×10^{6}	6.5×10^{-7}	2.16×10^{6}
	53.91-65.09	Claystone/Siltstone				
16-86	28.68-38.68	Claystone	3.89×10^{6}	7.10×10^{6}	Aborted	5.26×10^{6}
	34.43-44.42	Claystone/Siltstone/Sandstone				
	42.49-52.59	Claystone/Siltstone				
	52.43-62.43	Siltstone	4.0×10^{-7}	1.88×10^{-6}	3.0×10^{7}	6.1×10^{7}
23-86	37.25-48.43	WClaystone	2.0×10^{7}	Aborted	Aborted	2.0×10^{7}
	44.68-52.35	WClaystone	4.3×10^{-7}	1.41×10^{-6}	4.0×10^{8}	2.9×10^{7}
	52.35-63.55	Claystone/Siltstone				
	66.10-77.30	Siltstone/Claystone				
	67.80-79.00	Siltstone/Claystone				
	71.80-83.00	Siltstone/Claystone				
	78.00-79.00	Siltstone	3.08×10^{-6}	Aborted	Aborted	3.08×10^{6}
	82.72-93.92	Siltstone	2.9×10^{7}	Aborted	Aborted	2.9×10^{7}
	84.05-95.25	Siltstone	3.6×10^{-7}	Aborted	Aborted	3.6×10^{7}
	104.21-115.40	Sandstone/Siltstone				
		Geometric Mean for Weathered Claystone:				2.4×10^{-7}
		Geometric Mean for Siltstone:				6.9×10^{7}
25-86	35.88-47.06	WClaystone	7.8×10^{7}	2.14×10^{-6}	6.3×10^{-7}	1.02×10^{-6}
	48.05-59.23	Claystone	1.0×10^{-8}	2.0×10^{-8}	Aborted	1.0×10^{8}
	58.86-70.04	Claystone	2.0×10^{8}	5.9×10^{-7}	3.3×10^{-7}	1.6×10^{-7}
	69.36-80.54	Sandstone*	2.0×10^{-8}	2.65×10^{-6}	7.7×10^{-7}	3.4×10^{7}
	83.29-94.47	Test Interval in Excess of TD				
		Geometric Mean for Weathered Claystone·				1.02×10^{6}
		Geometric Mean for Claystone:				4.0×10^{8}
27-86	24.29-35.84	WClaystone	2.00×10^{6}	2.70×10^{-6}	Aborted	2.32×10^{-6}
	24.65-35.84	WClaystone	2.04×10^{6}	2.75×10^{-6}	Aborted	2.37×10^{-6}
	35.84-47.03	WClaystone	4.7×10^{7}	6.5×10^{-7}	4×10^{-8}	2.3×10^{-7}
	42.58-53.77	WClaystone	$1. \times 10^{8}$	1×10^{8}	-	$1. \times 10^{8}$
	70.96-82.15	Claystone	1.01×10^{6}	2.98×10^{-6}	3.36×10^{-6}	2.16×10^{-6}
	82.15-93.34	Claystone	3.4×10^{7}	3.84×10^{-6}	3.8×10^{7}	7.9×10^{7}
	96.43-107.62	Siltstone	3.1×10^{7}	2.1×10^{-7}	4×10^{-8}	1.4×10^{7}
	107.62-118.81	Claystone/Siltstone				
	118.81-130.0	Claystone	$1. \times 10^{8}$	1.1×10^{-7}	2×10^{8}	$3. \times 10^{-8}$
	130.00-141.19	Claystone/Sandstone				
	138.37-149.56	Claystone	1×10^{-8}	$6. \times 10^{-8}$	-	$2. \times 10^{-8}$
		Geometric Mean for Weathered Claystone:				3.4×10^{7}
		Geometric Mean for Claystone				1.8×10^{-7}

TABLE 4

RESULTS OF PACKER TESTS IN ARAPAHOE FORMATION SOLAR EVAPORATION PONDS AREA

(CONTINUED)

Well Number	Interval (ft)	Lithology	Test 1 (cm/s)	Test 2 (cm/s)	Test 3 (cm/s)	Geometric Mean (cm/s)
32 86	45 20-55.20	WClaystone	5.6×10^{7}	$1\ 59 \times 10^{6}$	$2\ 8 \times 10^{-7}$	$6\ 3 \times 10^{7}$
	55.20-65.20	WClaystone	$2\ 8 \times 10^{7}$	6×10^{8}	Aborted	$1\ 3 \times 10^{-7}$
	65.20-75 20	Claystone	$4\ 6 \times 10^{7}$	$6\ 4 \times 10^{7}$	$1\ 9 \times 10^{7}$	$3\ 8 \times 10^{-7}$
	75 20-85 20	Claystone	8×10^{-8}	$3\ 7 \times 10^{7}$	6×10^{-8}	$1\ 2 \times 10^{7}$
	85.20-95.20	Claystone/Sandstone				
	95.20-105.20	Claystone	3.7×10^{-7}	$4\ 1 \times 10^{7}$	$7\ 0 \times 10^{-8}$	2.1×10^{-7}
	95.20-105 92	Claystone	$3\ 5 \times 10^{7}$	$3\ 9 \times 10^{7}$	6×10^{-8}	2.0×10^{-7}
	105.20-115.20	Claystone	$6\ 0 \times 10^{-8}$	$4\ 6 \times 10^{-7}$	$1\ 3 \times 10^{-7}$	1.5×10^{7}
	116.08-126.08	Claystone/Sandstone				
		Geometric Mean for Weathered Claystone:				2.9×10^{7}
		Geometric Mean for Claystone:				$2\ 0 \times 10^{7}$
34-86	46.01-56.00	Sandstone	$1\ 73 \times 10^{-6}$	---	$6\ 30 \times 10^{-6}$	3.30×10^{-6}
	55.01-65.00	Claystone	$4\ 14 \times 10^{6}$	$5\ 73 \times 10^{6}$	$1\ 56 \times 10^{-6}$	3.33×10^{6}
	76.71-86.70	Claystone	$4\ 7 \times 10^{-7}$	---	---	4.7×10^{-7}
	85.10-95.09	Claystone	$5\ 6 \times 10^{-7}$	4.28×10^{-6}	---	$1\ 55 \times 10^{6}$
		Geometric Mean for Claystone.				1.34×10^{6}
39-87BR	50.10-59 75	Claystone	Aborted	$3. \times 10^{8}$	Aborted	$3. \times 10^{-8}$
	59 75-69.40	Claystone	-	$6. \times 10^{8}$	-	$6. \times 10^{8}$
	69.40-79.05	Claystone	-	4×10^{-8}	-	$4. \times 10^{-8}$
	79.05-88.70	Claystone/Siltstone/Sandstone				
	88.70-98 35	Siltstone/Sandstone				
	98.35-108.00	Claystone/Siltstone				
	108 00-117.65	Sandstone/Siltstone				
	115.65-125.00	Siltstone	Aborted	$3\ 9 \times 10^{-7}$	Aborted	$3\ 9 \times 10^{7}$
	122.68-132.33	Sandstone	2×10^{8}	$4. \times 10^{8}$	Aborted	$3. \times 10^{8}$
		Geometric Mean for Claystone·				$4. \times 10^{-8}$

TABLE 5

RESULTS OF HYDRAULIC CONDUCTIVITY TESTS
IN ARAPAHOE FORMATION, SOLAR EVAPORATION PONDS AREA

Well	Lithology	Drawdown Recovery Test (cm/s)	Slug Test (cm/s)	Packer Test (cm/s)
14-86	Sandstone	1.9×10^{-7}		2.2×10^{-6}
	Claystone			1.3×10^{-6}
16-86	Siltstone & Sandstone*	6×10^{-8}		
	Siltstone			6.1×10^{-7}
	Claystone			5.3×10^{-6}
23-86	Sandstone		1×10^{-8}	
	Siltstone			6.9×10^{-7}
	Weathered Claystone			2.4×10^{-7}
25-86	Claystone & Sandstone*	7×10^{-8}		
	Sandstone			3.4×10^{-7}
	Claystone			4.0×10^{-8}
	Weathered Claystone			1.0×10^{-6}
27-86	Sandstone	1.9×10^{-7}		
	Siltstone			1.4×10^{-7}
	Claystone			1.8×10^{-7}
	Weathered Claystone			3.4×10^{-7}
32-86	Sandstone & Claystone*	9×10^{-8}		
	Claystone			2.0×10^{-7}
	Weathered Claystone			2.9×10^{-7}
34-86	Sandstone	3.1×10^{-6}		3.3×10^{-6}
	Claystone			1.3×10^{-6}
39-87	Sandstone			3×10^{-8}
	Siltstone			3.9×10^{-7}
	Claystone			4×10^{-8}
	Geometric Mean (cm/s)			
	Sandstone:	4.8×10^{-7}	1×10^{-8}	5.2×10^{-7}
	Siltstone:			6.7×10^{-7}
	Claystone:			3.4×10^{-7}
	Weathered Claystone			3.9×10^{-7}

* Mixed lithology tests not used in calculating geometric means.

TABLE 6
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
02-60	03/16/88	1					17							
	05/23/88	2												
	09/08/88	3					11							
	12/01/88	4					4BJ						4BJ	
04-60	03/16/88	1					17	12						
	05/17/88	2												
	09/06/88	3					11							
	12/01/88	4					3BJ						2BJ	
13-86	03/14/88	1												
	08/16/88	2												
	08/31/88	3					8 J						2BJ	
	11/30/88	4					4BJ							
15-86	03/14/88	1												
	05/16/88	2												
	08/31/88	3					8 J							
	11/28/88	4					4BJ						2BJ	
17-86	03/14/88	1												
	05/16/88	2												
	08/30/88	3												
	11/28/88	4					5BJ						2BJ	
18-86	03/14/88	1	Dry											
	05/16/88	2	Dry											
	08/30/88	3	Dry											
	11/22/88	4	Dry											
20-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
21-87	03/07/88	1												
	05/02/88	2												
	08/10/88	3												
	11/08/88	4												

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloropropane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloroethene ug/l	Dibromochloromethane ug/l	1,1,2-Trichloroethane ug/l	Benzene ug/l	Cis-1,3-Dichloropropene ug/l
02-60	03/16/88	1												
	05/23/88	2												
	09/08/88	3												
	12/01/88	4												
04-60	03/16/88	1												
	05/17/88	2												
	09/06/88	3												
	12/01/88	4												
13-86	03/14/88	1								55				
	05/16/88	2												
	08/31/88	3												
	11/30/88	4												
15-86	03/14/88	1												
	05/16/88	2												
	08/31/88	3												
	11/28/88	4												
17-86	03/14/88	1												
	05/16/88	2												
	08/30/88	3												
	11/28/88	4								2 J				
18-86	03/14/88	1	Dry											
	05/16/88	2	Dry											
	08/30/88	3	Dry											
	11/22/88	4	Dry											
20-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
21-87	03/07/88	1												
	05/02/88	2												
	08/10/88	3												
	11/08/88	4												

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
02-60	03/16/88	1											
	05/23/88	2											
	09/08/88	3											
	12/01/88	4							4BJ				
04-60	03/16/88	1											
	05/17/88	2											
	09/06/88	3											
	12/01/88	4							3BJ				
13-86	03/14/88	1											
	05/16/88	2											
	08/31/88	3											
	11/30/88	4							3BJ				
15-86	03/14/88	1											
	05/16/88	2											
	08/31/88	3							4BJ				
	11/28/88	4											
17-86	03/14/88	1					3 J						
	05/16/88	2											
	08/30/88	3											
	11/28/88	4							4BJ				
18-86	03/14/88	1	Dry										
	05/16/88	2	Dry										
	08/30/88	3	Dry										
	11/22/88	4	Dry										
20-86	03/16/88	1	Dry										
	05/23/88	2	Dry										
	09/06/88	3	Dry										
	11/22/88	4	Dry										
21 87	03/07/88	1					6						
	05/02/88	2					49						
	08/10/88	3											
	11/08/88	4					4 J						

Note: J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
22-86	03/16/88	1	Dry											
	05/17/88	2											103	
	09/08/88	3					13						72	
	11/28/88	4	Dry											
24-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/08/88	3	Dry											
	11/22/88	4	Dry											
26-86	03/16/88	1	Dry											
	05/17/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
28-86	03/16/88	1												
	05/17/88	2												
	09/06/88	3												
	11/22/88	4	Dry											
29-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/08/88	3	Dry											
	11/22/88	4	Dry											
30-86	03/16/88	1					14							
	05/23/88	2												
	09/14/88	3					17							
	12/01/88	4					4BJ						3BJ	
35-86	03/02/88	1			492		6							
	05/02/88	2								7	47			
	08/10/88	3			403					9	43			
	11/04/88	4			730E		6B							
36-86	03/07/88	1	Dry											
	05/02/88	2	Dry											
	08/10/88	3	Dry											
	11/08/88	4	Dry											

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 5

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloro propane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloro ethene ug/l	Dibromo chloro methane ug/l	1,1,2 Trichloro ethane ug/l	Benzene ug/l	Cis-1,3-Dichloro propene ug/l
22 86	03/16/88	1	Dry											
	05/17/88	2			233					173				
	09/08/88	3		146						284				
	11/28/88	4	Dry											
24 86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/08/88	3	Dry											
	11/22/88	4	Dry											
26 86	03/16/88	1	Dry											
	05/17/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
28-86	03/16/88	1												
	05/17/88	2												
	09/06/88	3												
	11/22/88	4	Dry											
29-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/08/88	3	Dry											
	11/22/88	4	Dry											
30-86	03/16/88	1												
	05/23/88	2												
	09/14/88	3												
	12/01/88	4												
35-86	03/02/88	1												
	05/02/88	2								19				
	08/10/88	3		11										
	11/04/88	4												
36-86	03/07/88	1	Dry											
	05/02/88	2	Dry											
	08/10/88	3	Dry											
	11/08/88	4	Dry											

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 6

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
22-86	03/16/88	1	Dry										
	05/17/88	2											
	09/08/88	3											
	11/28/88	4	Dry										
24-86	03/16/88	1	Dry										
	05/23/88	2	Dry										
	09/08/88	3	Dry										
	11/22/88	4	Dry										
26-86	03/16/88	1	Dry										
	05/17/88	2	Dry										
	09/06/88	3	Dry										
	11/22/88	4	Dry										
28-86	03/16/88	1											
	05/17/88	2											
	09/06/88	3											
	11/22/88	4	Dry										
29-86	03/16/88	1	Dry										
	05/23/88	2	Dry										
	09/08/88	3	Dry										
	11/22/88	4	Dry										
30-86	03/16/88	1											
	05/23/88	2											
	09/14/88	3											
	12/01/88	4					2 J		3 J				
35-86	03/02/88	1											
	05/02/88	2											
	08/10/88	3											
	11/04/88	4											
36-86	03/07/88	1	Dry										
	05/02/88	2	Dry										
	08/10/88	3	Dry										
	11/08/88	4	Dry										

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 7

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
37 87	03/16/88	1												
	05/17/88	2												
	09/06/88	3	Dry											
	11/22/88	4	Dry											
38 87	03/16/88	1	Dry											
	05/17/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
56 87	03/16/88	1									6		6	
	05/23/88	2								11	15			
	09/14/88	3					20			15	17			
	11/28/88	4	Dry											

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 8

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloro propane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloro ethene ug/l	Dibromo chloro methane ug/l	1,1,2-Trichloro ethane ug/l	Benzene ug/l	Cis 1,3-Dichloro propene ug/l
37-87	03/16/88	1												
	05/17/88	2												
	09/06/88	3	Dry											
	11/22/88	4	Dry											
38 87	03/16/88	1	Dry											
	05/17/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
56 87	03/16/88	1								57				
	05/23/88	2								124				
	09/14/88	3		11						114				
	11/28/88	4	Dry											

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 6 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 9

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
37-87	03/16/88	1					7						
	05/17/88	2											
	09/06/88	3	Dry										
	11/22/88	4	Dry										
38-87	03/16/88	1	Dry										
	05/17/88	2	Dry										
	09/06/88	3	Dry										
	11/22/88	4	Dry										
56-87	03/16/88	1					7						
	05/23/88	2					6						
	09/14/88	3											
	11/28/88	4	Dry										

Note J = Present below detection limit
B = Present in laboratory blank
E = Estimated value

TABLE 7
SOLAR EVAPORATION PONDS ALLUVIAL GROUND WATER
INORGANIC CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
24-86	03/16/88	1	Dry				
	05/23/88	2	Dry				
	09/08/88	3	Dry				
	11/22/88	4	Dry				
56-87	03/16/88	1	Insufficient Sample for Inorganic Analysis				
	05/23/88	2	Insufficient Sample for Inorganic Analysis				
		3	Insufficient Sample for Inorganic Analysis				
	11/28/88	4	Dry				
22-86	03/16/88	1	477	44	2 7	42	170
	05/18/88	2	481	58	3 3	62	262
	09/09/88	3	453	39	5 1	156	334
	11/28/88	4	Dry				
26-86	03/16/88	1	Dry				
	05/17/88	2	Dry				
	09/06/88	3	Dry				
	11/22/88	4	Dry				
38-87	03/16/88	1	Dry				
	05/17/88	2	Dry				
	09/06/88	3	Dry				
	11/22/88	4	Dry				
33-86	03/07/88	1	Dry				
	05/02/88	2	Dry				
	08/12/88	3	Dry				
	11/08/88	4	Dry				
21-87	03/07/88	1	Insufficient Sample for Inorganic Analysis				
	05/02/88	2	Insufficient Sample for Inorganic Analysis				
	08/10/88	3	Insufficient Sample for Inorganic Analysis				
	11/08/88	4	Insufficient Sample for Inorganic Analysis				

TABLE 7 CONTINUED
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
INORGANIC CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
35-86	03/03/88	1	1011	97		134	349
	05/02/88	2	973	104		125	533
	08/12/88	3	971	96		143	598
	11/04/88	4	1003	97		170	545
36-86	03/07/88	1	Dry				
	05/02/88	2	Dry				
	08/11/88	3	Dry				
	11/08/88	4	Dry				
37-87	03/16/88	1	Insufficient Sample for Inorganic Analysis				
	05/17/88	2	Insufficient Sample for Inorganic Analysis				
	09/06/88	3	Dry				
	11/22/88	4	Dry				
04-60	03/16/88	1	615		37 1	42	149
	05/18/88	2	577		27 0	64	238
	09/07/88	3	772	23	58	68	294
	12/02/88	4	830	27	73 5	76	259
29-86	03/16/88	1	Dry				
	05/23/88	2	Dry				
	09/08/88	3	Dry				
	11/22/88	4	Dry				
28-86	03/16/88	1	12052	336	1670	335	314
	05/17/88	2	Insufficient Sample for Inorganic Analysis				
	09/07/88	3	8129	241	1097	288	443
	11/22/88	4	Dry				
30-86	03/16/88	1	10571	210	1410	205	180
	05/23/88	2	1600	216	12100	337	309
	09/15/88	3	12125	277	1611	91	338
	12/02/88	4	9750	236	1431	304	271
02-60	03/16/88	1	2453	809	15 1	570	500
	05/23/88	2	17400	651	2050	821	92
	09/02/88	3	14400	823	1696	779	84
	12/28/88	4	12580	933	185	834	

TABLE 7 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND WATER
INORGANIC CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
18 86	03/14/88	1	Dry				
	05/16/88	2	Dry				
	08/30/88	3	Dry				
	11/22/88	4	Dry				
17-86	03/14/88	1	4392	130	540	240	146
	05/17/88	2	5214	121	577	406	255
	08/31/88	3	4658	114	635	281	301
	11/29/88	4	4204	130	763	942	240
15 86	03/14/88	1	1022	76	44	125	241
	05/17/88	2	1128	83	42	180	382
	09/01/88	3	1107	77	58	152	399
	11/29/88	4	936	77	56	159	354
13-86	03/15/88	1	Insufficient Sample for Inorganic Analysis				
	05/16/88	2	Insufficient Sample for Inorganic Analysis				
	08/31/88	3	Insufficient Sample for Inorganic Analysis				
	11/30/88	4	Insufficient Sample for Inorganic Analysis				
20-86	03/16/88	1	Dry				
	05/23/88	2	Dry				
	09/24/88	3	Dry				
	12/05/88	4	Dry				

TABLE 8

SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 071	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
24-86	03/16/88	1	Dry														
	05/23/88	2	Dry														
	09/08/88	3	Dry														
	11/22/88	4	Dry														
56-87	03/16/88	1	Insufficient sample for metals analysis														
	05/23/88	2	Insufficient sample for metals analysis														
	09/08/88	3	Insufficient sample for metals analysis														
	11/28/88	4	Dry														
22-86	03/16/88	1				0 092			63							1 3	9
	05/17/88	2				0 104			77					0 261			10
	09/09/88	3				0 127			64					0 918			10
	11/28/88	4	Dry														
26 86	03/16/88	1	Dry														
	05/17/88	2	Dry														
	09/06/88	3	Dry														
	11/22/88	4	Dry														
38-87	03/16/88	1	Dry														
	05/17/88	2	Dry														
	09/06/88	3	Dry														
	11/22/88	4	Dry														
33-86	03/07/88	1	Dry														
	05/02/88	2	Dry														
	08/12/88	3	Dry														
	11/08/88	4	Dry														

Notes NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
24-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/08/88	3	Dry											
	11/22/88	4	Dry											
56-87	03/16/88	1	Insufficient sample for metals analysis											
	05/23/88	2	Insufficient sample for metals analysis											
	09/08/88	3	Insufficient sample for metals analysis											
	11/28/88	4	Dry											
22-86	03/16/88	1	0 193				2 2			87	0 37			
	05/17/88	2	0 231				6 5			76	0 43			
	09/09/88	3	0 285				6 7			85	0 49			
	11/28/88	4	Dry											
26-86	03/16/88	1	Dry											
	05/17/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
38-87	03/16/88	1	Dry											
	05/17/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
33-86	03/07/88	1	Dry											
	05/02/88	2	Dry											
	08/12/88	3	Dry											
	11/08/88	4	Dry											

Notes NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l*	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 071	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
21-87	03/07/88	1	Insufficient sample for metals analysis														
	05/02/88	2	Insufficient sample for metals analysis														
	08/10/88	3	Insufficient sample for metals analysis														
	11/08/88	4	Insufficient sample for metals analysis														
35-86	03/02/88	1				0 082			143					0 689			29
	05/02/88	2							140					0 514			33
	08/10/88	3				0 082			145					0 315			32
	11/04/88	4				0 085			146					0 857			31
36-86	03/07/88	1	Dry														
	05/02/88	2	Dry														
	08/11/88	3	Dry														
	11/08/88	4	Dry														
37-87	03/16/88	1	Insufficient sample for metals analysis														
	05/17/88	2	Insufficient sample for metals analysis														
	09/06/88	3	Dry														
	11/22/88	4	Dry														
04-60	03/16/88	1				0 080			67					0 233			27
	05/17/88	2				0 073			63								25
	09/07/88	3				0 091			75							NR	30
	09/07/88	3				0 092			75							NR	30
	12/02/88	4				0 088			92							NR	35
29-86	03/16/88	1	Dry														
	05/23/88	2	Dry														
	09/08/88	3	Dry														
	11/22/88	4	Dry														

Notes NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
21-87	03/07/88	1	Insufficient sample for metals analysis											
	05/02/88	2	Insufficient sample for metals analysis											
	08/10/88	3	Insufficient sample for metals analysis											
	11/08/88	4	Insufficient sample for metals analysis											
35-86	03/02/88	1	4 011							183	0 83			
	05/02/88	2	3 997							178	0 80			
	08/10/88	3	4 196							196	0 80			
	11/04/88	4	4 235							193	0 89			
36-86	03/07/88	1	Dry											
	05/02/88	2	Dry											
	08/11/88	3	Dry											
	11/08/88	4	Dry											
37-87	03/16/88	1	Insufficient sample for metals analysis											
	05/17/88	2	Insufficient sample for metals analysis											
	09/06/88	3	Dry											
	11/22/88	4	Dry											
04-60	03/16/88	1					77	0 005	93		0 79			0 358
	05/17/88	2					18 2		70		0 67			0 286
	09/07/88	3					25			105	0 93			0 369
	09/07/88	3					25			105	0 93			0 382
	12/02/88	4					5 3			116	1 06			0 478
29-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/08/88	3	Dry											
	11/22/88	4	Dry											

Notes NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 5

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 071	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
28-86	03/16/88	1				0 166			479			0 050				1 4	151
	05/17/88	2	Insufficient sample for metals analysis														
	09/07/88	3		0 11		0 184			297			0 022				NR	89
	11/22/88	4	Dry														
30-86	03/16/88	1				0 236			845							0 82	229
	05/23/88	2		0 177		0 192			937							NR	144
	09/15/88	3		0 438		0 265			1366							NR	367
	12/02/88	4		0 326		0 217			1126							NR	296
02-60	01/05/88	1			0 010	0 194			1269							0 5	312
	03/16/88	1				0 173			1186							0 37	338
	05/23/88	2		0 463		0 236			1591							NR	157
	09/09/88	3		0 628		0 217			1687		0 030			0 269		NR	553
	12/02/88	4		0 579		0 186			1697					0 193		NR	548
18-86	03/14/88	1	Dry														
	05/16/88	2	Dry														
	08/30/88	3	Dry														
	11/22/88	4	Dry														
17-86	03/14/88	1				0 388			826		0 028			0 180		0 27	253
	05/16/88	2		0 072		0 239			523							NR	126
	08/31/88	3		0 194		0 270			544							NR	172
	11/29/88	4	0 324	0 197		0 290			596	NR				0 282	NR	NR	171
15-86	03/14/88	1				0 436			301					0 368			72
	05/16/88	2				0 230			170							NR	43
	09/01/88	3				0 261			178		0 040			0 189		NR	42
	11/29/88	4				0 225			176	NR					NR	NR	40

Notes· NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 6

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
28-86	03/16/88	1	1 242		0 047			0 005		1800	4 43			
	05/17/88	2	Insufficient sample for metals analysis											
	09/07/88	3	0 690		0 068		435			1411	2 91			
	11/22/88	4	Dry											
30-86	03/16/88	1					146	0 005		1263	7 75			
	05/23/88	2					159			1080	8 12			
	09/15/88	3								1268	14 62			
	12/02/88	4					42	NR		1166	11 28			
02-60	03/16/88	1	0 145					0 39		880	14 03			3 767
	05/23/88	2	0 126				64	0 06		1043	17 66			3 906
	09/09/88	3	0 239				75	0 21		1173	22 56			4 837
	12/02/88	4	0 168				48	NR		1155	21 28			3 891
18-86	03/14/88	1	Dry											
	05/16/88	2	Dry											
	08/30/88	3	Dry											
	11/22/88	4	Dry											
17-86	03/14/88	1					4 3	0 29		369	7 65			
	05/16/88	2					4 2	0 184		250	4 57			
	08/31/88	3					5 2	0 32		260	4 71			
	11/29/88	4					3 6	NR		289	5 82			
15-86	03/14/88	1					2 1	0 039		187	2 34			
	05/16/88	2					1 6	0 023		104	1 22			
	09/01/88	3					2 0	0 027		103	1 25			
	11/29/88	4					1 4	NR		105	1 40			

Notes NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 7

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 071	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
13 86	03/14/88	1	Insufficient sample for metals analysis														
	05/16/88	2	Insufficient sample for metals analysis														
	08/31/88	3	Insufficient sample for metals analysis														
	11/30/88	4	Insufficient sample for metals analysis														
20-86	03/16/88	1	Dry														
	05/23/88	2	Dry														
	09/06/88	3	Dry														
	11/22/88	4	Dry														

Notes NR = Analyte not reported

TABLE 8 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 8

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0.066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
13-86	03/14/88	1	Insufficient sample for metals analysis											
	05/16/88	2	Insufficient sample for metals analysis											
	08/31/88	3	Insufficient sample for metals analysis											
	11/30/88	4	Insufficient sample for metals analysis											
20-86	03/16/88	1	Dry											
	05/23/88	2	Dry											
	09/06/88	3	Dry											
	11/22/88	4	Dry											

Notes. NR = Analyte not reported

TABLE 9
SOLAR EVAPORATION PONDS ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Strontium 89,90 pCi/l	Plutonium 239,240 pCi/l	Americium 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (34)	<MDA (75)	<MDA (1 3)	<1	<MDA (0 3)	<MDA (1 6)	<593
Proposed Concentration Limit			15	50	40	8	40	4	20,000
24-86	03/16/88	1	Dry						
	05/23/88	2	Dry						
	09/08/88	3	Dry						
	11/22/88	4	Dry						
56-87	03/16/88	1	Insufficient sample for radionuclide analysis						
	05/23/88	2	Insufficient sample for radionuclide analysis						
		3	Insufficient sample for radionuclide analysis						
	11/28/88	4	Dry						
22-86	03/16/88	1			9 5				
	05/17/88	2			8 1				
	09/09/88	3	Not reported						
	11/28/88	4	Dry						
26-86	03/16/88	1	Dry						
	05/17/88	2	Dry						
	09/06/88	3	Dry						
	11/22/88	4	Dry						
38-87	03/16/88	1	Dry						
	05/17/88	2	Dry						
	09/06/88	3	Dry						
	11/22/88	4	Dry						
33-86	03/07/88	1	Dry						
	05/02/88	2	Dry						
	08/12/88	3	Dry						
	11/08/88	4	Dry						
21-87	03/07/88	1	Insufficient sample for radionuclide analysis						
	05/02/88	2	Insufficient sample for radionuclide analysis						
	08/10/88	3	Insufficient sample for radionuclide analysis						
	11/08/88	4	Insufficient sample for radionuclide analysis						

TABLE 9 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Strontium 89,90 pCi/l	Plutonium 239,240 pCi/l	Americium 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (34)	<MDA (75)	<MDA (1 3)	<1	<MDA (0 3)	<MDA (1 6)	<593
Proposed Concentration Limit			15	50	40	8	40	4	20,000
35 86	03/02/88	1							
	05/02/88	2							
	08/10/88	3							
	11/04/88	4							
36-86	03/07/88	1	Dry						
	05/02/88	2	Dry						
	08/11/88	3	Dry						
	11/08/88	4	Dry						
37-87	03/16/88	1	Insufficient sample for analysis						
	05/17/88	2	Insufficient sample for analysis						
	09/06/88	3	Dryd						
	11/22/88	4	Dry						
04-60	03/16/88	1			28 4				1100 +/- 100
	05/17/88	2			27 1				
	09/07/88	3	Analysis not complete except for Tritium						1300 +/- 100
	12/06/88	4	Analysis not complete except for Tritium						1300 +/- 100
29-86	03/16/88	1	Dry						
	05/23/88	2	Dry						
	09/08/88	3	Dry						
	11/22/88	4	Dry						
28-86	03/16/88	1			235				9000 +/- 300
	05/17/88	2	Insufficient sample for analysis						
	09/07/88	3	Not reported						5900 +/- 200
	11/22/88	4	Dry						

TABLE 9 (CONTINUED)
SOLAR EVAPORATION PONDS ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Solar Evaporation Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Strontium 89,90 pCi/l	Plutonium 239,240 pCi/l	Americium 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (34)	<MDA (75)	<MDA (1 3)	<1	(MDA (0 3)	<MDA (1 6)	<593
Proposed Concentration Limit			15	50	40	8	40	4	20,000
30-86	03/16/88	1	320 +/- 60	250 +/- 40	Not reported	Not reported		Not reported	6300 +/- 200
	05/23/88	2	390 +/- 60	290 +/- 40	357 8	Not reported			6100 +/- 200
	09/15/88	3	Analyses not complete except for Tritium						8100 +/- 300
	12/06/88	4	Analyses not complete except for Tritium						5900 +/- 200
20-60	03/16/88	1			9 1	Not reported			710 +/- 110
	05/23/88	2		110 +/- 30	22 8	Not reported			830 +/- 100
	09/09/88	3							700 +/- 110
	12/06/88	4							
18-86	03/14/88	1	Dry						
	05/16/88	2	Dry						
	08/30/88	3	Dry						
	11/22/88	4	Dry						
17-86	03/14/88	1			44 2	Not reported			700 +/ 100
	05/16/88	2			53 9	Not reported			
	08/31/88	3	Analysis not complete except for Tritium						840 +/- 110
	11/29/88	4	Analysis not complete except for Tritium						960 +/ 120
15-86	03/14/88	1			29 7	Not reported			
	05/16/88	2			28 5				
	09/01/88	3	Analysis not complete except for Tritium						
	11/29/88	4	Analysis not complete except for Tritium						
13-86	03/14/88	1	Insufficient sample for radionuclide analysis						
	05/16/88	2	Insufficient sample for radionuclide analysis						
	08/31/88	3	Insufficient sample for radionuclide analysis						
	11/30/88	4	Insufficient sample for radionuclide analysis						
20-86	03/16/88	1	Dry						
	05/23/88	2	Dry						
	09/06/88	3	Dry						
	11/22/88	4	Dry						

TABLE 10
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2, Dichloro-ethane ug/l
14-86	03/14/88	1						5J						
	05/16/88	2												
	08/30/88	3					8J							
	11/28/88	4					4J						2J	
16-86	03/14/88	1												
	05/16/88	2												
	08/30/88	3												
	11/28/88	4					5J						2J	
22-87	03/07/88	1												
	05/02/88	2												
	08/10/88	3												
	11/09/88	4												
23-86	03/21/88	1					16							
	05/23/88	2												
	09/08/88	3					10							
	11/30/88	4					4BJ						2BJ	
25-86	03/21/88	1					17							
	05/18/88	2												
	09/12/88	3					16							
	12/05/88	4											3BJ	
27-86	03/21/88	1					17							
	05/18/88	2												
	09/12/88	3					17							
	12/05/88	4											3BJ	
30-86	03/16/88	1					14							
	05/23/88	2												
	09/14/88	3					17							
	12/01/88	4					4BJ						3BJ	
31-86		1												
	03/16/88	2	Dry											
	09/13/88	3	Dry											
	11/22/88	4	Dry											

Note J = Present below detection limit
B = Present in laboratory blank

TABLE 10 (CONTINUED)
SOLAR EVAPORATION PONDS BEDROCK GROUND WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloro propane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloro ethene ug/l	Dibromo chloro methane ug/l	1,1,2-Trichloro ethane ug/l	Benzene ug/l	Cis-1,3-Dichloro propene ug/l
14-86	03/14/88	1												
	05/16/88	2												
	08/30/88	3												
	11/28/88	4												
16-86	03/14/88	1												
	05/16/88	2												
	08/30/88	3												
	11/28/88	4												
22-87	03/07/88	1	9J											
	05/02/88	2												
	08/10/88	3												
	11/09/88	4												
23-86	03/21/88	1												
	05/23/88	2												
	09/08/88	3												
	11/30/88	4												
25 86	03/21/88	1												
	05/18/88	2												
	09/12/88	3												
	12/05/88	4												
27-86	03/21/88	1												
	05/18/88	2												
	09/12/88	3												
	12/05/88	4												
30 86	03/16/88	1												
	05/23/88	2												
	09/14/88	3												
	12/01/88	4												
31-86		1												
	03/16/88	2	Dry											
	09/13/88	3	Dry											
	11/22/88	4	Dry											

Note: J = Present below detection limit
B = Present in laboratory blank

TABLE 10 (CONTINUED)
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
14-86	03/14/88	1											
	05/16/88	2											
	08/30/88	3											
	11/28/88	4							4J				
16-86	03/14/88	1											
	05/16/88	2											
	08/30/88	3											
	11/28/88	4							4J				
22-87	03/07/88	1											
	05/02/88	2					7						
	08/10/88	3											
	11/09/88	4											
23-86	03/21/88	1											
	05/23/88	2											
	09/08/88	3											
	11/30/88	4							4BJ				
25-86	03/21/88	1											
	05/18/88	2											
	09/12/88	3											
	12/05/88	4							5BJ				
27-86	03/21/88	1											
	05/18/88	2											
	09/12/88	3											
	12/05/88	4							5BJ				
30-86	03/16/88	1					4J						
	05/23/88	2											
	09/14/88	3											
	12/01/88	4					2J		3J				
31-86		1											
	03/16/88	2	Dry										
	09/13/88	3	Dry										
	11/22/88	4	Dry										

Note. J = Present below detection limit
B = Present in laboratory blank

10 (CONTINUED)
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans 1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
32-86	03/21/88	1					17							
	05/18/88	2												
	09/12/88	3					18							
	12/01/88	4					3BJ						2BJ	
34-86	03/02/88	1					6B							
	05/02/88	2												
	08/10/88	3												
	11/04/88	4												
39-87	03/16/88	1					13							
	05/23/88	2												
	09/08/88	3					11							
	11/30/88	4					3BJ						2BJ	

Note J = Present below detection limit
B = Present in laboratory blank

TABLE 10 (CONTINUED)
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 5

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloro propane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloro ethene ug/l	Dibromo chloro methane ug/l	1,1,2-Trichloro ethane ug/l	Benzene ug/l	Cis-1,3-Dichloro propene ug/l
32-86	03/21/88	1												
	05/18/88	2												
	09/12/88	3												
	12/01/88	4												
34-86	05/03/88	1												
	05/02/88	2												
	08/10/88	3												
	11/04/88	4												
39-87	03/16/88	1												
	05/23/88	2												
	09/08/88	3												
	11/30/88	4	Dry											

Note J = Present below detection limit
B = Present in laboratory blank

10 (CONTINUED)
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 6

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
32-86	03/21/88	1											
	05/18/88	2											
	09/12/88	3											
	12/01/88	4							4BJ				
34-86	03/02/88	1											
	05/02/88	2					40						
	08/10/88	3											
	11/04/88	4											
39-87	03/16/88	1											
	05/23/88	2					3						
	09/08/88	3											
	11/30/88	4							3BJ				

Note J = Present below detection limit
B = Present in laboratory blank

TABLE 11
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
INORGANIC CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			467	24	0 07	92	347
Proposed Concentration Limit			400	250	10	250	No standard
23 86	03/21/88	1	1040	172		290	
	05/23/88	2	991	156		671	
	09/08/22	3	Insufficient Sample for Inorganic Analysis				
	11/30/88	4	Insufficient Sample for Inorganic Analysis				
25-86	03/21/88	1	2293	43 2	0 12	1050	
	05/19/88	2	2293	43 8		1355	373
	09/13/88	3		26 7			
	12/06/88	4	2126	44 8	0 11	1315	377
22-87	03/08/88	1				121	
	05/02/88	2	480			230	
	08/12/88	3	586			337	
	11/09/88	4	638		0 11	387	
34-86	03/03/88	1	1700	60		763	
	05/02/88	2	1760			725	348
	08/12/88	3	1700	48		1076	
	11/04/88	4	1750	56		1084	
27-86	03/21/88	1	818	163	0 43	220	
	05/19/88	2	827	156	0 61	272	
	09/13/88	3	791	196	0 62	255	
	12/06/88	4	821	151	0 30	271	

TABLE 11 (CONTINUED)
SOLAR EVAPORATION PONDS BEDROCK GROUND-WATER
INORGANIC CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			467	24	0 07	92	347
Proposed Concentration Limit			400	250	10	250	No standard
39-87	03/16/88	1			0 10	134	
	05/23/88	2	918	72 4	0 15	521	
	09/08/88	3	Insufficient Sample for Inorganic Analysis				
	11/30/88	4	Insufficient Sample for Inorganic Analysis				
31-86		1	Dry				
	03/16/88	2	Dry				
	09/13/88	3	Dry				
	11/22/88	4	Dry				
32-86	03/21/88	1	501	121			
	05/19/88	2	514	112	0 21		
	09/13/88	3	504	126	0 17		
	12/02/88	4	499	117	1 4		
16-86	03/14/88	1	1462	208		430	
	05/17/88	2	1461	193		533	
	08/31/88	3	1478	184		566	384
	11/29/88	4	1378	81	0 13	584	
14-86	03/14/88	1	1367	80		480	
	05/16/88	2	1366	83		749	
	08/31/88	3	1374	79	0 08	646	362
	11/29/88	4	1263	84		697	

TABLE 12

SOLAR EVAPORATION PONDS BEDROCK GROUND-WTAER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 038	0 06U	0 01U	0 106	0 005U	0 005U	110	0 02U	0 033	0 022U	0 048	0 161	0 019	0 1U	25
Proposed Background Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 048	0 3	0 05	0 1U	NS
23-86	03/21/88	1															26
	05/23/88	2	0 077														
	09/08/88	3	Insufficient sample for metals analysis														
	11/30/88	4	Insufficient sample for metals analysis														
25-86	03/21/88	1	0 044						206							0 18	85
	05/18/88	2	0 624						195							NR	96
	09/13/88	3		0 118					240							NR	94
	09/13/88	3		0 129					210							NR	95
	12/06/88	4	0 086	0 108	NR				249	NR					NR	NR	92
22-87	03/07/88	1	0 040														
	05/02/88	2														NR	
	08/10/88	3														NR	
	11/09/88	4	0 047							NR						NR	
34-86	03/02/88	1	0 172			0 121											
	05/02/88	2							207					1 549		NR	92
	08/10/88	3		0 105					222					1 595		NR	70
	11/04/88	4		0 072					233	NR				2 181		NR	68
27-86	03/21/88	1															
	05/18/88	2											0 112			NR	
	09/13/88	3											0 090			NR	
	12/06/88	4	0 068													NR	
39-87	03/16/88	1															
	05/23/88	2	0 042													NR	
	09/08/88	3	Insufficient sample for metals analysis														
	11/30/88	4	Insufficient sample for metals analysis														

NOTES NR = analyte not reported

TABLE 12 (CONTINUED)

SOLAR EVAPORATION PONDS BEDROCK GROUND-WTAER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 228	0 0002U	0 022U	0 054	5 2	0 005U	0 008	36	0 87	0 01U	0 024U	0 098
Proposed Concentration Limit			0 228	0 002	0 1	0 2	NS	0 01	0 005	NS	NS	0 01U	0 024U	0 098
23-86	03/21/88	1			0 030		11			180	1 28	0 18		
	05/23/88	2					13 2			158	1 07			
	09/08/88	3	Insufficient sample for metals analysis											
	11/30/88	4	Insufficient sample for metals analysis											
25-86	03/21/88	1					15			259	3 04			
	05/18/88	2					12 4			227	2 51			
	09/13/88	3					15			295				
	09/13/88	3					15			295	3 57			
	12/06/88	4					9 9	NR		295	3 38			0 105
22-87	03/07/88	1			0 084		14			88				
	05/02/88	2			0 076		13 3			100				
	08/10/88	3			0 065		15			126				
	11/09/88	4		NR	0 058		NR	NR		135		NR		
34-86	03/02/88	1			0 050					76				
	05/02/88	2	92				8 9			232	2 84			
	08/10/88	3	70				8 7			223	2 66			
	11/04/88	4	68				NR	NR		224	3 11	NR		
27-86	03/21/88	1								201				
	05/18/88	2								209				
	09/13/88	3					6 1			210				
	12/06/88	4			0 028	0 056				216				
39-87	03/16/88	1								196				
	05/23/88	2			0 058		11 4			196				
	09/08/88	3	Insufficient sample for metals analysis											
	11/30/88	4	Insufficient sample for metals analysis											

NOTES NR = analyte not reported

TABLE 12 (CONTINUED)

SOLAR EVAPORATION PONDS BEDROCK GROUND-WTAER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 038	0 06U	0 01U	0 106	0 005U	0 005U	110	0 02U	0 033	0 022U	0 048	0 161	0 019	0 1U	25
Proposed Background Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 048	0 3	0 05	0 1U	NS
31 86	03/16/88	1	Dry														
	05/18/88	2	Dry														
	09/13/88	3	Dry														
	11/22/88	4	Dry														
32-86	03/21/88	1	0 056			0 115											
	05/18/88	2														NR	
	09/13/88	3				0 115										NR	
	12/02/88	4	0 058							NR					NR	NR	
16-86	03/14/88	1	0.121						421		0 045		0 051	0 209			130
	05/16/88	2							145							NR	49
	08/31/88	3		0 065					145							NR	44
	08/31/88	3		0 075					146							NR	46
	11/29/88	4	0 057		NR				150	NR					NR	NR	44
14-86	03/14/88	1	0 060						154								47
	05/16/88	2							134							NR	43
	08/31/88	3	0 045						136							NR	40
	11/29/88	4			NR				143	NR					NR	NR	41
	11/29/88	4			NR				140	NR					NR	NR	42

NOTES NR = analyte not reported

TABLE 12 (CONTINUED)

SOLAR EVAPORATION PONDS BEDROCK GROUND-WTAER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 228	0 0002U	0 022U	0 054	5 2	0 005U	0 008	36	0 87	0 01U	0 024U	0 098
Proposed Concentration Limit			0 228	0 002	0 1	0 2	NS	0 01	0 005	NS	NS	0 01U	0 024U	0 098
31-86	03/16/88	1	Dry											
	05/18/88	2	Dry											
	09/13/88	3	Dry											
	11/22/88	4	Dry											
32-86	03/21/88	1					5 4			121				0 273
	05/18/88	2					5 7			117				
	09/13/88	3			0 023		5 6			127				
	12/02/88	4						NR		134		NR		0 099
16-86	03/14/88	1					9 9			706	6 167			0 114
	05/16/88	2					6 9			253	1 964			
	08/31/88	3					7 5		0 012	262	1 880			
	08/31/88	3					7 5			263	1 901			
	11/29/88	4					5 4	NR		269	2 206	NR		
14-86	03/14/88	1					5 3			266	2 422			
	05/16/88	2					6 4			223	1 925			
	08/31/88	3					6 8		0 111	231	1 861			
	11/29/88	4					5 4	NR		240	2 226	NR		
	11/29/88	4					5 6	NR		245	2 220	NR		

NOTES NR = analyte not reported

TABLE 13
SOLAR EVAPORATION PONDS BEDROCK GROUND WATER
DISSOLVED RADIONUCLIDE CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Strontium 89,90 pCi/l	Plutonium 239,240 pCi/l	Americium 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (40)	<MDA (76)	2 42	<1	<MDA (64)	<MDA (4 6)	<593
Proposed Concentration Limit			15	50	40	8	40	4	20,000
23-86	03/21/88	1			4 0	Not reported			
	05/23/88	2			4 8	Not reported			
	09/08/88	3	Insufficient water for radionuclide analysis						
	11/30/88	4	Insufficient water for radionuclide analysis						
25-86	03/21/88	1			5 7	Not reported			
	05/19/88	2	Data not yet received		6 1				
	09/13/88	3	Data not yet received						
	12/06/88	4							
22-87	03/07/88	1			4 6				
	05/02/88	2			2 9	Not reported			
	08/10/88	3	Data not yet received						
	11/09/88	4	Data not yet received						
34-86	03/03/88	1							
	05/02/88	2							
	08/10/88	3	Data not yet received						
	11/04/88	4	Data not yet received						
27-86	03/21/88	1	Not reported						
	05/08/88	2							
	09/12/88	3	Data not yet received						
	12/06/88	4	Data not yet received						
39-87	03/16/88	1							
	05/23/88	2			5 0	Not reported			
	09/08/88	3	Insufficient water for radionuclide analysis						
	11/30/88	4	Insufficient water for radionuclide analysis						

SOLAR EVAPORA PONDS BEDROCK GROUND WATER
DISSOLVED RADIONUCLIDE NTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST FOURTH QUARTERS 1988
PAGE 2

Solar Evaporation Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Strontium 89,90 pCi/l	Plutonium 239,240 pCi/l	Americium 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (40)	<MDA (76)	2 42	<1	<MDA (64)	<MDA (4 6)	<593
Proposed Concentration Limit			15	50	40	8	40	4	20,000
31-86	03/16/88	1	Dry						
	05/18/88	2	Dry						
	09/13/88	3	Dry						
	11/22/88	4	Dry						
32-86	03/21/88	1				Not reported			
	05/19/88	2							
	09/13/88	3							
	12/06/88	4							
16-86	03/14/88	1							
	05/17/88	2							
	08/31/88	3							
	11/29/88	4							
14-86	03/14/88	1							
	05/17/88	2							
	08/31/88	3							
	11/29/88	4							

TABLE 14

SOLAR EVAPORATION PONDS AREA PROPOSED MONITORING WELLS

Well Number	Zone of Completion	Estimated Screen Depth (ft)	Estimated Total Depth of Well(ft)	Purpose
PROPOSED UPGRADIENT WELLS				
SEP-1	Alluvium	3-8	8	Monitor ground-water quality and water levels in South Walnut Creek alluvium
SEP-2	Claystone	9-19	19	Monitor ground-water quality and water levels in weathered claystone
SEP-15	Alluvium	3-20	20	Monitor ground-water quality and water levels in North Walnut Creek alluvium
SEP-20	Alluvium	3-8	8	Monitor ground-water quality and water levels at alluvial water table
SEP-21	Claystone	9-19	19	Monitor ground-water quality and water levels in weathered claystone.
PROPOSED WELLS SOUTH AND EAST OF SOLAR EVAPORATION PONDS				
SEP-3	Claystone	14 5-21 5	21 5	Monitor ground-water quality and water levels in weathered claystone adjacent to 26-86
SEP-4	Alluvial	5-14	14	Monitor ground-water quality and water levels in alluvium, sidegradient plume delineation
SEP-5	Claystone	15-25	25	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-04
SEP-6	Alluvium	3-8	8	Monitor ground-water quality and water levels in alluvium, plume delineation
SEP-7	Claystone	9-19	19	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-06
SEP-18	Sandstone	10-13	13	Monitor ground-water quality and water levels in subcropping sandstone west of 207-B South
SEP-24	Bedrock	9-19	19	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-25
SEP-25	Alluvium	3-8	8	Monitor ground-water quality and water levels in weathered claystone adjacent to well SEP-28
SEP-31	Bedrock	15-18	15	Monitor ground-water quality and water levels in sandstone which subcrops west of 207-B south

TABLE 14 (continued)

SOLAR EVAPORATION PONDS AREA PROPOSED MONITORING WELLS

Well Number	Zone of Completion	Estimated Screen Depth (ft)	Estimated Total Depth of Well(ft)	Purpose
PROPOSED WELLS NORTH OF PONDS				
SEP-8	Alluvium	14-19	19	Monitor ground-water quality and water levels in alluvium, sidegradient plume delineation
SEP-9	Claystone	20-30	30	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-08.
SEP-10	Alluvium	3-16	16	Monitor ground-water quality and water levels in alluvium, sidegradient plume delineation
SEP-11	Alluvium	3-7	7	Monitor ground-water quality and water levels in alluvium at center of plume
SEP-12	Claystone	8-18	18	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-11
SEP-13	Alluvium	2 5-4	4	Monitor ground-water quality and water levels in alluvium, plume delineation
SEP-14	Claystone	10-20	20	Monitor ground-water quality and water levels in alluvium adjacent to 17-86, plume delineation
SEP-16	Sandstone	5-25	25	Monitor ground-water quality and water levels in sandstone, which subcrops at well ~~30-86BR~~ 39-87BR
SEP-17	Sandstone	2-15	15	Monitor ground-water quality and water levels in sandstone, which subcrops at well 30-86BR
SEP-19	Bedrock	11-35	35	Monitor ground-water quality and water levels in subcropping sandstone south of pond 207-C
SEP-22	Sandstone	10-30	30	Monitor ground-water quality in subcropping sandstone east of pond 207-C
SEP-23	Sandstone	88-98	98	Monitor ground-water quality and water levels in middle sandstone encountered in well 39-87BR
SEP-26	Alluvium	3-10	10	Monitor ground-water quality and water levels in colluvium north of ponds
SEP-27	Claystone	10-20	20	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-26

TABLE 14 (continued)

SOLAR EVAPORATION PONDS AREA PROPOSED MONITORING WELLS

Well Number	Zone of Completion	Estimated Screen Depth (ft)	Estimated Total Depth of Well(ft)	Purpose
PROPOSED WELLS NORTH OF PONDS (continued)				
SEP-28	Alluvium	3-10	10	Monitor ground-water quality and water levels in colluvium north of ponds
SEP-29	Claystone	10-20	20	Monitor ground-water quality and water levels in weathered claystone adjacent to SEP-28
SEP-30	Sandstone	11-35	35	Monitor ground-water quality and water levels in subcropping sandstone south of 207-C
SEP-32	Sandstone	10-15	15	Monitor ground-water quality and water levels in subcropping sandstone west of well 16-86
SEP-33	Sandstone	10-20	20	Monitor ground-water quality and water levels in subcropping sandstone west of well 14-86

TABLE 15

RESULTS OF HYDRAULIC CONDUCTIVITY TESTS IN ROCKY FLATS ALLUVIUM, WEST SPRAY FIELD AREA

Well	Lithology	Hydraulic Conductivities Drawdown Recovery Test (cm/s)	Slug Test (cm/s)	Ground Water Velocity* (ft/yr)
45-86	Gravel, sand, silt		2.1×10^{-5} (21.7 ft/yr)	3.5
47-86	Gravel, silt	2.6×10^{-5} (26.9 ft/yr)		4.3
49-86	Gravel, sand, silt		9.7×10^{-5} (100.4 ft/yr)	16.1
50-86	Gravel, sand, silt		5.3×10^{-4} (548.7 ft/yr)	87.8
56-86	Boulders + Silt		5.0×10^{-5} (51.8 ft/yr)	8.3

* Horizontal ground-water velocity. Velocities are calculated from the hydraulic conductivity, the average horizontal gradient of 0.016 ft/ft, and an assumed effective porosity of 0.1. The equation used is

G-W Velocity (ft/yr) = K(ft/yr)(0.016 ft/ft)/(0.1)

where K = hydraulic conductivity (ft/yr)

TABLE 16

RESULTS OF PACKER TESTS IN THE UPPER LARAMIE FORMATION WEST SPRAY FIELD AREA

Well Number	Interval (Depth below Ground Level ft)	Lithology	Test 1 (cm/s)	Test 2 (cm/s)	Test 3 (cm/s)	Geometric Mean (cm/s)
46 86	107.27-117.30	Claystone	$3x10^{8}$	Aborted		$3x10^{8}$
	130.22-140.25	Claystone	$1x10^{-8}$	$1.7x10^{-7}$	$6x10^{-8}$	$5x10^{-8}$
	140.64-150.67	Siltstone	$1x10^{-8}$	$5.1x10^{-7}$	$1.1x10^{-7}$	$8x10^{-8}$
	151.00-161.03	Siltstone	$1x10^{-8}$	$7x10^{-8}$	$1x10^{-8}$	$2x10^{-8}$
		Geometric Mean for Claystone•				$4x10^{-8}$
		Geometric Mean for Siltstone•				$4x10^{-8}$
48-86	101.23-110.88	Siltstone & Claystone*	$2x10^{8}$	Failed		
	113 80-123.53	Siltstone	$1\ 6x10^{-7}$	$6x10^{8}$	$1x10^{-8}$	$5x10^{-8}$
	124.69-134.34	Siltstone	$2.3x10^{-7}$	$7\ 0x10^{-7}$	$1.0x10^{-7}$	$2\ 5x10^{-7}$
	128.05-137.70	Siltstone	$3.8x10^{7}$	Failed		$3.8x10^{-7}$
	130.05-139.70	Siltstone	$5\ 5x10^{7}$	Failed		$5.5x10^{-7}$
	141.03-150.39	Siltstone	$9x10^{-8}$	$6\ 5x10^{-7}$	$3x10^{-8}$	$1.2x10^{-7}$
	141 03-150.39	Siltstone	$3.4x10^{-7}$	Failed		$3.4x10^{-7}$
	144.00-153.65	Siltstone	$2.5x10^{-7}$	Failed		$2.5x10^{-7}$
	145 94-155.59	Siltstone	$1.9x10^{-7}$	Failed		$1\ 9x10^{-7}$
	160.00-169.65	Siltstone	$4.3x10^{-7}$	Failed		$4\ 3x10^{-7}$
	161.88-171.53	Siltstone	$1.3x10^{-7}$	Failed		$1.3x10^{7}$
	165.20-174.80	Siltstone	$1\ 0x10^{7}$	Failed		$1\ 0x10^{-7}$
	167.10-176.74	Siltstone	$3.1x10^{-7}$	Failed		$3.1x10^{-7}$
	175.85-185.50	Siltstone	$2.2x10^{-7}$	Failed		$2.2x10^{-7}$
	177 75-187 40	Siltstone	$1x10^{-8}$	Failed		$1x10^{-8}$
	181 21-190.86	Siltstone	$1\ 5x10^{7}$	Failed		$1\ 5x10^{-7}$
	183.11-192.76	Siltstone	$4x10^{-8}$	Failed		$4x10^{-8}$
	192.00-201.65	Siltstone & Sandstone*	$1x10^{-8}$	Failed		
	194 00-203.60	Siltstone & Sandstone*	$3\ 0x10^{7}$	Failed		
	196.15-206.80	Sandstone	$1.1x10^{-7}$	Failed		$1.1x10^{-7}$
	198.76-208.41	Sandstone	$3x10^{-8}$	Failed		$3x10^{-8}$
		Geometric Mean for Siltstone.				$1\ 6x10^{-7}$
		Geometric Mean for Sandstone:				$6x10^{-8}$

* Mixed lithology tests not used in calculating geometric means

TABLE 17

RESULTS OF HYDRAULIC CONDUCTIVITY TESTS
IN THE UPPER LARAMIE FORMATION
WEST SPRAY FIELD AREA

Well	Lithology	Hydraulic Conductivities Drawdown Recovery Test (cm/s)	Slug Test (cm/s)	Packer Test (cm/s)
46-86	Claystone			$4x10^{-8}$
	Siltstone	$5x10^{-8}$		$4x10^{-8}$
48-86	Siltstone & Sandstone		$5.4x10^{-7}$	
	Siltstone			$1.6x10^{-7}$
	Sandstone			$6x10^{-8}$
	Geometric Mean (cm/s)			
	Sandstone:			$6x10^{-8}$
	Siltstone:	$5x10^{-8}$		$8x10^{-8}$
	Claystone:			$4x10^{-8}$

TABLE 18
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
10-81	02/04/88	1												
	04/07/88	2					25							
	07/07/88	3												
	10/12/88	4												
07-82	02/04/88	1												
	04/07/88	2					23							
	07/07/88	3												
	10/11/88	4												
51-86	02/08/88	1												
	04/25/88	2												
	07/07/88	3												
	10/14/88	4	No data											
50-86	03/25/88	1					26							
	05/31/88	2												
	10/04/88	3												
	12/19/88	4					4BJ						2BJ	
49-86	03/28/88	1					27							
	05/31/88	2												
	09/29/88	3												
	12/19/88	4					5BJ						3BJ	
05-82	03/23/88	1					16							
	05/25/88	2												
	09/26/88	3												
	12/19/88	4					4BJ						2BJ	
06 82	03/23/88	1					17	8J						
	05/25/88	2												
	09/26/88	3												
	12/19/88	4					5B						3BJ	
56-86	02/15/88	1												
	04/07/88	2					23							
	09/14/88	3					20			15	17			
	10/20/88	4	Data Not Yet Received											

Note J = Present below detection limits
B = Present in laboratory blank

TABLE 18 (CONTINUED)
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloropropane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloroethene ug/l	Dibromochloromethane ug/l	1,1,2-Trichloroethane ug/l	Benzene ug/l	Cis-1,3-Dichloropropene ug/l
10-81	02/04/88	1												
	04/07/88	2												
	07/07/88	3												
	10/12/88	4												
07-82	02/04/88	1												
	04/07/88	2												
	07/07/88	3												
	10/11/88	4												
51-86	02/08/88	1												
	04/25/88	2												
	07/07/88	3												
	10/14/88	4	No data											
50-86	03/25/88	1												
	05/31/88	2												
	10/04/88	3												
	12/19/88	4												
49-86	03/28/88	1												
	05/31/88	2												
	09/29/88	3												
	12/19/88	4												
05-82	03/23/88	1												
	05/25/88	2												
	09/26/88	3												
	12/19/88	4												
06-82	03/23/88	1												
	05/25/88	2												
	09/26/88	3												
	12/19/88	4												
56-86	02/14/88	1												
	04/07/88	2												
	09/14/88	3		11						114				
	01/20/88	4	Data Not Yet Received											

Note J = Present below detection limits
B = Present in laboratory blank

TABLE 18 (CONTINUED)
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
10-81	02/04/88	1											
	04/07/88	2											
	07/07/88	3											
	10/12/88	4											
07-82	02/04/88	1											
	04/07/88	2											
	07/07/88	3											
	10/11/88	4											
51 86	02/08/88	1											
	04/25/88	2											
	07/07/88	3											
	10/14/88	4	No data										
50-86	03/25/88	1											
	05/31/88	2											
	10/04/88	3											
	12/19/88	4							5BJ				
49-86	03/28/88	1											
	05/31/88	2											
	09/29/88	3											
	12/19/88	4							5BJ				
05-82	03/23/88	1											
	05/25/88	2											
	09/26/88	3											
	12/19/88	4							5BJ				
06-82	03/23/88	1											
	05/25/88	2											
	09/26/88	3											
	12/19/88	4							5BJ				

Note J = Present below detection limits
B = Present in laboratory blank

TABLE 18 (CONTINUED)
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
47-86	02/08/88	1												
	04/25/88	2												
	07/11/88	3												
	10/14/88	4					3BJ							
45-86		1	No data											
	05/26/88	2												
	09/28/88	3												
	12/16/88	4					4BJ						2BJ	
08-81	03/23/88	1					17							
	05/25/88	2												
	10/4/88	3												
	12/21/88	4					4BJ						2BJ	
09 81	03/23/88	1					17							
	05/25/88	2												
	09/26/88	3												
	12/21/88	4					4BJ						2BJ	
03-82	03/28/88	1					27	11						
	05/25/88	2												
	09/28/88	3												
	12/19/88	4					4BJ							

Note J = Present below detection limits
B = Present in laboratory blank

TABLE 18 (CONTINUED)
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 5

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloro propane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloro ethene ug/l	Dibromo chloro methane ug/l	1,1,2-Trichloro ethane ug/l	Benzene ug/l	Cis-1,3-Dichloro propene ug/l
47-86	02/08/88	1												
	04/25/88	2												
	07/11/88	3												
	10/14/88	4												
45-86		1	No data											
	05/26/88	2												
	09/28/88	3												
	12/15/88	4												
08-81	03/23/88	1												
	05/25/88	2												
	10/04/88	3												
	12/21/88	4												
09-81	03/23/88	1												
	05/25/88	2												
	09/26/88	3												
	12/21/88	4												
03-82	03/28/88	1												
	05/25/88	2												
	09/28/88	3												
	12/19/88	4												

Note J = Present below detection limits
B = Present in laboratory blank

TABLE 18 (CONTINUED)
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 6

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
47 86	02/08/88	1											
	04/25/88	2											
	09/28/88	3											
	12/15/88	4											
45-86		1	No data										
	05/26/88	2											
	09/28/88	3											
	12/15/88	4							3BJ				
08-81	03/23/88	1											
	05/25/88	2											
	10/04/88	3											
	12/21/88	4							4BJ				
09-81	03/23/88	1											
	05/25/88	2											
	09/26/88	3											
	12/21/88	4							4BJ				
03 82	03/28/88	1											
	05/25/88	2											
	09/28/88	3											
	12/19/88	4							5BJ				

Note: J = Present below detection limits
B = Present in laboratory blank

ABLE 19
WEST SPRA[illegible] ALLUVIAL GROUND-WATER
INORGANIC CONCE[illegible]IONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1.5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
10-81	02/04/88	1			5 98		
	04/07/88	2			2 8		
	07/07/88	3			6 29		
	10/12/88	4			6 76		
07-82	02/04/88	1	Dry				
	04/07/88	2	Dry				
	07/07/88	3	Insufficient Sample for Inorganic Analysis				
	10/11/88	4	Insufficient Sample for Inorganic Analysis				
51-86	02/08/88	1			4 9	56 0	
	04/25/88	2			5 2	33 5	
	07/07/88	3			4 35	30 1	
	10/14/88	4			3 17	27 8	
50-86	03/25/88	1					89 7
	05/31/88	2					
	10/04/88	3					86 9
	12/20/88	4	170	21 2			86 8
49-86	03/29/88	1	212	21 1	10 0	56 2	
	05/31/88	2			12 2	45 5	
	09/30/88	3	192	22 8	13 2		
	12/20/88	4	183		12 4		
05-82	03/24/88	1	251			68 8	
	05/25/88	2	262			95 0	
	09/27/88	3	203	36 3	1 52	61 6	
	12/20/88	4	176	23 8	2 00	61 1	
56-86	02/15/88	1	213	49 5	1 6	39	91
	04/07/88	2	183	38 4			
	09/14/88	3	Insufficient Sample for Inorganic Analysis				
	10/20/88	4					82

T 9 (CONTINUED)
WEST SPRAY ALLUVIAL GROUND-WATER
INORGANIC CONCE IONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
06-82	03/24/88	1				32 8	
	05/25/88	2	180			41 0	
	09/27/88	3	Insufficient Sample for Inorganic Analysis				
	12/19/88	4	Insufficient Sample for Inorganic Analysis				
47-86	02/08/88	1					
	04/25/88	2					
	07/11/88	3					82 6
	10/14/88	4					
45-86	03/25/88	1					
	05/26/88	2					
	09/29/88	3					
	12/16/88	4					
08-81	03/24/88	1	199				80 7
	05/25/88	2	203				152
	10/04/88	3	195				150
	12/22/88	4	219				139
09-81	03/24/88	1	247	47 1		36 2	
	05/25/88	2	282	48 5		42 0	
	09/27/88	3	250	60 2		44 2	95 3
	12/22/88	4	257	55 5		31 1	93 2
03-82	03/29/88	1			3 91	28 1	
	05/25/88	2					
	09/29/88	3					
	12/19/88	4	Insufficient Sample for Inorganic Analysis				

TABLE 20
WEST SPRAY FIELD ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 0223	0 06U	0 01U	0 07	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5	0 06U	0 05	1 0	<0 005	0 01	NS	<0 02	0 05	<0 022	0 046	0 3	0 05	0 1U	NS
10-81	02/04/88	1				0 09											
	04/07/88	2				0 09								0 30			
	07/07/88	3															
	10/12/88	4															
07-82	02/04/88	1	Insufficient Sample for Metals Analysis														
	04/07/88	2	Insufficient Sample for Metals Analysis														
	07/07/88	3	Insufficient Sample for Metals Analysis														
	10/11/88	4	Insufficient Sample for Metals Analysis														
51-86	02/08/88	1				0 10											
	04/25/88	2				0 08								0 26			
	07/07/88	3															
	10/14/88	4															
50-86	03/25/88	1															
	05/31/88	2															
	10/04/88	3				0 10											
	12/20/88	4			*	0 09				*	*	*					
49-86	03/29/88	1				0 09											
	05/31/88	2				0 08											
	09/30/88	3				0 12											
	12/20/88	4			*	0 1				*				0 34	*		
05-82	03/24/88	1				0 11								0 18			
	05/25/88	2	3 99			0 12								2 70			
	09/27/88	3				0 09											
	12/20/88	4			*										*		
06-82	03/24/88	1				0 08											
	05/25/88	2	2 77			0 14								1 49			
	09/27/88	3				0 84											
	12/19/88	4	Insufficient Sample for Metals Analysis														

Notes NR = A problem was detected during analysis and there was insufficient samples for re-analysis.
* = Analysis in progress Data not yet received

T 0 (CONTINUED)
WEST SPRA / ALLUVIAL GROUND WATER
DISSOLVED METALS CO RATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 37	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 37	NS	0 01	0 083	NS	NS	< 0 01	<0 024	0 164
10-81	02/04/88	1												
	04/07/88	2												
	07/07/88	3												
	10/12/88	4												
07-82	02/04/88	1	Insufficient Sample for Metals Analysis											
	04/07/88	2	Insufficient Sample for Metals Analysis											
	07/07/88	3	Insufficient Sample for Metals Analysis											
	10/11/88	4	Insufficient Sample for Metals Analysis											
51-86	02/04/88	1												0 168
	04/25/88	2												
	07/07/88	3												
	10/14/88	4												
50-86	03/25/88	1									0 18			
	05/31/88	2									0 17			
	10/04/88	3									0 20			
	12/20/88	4									0 18	*		
49-86	03/29/88	1						•		26				
	05/31/88	2								29				
	09/30/88	3								22				
	12/20/88	4						*		22				
05-82	03/24/88	1					1 3			14				
	05/25/88	2								19				1 840
	09/27/88	3								23	0 19			0 411
	12/20/88	4						*		26	0 16	*		
06-82	03/24/88	1					1 1							
	05/25/88	2				0 042								
	09/27/88	3												
	12/19/88	4	Insufficient Sample for Metals Analysis											

Notes: NR = A problem was detected during analysis and there was insufficient samples for re-analysis
* = Analysis in progress Data not yet received

'O (CONTINUED)
WEST SPRA[illegible] J ALLUVIAL GROUND-WATER
DISSOLVED METALS C[illegible]NTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 07	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 01U	6
Proposed Concentration Limit			5	0 06U	0 05	1 0	<0 005	0 01	NS	<0 020	0 05	<0 022	0 046	0 3	0 05	0 01U	NS
47-86	02/08/88	1															
	04/25/88	2															
	07/11/88	3															
	10/14/88	4															
45-86	03/25/88	1												0 30			
	05/26/88	2	2 09								0 011			1 04			
	09/29/88	3	1 54			0 13								0 997	1 00		
	12/16/88	4	0 29		*	0 14								0 334	*		
08-81	03/24/88	1				0 09											9
	05/25/88	2		0 291		0 10			36								9
	10/04/88	3				0 10			40								9
	12/22/88	4			*	0 10			40	*					*		9
09-81	03/24/88	1						42									
	05/25/88	2	0 58	0 428					47								
	09/27/88	3						47									
	12/22/88	4			*				53 3	*					*		
03/82	03/29/88	1															
	05/25/88	2	0 83											0 68			
	09/29/88	3				0 11											
	12/19/88	4	Insufficient Sample for Metals Analysis														
56-86	02/15/88	1	0 400			0 12											
	04/07/88	2				0 67											
	09/14/88	3	Insufficient Sample for Metals Analysis														
	10/20/88	4				0 10				NR			NR	NR	NR	NR	

Notes NR = A problem was detected during analysis and there was insufficient samples for re-analysis
* = Analysis in progress Data not yet received

T 'O (CONTINUED)
WEST SPRAY ALLUVIAL GROUND WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002	0 022U	0 37	0.8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 06	0.002	0 1	0 37	NS	0 01	0 083	NS	NS	< 0 01	<0 024	0 164
47-86	02/08/88	1									0 11			
	04/25/88	2												
	07/11/88	3												
	10/14/88	4												
45-86	03/25/88	1												
	05/26/88	2												
	09/29/88	3					1 1			18	0 48			
	12/16/88	4						*		16		*		
08-81	03/24/88	1					1 6			17	0 31			
	05/25/88	2					1 7							
	10/04/88	3					1 9			19	0 34	*		
	12/22/88	4					1 6	*		18	0 34			
09-81	03/24/88	1					1 5			19	0 43			
	05/25/88	2					1 8			22				
	09/27/88	3					1 5			23				
	12/22/88	4					1 8	*		23	0 50	*		0 40
03-82	03/29/88	1					0 9							
	05/25/88	2					2 5							
	09/29/88	3					1 5							
	12/19/88	4	Insufficient Sample for Metals Analysis											
56-86	02/15/88	1					1 7			24	0 16			
	04/07/88	2					1 0			21				
	09/14/88	3	Insufficient Sample for Metals Analysis											
	10/20/88	4		NR			NR	NR		17		NR		

Notes: NR = A problem was detected during analysis and there was insufficient samples for re-analysis
* = Analysis in progress. Data not yet received

ABLE 21
WEST SPRA[illegible] ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE[illegible]CENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Plutonium 239,240 pCi/l	Americum 241 pCi/l	Tritium pCi/L
Background Concentration			<MDA (34)	<MDA (26)	<MDA (3)	<MDA (1 6)	<MDA (4 6)	<593
Proposed Concentration Limit			15	50	40	40	4	20,000
10-81	02/04/88	1						
	04/07/88	2						
	07/07/88	3	NR					
	10/12/88	4	NR					
07-82	02/04/88	1	Insufficient Sample for Radionuclide Analysis					
	04/07/88	2	Insufficient Sample for Radionuclide Analysis					
	07/07/88	3	Insufficient Sample for Radionuclide Analysis					
	10/11/88	4	Insufficient Sample for Radionuclide Analysis					
51-86	02/08/88	1					NR	
	04/25/88	2						
	07/07/88	3	NR					
	10/14/88	4	NR					
50-86	03/25/88	1					NR	
	05/31/88	2			0 4			
	10/04/88	3	*	*	*	*	*	
	12/20/88	4	*	*	*	*	*	
49-86	03/29/88	1						
	05/31/88	2						
	09/30/88	3	*	*	*	*	*	
	12/20/88	4	*	*	*	*	*	
05-82	03/24/88	1					NR	
	05/25/88	2						
	09/27/88	3	*	*	*	*	*	
	12/20/88	4	*	*	*	*	*	

NOTES NR = A problem was detected during analysis and there was insufficient samples for re-analysis
* = Analysis in progress Data not yet received

TA 22 (CONTINUED)
WEST SPRA' ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE NTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST GH FOURTH QUARTERS 1988
PAGE 2

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l (MDA)	Gross Beta pCi/l (MDA)	Total Uranium pCi/l (MDA)	Plutonium 239,240 pCi/l (MDA)	Americum 241 pCi/l (MDA)	Tritium pCi/L (MDA)
Background Concentration			<MDA (34)	<MDA (26)	<MDA (3)	<MDA (1 6)	<MDA (4 6)	<593
Proposed Concentration Limit			15	50	40	40	4	20,000
06-82	03/24/88	1						NR
	05/25/88	2						
	09/27/88	3	*	*	*	*	*	
	12/19/88	4	Insufficient Sample for Radionuclide Analysis					
47-86	02/08/88	1						NR
	04/25/88	2						
	07/11/88	3	NR					
	10/14/88	4	NR					
45-86	03/25/88	1						NR
	05/26/88	2						
	09/29/88	3	*	*	*	*	*	
	12/16/88	4	*	*	*	*	*	
08-81	03/24/88	1			5 5			NR
	05/25/88	2			5 3			
	10/04/88	3	*	*	*	*	*	
	12/22/88	4	*	*	*	*	*	
09-81	03/24/88	1						NR
	05/25/88	2			1 3			NR
	09/27/88	3	*	*	*	*		
	12/22/88	4	*	*	*	*		
03-82	03/29/88	1			12 7			
	05/25/88	2						
	09/29/88	3	*	*	*	*	*	
	12/19/88	4	Insufficient Sample for Radionuclide Analysis					
56-86	02/15/88	1						
	04/07/88	2						
	09/14/88	3	Insufficient Sample for Radionuclide Analysis					
	00/20/88	4	*					

NOTES NR = A problem was detected during analysis and there was insufficient samples for re-analysis
* = Analysis in progress Data not yet received

TABLE 22

WEST SPRAY FIELD AREA PROPOSED MONITORING WELLS

Well Number	Zone of Completion	Estimated Screen Depth (ft)	Estimated Total Depth of Well (ft)	Purpose
SF 1	Alluvium	46 66	66	Monitor alluvial ground water quality at downgradient edge of unit
SF-2	Alluvium	38 58	58	Monitor alluvial ground water quality at downgradient edge of unit
SF 3	Alluvium	40 60	60	Monitor alluvial ground water quality at downgradient edge of unit
SF-4	Alluvium	36 56	56	Monitor alluvial ground water quality at downgradient edge of unit
SF 5	Alluvium	36 56	56	Monitor alluvial ground water quality at downgradient edge of unit
SF 6	Alluvium	43 63	63	Monitor alluvial ground water quality at downgradient edge of unit
SF 7	Alluvium	45-65	65	Monitor alluvial ground-water quality within unit
SF 8	Alluvium	45 65	65	Monitor alluvial ground water quality within unit

TABLE 23

DEPTH OF WEATHERING IN THE ARAPAHOE CLAYSTONE
PRESENT LANDFILL AREA

Well Number	------- Depth of Weathering ------- Below Ground Level (ft)	Below Bedrock (ft)
7-86*	10+	5+
8-86	13.8	12.1
59-87*	25.5+	5+
61-87*	34.1+	6.1+
62-87*	30+	3.7+
63-87*	30+	5+
64-87*	25.5+	2.3+
65-87**	26+	5+
67-87*	21.3+	4.9+
68-87*	20+	4.7+
70-87*	17+	3.5+

* Minimum Value: Weathering to total depth of well
** Minimum Value: Base of lowest described claystone

TABLE 24

RESULTS OF HYDRAULIC CONDUCTIVITY TESTS OF SURFICIAL MATERIALS PRESENT LANDFILL AREA

Well No.	Formation	Lithology Screened	Drawdown Recovery Test (cm/s)	Slug Tests (cm/s)
45-86	Q_{RF}	Sand and poorly sorted gravel	2.1×10^{-5}	
58-87	Q_{RF}	Sand, poorly sorted gravel, and clayey sand	$1\ 6 \times 10^{5}$	
60-87	Q_{RF}	Sand and gravel grading to clayey sand and clay		$1\ 3 \times 10^{3}$
61-87	Q_{RF}	Sand		$9\ 9 \times 10^{-4}$
62-87	Q_{RF}	Sand and gravel, clayey sand and clay		$6\ 2 \times 10^{4}$
63-87	Q_{RF}	Sand and gravel, sandy clay		$6\ 7 \times 10^{-4}$
65-87*	Q_{RF},KA_{SS}	Clayey sand, sandstone		$4\ 6 \times 10^{-4}$
66-87	Q_{RF}	Sand and sandy clay		1.8×10^{-4}
67-87	Q_{RF}	Clayey sand		6.4×10^{-5}
71-87	Q_{RF}	Clayey sand grading to sandy clay		$6\ 6 \times 10^{-4}$
Geometric mean for Rocky Flats Alluvium			$1\ 8 \times 10^{5}$	$4\ 6 \times 10^{4}$

Q_{RF} = Rocky Flats Alluvium

KA_{SS} = Arapahoe Sandstone

Geometric mean for Q_{RF}	$1\ 8 \times 10^{-5}$	4.6×10^{-4}

* Completed in two formations. Not used in calculation of geometric mean.

Note· To convert from cm/s to ft/year, multiply by

$$\frac{365\ 25\ \text{day}}{\text{year}} \times \frac{86400\text{s}}{\text{day}} \times \frac{\text{ft}}{30.48\ \text{cm}}$$

TABLE 25

RESULTS OF PACKER TESTS IN ARAPAHOE FORMATION PRESENT LANDFILL AREA

Well No.	Interval (ft)	Lithology	Test 1 (cm/s)	Test 2 (cm/s)	Test 3 (cm/s)	Geometric mean (cm/s)
8 86	33.50 - 43 53	Claystone	6.90×10^{6}	$5\ 06 \times 10^{6}$	3.10×10^{6}	4.8×10^{-6}
	43 50 - 53.53	Claystone	Aborted	$2\ 1 \times 10^{-7}$	Aborted	2.1×10^{-7}
	53 50 - 63.53	Claystone	$1\ 13 \times 10^{6}$	$3\ 0 \times 10^{-8}$	Aborted	$1\ 8 \times 10^{-7}$
		Claystone		Geometric mean for 8-86·		5.7×10^{7}
9-86	87.64 - 97 67	Siltstone	-	$1\ 0 \times 10^{8}$	-	$1\ 0 \times 10^{-8}$
	97 87 - 107.70	Siltstone	$6\ 0 \times 10^{-8}$	$3\ 0 \times 10^{-8}$	Aborted	4.0×10^{-8}
	107 70 - 117.93	Siltstone	-	$1\ 0 \times 10^{-8}$	-	$1\ 0 \times 10^{8}$
	121.00 - 131 03	Sandstone	$1\ 9 \times 10^{7}$	$4\ 0 \times 10^{-8}$	-	$9\ 0 \times 10^{8}$
	135.00 - 145.03	Sandstone/Siltstone				
		Siltstone		Geometric mean for 9-86.		2.0×10^{-8}
		Sandstone		Geometric mean for 9-86:		$9\ 0 \times 10^{-8}$
41-87BR	20.85 - 30.50	Claystone	$5\ 7 \times 10^{-7}$	$1\ 71 \times 10^{-6}$	$9\ 9 \times 10^{-7}$	$9\ 9 \times 10^{-7}$
	32 50 - 42.15	Sandstone	$3\ 5 \times 10^{-7}$	1.0×10^{-7}	2.0×10^{-8}	$9\ 0 \times 10^{-8}$
	41.55 - 51.20	Sandstone	$9\ 0 \times 10^{-7}$	2.46×10^{6}	$1\ 75 \times 10^{-6}$	$1\ 6 \times 10^{-6}$
	53.05 - 62.70	Claystone	$2\ 0 \times 10^{-7}$	$3\ 9 \times 10^{7}$	1.0×10^{-7}	2.0×10^{-7}
	62.70 - 72.35	Sandstone	$4\ 2 \times 10^{7}$	$6\ 6 \times 10^{-7}$	$1\ 70 \times 10^{7}$	$3\ 6 \times 10^{7}$
	73 35 - 82.00	Claystone	$9\ 1 \times 10^{7}$	$2\ 58 \times 10^{-6}$	-	$1\ 5 \times 10^{6}$
	82 00 - 91 65	Sandstone	5.7×10^{7}	$5\ 0 \times 10^{-8}$	-	1.7×10^{-7}
		Claystone		Geometric mean for 41-87BR		$6\ 7 \times 10^{-7}$
		Sandstone		Geometric mean for 41-87BR		6.7×10^{-7}

TABLE 26

RESULTS OF HYDRAULIC TESTS IN ARAPAHOE FORMATION
PRESENT LANDFILL AREA

Well No.	Lithology	Drawdown Recovery Test (cm/s)	Slug Test (cm/s)	Packer Test (cm/s)
8-86	Claystone	-	-	5.7×10^{-7}
	Sandstone	7×10^{-8}	-	
9-86	Siltstone	-	-	2.0×10^{-8}
	Sandstone	4×10^{-8}	-	9.0×10^{-8}
41-87BR	Claystone	-	-	6.7×10^{-7}
	Sandstone	-	2.78×10^{-8}	3.1×10^{-7}
Geometric mean for claystone at the Arapahoe Formation				6.2×10^{-7}

TABLE 27
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 1

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
10-86	02/02/88	1												
	06/06/88	2												
	09/19/88	3					30							
	12/06/88	4					4BJ						2BJ	
58-87	01/22/88	1						13						
	06/06/88	2												
	09/15/88	3					33							
	12/13/88	4					4BJ						2BJ	
59-87	01/22/88	1												
	06/06/88	2												
	09/15/88	3					41							
	12/06/88	4					5B							
60-87	01/22/88	1												
	06/06/88	2												
	09/21/88	3					37							
	12/06/88	4	Data not yet received											
61-87	01/26/88	1												
	06/08/88	2												
	09/22/88	3												
	12/08/88	4					4BJ						2BJ	
62-87	01/25/88	1					6							
	06/08/88	2												
	09/22/88	3												
	12/08/88	4					4BJ						2BJ	
63-87	01/26/88	1												
	06/08/88	2												
	09/22/88	3												
	12/08/88	4					5B				5			
67-87	01/28/88	1												
	06/16/88	2												
	09/21/88	3					36							
	12/13/88	4					4BJ						2BJ	

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloropropane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloroethene ug/l	Dibromochloromethane ug/l	1,1,2-Trichloroethane ug/l	Benzene ug/l	Cis-1,3-Dichloropropene ug/l
10-86	02/02/88	1												
	06/06/88	2												
	09/19/88	3												
	12/06/88	4												
58-87	01/22/88	1			8									
	06/06/88	2												
	09/15/88	3												
	12/13/88	4												
59-87	01/22/88	1												
	06/06/88	2												
	09/15/88	3												
	12/06/88	4												
60-87	01/22/88	1			6									
	06/06/88	2												
	09/21/88	3												
61-87	01/26/88	1			7									
	06/08/88	2												
	09/22/88	3												
	12/08/88	4												
62-87	01/25/88	1			8									
	06/08/88	2												
	09/22/88	3												
	12/08/88	4												
63-87	01/26/88	1												
	06/08/88	2												
	09/22/88	3												
	12/08/88	4												
67-87	01/28/88	1												
	06/16/88	2												
	09/21/88	3												
	12/13/88	4												

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
10-86	02/02/88	1											
	06/06/88	2											
	09/19/88	3											
	12/06/88	4							4BJ				
58-87	01/22/88	1											
	06/06/88	2											
	09/15/88	3											
	12/13/88	4							4BJ				
59-87	01/22/88	1											
	06/06/88	2											
	09/15/88	3					6						
	12/06/88	4							4BJ				
60-87	01/22/88	1											
	06/06/88	2											
	09/21/88	3											
61-87	01/26/88	1											
	06/08/88	2											
	09/22/88	3											
	12/08/88	4							4BJ				
62-87	01/25/88	1											
	06/08/88	2											
	09/22/88	3											
	12/08/88	4							4BJ				
63-87	01/26/88	1											
	06/08/88	2											
	09/22/88	3											
	12/08/88	4							5BJ				
67-87	01/28/88	1											
	06/16/88	2											
	09/21/88	3											
	12/13/88	4							4BJ				

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
68-87	01/28/88	1												
	06/16/88	2												
	09/21/88	3					36							
	12/13/88	4					4BJ						2BJ	
71-87	01/29/88	1												
	06/08/88	2												
	09/19/88	3					32	28						
	12/13/88	4					4BJ							
66-87	01/29/88	1												
	06/14/88	2												
	09/15/88	3					32							
	12/06/88	4					3BJ						2BJ	
65 87	01/27/88	1												
	06/14/88	2												
	09/22/88	3												
	12/08/88	4					4BJ						2BJ	
64-87	01/29/88	1												
	06/14/88	2												
	09/22/88	3												
	12/08/88	4					5BJ				5J			
72-87	01/28/88	1												
	06/16/88	2	Dry											
	09/21/88	3	Dry											
	12/15/88	4	Dry											
70-87	02/03/88	1	Dry											
	06/16/88	2												
	09/21/88	3					36							
	12/13/88	4					4BJ						2BJ	
07-86	02/01/88	1												
	06/16/88	2	Dry											
	08/10/88	3	Dry											
	12/04/88	4	Dry											

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 5

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloro propane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloro ethene ug/l	Dibromo chloro methane ug/l	1,1,2 Trichloro ethane ug/l	Benzene ug/l	Cis-1,3-Dichloro propene ug/l
68-87	01/28/88	1												
	06/16/88	2												
	09/21/88	3												
	12/13/88	4												
71-87	01/29/88	1												
	06/08/88	2												
	09/19/88	3												
	12/13/88	4												
66-87	01/29/88	1												
	06/14/88	2												
	09/15/88	3		6						14				
	12/06/88	4								5				
65-87	01/27/88	1												
	06/14/88	2												
	09/22/88	3								18				
	12/08/88	4								20				
64-87	01/29/88	1												
	06/14/88	2												
	09/22/88	3												
	12/08/88	4						3J		4J			4J	
72-87	01/28/88	1												
	06/16/88	2	Dry											
	09/21/88	3	Dry											
	12/15/88	4	Dry											
70-87	02/03/88	1	Dry											
	06/16/88	2												
	09/21/88	3												
	12/13/88	4												
07-86	02/01/88	1												
	06/16/88	2	Dry											
	08/10/88	3	Dry											
	12/04/88	4	Dry											

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 6

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
68-87	01/28/88	1											
	06/16/88	2											
	09/21/88	3											
	12/13/88	4							4BJ				
71-87	01/29/88	1											
	06/08/88	2											
	09/19/88	3											
	12/13/88	4							4BJ				
66-87	01/29/88	1											
	06/14/88	2											
	09/15/88	3											
	12/13/88	4							4BJ				
65-87	01/27/88	1											
	06/14/88	2											
	09/22/88	3											
	12/08/88	4					2J		5BJ				
64-87	01/29/88	1											
	06/14/88	2											
	09/22/88	3											
	12/08/88	4					5		5BJ				
72-87	01/28/88	1											
	06/16/88	2	Dry										
	09/21/88	3	Dry										
	12/15/88	4	Dry										
70-87	02/03/88	1	Dry										
	06/16/88	2											
	09/21/88	3											
	12/13/88	4							5BJ				
07-86	02/01/88	1											
	06/16/88	2	Dry										
	08/10/88	3	Dry										
	12/04/88	4	Dry										

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 7

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
40-87	02/02/88	1	Dry											
	06/14/88	2												
	09/14/88	3	Dry											
	12/13/88	4	Dry											
42-87	02/04/88	1												
	06/16/88	2												
	09/21/88	3	Dry											
	12/12/88	4	Dry											
06-86	02/01/88	1												
	06/14/88	2	Dry											
	09/21/88	3	Dry											
	12/15/88	4	Dry											
05-86	03/29/88	1					25							
	06/01/88	2												
		3	Dry											
		4	Dry											

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 8

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloropropane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloroethene ug/l	Dibromochloromethane ug/l	1,1,2-Trichloroethane ug/l	Benzene ug/l	Cis-1,3-Dichloropropene ug/l
40-87	02/02/88	1	Dry											
	06/14/88	2												
	09/14/88	3	Dry											
	12/13/88	4	Dry											
42-87	02/04/88	1												
	06/16/88	2												
	09/21/88	3	Dry											
	12/12/88	4	Dry											
06-86	02/01/88	1												
	06/14/88	2	Dry											
	09/21/88	3	Dry											
	12/15/88	4	Dry											
05-86	03/29/88	1												
	06/01/88	2												
		3	No data											
		4	No data											

TABLE 27 (CONTINUED)
PRESENT LANDFILL ALLUVIAL GROUND-WATER
VOLATILE ORGANIC CONCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 9

Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
40-87	02/02/88	1	Dry										
	06/14/88	2											
	09/14/88	3	Dry										
	12/13/88	4	Dry										
42-87	02/04/88	1											
	06/16/88	2											
	09/21/88	3	Dry										
	12/12/88	4	Dry										
06-86	02/01/88	1											
	06/14/88	2	Dry										
	09/21/88	3	Dry										
	12/15/88	4	Dry										
05-86	03/29/88	1											
	06/01/88	2	No data										
		3	No data										
		4	No data										

ABLE 28
PRESENT L[illegible] L ALLUVIAL GROUND-WATER
INORGANIC CONCE[illegible]TIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
10-86	02/02/88	1			3 4	32	
	06/06/88	2			2 5		
	09/20/88	3			4 8		
	12/07/88	4			3 3		
58-87	01/22/88	1	233		3 4	34	
	06/06/88	2	188		1 6	38	
	09/16/88	3	200		3 3	32	120
	12/14/88	4	201		3 1		89
59-87	01/22/88	1	406	24		31	
	06/06/88	2	464			41	
	09/16/88	3	645	23		129	438
		4	Insufficient sample for inorganic analysis				
60-87	01/22/88	1			2 6	57	
	06/06/88	2			2 7		
	09/22/88	3			3 1		
	12/06/88	4			3 1		
61-87	01/26/88	1			2 6	59	88
	06/08/88	2	261		3 1	40	
	09/23/88	3			1 7		
	12/09/88	4			2 9		

'8 (CONTINUED)
PRESENT L[illegible] L ALLUVIAL GROUND-WATER
INORGANIC CONCE[illegible]TIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
62-87	01/25/88	1			2 6	35	
	06/08/88	2			2 6		
	09/23/88	3				32	
	12/09/88	4					
63-87	01/26/88	1	519	26		54	392
	06/06/88	2	597	34		27	426
	09/23/88	3	483	39			487
	12/09/88	4	554	33			393
67-87	01/28/88	1	191		1 8	39	101
	06/16/88	2	198		1 7	33	94
	09/22/88	3	253		1 8	47	125
	12/14/88	4	199		1 7	46	93
68-87	01/28/88	1	226		2 1	139	107
	06/16/88	2	174		2 4		
	09/22/88	3	177		2 2	37	88
	12/14/88	4	175			36	
71-87	01/29/88	1	262			67	219
	06/08/88	2	267			29	188
	09/20/88	3	285				219
	12/06/88	4	238			27	154
66-87	01/29/88	1	405		3 2	29	127
	06/14/88	2	618		3 1	220	104
	09/16/88	3	342		4 3	157	111
	12/07/88	4	249		3 6	101	

1 8 (CONTINUED)
PRESENT L[illegible] ALLUVIAL GROUND-WATER
INORGANIC CONCEN[illegible]TIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 3

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
65-87	01/27/88	1	491		2 0	153	208
	06/14/88	2	330		2 4	62	174
	09/23/88	3	301			75	177
	12/09/88	4	252		3 0	52	124
64-87	01/29/88	1	255	19			179
	06/14/88	2	246	25			139
	09/23/88	3	345	28		81	183
		4	Insufficient Sample for Inorganic Analysis				
72-87	01/28/88	1	395			90	276
	06/16/88	2	Dry				
	09/21/88	3	Dry				
	12/15/88	4	Dry				
70-87	02/03/88	1	Dry				
	06/16/88	2	581	47		82	
	09/22/88	3	552	48		121	356
	12/14/88	4	566	56		99	318
07-86	02/01/88	1	Insufficient Sample for Inorganic Analysis				
	06/16/88	2	Dry				
	09/14/88	3	Dry				
	12/15/88	4	Dry				

8 (CONTINUED)
PRESENT L[illegible]L ALLUVIAL GROUND-WATER
INORGANIC CONCEN[illegible]ATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 4

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			167	19	1 5	27	79
Proposed Concentration Limit			400	250	10	250	No Standard
40-87	02/01/88	1	Dry				
	06/16/88	2	Insufficient Sample for Inorganic Analysis				
	09/14/88	3	Dry				
	12/13/88	4	Dry				
42-87	02/04/88	1	355			74 2	
	06/16/88	2	Dry				
	09/21/88	3	Dry				
	12/12/88	4	Dry				
06-86	02/01/88	1	Insufficient Sample for Inorganic Analysis				
	06/14/88	2	Dry				
	09/21/88	3	Dry				
	12/15/88	4	Dry				
05-86	03/29/88	1	430	271		4125	192
	06/01/88	2	Insufficient Sample for Inorganic Analysis				
		3	No Data				
		4	No Data				

TABLE 29
PRESENT LANDFILL ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 01U	0 01U	0 071	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
10-86	02/02/88	1				0 072											
	06/06/88	2														NR	
	09/20/88	3				0 099				NR						NR	
	12/07/88	4			NR										NR	NR	
58-87	01/22/88	1				0 107											
	06/06/88	2														NR	
	09/16/88	3				0 079							0 058			NR	7
	12/14/88	4			NR					NR			0 100		NR	NR	NR
59-87	01/22/88	1				0 253			79					0 172			15
	06/06/88	2				0 272			94					0 809		NR	19
	09/16/88	3				0 362			130			0 024		25 929		NR	26
	12/06/88	4	Insufficient Sample for Metals Analysis														
60-87	01/22/88	1				0 143											
	06/06/88	2				0 108										NR	
	09/22/88	3				0 120								0 146		NR	
	12/06/88	4			NR	0 075				NR				0 368	NR	NR	
61-87	0																
1/26/88	1				0 131					0 028			0 186				
	06/08/88	2				0 098										NR	
	09/23/88	3				0 081										NR	
	12/09/88	4			NR					NR					NR	NR	
62-87	01/25/88	1				0 154											
	06/08/88	2				0 107										NR	
	09/23/88	3				0 102							0 191			NR	
	12/09/88	4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

'9 (CONTINUED)
PRESENT L[illegible] .L ALLUVIAL GROUND-WATER
DISSOLVED METALS C[illegible]NTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 2

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
10-86	02/02/88	1	0 084										0 029	
	06/06/88	2												
	09/20/88	3	0 069											
	12/07/88	4						NR				NR		
58-87	01/22/88	1	0 522				5 2			25	0 23			0 427
	06/06/88	2	0 564				3 6				0 20			
	09/16/88	3	0.550				4 0			17	0 27			0 297
	12/14/88	4	0 093				2 5	NR		15	0 22	NR		0 581
59-87	01/22/88	1	2 131				11			32	0 62			0 584
	06/06/88	2	~~3.524~~				7 0			33	0 64			0 562
	09/16/88	3	11 341	0 001	0 037		7 3			43	0 97			
	12/06/88	4	Insufficient Sample for Metals Analysis											
60-87	01/22/88	1	0 314				1 0			14				0 242
	06/06/88	2												
	09/22/88	3	0 078							15				
	12/06/88	4	0 108					NR				NR		
61-87	01/26/88	1	0 270				2 1			15	0 16		0 026	
	06/08/88	2	0 081											
	09/23/88	3	0 082											
	12/09/88	4						NR				NR		
62-87	01/25/88	1	0 410				3 0				0 17			
	06/08/88	2	0 231				0 9							
	09/23/88	3	0 145											0 430
	12/09/88	4	NR		NR	NR		NR	NR	NR	NR	NR	NR	NR

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

ABLE 29
PRESENT [illegible] ALLUVIAL GROUND-WATER
DISSOLVED METALS CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 3

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 01U	0 01U	0 071	0 005U	0 005U	34	0 02U	0 026	0 022U	0 046	0 162	0 016	0 1U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
63-87	01/26/88	1				0 246			123		0 030						15
	06/08/88	2				0 447			135					7 384		NR	24
	09/23/88	3				0 641			144					14 588		NR	22
	12/09/88	4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
67-87	01/28/88	1				0 103			40								
	06/16/88	2							35				0 054			NR	
	09/22/88	3				0 097			40				0 202			NR	
	12/14/88	4	0 048		NR	0 078			37	NR			0 483		NR	NR	
68-87	01/28/88	1				0 153								0 950			
	06/16/88	2				0 116										NR	
	09/22/88	3				0 129									NR		
	12/14/88	4			NR	0 107				NR					NR	NR	
71-87	01/29/88	1				0 084			71								9
	06/08/88	2				0 099			75							NR	10
	09/20/88	3				0 105			77							NR	9
	12/06/88	4			NR	0 10			82	NR	0 067				NR	NR	9
66-87	01/29/88	1				0 102			34		0 024		0 055				7
	06/14/88	2							66				0 143			NR	17
	09/16/88	3				0 090							0 055			NR	7
	12/07/88	4			NR					NR					NR	NR	
65-87	01/27/88	1				0 129			74								13
	06/14/88	2				0 095			60							NR	11
	09/23/88	3				0 110			62							NR	8
	12/09/88	4			NR	0 1011			57	NR					NR	NR	8

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

'9 (CONTINUED)
PRESENT L _ ALLUVIAL GROUND-WATER
DISSOLVED METALS C RATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 4

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
63-87	01/26/88	1	0 642				3 8			34	0 70			
	06/08/88	2	3 950				1 7			31	0 67			
	09/23/88	3	4 983	0 0004			1 6			34	0 75			
	12/09/88	4	NR		NR	NR	1 2	NR	NR	NR	NR	NR	NR	NR
67-87	01/28/88	1	0 667				4 9			17	0 24			0 189
	06/16/88	2	0 308				1 8			16	0 16			0 494
	09/22/88	3	0 472				1 8			16	0 21			1 220
	12/14/88	4	0 379				1 1	NR		16	0 19	NR		1 698
68-87	01/28/88	1	1 615				3 0			19	0 20			
	06/16/88	2												
	09/22/88	3	0 384							14	0 17			
	12/14/88	4	0 302					NR				NR		
71-87	01/29/88	1					1 7				0 42			
	06/08/88	2					1 1				0 42			
	09/20/88	3	0 090								0 47			
	12/06/88	4	0 67					NR			0 46	NR		
66-87	01/29/88	1	0 178		0 30		6 1			95	0 30		0 100	0 471
	06/14/88	2	0 224				5 4			79	0 45			0 594
	09/16/88	3	0 119		0 026		3 7			62	0 28			0 246
	12/07/88	4					1 7	NR		38	0 20	NR		0 197
65-87	01/27/88	1	1 048				6 2			71	0 50			
	06/14/88	2	1 565				3 3			29	0 36			
	09/23/88	3	1 132				2 3			27	0 33			
	12/09/88	4	0 915				1 8	NR		20	0 30	NR		

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

1 9 (CONTINUED)
PRESENT L[illegible]L ALLUVIAL GROUND-WATER
DISSOLVED METALS CO[illegible]TRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 5

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 071	0 0050	0 005U	34	0 02U	0 026	0 0022U	0 046	0 162	0 0162	0 01U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 0050	NS	0 01	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
64-87	01/29/88	1				0 183			47			0 031	0 057				8
	06/14/88	2				0 181			47					0 324		NR	9
	09/23/88	3				0 151			58					0 779		NR	9
	12/08/88	4	Insufficient Sample for Metals Analysis														
72-87	01/28/88	1				0 157			89								17
	06/16/88	2	DRY														
	09/21/88	3	DRY														
	12/15/88	4	DRY														
70-87	02/03/88	1	DRY														
	06/16/88	2				0 092			90				0 052			NR	30
	09/22/88	3				0 117			103				0 086			NR	25
	12/14/88	4			NR	0 106			94	NR			0 145		NR	NR	25
07-86	02/01/88	1	Insufficient Sample for Analysis														
	06/16/88	2	DRY														
	09/14/88	3	DRY														
	12/15/88	4	DRY														
40-87	02/01/88	1	DRY														
	06/14/88	2	Insufficient Sample for Analysis														
	09/14/88	3	DRY														
	12/13/88	4	DRY														
42-87	02/04/88	1				0 144			71					0 407			13
	06/16/88	2	DRY														
	09/21/88	3	DRY														
	12/12/88	4	DRY														

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

9 (CONTINUED)
PRESENT L[illegible] L ALLUVIAL GROUND-WATER
DISSOLVED METALS CO[illegible]NTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 6

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 010U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
64-87	01/29/88	1	1 200		0 355		4 2		0 0085	19	0 33		0 057	
	06/14/88	2	1 084				1 6			16	0 26			
	09/23/88	3	1 353				1 9			40	0 37			0 228
	12/08/88	4	Insufficient Sample for Metals Analysis											
72-87	01/28/88	1	0 511				3 1			23	0 60			
	06/16/88	2	DRY											
	09/21/88	3	DRY											
	12/15/88	4	DRY											
70-87	02/03/88	1	DRY											
	06/16/88	2	0 275				5 3			60	0 72			0 398
	09/22/88	3	0 403				3 8			71	0 90			0 667
	12/14/88	4	0 339				2 4	NR		72	0 85	NR		0 796
07-86	02/01/88	1	Insufficient Sample for Metals Analysis											
	06/16/88	2	DRY											
	09/14/88	3	DRY											
	12/15/88	4	DRY											
40-87	02/01/88	1	DRY											
	06/14/88	2	Insufficient Sample for Metals Analysis											
	09/14/88	3	DRY											
	12/13/88	4	DRY											
42-87	02/04/88	1	0 567				9 4			53	1 3			
	06/16/88	2	DRY											
	09/21/88	3	DRY											
	12/12/88	4	DRY											

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

'9 (CONTINUED)
PRESENT L[illegible] L ALLUVIAL GROUND-WATER
DISSOLVED METALS C[illegible]NTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 7

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 223	0 06U	0 01U	0 071	0 0050	0 005U	34	0 02U	0 026	0 0022U	0 046	0 162	0 0162	0 01U	6
Proposed Concentration Limit			5 0	0 06U	0 05	1 0	0 0050	NS	0 01	0 02U	0 05	0 022U	0 046	0 3	0 05	0 1U	NS
06-86	02/01/88	1	Insufficient Sample for Analysis														
	06/14/88	2	DRY														
	09/21/88	3	DRY														
	12/15/88	4	DRY														
05-86	03/28/88	1							270								319
	06/01/88	2	Insufficient Sample for Analysis														
		3	No Data														
		4	No Data														

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

9 (CONTINUED)
PRESENT L[illegible]L ALLUVIAL GROUND-WATER
DISSOLVED METALS CO[illegible]RATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTER 1988
PAGE 8

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			0 066	0 0002U	0 022U	0 370	0 8	0 005U	0 083	13	0 15	0 01U	0 024U	0 164
Proposed Concentration Limit			0 066	0 002	0 1	0 370	NS	0 01	0 083	NS	NS	0 01U	0 024U	0 164
06-86	02/01/88	1	Insufficient Sample for Analysis											
	06/14/88	2	DRY											
	09/21/88	3	DRY											
	12/15/88	4	DRY											
05-86	03/29/88	1					5 0	0 008		1136	7 89			
	06/01/88	2	Insufficient Sample for Analysis											
		3	No Data											
		4	No Data											

U = Analyzed but not detected above given value
NR = Anayte not reported
NS = No standard

ABLE 30
PRESENT L[illegible] - ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE[illegible]CENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Plutonium 239,240 pCi/l	Americum 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (34)	<MDA (75)	<MDA (1 3)	<MDA (0 3)	<MDA (1 6)	<593
Proposed Concentration Limit			15	50	40	40	4	20,000
10-86	02/02/88	1			11 6		Not reported	
	06/06/88	2						
	09/20/88	3						
	12/07/88	4						
58-87	01/22/88	1						
	06/06/88	2						
	09/16/88	3						
	12/14/88	4						
59-87	01/22/88	1			9 9			
	06/06/88	2			8 9			
	09/16/88	3						
	12/09/88	4	Insufficient Sample for Radionuclide Analysis					
60-87	01/22/88	1						
	06/06/88	2						
	09/22/88	3						
	12/06/88	4						
61-87	01/26/88	1						
	06/08/88	2						
	09/23/88	3						
	12/09/88	4						
62-87	01/25/88	1						
	06/08/88	2						
	09/23/88	3	No Data - Analysis Failed					
	12/09/88	4						

T) (CONTINUED)
PRESENT L ALLUVIAL GROUND WATER
DISSOLVED RADIONUCLIDE CONCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Present Landfill Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Plutonium 239,240 pCi/l	Americum 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (34)	<MDA (75)	<MDA (1 3)	<MDA (0 3)	<MDA (1 6)	<593
Proposed Concentration Limit			15	50	40	40	4	20,000
63-87	01/26/88	1			8 4			
	06/08/88	2			6 6			
	09/23/88	3						2100
	12/09/88	4						1800
67-87	01/28/88	1			1 0			
	06/16/88	2						
	09/22/88	3						
	12/14/88	4						
68-87	01/28/88	1						
	06/16/88	2						
	09/22/88	3						
	12/14/88	4						
71-87	01-29-88	1						
	06/08/88	2			2 0			
	09/20/88	3	No Data - Analysis Failed					
	12/06/88	4						
06-86	02/01/88	1	Insufficient sample for radiochemical analysis					
	06/14/88	2	Dry					
	09/21/88	3	Dry					
	12/15/88	4	Dry					
05-86	03/29/88	1	110	54	169			
	06/01/88	2	Insufficient sample for radiochemical analysis					
		3	No Data					
		4	No Data					

ABLE 31
PRESENT [illegible] L BEDROCK GROUND WATER
INORGANIC CONCE[illegible]TIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Present Landfill Bedrock Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids mg/l	Chloride mg/l	Nitrate mg/l	Sulfate mg/l	Bicarbonate mg/l
Background Concentration			467	24	0 07	92	347
Proposed Concentration Limit			400	250	10	250	No Standard
09-86	02/04/88	1				151	
	06/06/88	2					
	09/20/88	3					
	12/16/88	4					
08-86	02/04/88	1			0 34	125	
	06/14/88	2	Insufficient Sample for Inorganic Analysis				
	09/14/88	3	Insufficient Sample for Inorganic Analysis				
	12/13/88	4	Insufficient Sample for Inorganic Analysis				
41-87	02/03/88	1	1880	928			
	06/14/88	2					
	09/14/88	3	Insufficient Sample for Inorganic Analysis				
	12/13/88	4	Insufficient Sample for Inorganic Analysis				

TABLE 32
PRESENT LANDFILL BEDROCK GROUND WATER
DISSOLVED METALS CONCENTERATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Present Landfill Bedrock Wells

Well Number	Date Sampled	Qtr	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Calcium mg/l	Cesium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l	Lead mg/l	Lithium mg/l	Magnesium mg/l
Background Concentration			0 038	0 06U	0 01	0 106	0 005U	0 005	110	0 02U	0 033	0 022U	0 048	0 161	0 019	0 1U	25
Proposed Concentration Limit			5	0 06U	0 05	1 0	0 005U	0 01	NS	0 02U	0 05	0 022U	0 048	0 3	0 05	0 1U	NS
09-86	02/24/88	1				0 107											
	06/06/88	2				0 109								0 318		NR	
	09/20/88	3				0 132										NR	
	12/16/88	4	243			0 113										NR	
08-86	02/24/88	1	0 042													NR	
	06/14/88	2	Insufficient Sample for Metals Analysis														
	09/14/88	3	Insufficient Sample for Metals Analysis														
	12/15/88	4	Insufficient Sample for Metals Analysis														
41-87	02/03/88	1				0 290										0 13	
	06/14/88	2	Insufficient Sample for Metals Analysis														
	09/14/88	3	Insufficient Sample for Metals Analysis														
	12/13/88	4	Insufficient Sample for Metals Analysis														

TABLE 32 (CONTINUED)
PRESENT LANDFILL BEDROCK GROUND-WATER
DISSOLVED METALS CONCENTERATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988
PAGE 2

Present Landfill Bedrock Wells

Well Number	Date Sampled	Qtr	Manganese mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Potassium mg/l	Selenium mg/l	Silver mg/l	Sodium mg/l	Strontium mg/l	Thallium mg/l	Vanadium mg/l	Zinc mg/l
Background Concentration			25	0 0002U	0 022U	0 054	5 2	0 005U	0 0080	36	0 87	0 01U	0 024U	0 098
Proposed Concentration Limit			NS	0.002	0 1	0 2	NS	0 01	0 05	NS	NS	0 01U	0 024U	0 098
09-86	02/24/88	1		0 0002						58				
	06/06/88	2								55				
	09/20/88	3								61				
	12/16/88	4												0 11
08-86	02/24/88	1			0 041					72				
	06/14/88	2	Insufficient Sample for Metals Analysis											
	09/14/88	3	Insufficient Sample for Metals Analysis											
	12/15/88	4	Insufficient Sample for Metals Analysis											
41-87	02/03/88	1					8 6			443	1 33			
	06/14/88	2	Insufficient Sample for Metals Analysis											
	09/14/88	3	Insufficient Sample for Metals Analysis											
	12/13/88	4	Insufficient Sample for Metals Analysis											

ABLE 33
PRESENT [illegible] L BEDROCK GROUND WATER
DISSOLVED RADIONUCLIDE [illegible]NCENTRATIONS ABOVE ESTIMATED BACKGROUND
FIRST THROUGH FOURTH QUARTERS 1988

Present Landfill Bedrock Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	Gross Beta pCi/l	Total Uranium pCi/l	Plutonium 239,240 pCi/l	Americum 241 pCi/l	Tritium pCi/l
Background Concentration			<MDA (40)	<MDA (76)	2 42	<MDA (64)	<MDA (4 6)	<593
Proposed Concentration Limit			15	50	40	40	4	20,000
09-86	02/04/88	1						
	06/06/88	2						
	09/20/88	3						
	12/16/88	4						
08-86	02/04/88	1			3 8			
	06/14/88	2	Insufficient Sample for Radionuclide Analysis					
	09/14/88	3	Insufficient Sample for Radionuclide Analysis					
	12/15/88	4	Insufficient Sample for Radionuclide Analysis					
41-87	02/03/88	1						
	06/14/88	2			7 4			
	09/14/88	3	Insufficient Sample for Radionuclide Analysis					
	12/13/88	4	Insufficient Sample for Radionuclide Analysis					

ABLE 34
PRESENT [illegible] ILL BEDROCK GROUND-WATER
VOLATILE ORGANIC [illegible]NCENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTER 1988

Present Landfill Bedrock Wells

Well Number	Date Sampled	Qtr	Chloro-methane ug/l	Bromo-methane ug/l	Vinyl Chloride ug/l	Chloro-methane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l	1,1-Dichloro-ethene ug/l	1,1-Dichloro-ethane ug/l	Trans-1,2-Di chloroethene ug/l	Chloroform ug/l	1,2-Dichloro-ethane ug/l
09-86	02/04/88	1												
	06/06/88	2												
	09/20/88	3					32							
	12/16/88	4					4 BJ						2 BJ	
08-86	02/04/88	1												
	06/14/88	2												
	09/14/88	3					33							
	12/15/88	4					4 BJ							
41-87	02/03/88	1												
	06/14/88	2												
	09/14/88	3					33							
	12/13/88	4					5 BJ						2 BJ	

J = Present below detection limit
B = Present in laboratory blank

1 4 (CONTINUED)
PRESENT [illegible] L BEDROCK GROUND-WATER
VOLATILE ORGANIC [illegible]CENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTER 1988
PAGE 2

Present Landfill Bedrock Wells

Well Number	Date Sampled	Qtr	2-Butanone ug/l	1,1,1-Trichloroethane ug/l	Carbon Tetra Chloride ug/l	Vinyl Acetate ug/l	Bromodichloromethane ug/l	1,2-Dichloropropane ug/l	Trans-1,3-Dichloropropene ug/l	Trichloroethene ug/l	Dibromochloromethane ug/l	1,1,2-Trichloroethane ug/l	Benzene ug/l	Cis-1,3-Dichloropropene ug/l
09-86	02/04/88	1												
	06/06/88	2												
	09/20/88	3												
	12/16/88	4												
08-86	02/04/88	1												
	06/14/88	2												
	09/14/88	3												
	12/15/88	4												
41-87	02/03/88	1												
	06/14/88	2												
	09/14/88	3												
	12/13/88	4												

J = Present below detection limit
B = Present in laboratory blank

TABLE 4 (CONTINUED)
PRESENT [illegible] L BEDROCK GROUND WATER
VOLATILE ORGANIC [illegible]CENTRATIONS ABOVE DETECTION LIMITS
FIRST THROUGH FOURTH QUARTER 1988
PAGE 3

Well Number	Date Sampled	Qtr	2-Chloro ethylvi-nylether ug/l	Bromo-form ug/l	4-Methyl-2-penta-none ug/l	2-Hexa-none ug/l	Tetra-chloro-ethene ug/l	1,1,2,2-Tetrachlo roethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l	Total Xylenes ug/l
09-86	02/04/88	1											
	06/06/88	2											
	09/20/88	3											
	12/16/88	4							3 BJ				
08-86	02/04/88	1											
	06/14/88	2											
	09/14/88	3											
	12/15/88	4							3 BJ				
41-87	02/03/88	1											
	06/14/88	2											
	09/14/88	3											
	12/13/88	4							5 BJ				

J = Present below detection limit
B = Present in laboratory blank

TABLE 35

PRESENT LANDFILL AREA PROPOSED MONITORING WELLS

Well Number	Zone of Completion	Estimated Screen Depth (ft)	Estimated Total Depth of Well (ft)	Purpose
PROPOSED ALTERNATE MONITORING WELLS				
LF 01	Alluvium	13 20	20	Monitor ground water quality and water levels within the landfill, replace well 59-86
LF 02	Sandstone	28-33	33	Monitor ground water quality and water levels in sandstone which subcrops at 64-87.
LF-03	Sandstone	28-33	33	Monitor ground-water quality and water levels in sandstone which subcrops at 64-87.
LF-04	Alluvium	3 15	15	Monitor ground-water quality and water levels in alluvium inside south slurry wall
LF-05	Sandstone	8 18	18	Monitor ground-water quality and water levels in sandstone which subcrops at 72-87
LF-06	Sandstone	15 25	25	Monitor ground water quality and water levels in sandstone which subcrops at 72-87.
LF 07	Alluvium	3 5 13 5	13 5	Monitor ground water quality and water levels in alluvium on south side of landfill
LF 08	Claystone	14 5 24 5	24 5	Monitor ground water quality and water levels in weathered claystone adjacent to well LF-07
LF-09	Sandstone	13 23	23	Monitor ground-water quality and water levels in sandstone subcrop beneath the landfill pond.
LF-10	Alluvium	3 5 10	10	Monitor ground-water quality and water levels in alluvium at southeast corner of landfill
LF-11	Claystone	6-16	16	Monitor ground-water quality and water levels in weathered claystone adjacent to 40-87.
LF-12	Sandstone	32 5-53	53	Monitor ground-water quality and water levels in uppermost sandstone encountered in well 41-87BR
LF-13	Sandstone	68 78	78	Monitor ground-water quality and water levels in middle sandstone encountered in well 41-87BR.
LF-14	Alluvium	3 5 13.5	13.5	Monitor ground-water quality and water levels in alluvium on north side of landfill.
LF-15	Claystone	14 5 24 5	24 5	Monitor ground-water quality and water levels in weathered claystone adjacent to LF-14

Section 2

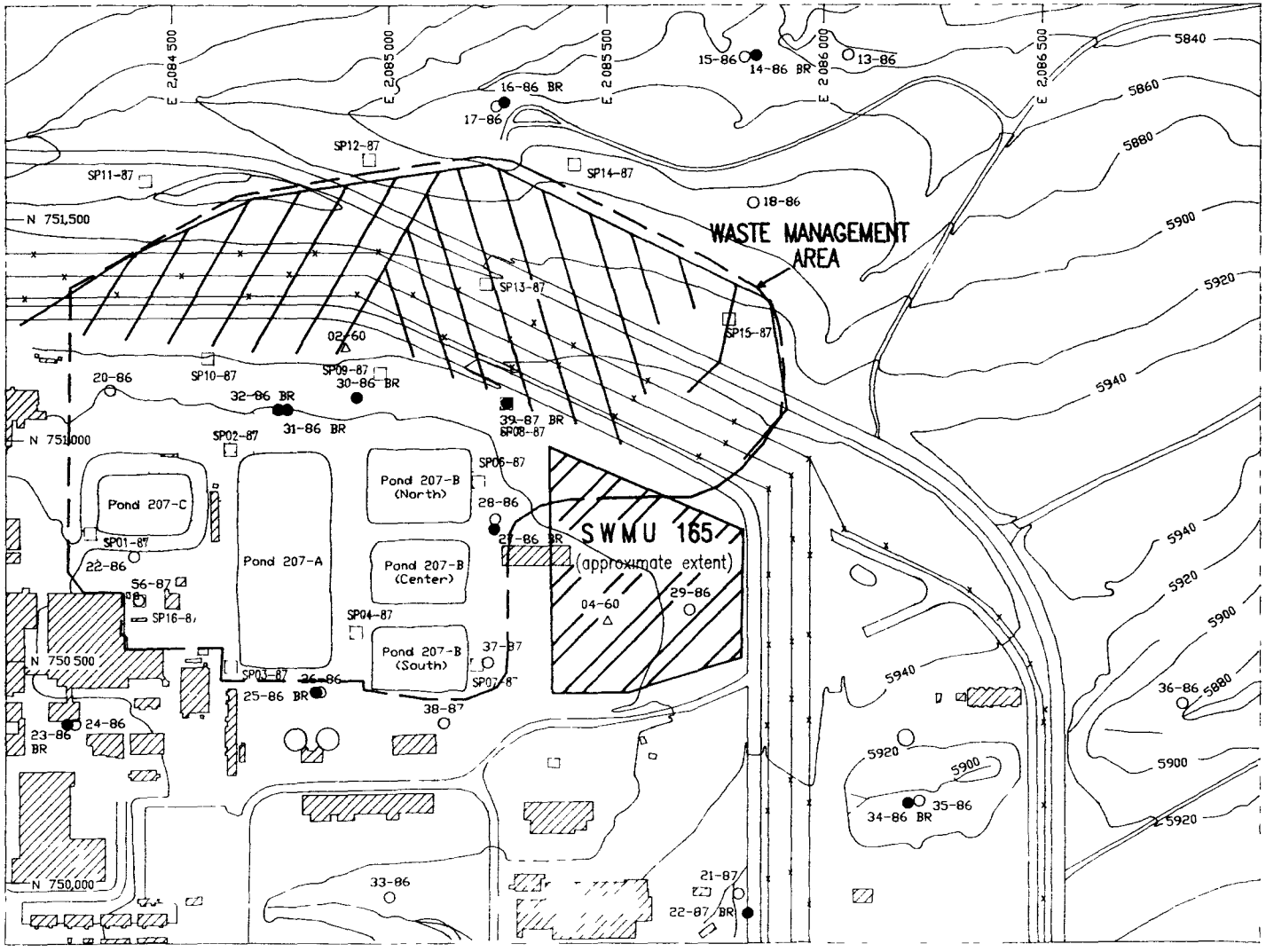
ATTACHMENT 2

PLATE

Section 3

ATTACHMENT 3

FIGURES



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- □ SP07-87 Boring Location and Designation
- French Drain System
- Waste Management Area
- Subcropping Sandstone (estimated extent)
- Solid Waste Management Unit

N

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

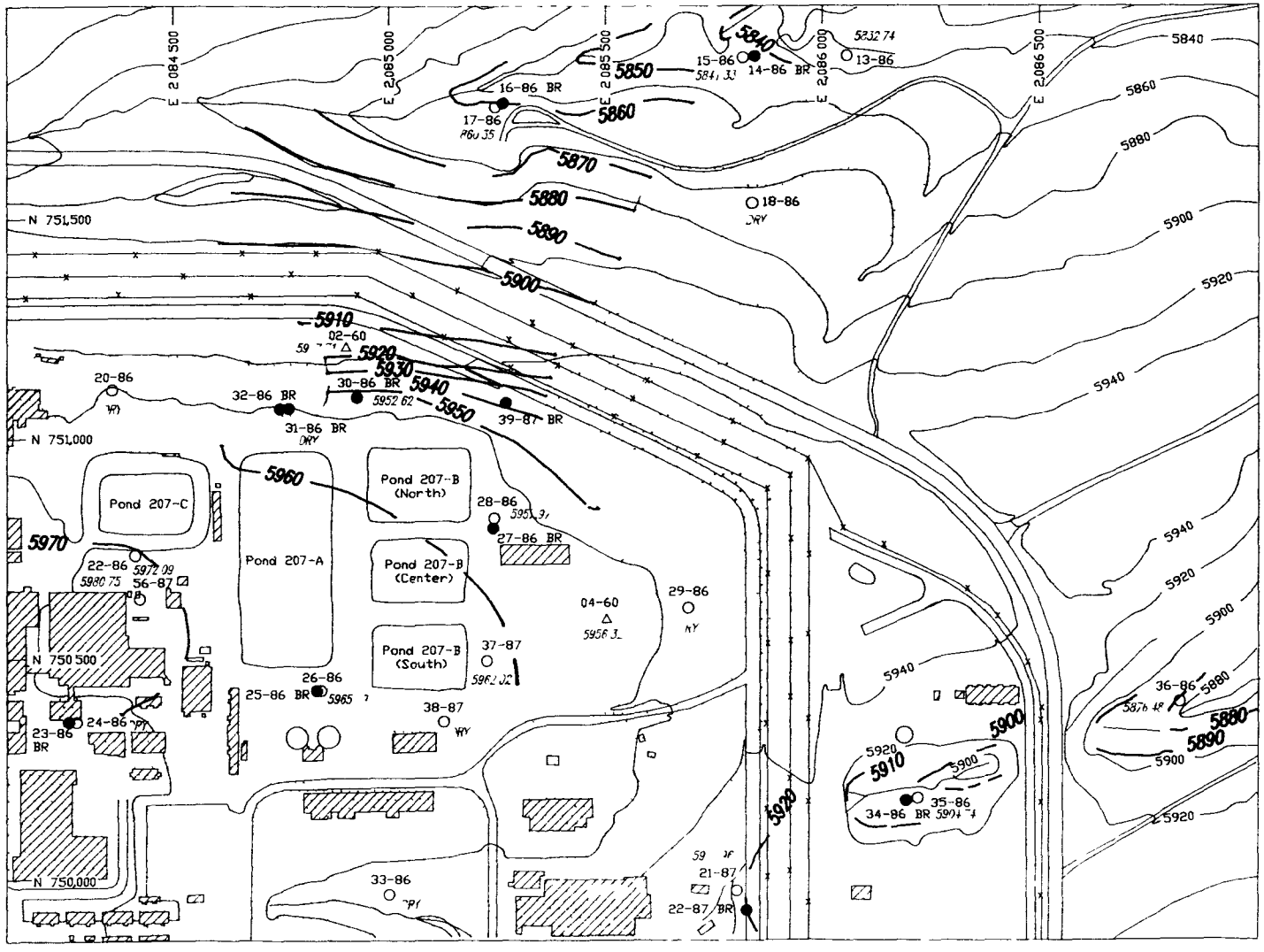
FIGURE 1

Solar Evaporation Ponds

BEDROCK GEOLOGY AND WASTE MANAGEMENT AREAS

March 1 1989

SP009



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre–1986 Well
- 45–86 Well Designation
- 6028 62 Potentiometric Surface Elevation (feet above mean sea level)
- 6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
- Approximate Area of Unsaturated Surficial Materials

NOTE See Appendices E–1 and E–2 for Water Level Data

-N-

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

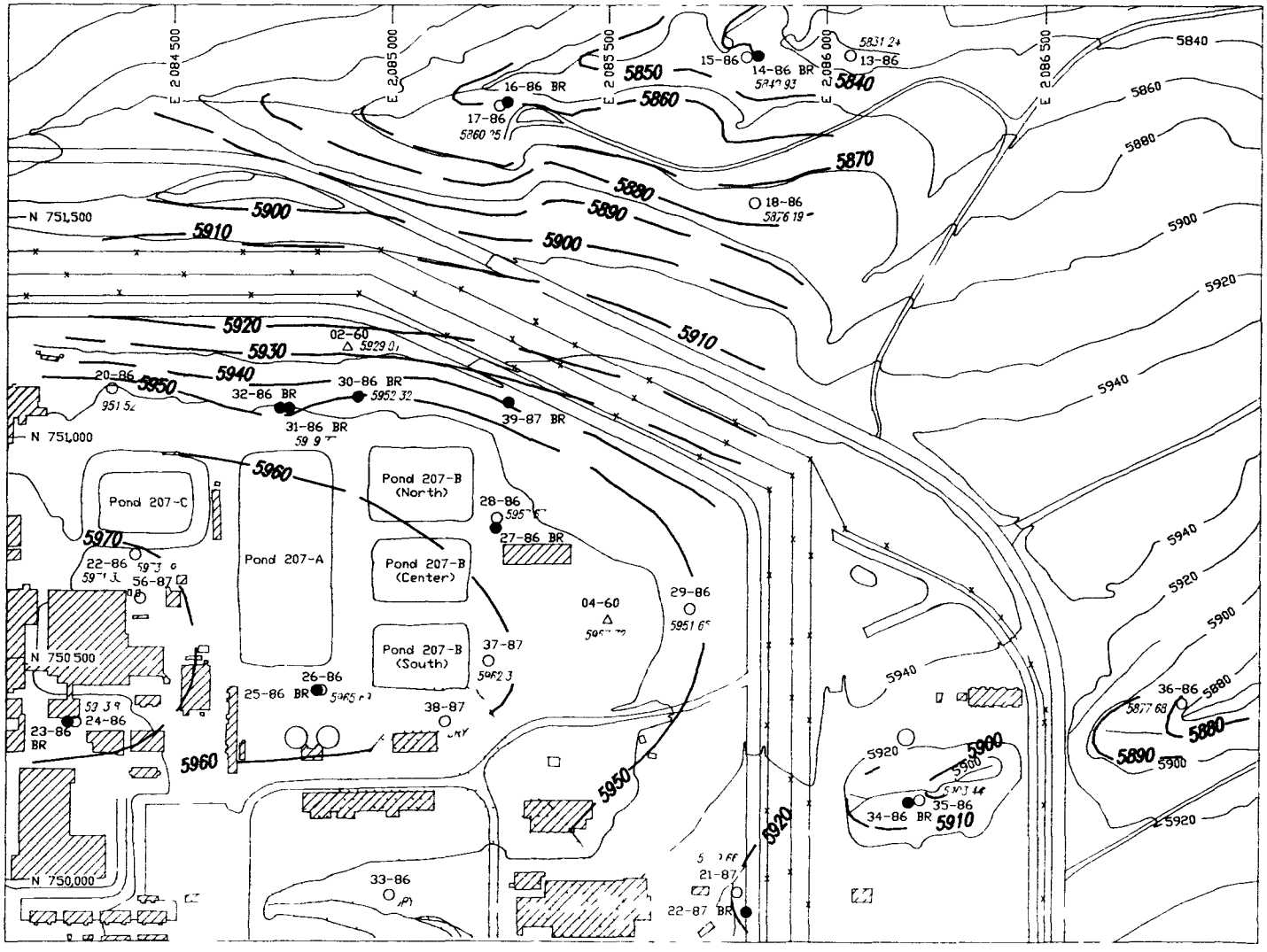
FIGURE 2

Solar Evaporation Ponds

WATER TABLE ELEVATION
March 1988

March 1 1989

SP001



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- 6028 62 Potentiometric Surface Elevation (feet above mean sea level)
- 6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
- Approximate Area of Unsaturated Surficial Materials

NOTE See Appendices E-1 and E-2 for Water Level Data

N

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

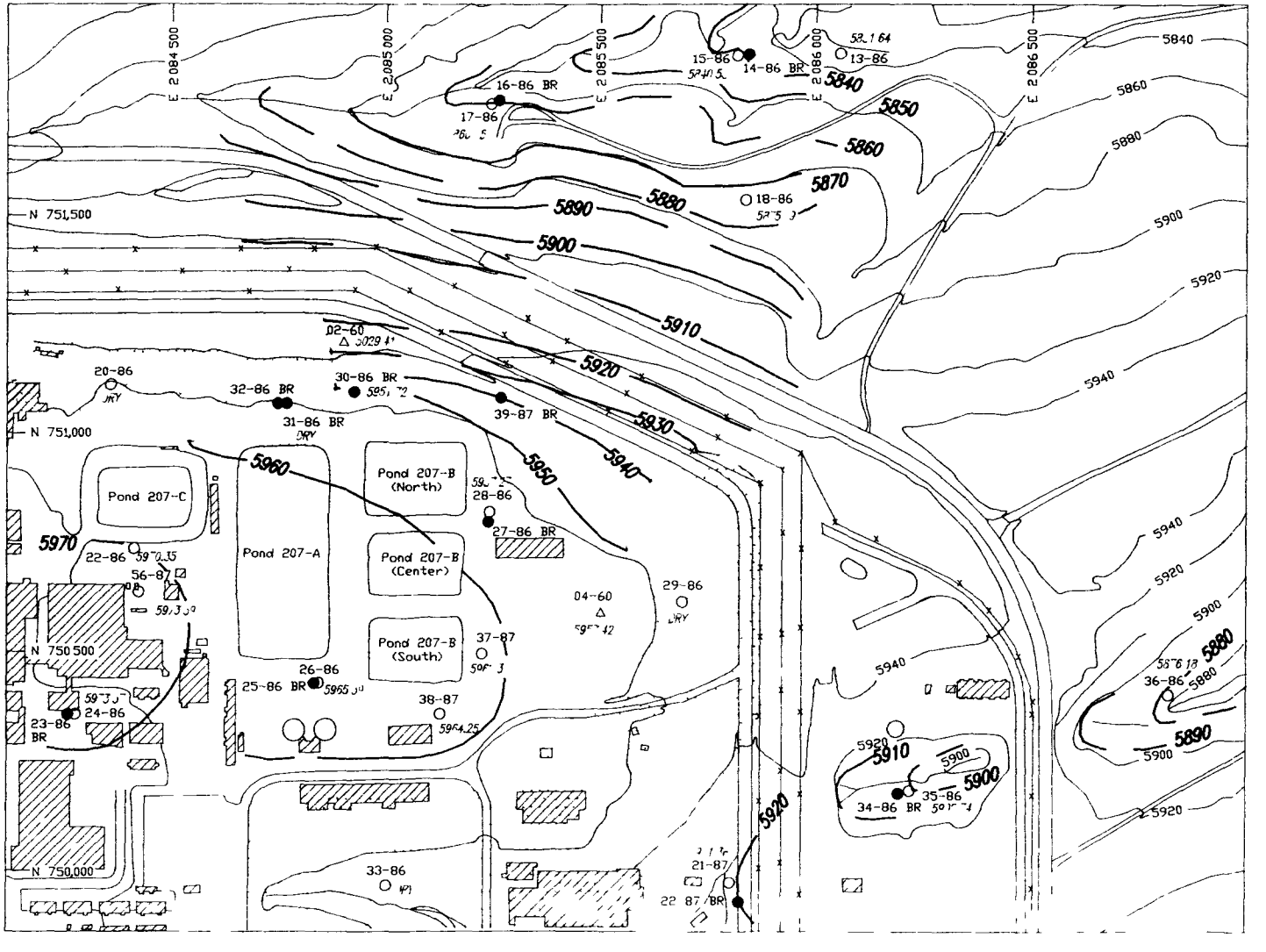
FIGURE 3

Solar Evaporation Ponds

WATER TABLE ELEVATION
June 1988

March 1 1989

SP002



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- 6028.62 Potentiometric Surface Elevation (feet above mean sea level)
- 6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
- Approximate Area of Unsaturated Surficial Materials

NOTE See Appendices E-1 and E-2 for Water Level Data

N

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

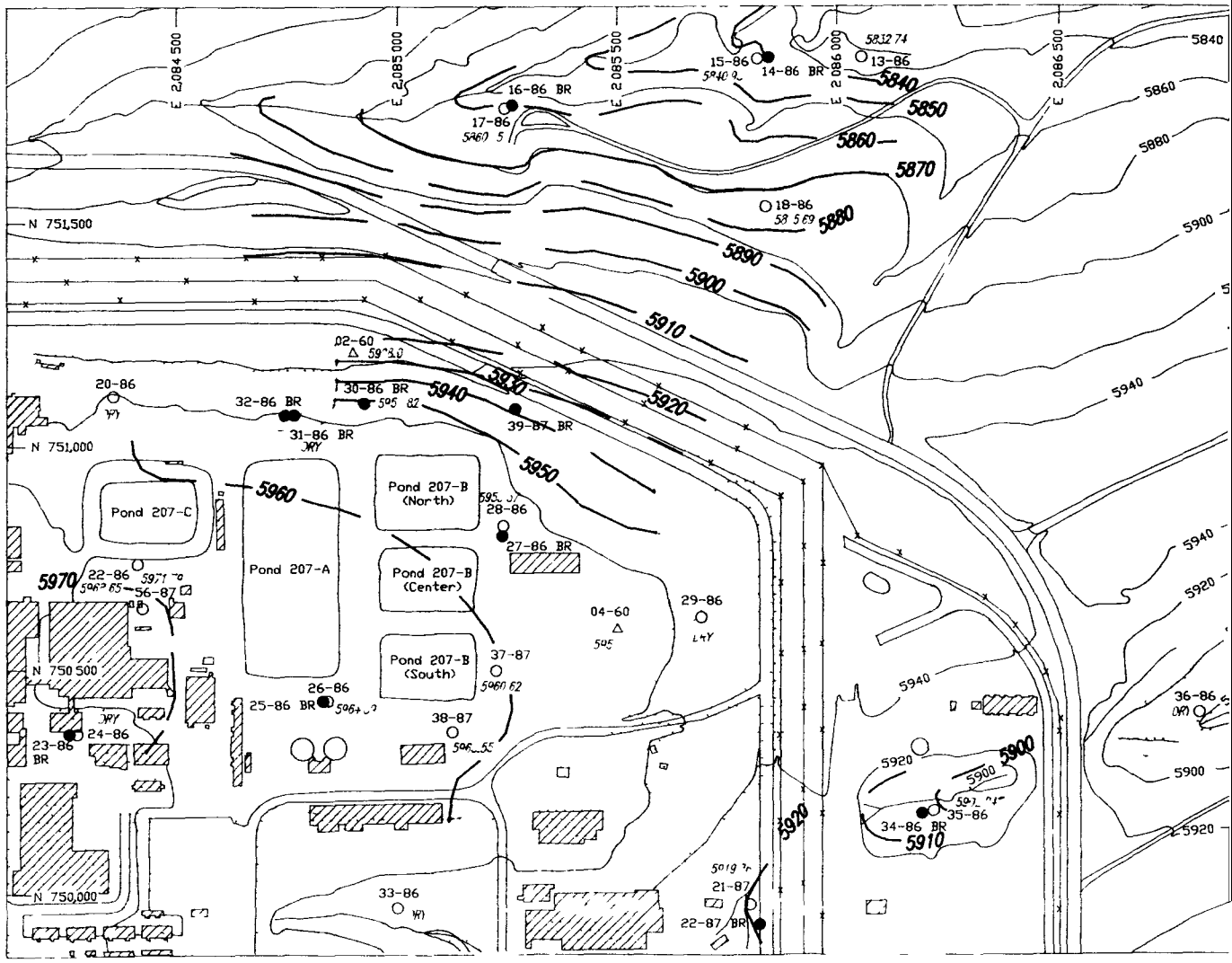
FIGURE 4

Solar Evaporation Ponds

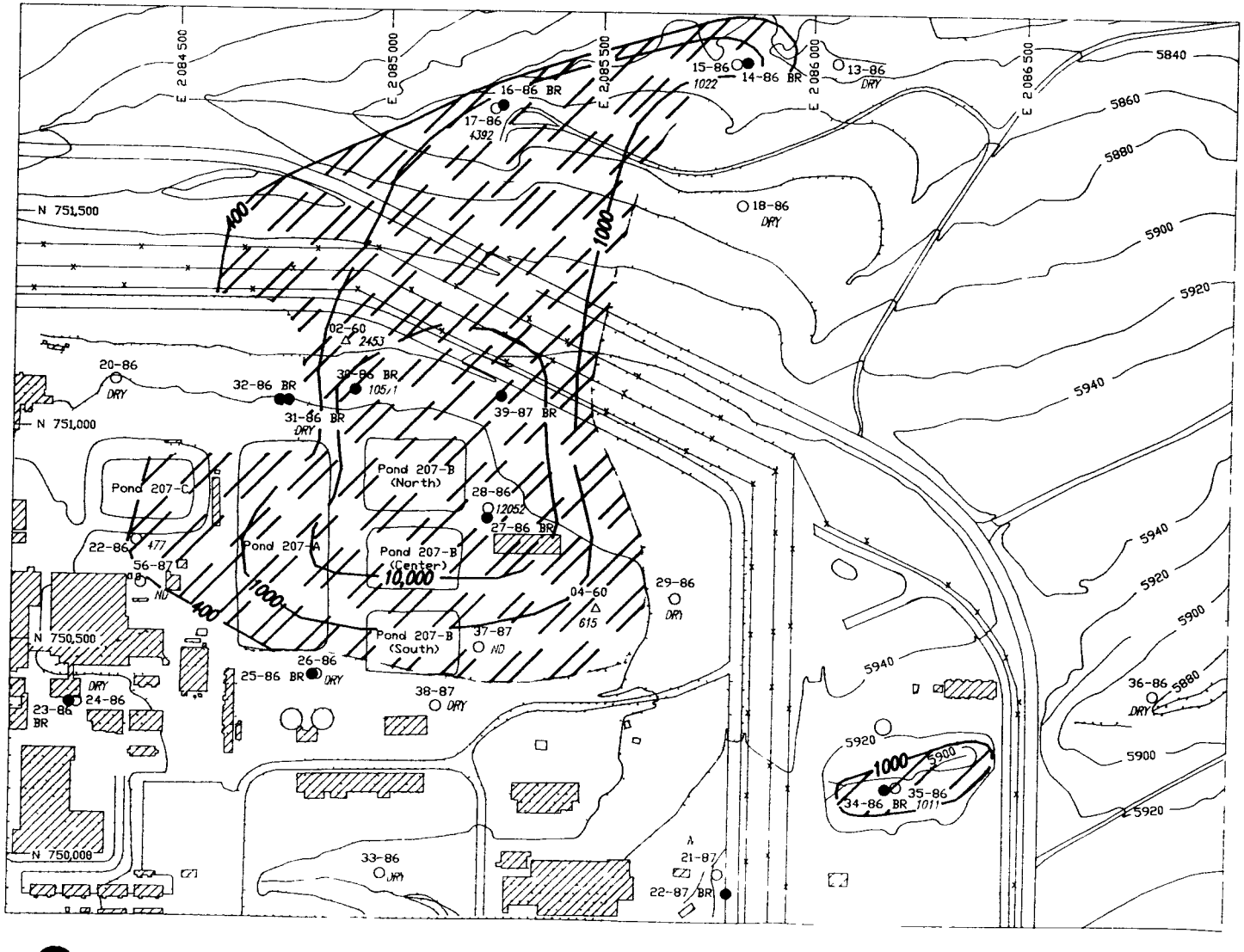
WATER TABLE ELEVATION
August 1988

March 1 1989

SP003


E 2,084 500
E 2,085 000
E 2,085 500
E 2,086 000
E 2,086 500
N 751,500
N 751,000
N 750 500
N 750,000
Pond 207-C
Pond 207-A
Pond 207-B (North)
Pond 207-B (Center)
Pond 207-B (South)
5840
5850
5860
5870
5880
5890
5900
5910
5920
5930
5940
5950
5960
5970
16-86 BR
17-86
15-86
14-86 BR
13-86
18-86
02-60
20-86
32-86 BR
30-86 BR
31-86 BR
39-87 BR
28-86
27-86 BR
22-86
56-87
04-60
29-86
37-87
26-86
25-86 BR
38-87
24-86
23-86 BR
36-86
35-86
34-86 BR
33-86
21-87
22-87 BR

SP004



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- ND No Data – Insufficient Sample for Inorganic Analyses
- 12052 Total Dissolved Solids Concentration (mg/l)
- 400 Line of Equal Total Dissolved Solids Concentration (mg/l) – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials
- Approximate Area of Ground-water Exceeding Proposed Concentration Limit (400 mg/l)

NOTE See Appendix B for Analytical Data

-N-

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

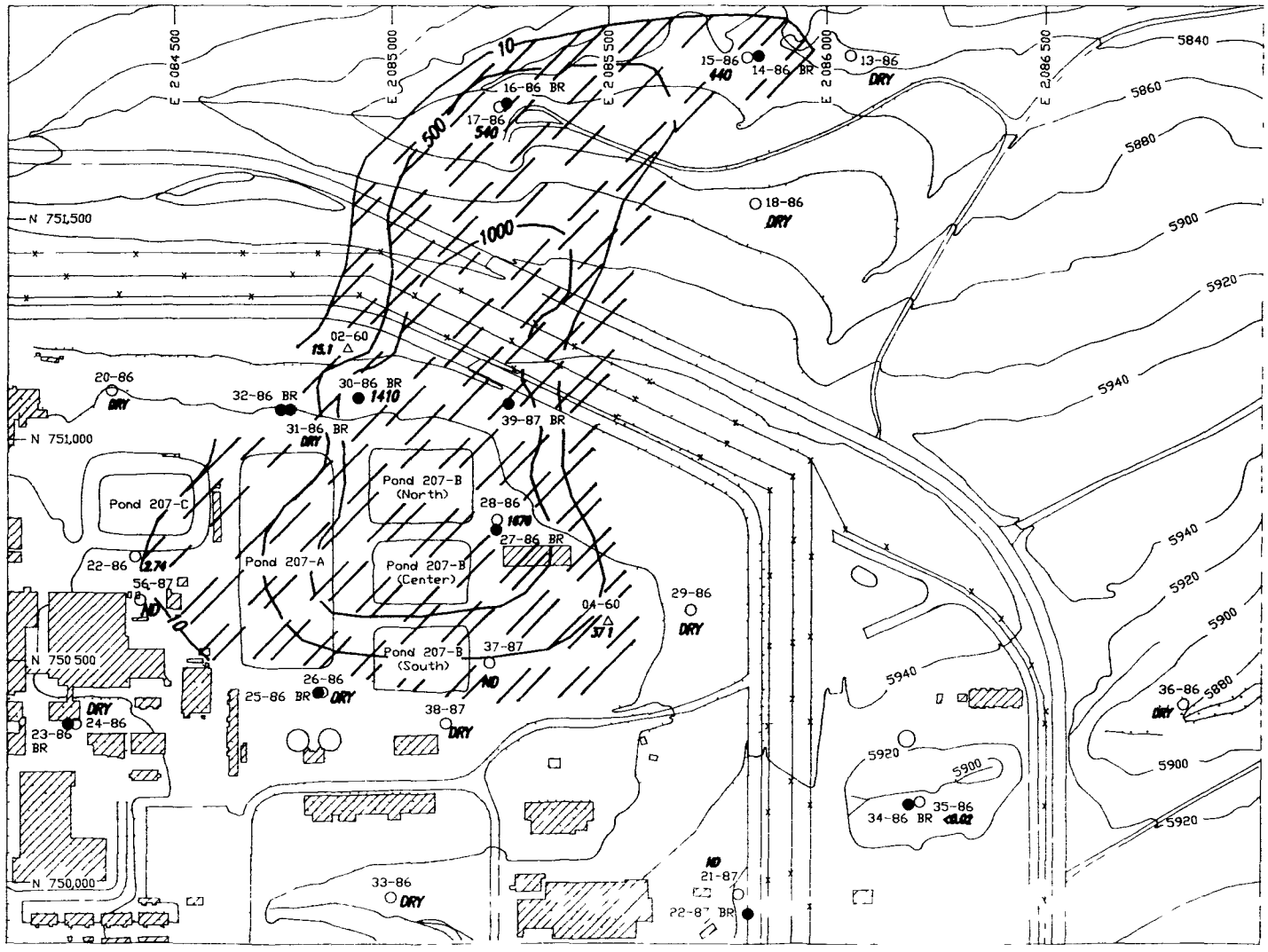
FIGURE 6

Solar Evaporation Ponds

TOTAL DISSOLVED SOLIDS CONCENTRATIONS (mg/l) IN SHALLOW MONITOR WELLS
First Qu[illegible]988

March 1 1989

SP005



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- ND No Data – Insufficient Sample for Inorganic Analyses
- 1410 Nitrate Concentration (mg/l)
- 500 Line of Equal Nitrate Concentration (mg/l) – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials
- Approximate Area of Ground-water Exceeding Proposed Concentration Limit (10 mg/l)

NOTE See Appendix B for Analytical Data

-N-

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

FIGURE 7

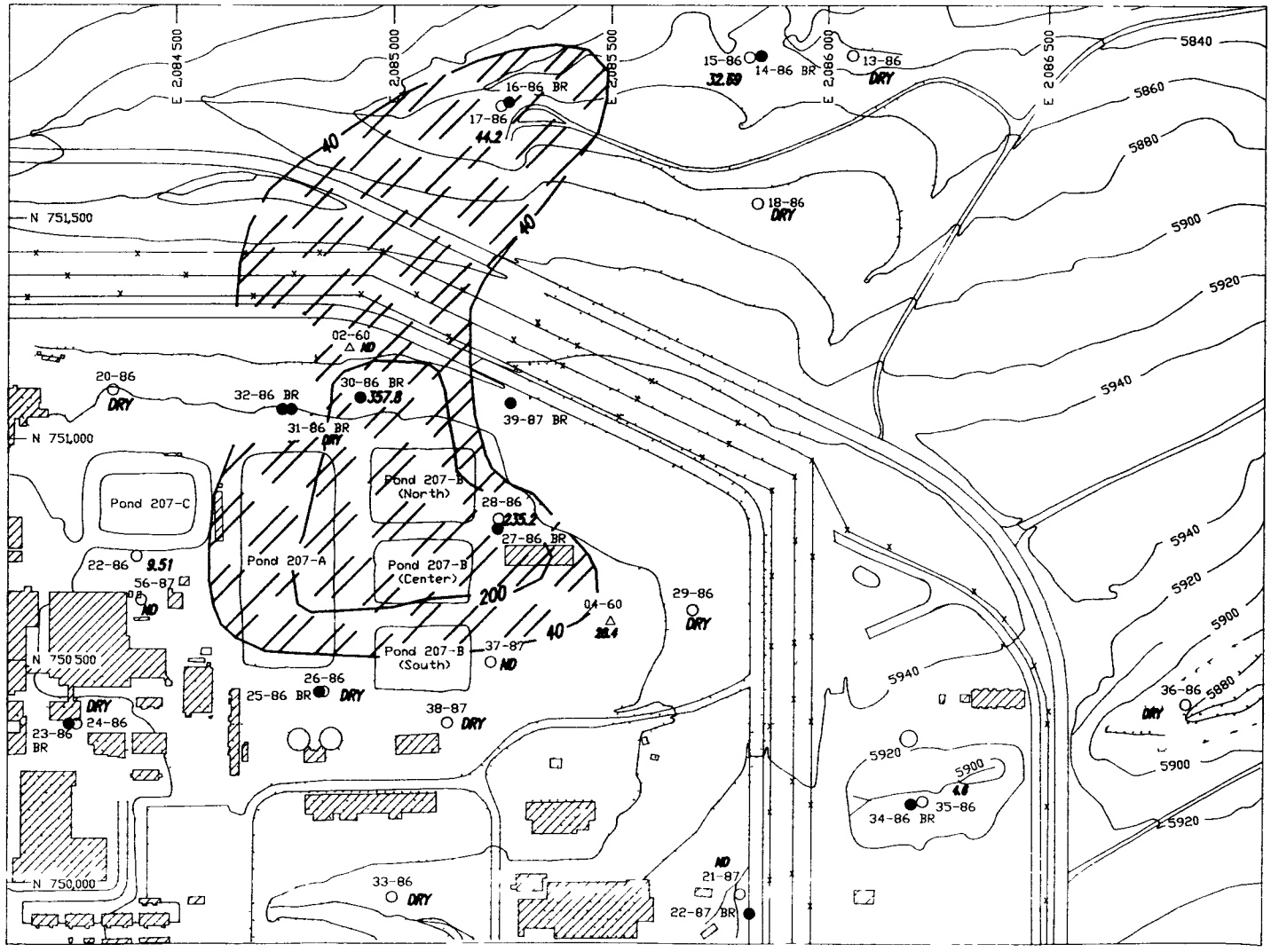
Solar Evaporation Ponds

NITRATE CONCENTRATIONS (mg/l) IN SHALLOW GROUNDWATER

First Quarter 1988

March 1 1989

SP006



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- ND No Data – Insufficient Sample for Uranium Analysis
- 10 Total Uranium Concentration (pCi/l)
- 500 Line of Equal Total Uranium Concentration (pCi/l) – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials
- Approximate Area where Groundwater Exceeds Proposed Concentration Limit (40 pCi/l)

NOTE See Appendix B for Analytical Data

-N-

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

FIGURE 8

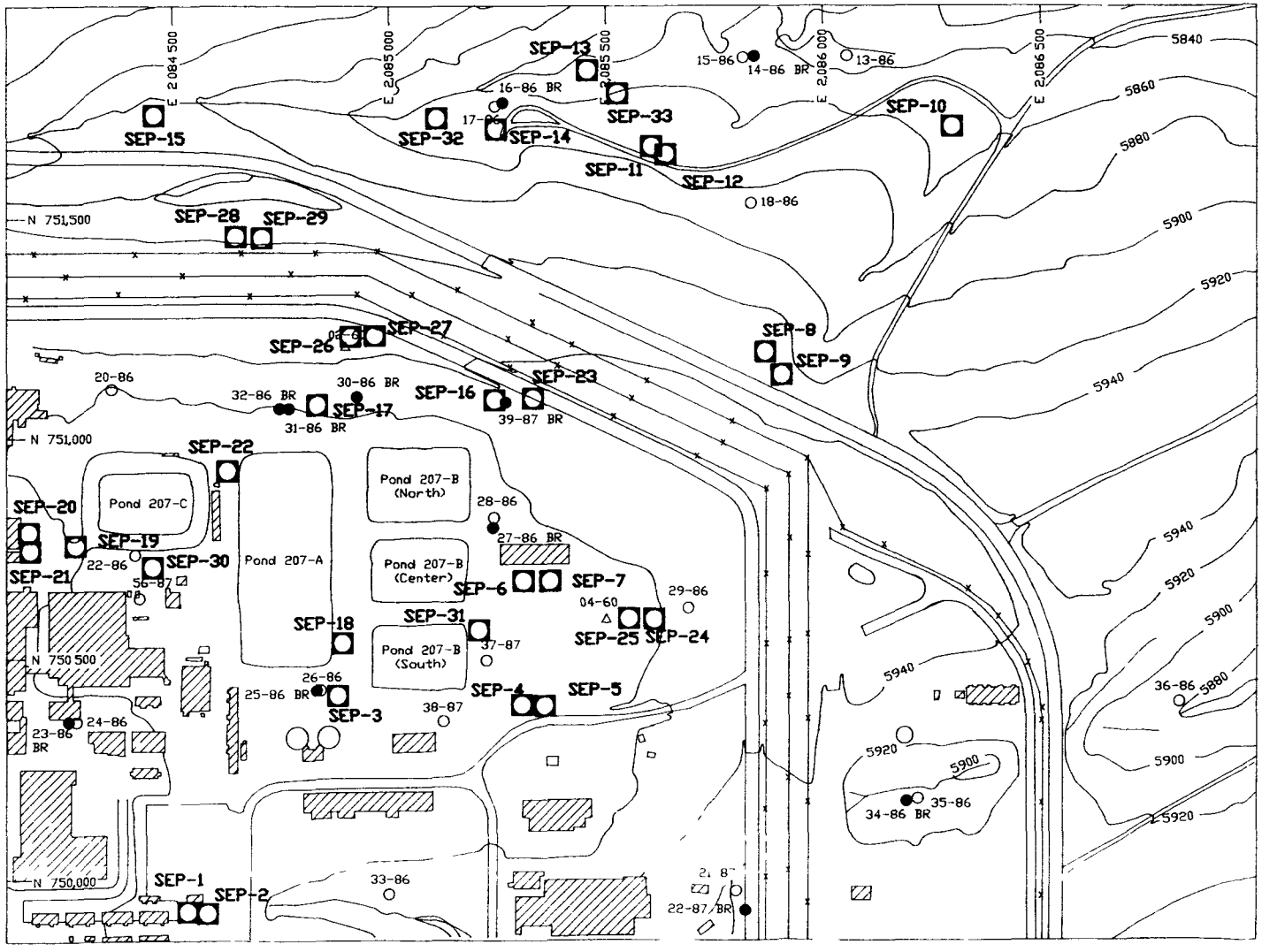
Solar Evaporation Ponds

TOTAL URANIUM CONCENTRATIONS (pCi/l) IN SHALLOW GROUNDWATER

First Q[illegible] 1988

March 1 1989

SP007



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- △ Pre-1986 Well
- 45-86 Well Designation
- SF-5 Approximate Location of Proposed Monitoring Well

NOTE. See Table 14 for Well Descriptions

-N-

Scale 1 = 250

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

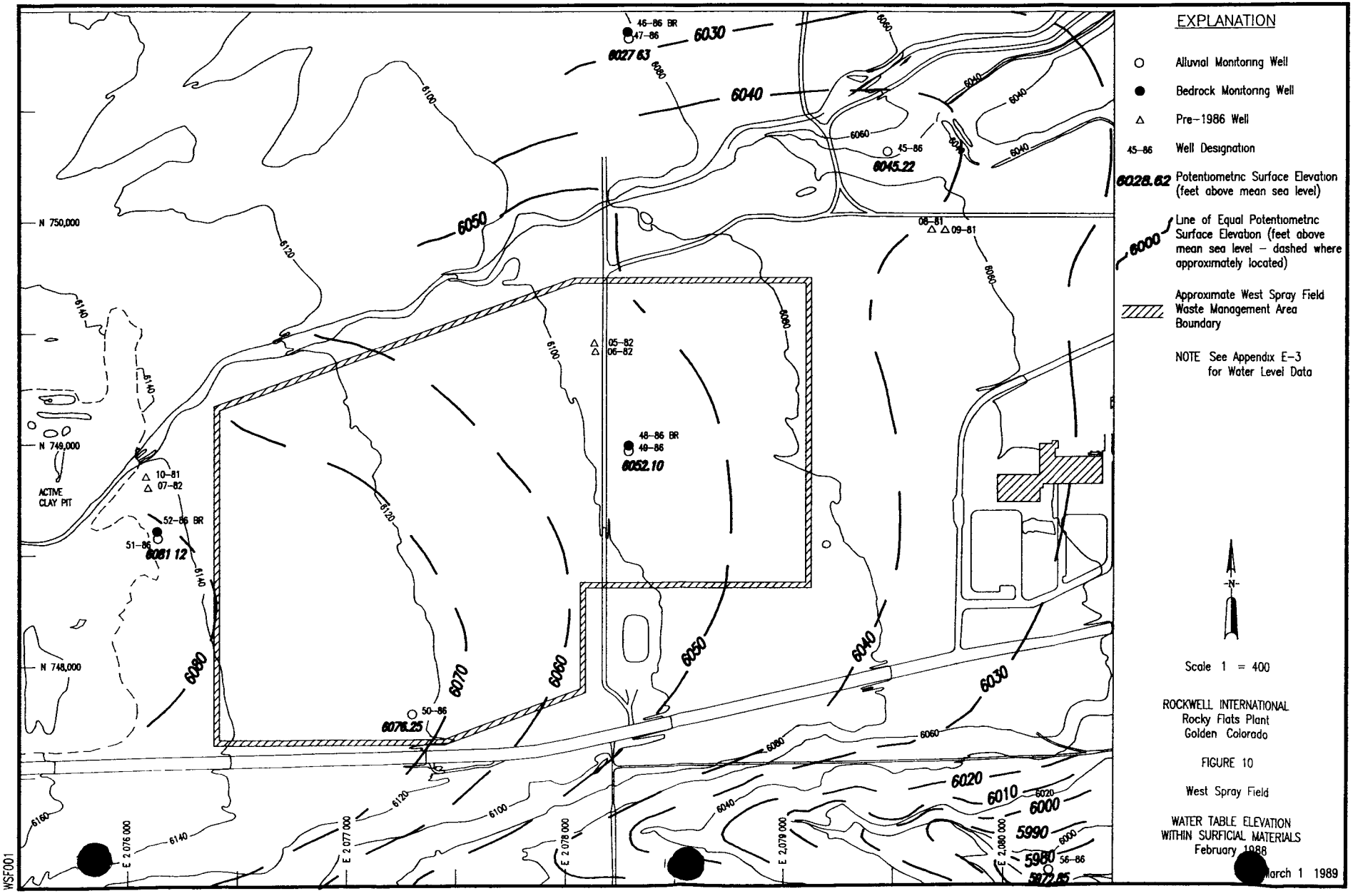
FIGURE 9

Solar Evaporation Ponds

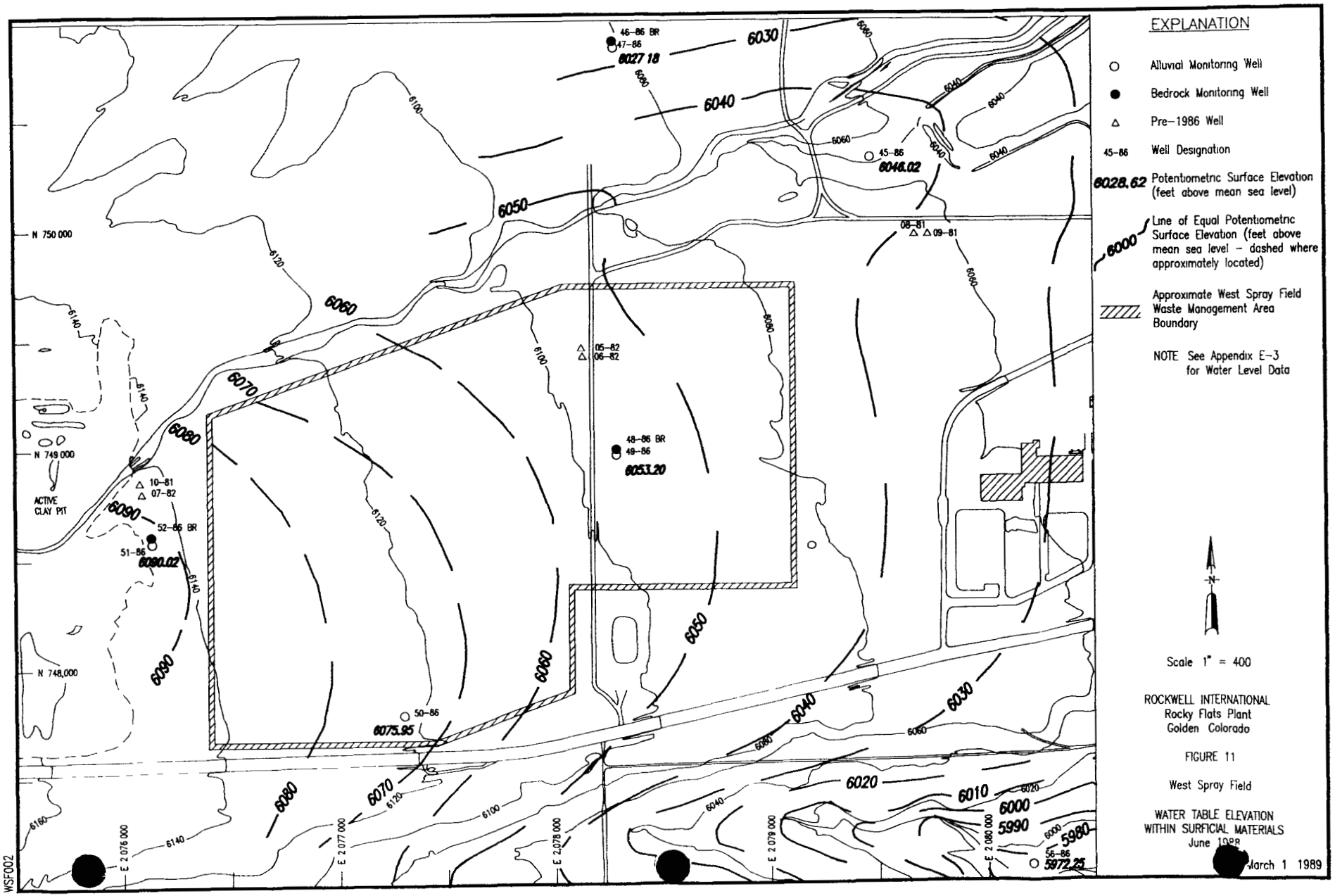
PROPOSED MONITORING WELL LOCATIONS

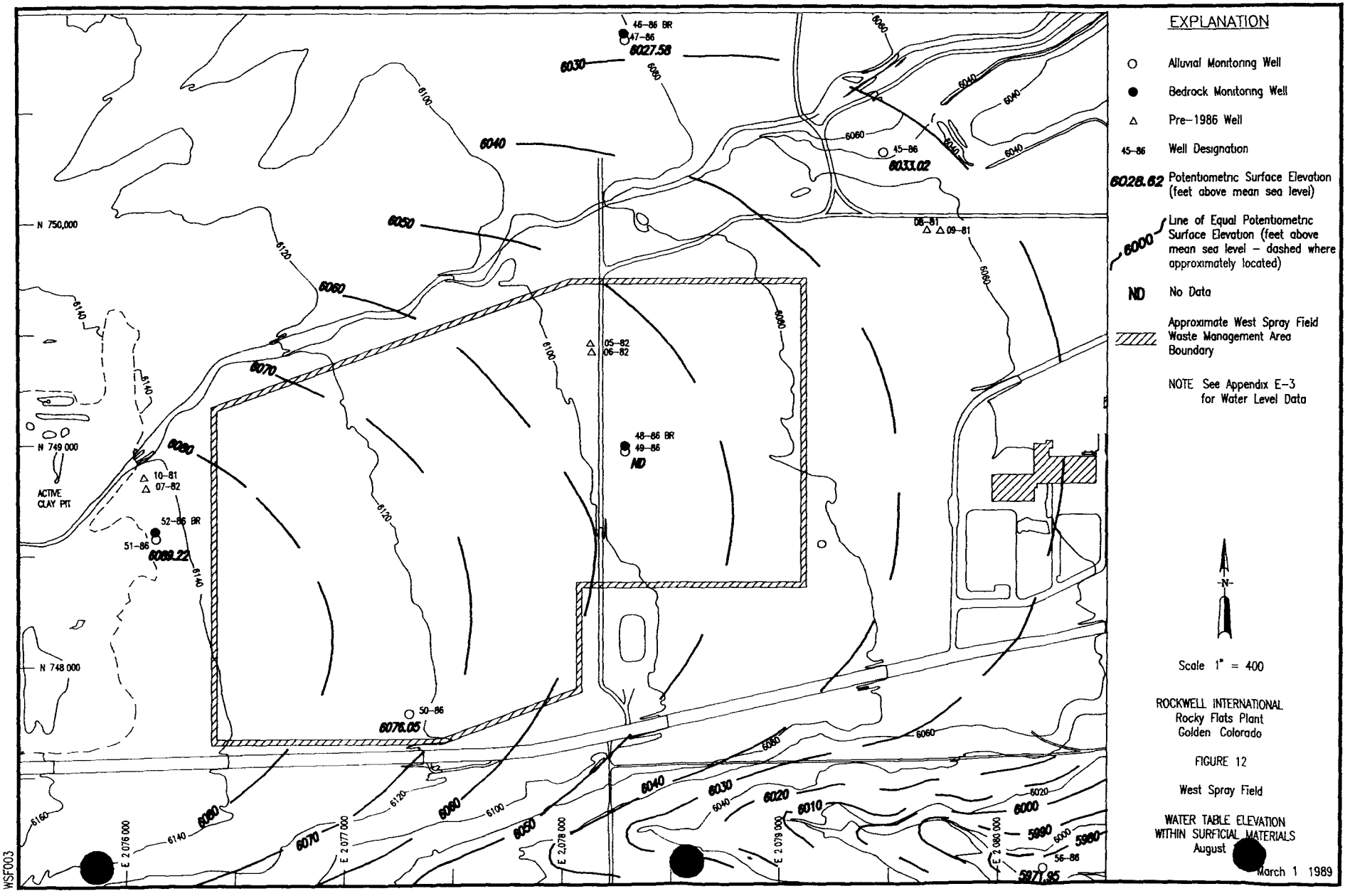
March 1 1989

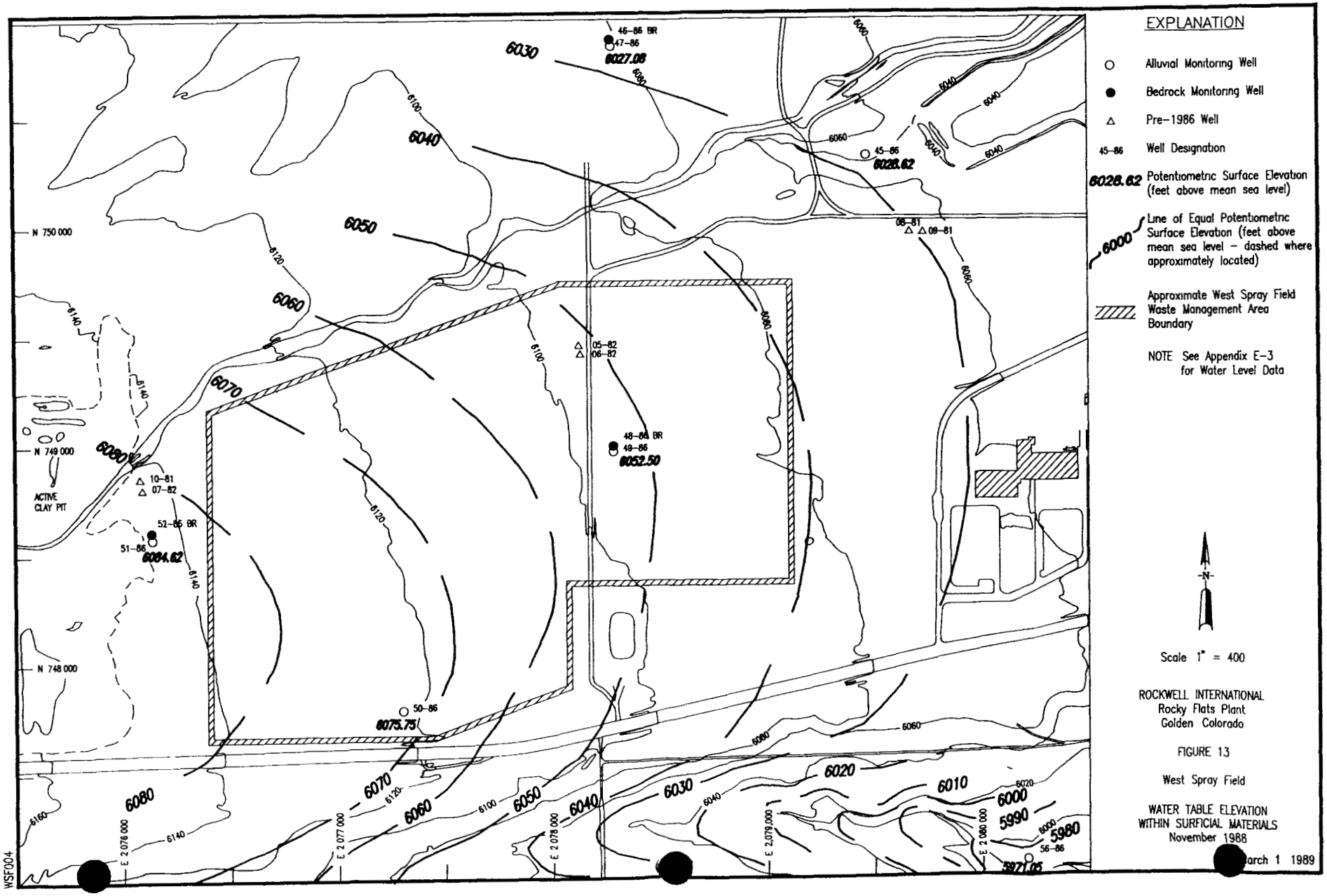
SP008

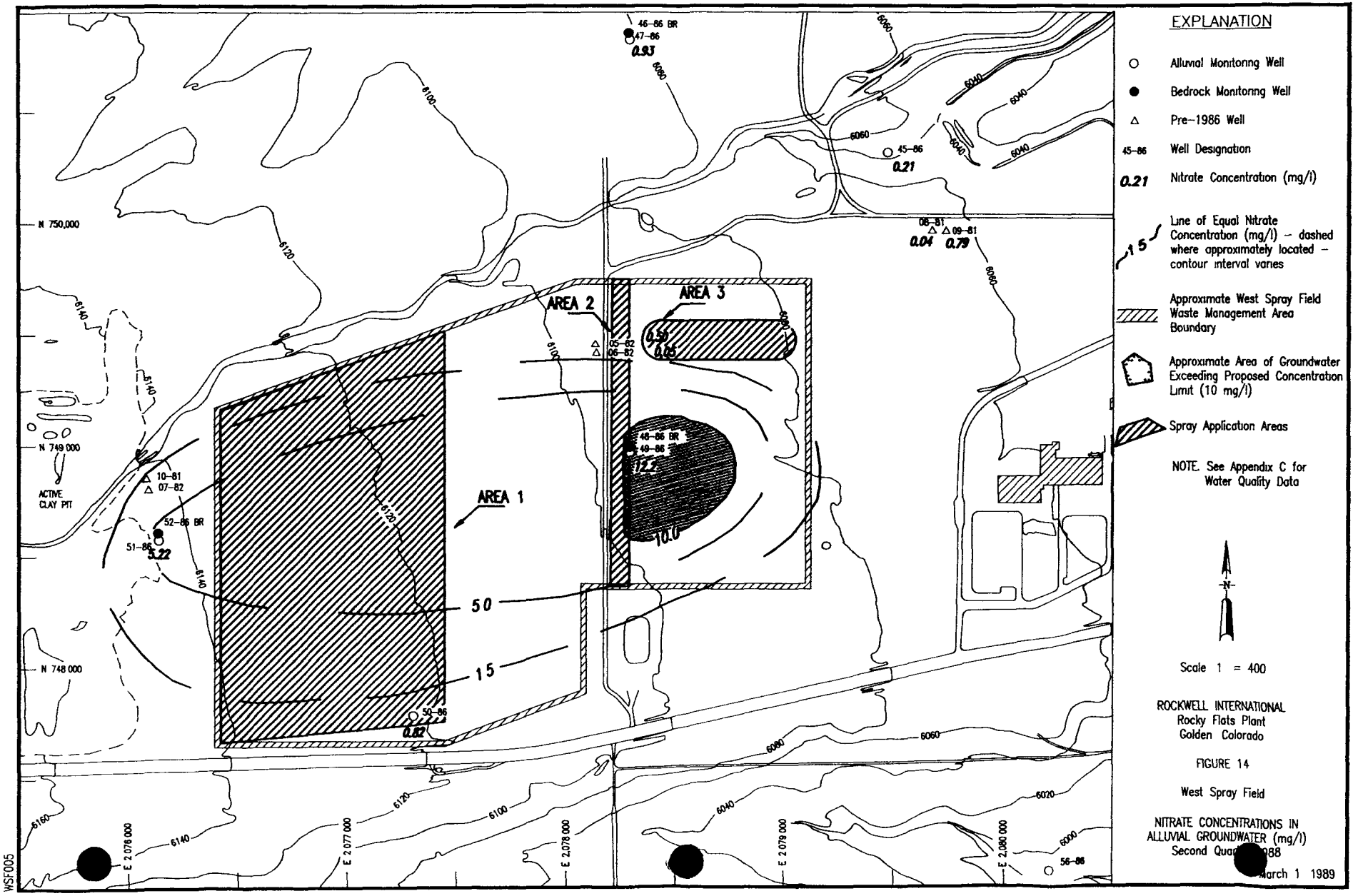

EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
Pre-1986 Well
45-86 Well Designation
6028.62 Potentiometric Surface Elevation (feet above mean sea level)
6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
Approximate West Spray Field Waste Management Area Boundary
NOTE See Appendix E-3 for Water Level Data
N
Scale 1 = 400
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 10
West Spray Field
WATER TABLE ELEVATION
WITHIN SURFICIAL MATERIALS
February 1988
March 1 1989
N 750,000
N 749,000
N 748,000
E 2 076 000
E 2 077 000
E 2 078 000
E 2,079 000
E 2,080 000
ACTIVE CLAY PIT
46-86 BR
47-86
6027.63
45-86
6045.22
08-81
09-81
05-82
06-82
48-86 BR
49-86
6052.10
10-81
07-82
52-86 BR
51-86
6081.12
50-86
6076.25
56-86
6072.85
6030
6040
6050
6060
6070
6080
6020
6010
6000
5990
5980
6100
6120
6140
6160

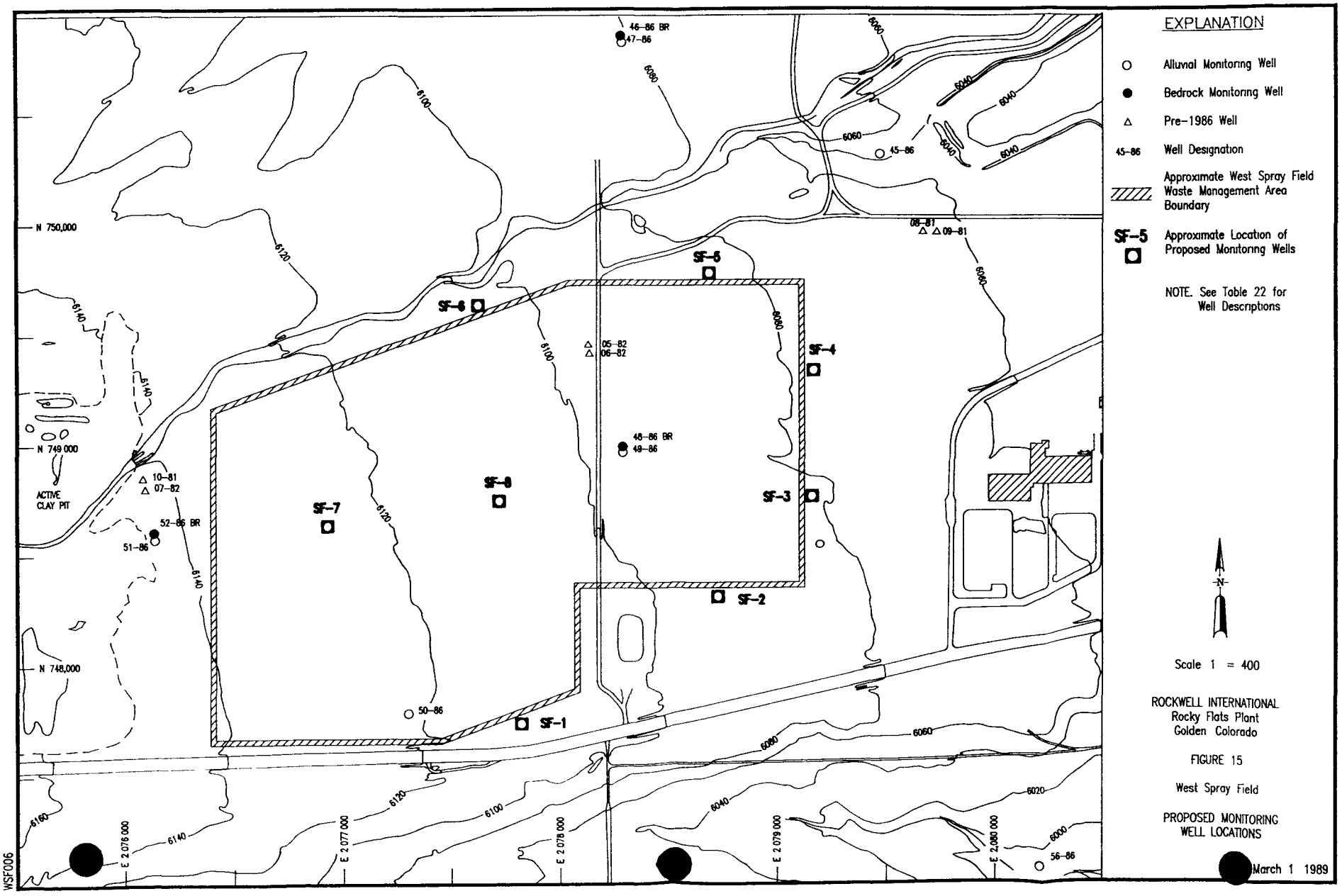
WSF001

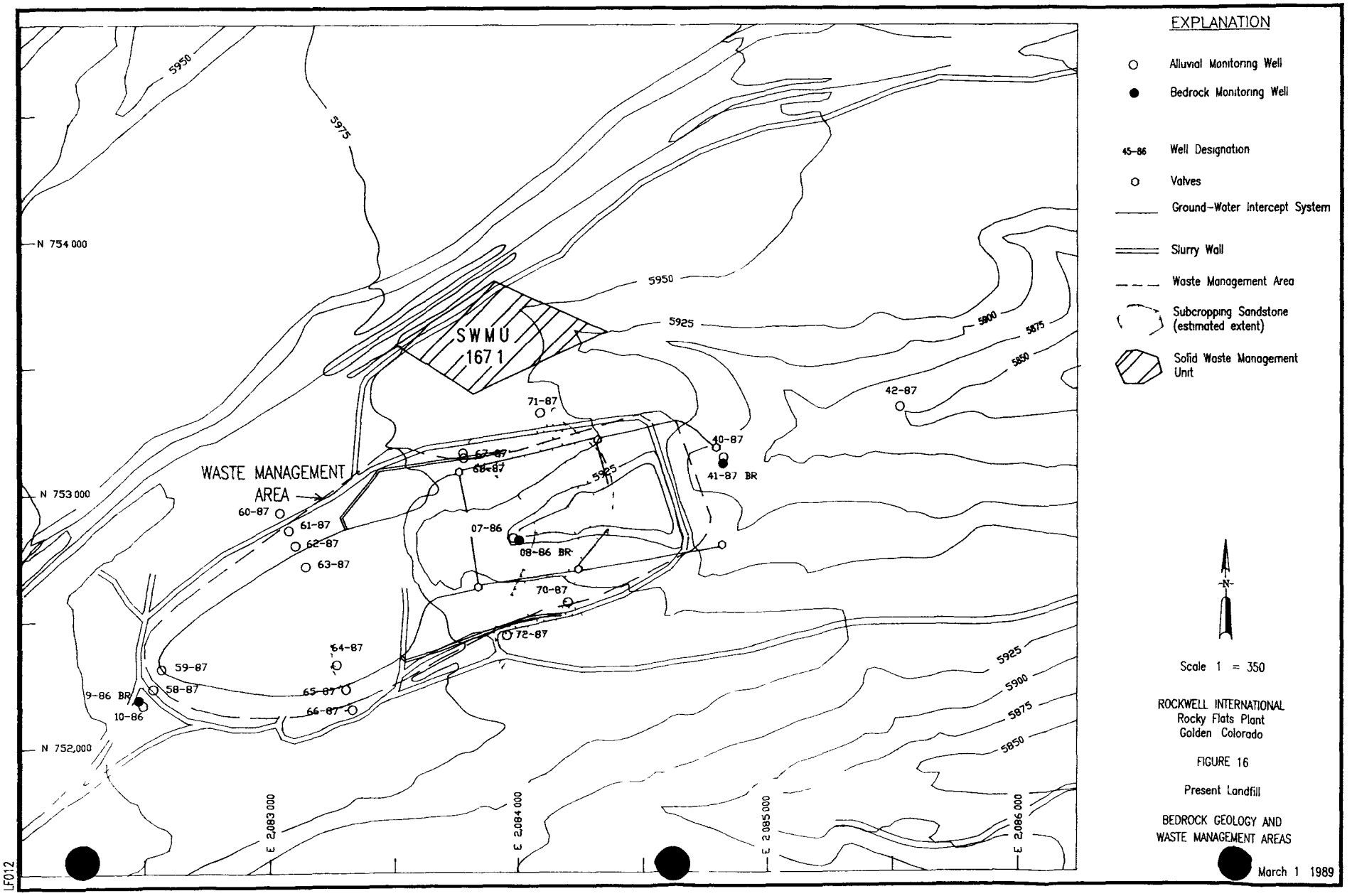

EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
Pre-1986 Well
45-86 Well Designation
6028.62 Potentiometric Surface Elevation (feet above mean sea level)
6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level - dashed where approximately located)
Approximate West Spray Field Waste Management Area Boundary
NOTE See Appendix E-3 for Water Level Data
N
Scale 1" = 400
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 11
West Spray Field
WATER TABLE ELEVATION
WITHIN SURFICIAL MATERIALS
June 1988
March 1 1989
46-86 BR
47-86
6027.18
45-86
6046.02
08-81
09-81
05-82
06-82
48-86 BR
49-86
6053.20
10-81
07-82
52-86 BR
51-86
6090.02
50-86
6075.95
56-86
5972.25
N 750 000
N 749 000
N 748,000
ACTIVE CLAY PIT
E 2 076 000
E 2 077 000
E 2 078 000
E 2 079 000
E 2 080 000
6030
6040
6050
6060
6070
6080
6090
6100
6120
6140
6160
6020
6010
6000
5990
5980
WSF002

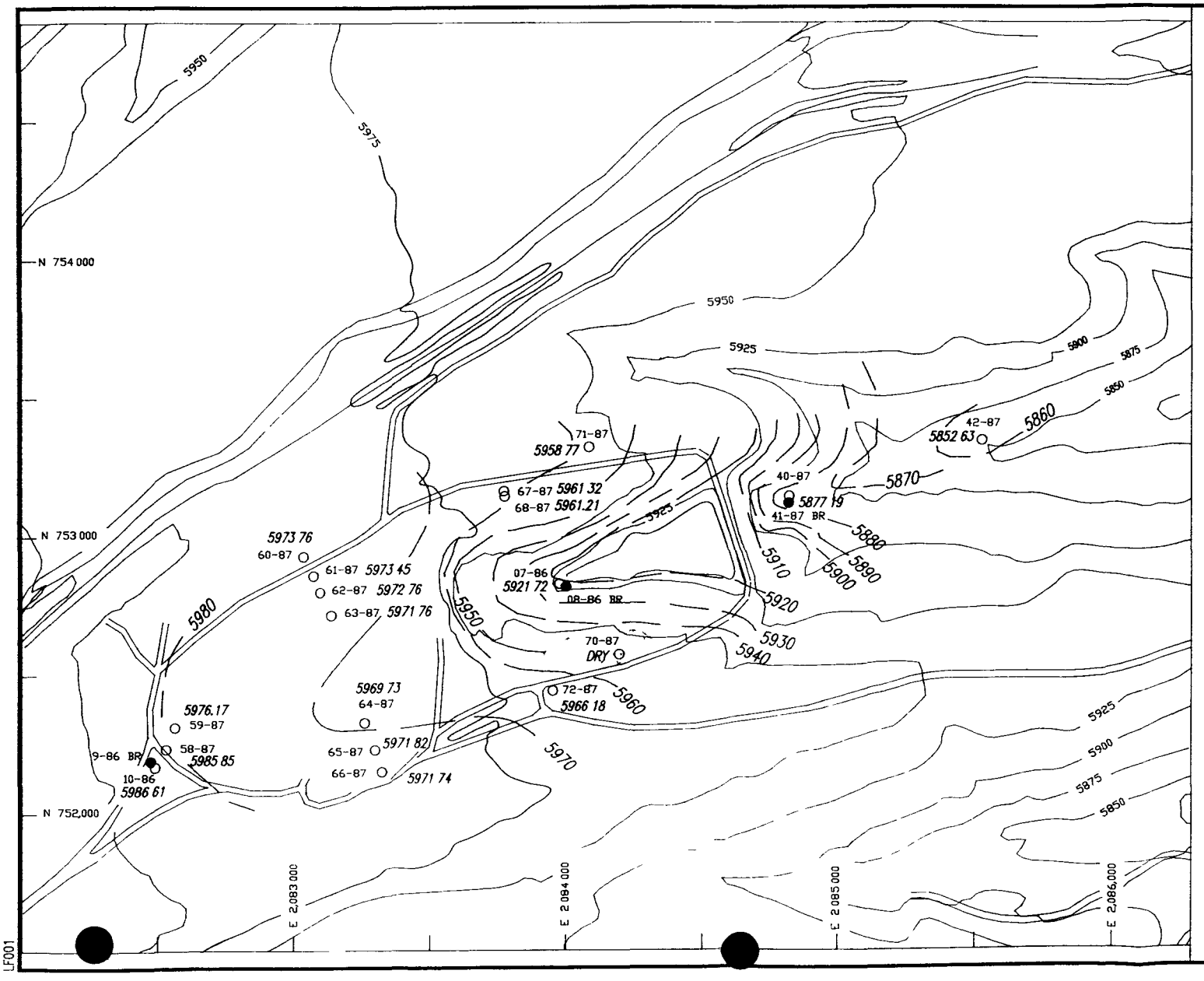

EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
Pre-1986 Well
45-86 Well Designation
6028.62 Potentiometric Surface Elevation (feet above mean sea level)
6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
ND No Data
Approximate West Spray Field Waste Management Area Boundary
NOTE See Appendix E-3 for Water Level Data
N
Scale 1" = 400
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 12
West Spray Field
WATER TABLE ELEVATION WITHIN SURFICIAL MATERIALS
August March 1 1989
N 750,000
N 749 000
N 748 000
E 2 076 000
E 2 077 000
E 2,078 000
E 2 079 000
E 2 080 000
ACTIVE CLAY PIT
46-86 BR
47-86
6027.58
45-86
6033.02
08-81
09-81
05-82
06-82
48-86 BR
49-86
ND
10-81
07-82
52-86 BR
51-86
6069.22
50-86
6076.05
56-86
5977.95
WSF003


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
Pre-1986 Well
45-86 Well Designation
6028.62 Potentiometric Surface Elevation (feet above mean sea level)
6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level - dashed where approximately located)
Approximate West Spray Field Waste Management Area Boundary
NOTE See Appendix E-3 for Water Level Data
N
Scale 1" = 400
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 13
West Spray Field
WATER TABLE ELEVATION
WITHIN SURFICIAL MATERIALS
November 1988
arch 1 1989
N 750 000
N 749 000
N 748 000
E 2 076 000
E 2 077 000
E 2 078 000
E 2 079 000
E 2 080 000
ACTIVE CLAY PIT
46-86 BR
47-86
6027.08
45-86
6028.62
08-81
09-81
05-82
06-82
48-86 BR
49-86
6052.50
10-81
07-82
52-86 BR
51-86
6084.62
50-86
6075.75
56-86
5971.05
6030
6040
6050
6060
6070
6080
6010
6020
6000
5990
5980
6100
6120
6140
6160
WSF004


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
Pre-1986 Well
45-86 Well Designation
0.21 Nitrate Concentration (mg/l)
15 Line of Equal Nitrate Concentration (mg/l) – dashed where approximately located – contour interval varies
Approximate West Spray Field Waste Management Area Boundary
Approximate Area of Groundwater Exceeding Proposed Concentration Limit (10 mg/l)
Spray Application Areas
NOTE. See Appendix C for Water Quality Data
N
Scale 1 = 400
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 14
West Spray Field
NITRATE CONCENTRATIONS IN ALLUVIAL GROUNDWATER (mg/l)
Second Quar 988
March 1 1989
AREA 1
AREA 2
AREA 3
50
15
10.0
12.2
0.50
0.05
0.93
0.21
0.04
0.79
5.22
0.82
46-86 BR
47-86
45-86
08-81
09-81
05-82
06-82
48-86 BR
49-86
10-81
07-82
52-86 BR
51-86
50-86
56-86
ACTIVE CLAY PIT
N 750,000
N 749 000
N 748 000
E 2 076 000
E 2 077 000
E 2,078 000
E 2 079 000
E 2,080 000
6160
6140
6120
6100
6080
6060
6040
6020
6000
WSF005


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
Pre-1986 Well
45-86 Well Designation
Approximate West Spray Field Waste Management Area Boundary
SF-5 Approximate Location of Proposed Monitoring Wells
NOTE. See Table 22 for Well Descriptions
N
Scale 1 = 400
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 15
West Spray Field
PROPOSED MONITORING WELL LOCATIONS
March 1 1989
N 750,000
N 749 000
N 748,000
E 2 076 000
E 2 077 000
E 2 078 000
E 2 079 000
E 2 080 000
ACTIVE CLAY PIT
46-86 BR
47-86
45-86
08-81
09-81
05-82
06-82
48-86 BR
49-86
10-81
07-82
52-86 BR
51-86
50-86
56-86
SF-1
SF-2
SF-3
SF-4
SF-5
SF-6
SF-7
SF-8
6160
6140
6120
6100
6080
6060
6040
6020
6000
WSF006


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
45-86 Well Designation
Valves
Ground-Water Intercept System
Slurry Wall
Waste Management Area
Subcropping Sandstone (estimated extent)
Solid Waste Management Unit
SWMU 167.1
WASTE MANAGEMENT AREA
N 754 000
N 753 000
N 752,000
E 2,083 000
E 2,084 000
E 2,085 000
E 2,086 000
5950
5975
5925
5900
5875
5850
71-87
67-87
68-87
40-87
41-87 BR
42-87
60-87
61-87
62-87
63-87
07-86
08-86 BR
70-87
72-87
64-87
59-87
58-87
65-87
66-87
9-86 BR
10-86
-N-
Scale 1 = 350
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 16
Present Landfill
BEDROCK GEOLOGY AND WASTE MANAGEMENT AREAS
March 1 1989
LF012



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- 45–86 Well Designation
- 6028 62 Potentiometric Surface Elevation (feet above mean sea level)
- 6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
- Approximate Area of Unsaturated Surficial Materials

NOTE See Appendices E-4 and E-5 for Water Level Data

-N-

Scale 1 = 350

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

FIGURE 17

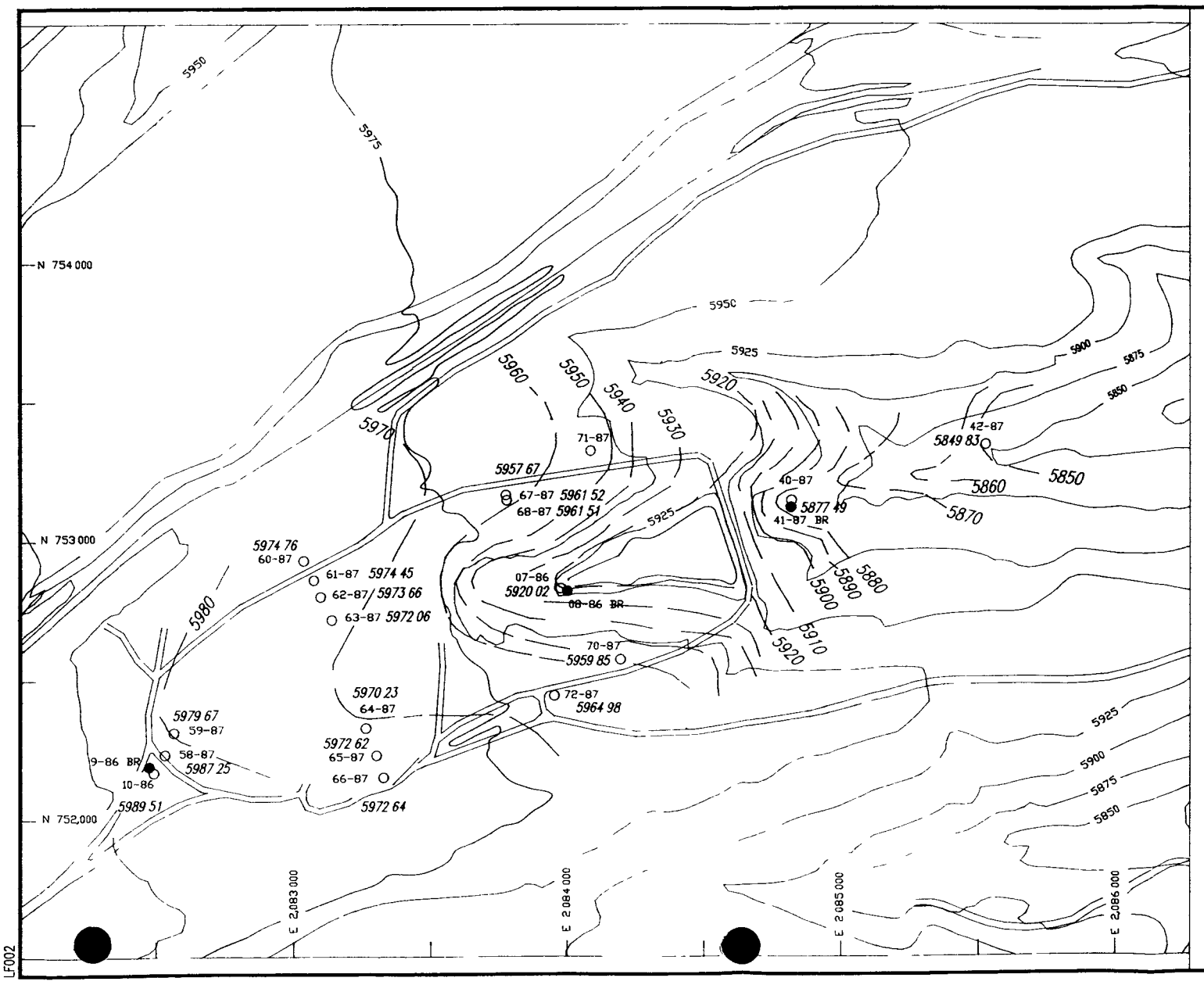
Present Landfill

WATER TABLE ELEVATION
WITHIN SURFICIAL MATERIALS

February 1988

March 1 1989

LF001



EXPLANATION

○ Alluvial Monitoring Well

● Bedrock Monitoring Well

45-86 Well Designation

6028 62 Potentiometric Surface Elevation (feet above mean sea level)

6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)

NOTE See Appendices E-4 and E-5 for Water Level Data

-N-

Scale 1 = 350

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

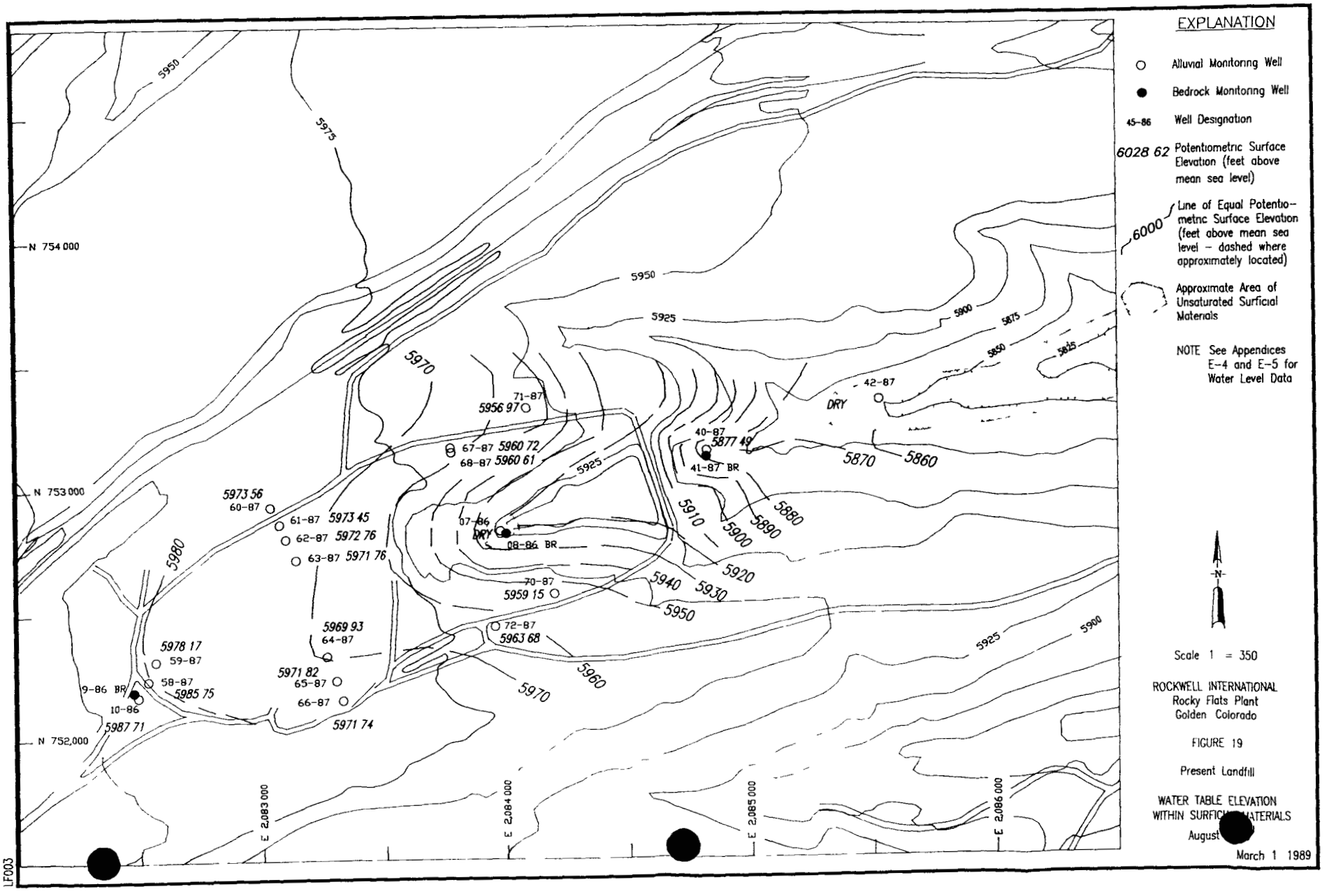
FIGURE 18

Present Landfill

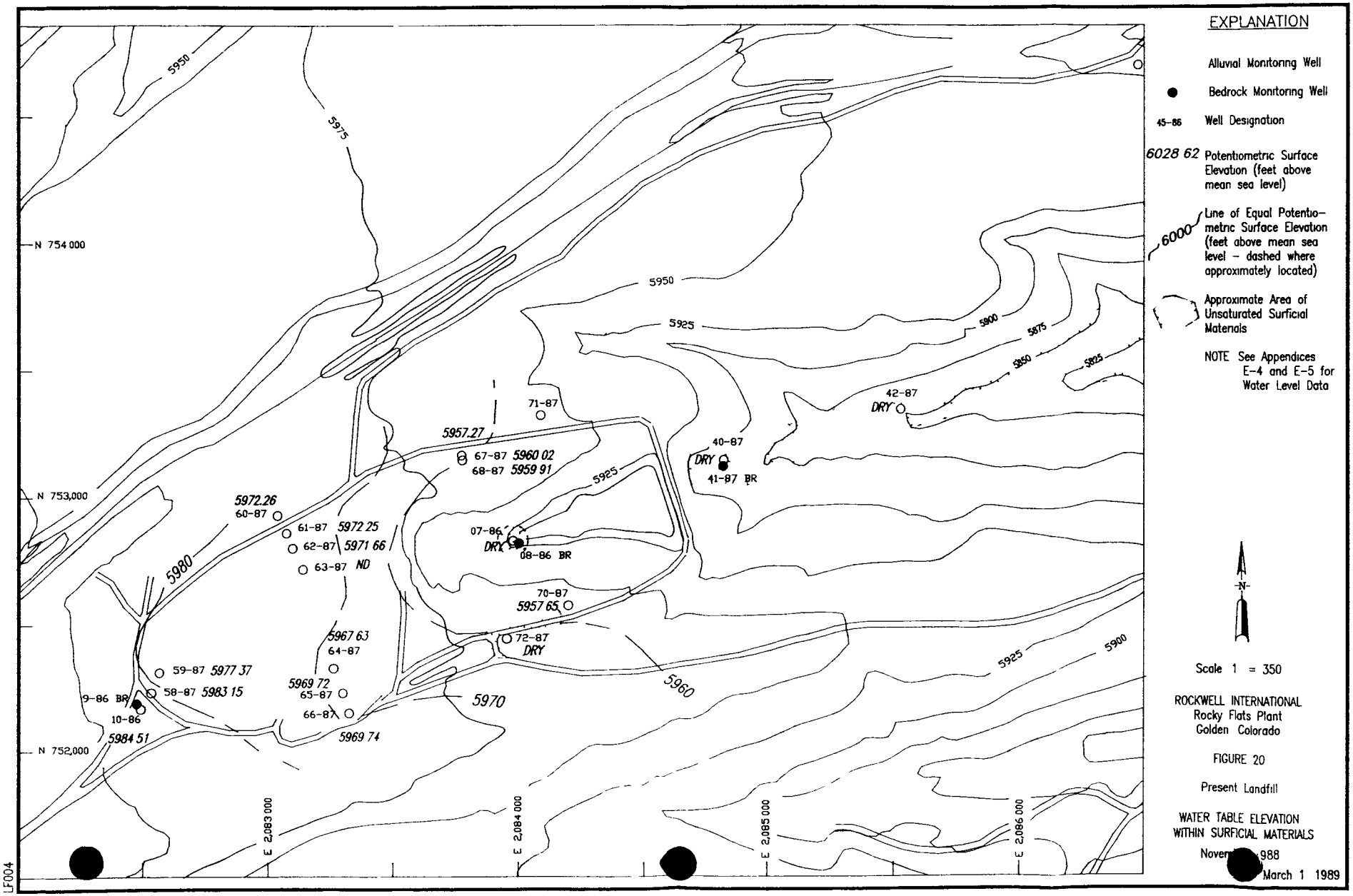
WATER TABLE ELEVATION
WITHIN SURFICIAL MATERIALS

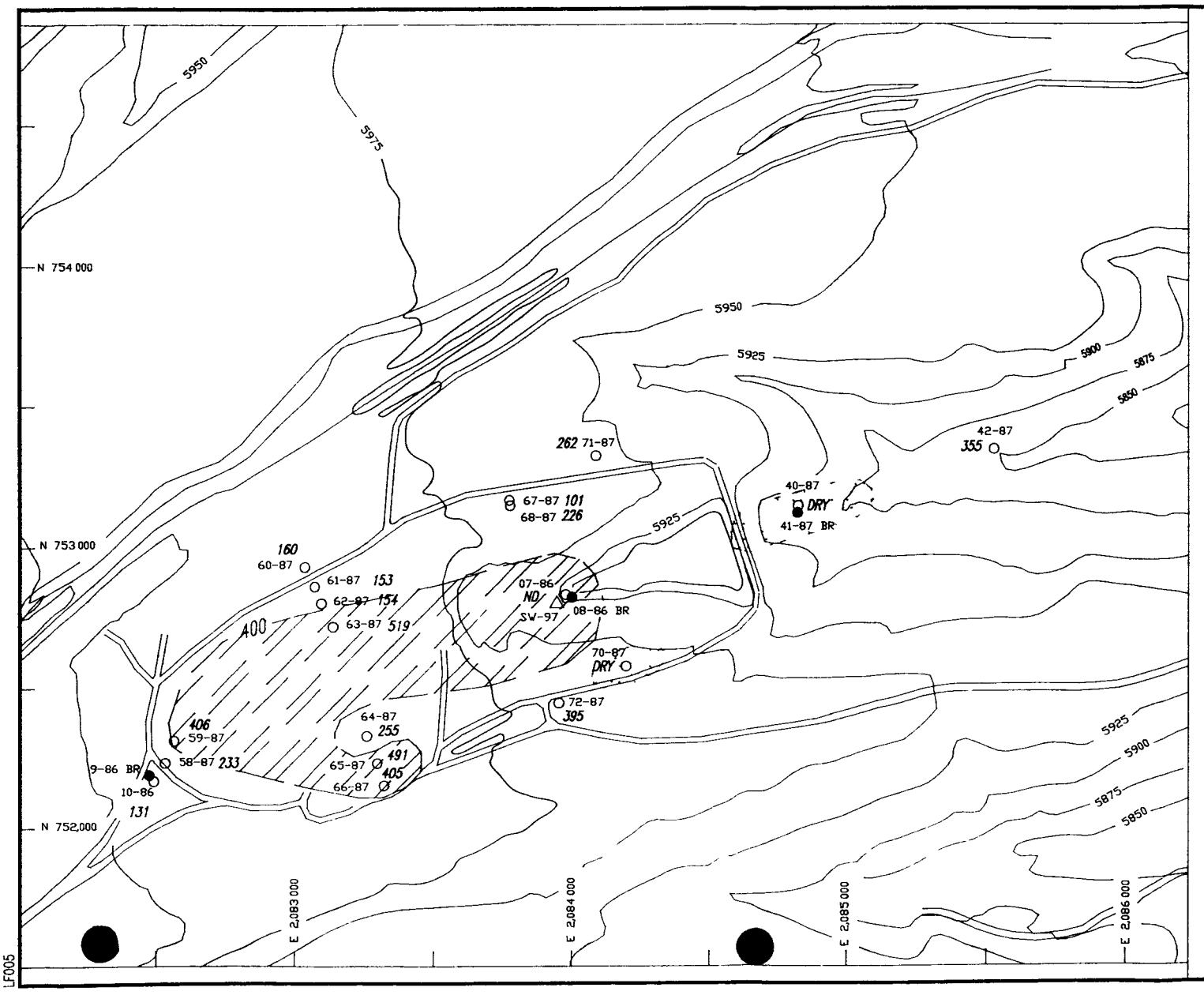
June March 1 1989

LF002


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
45-86 Well Designation
6028 62 Potentiometric Surface Elevation (feet above mean sea level)
6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
Approximate Area of Unsaturated Surficial Materials
NOTE See Appendices E-4 and E-5 for Water Level Data
N
Scale 1 = 350
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 19
Present Landfill
WATER TABLE ELEVATION
WITHIN SURFICIAL MATERIALS
August
March 1 1989
N 754 000
N 753 000
N 752,000
E 2,083 000
E 2,084 000
E 2,085 000
E 2,086 000
5950
5975
5970
5925
5900
5875
5850
5825
5870
5860
5880
5890
5910
5920
5930
5940
5960
5980
42-87
DRY
40-87
5877 49
41-87 BR
71-87
5956 97
67-87 5960 72
68-87 5960 61
5973 56
60-87
61-87 5973 45
62-87 5972 76
63-87 5971 76
07-86
DRY
08-86 BR
70-87
5959 15
72-87
5963 68
5969 93
64-87
5978 17
59-87
58-87
5985 75
9-86 BR
10-86
5987 71
5971 82
65-87
66-87
5971 74

LF003


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
45-86 Well Designation
6028 62 Potentiometric Surface Elevation (feet above mean sea level)
6000 Line of Equal Potentiometric Surface Elevation (feet above mean sea level – dashed where approximately located)
Approximate Area of Unsaturated Surficial Materials
NOTE See Appendices E-4 and E-5 for Water Level Data
N
Scale 1 = 350
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 20
Present Landfill
WATER TABLE ELEVATION WITHIN SURFICIAL MATERIALS
November 1988
March 1 1989
N 754 000
N 753,000
N 752,000
E 2,083 000
E 2,084 000
E 2,085 000
E 2,086 000
5950
5975
5925
5900
5875
5850
5825
5980
5970
5960
71-87
5957.27
67-87 5960 02
68-87 5959 91
42-87
DRY
40-87
DRY
41-87 BR
5972.26
60-87
61-87 5972 25
62-87 5971 66
63-87 ND
07-86
DRY
08-86 BR
70-87
5957 65
72-87
DRY
5967 63
64-87
59-87 5977 37
58-87 5983 15
5969 72
65-87
66-87
5969 74
9-86 BR
10-86
5984 51
LF004



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- 45-86 Well Designation
- △ Surface Water Station
- ND No Data – Insufficient Sample for Inorganic Analyses
- 174 Total Dissolved Solids Concentration (mg/l)
- 400 Line of Equal Total Dissolved Solids Concentration (mg/l) – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials
- Approximate Area of Groundwater Exceeding Proposed Concentration Limit (400 mg/l)

NOTE See Appendix D for Analytical Data

N

Scale 1 = 350

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

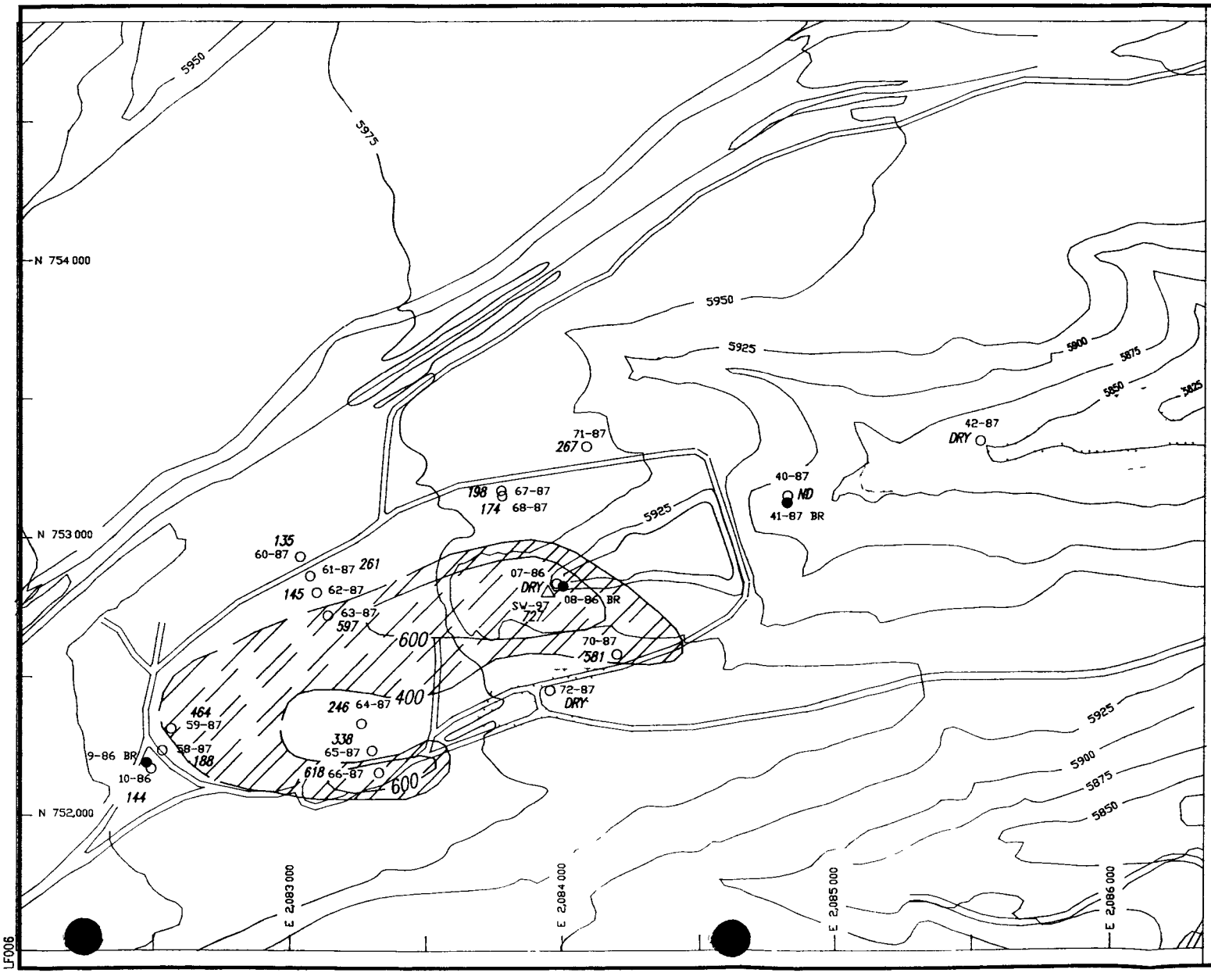
FIGURE 21

Present Landfill

TOTAL DISSOLVED SOLIDS CONCENTRATIONS (mg/l) IN ALLUVIAL GROUNDWATER

First Quarter [redacted] March 1 1989

LF005



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- 45-86 Well Designation
- △ Surface Water Station
- ND No Data – Insufficient Sample for Inorganic Analyses
- 174 Total Dissolved Solids Concentration (mg/l)
- 400 Line of Equal Total Dissolved Solids Concentration (mg/l) – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials
- Approximate Area of Ground-water Exceeding Proposed Concentration Limit (400 mg/l)

NOTE See Appendix D for Analytical Data

-N-

Scale 1" = 350

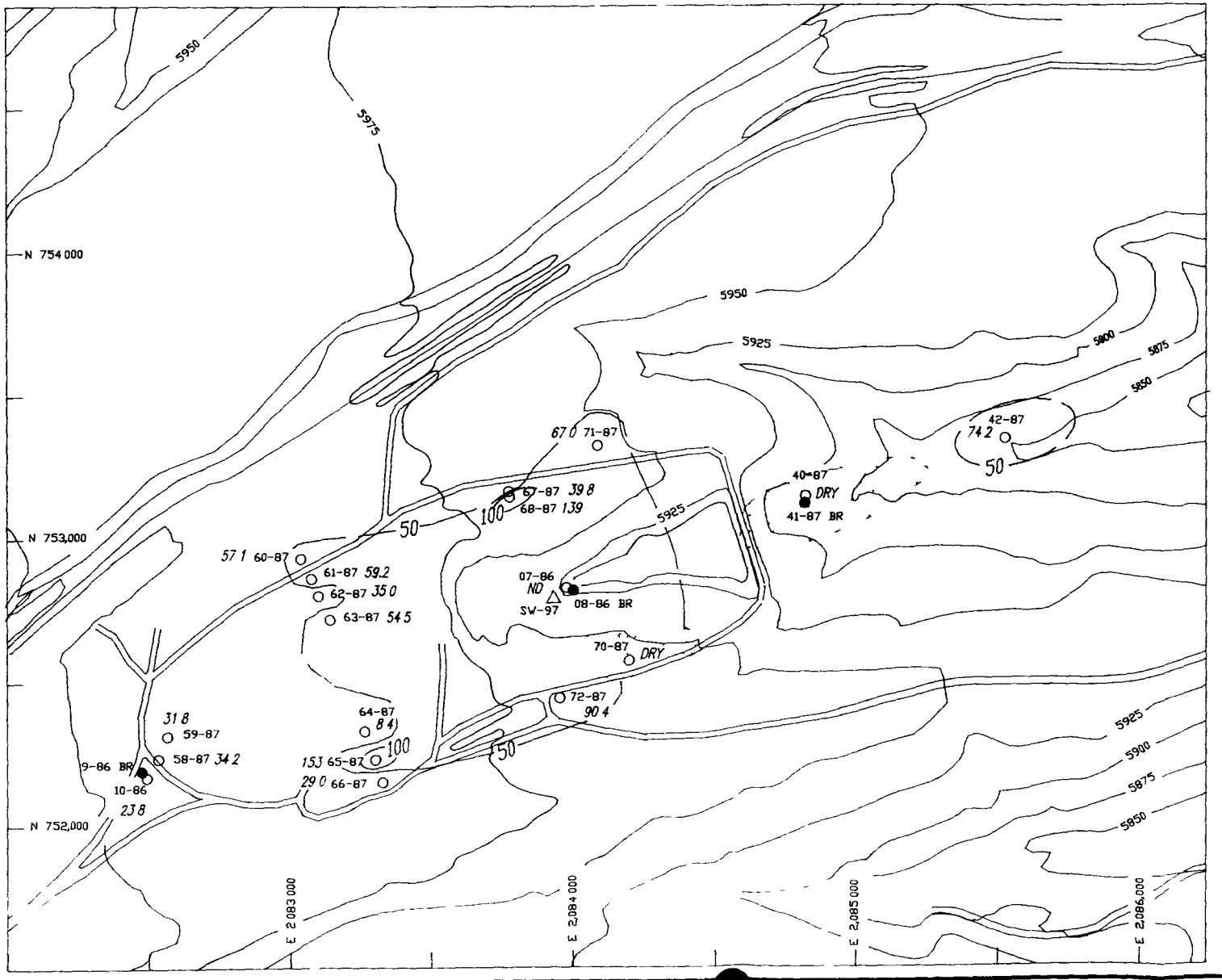
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

FIGURE 22

Present Landfill

TOTAL DISSOLVED SOLIDS CONCENTRATIONS (mg/l) IN ALLUVIAL GROUNDWATER

Second [illegible] 1988
March 1 1989



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- 45-86 Well Designation
- △ Surface Water Station
- ND No Data – Insufficient Sample for Inorganic Analyses
- 139 Sulfate (mg/l) Concentration
- 400 Line of Equal Sulfate Concentration – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials

NOTE. See Appendix D for Analytical Data

N

Scale 1" = 350

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

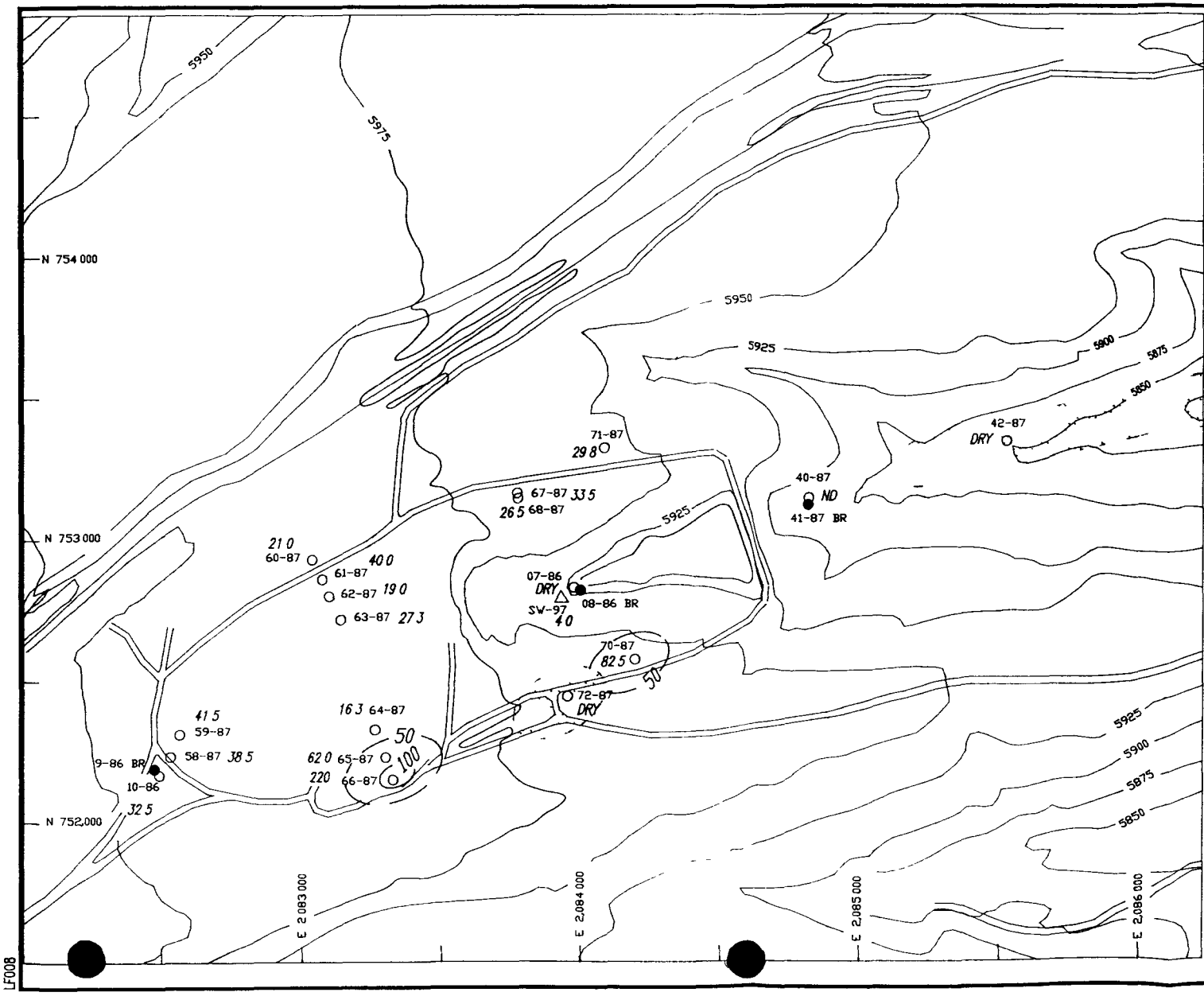
FIGURE 23

Present Landfill

SULFATE CONCENTRATIONS
(mg/l) IN ALLUVIAL GROUNDWATER
First Quarter 1988

March 1 1989

LF007



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- 45-86 Well Designation
- △ Surface Water Station
- ND No Data – Insufficient Sample for Inorganic Analyses
- 139 Sulfate (mg/l) Concentration
- 400 Line of Equal Sulfate Concentration – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials

NOTE See Appendix D for Analytical Data

-N-

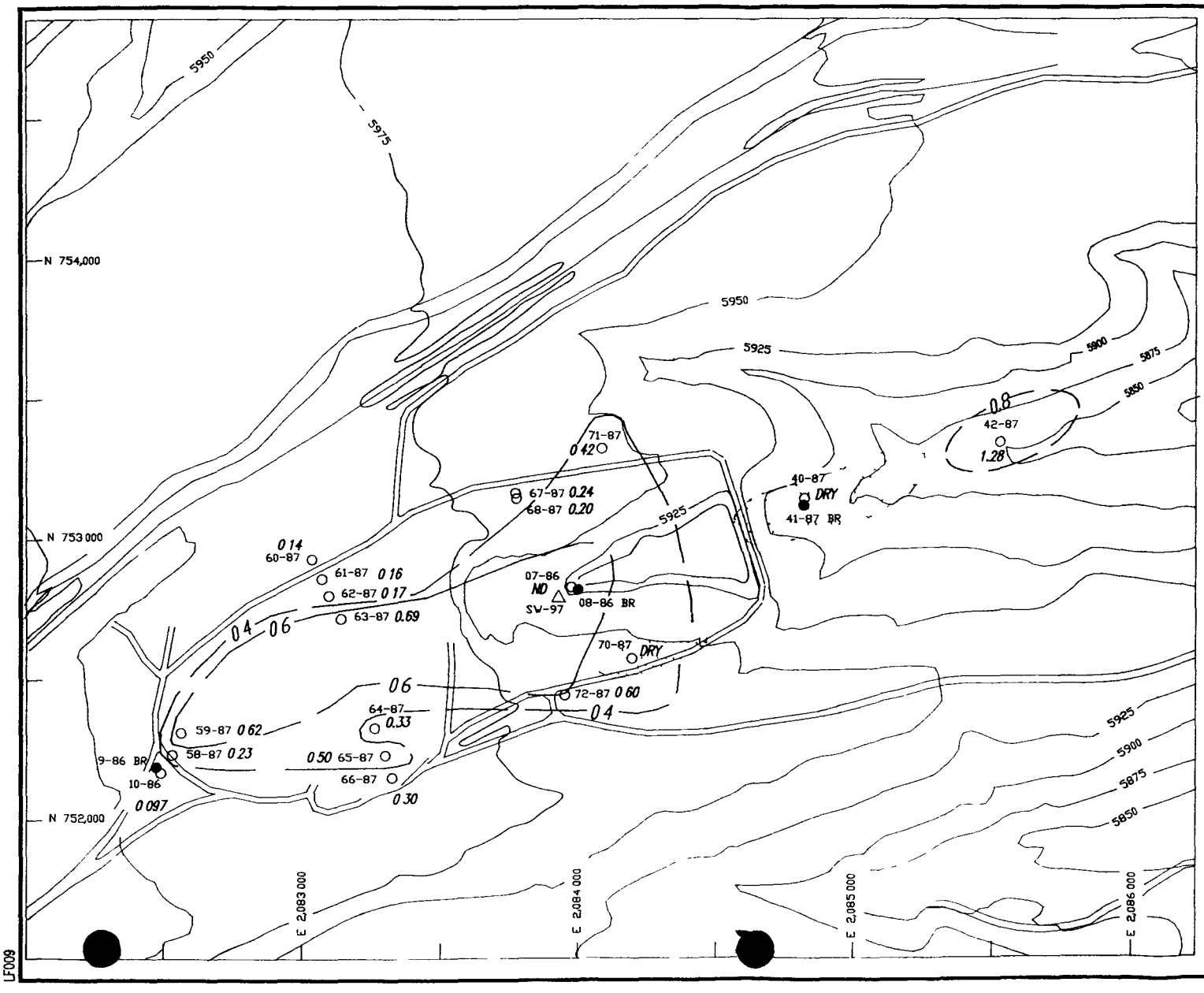
Scale 1 = 350

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

FIGURE 24

Present Landfill

SULFATE CONCENTRATIONS
(mg/l) IN ALLUVIAL GROUNDWATER
Second Q[illegible] 1988
March 1 1989



EXPLANATION

- ○ Alluvial Monitoring Well
- ● Bedrock Monitoring Well
- 45-86 Well Designation
- △ Surface Water Station
- ND No Data – Insufficient Sample for Metals Analyses
- 0 24 Strontium Concentration (mg/l)
- 400 Line of Equal Strontium Concentration (mg/l) – dashed where approximately located – contour interval varies
- Approximate Area of Unsaturated Surficial Materials

NOTE See Appendix D for Analytical Data

-N-

Scale 1" = 350

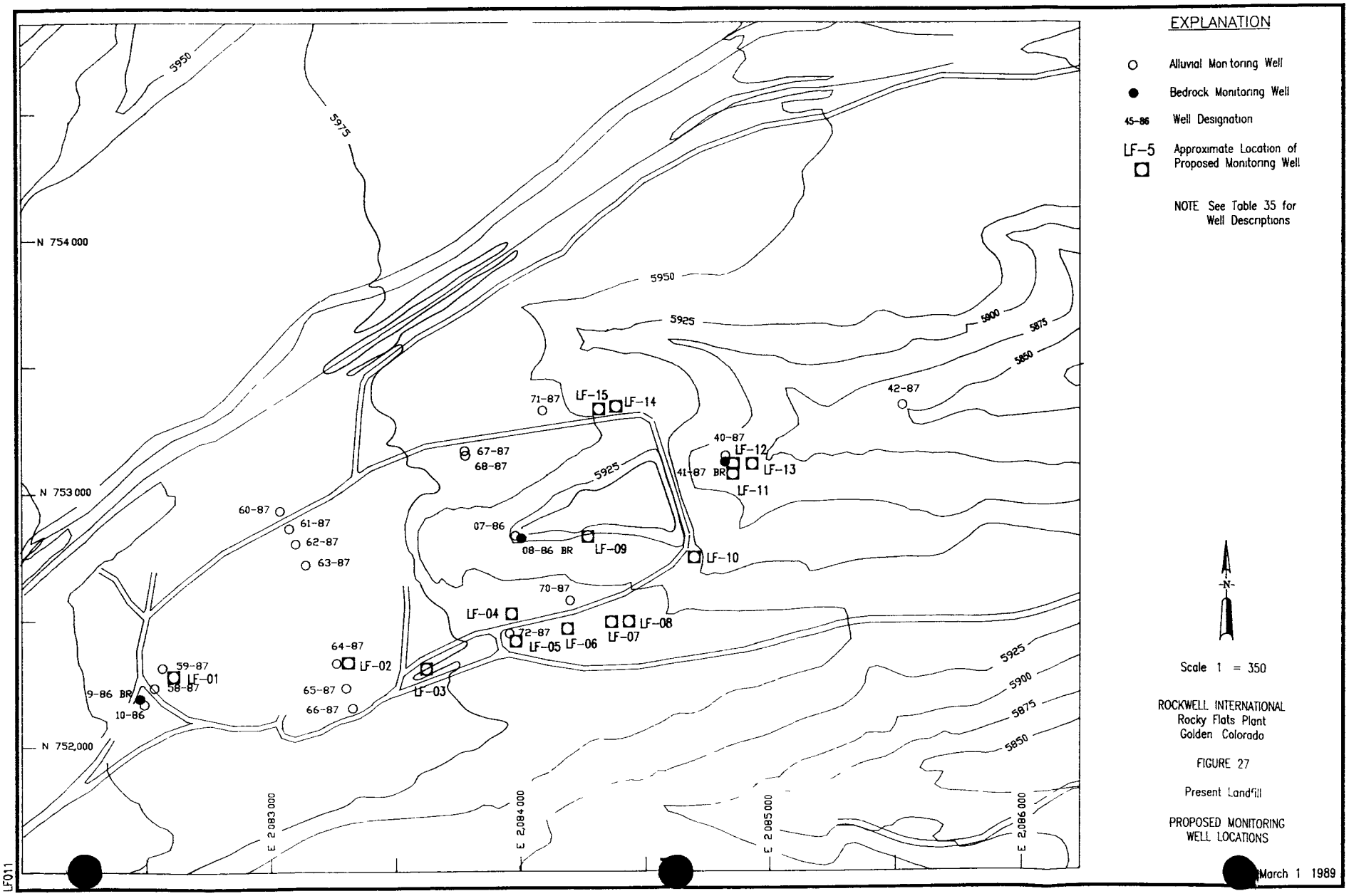
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado

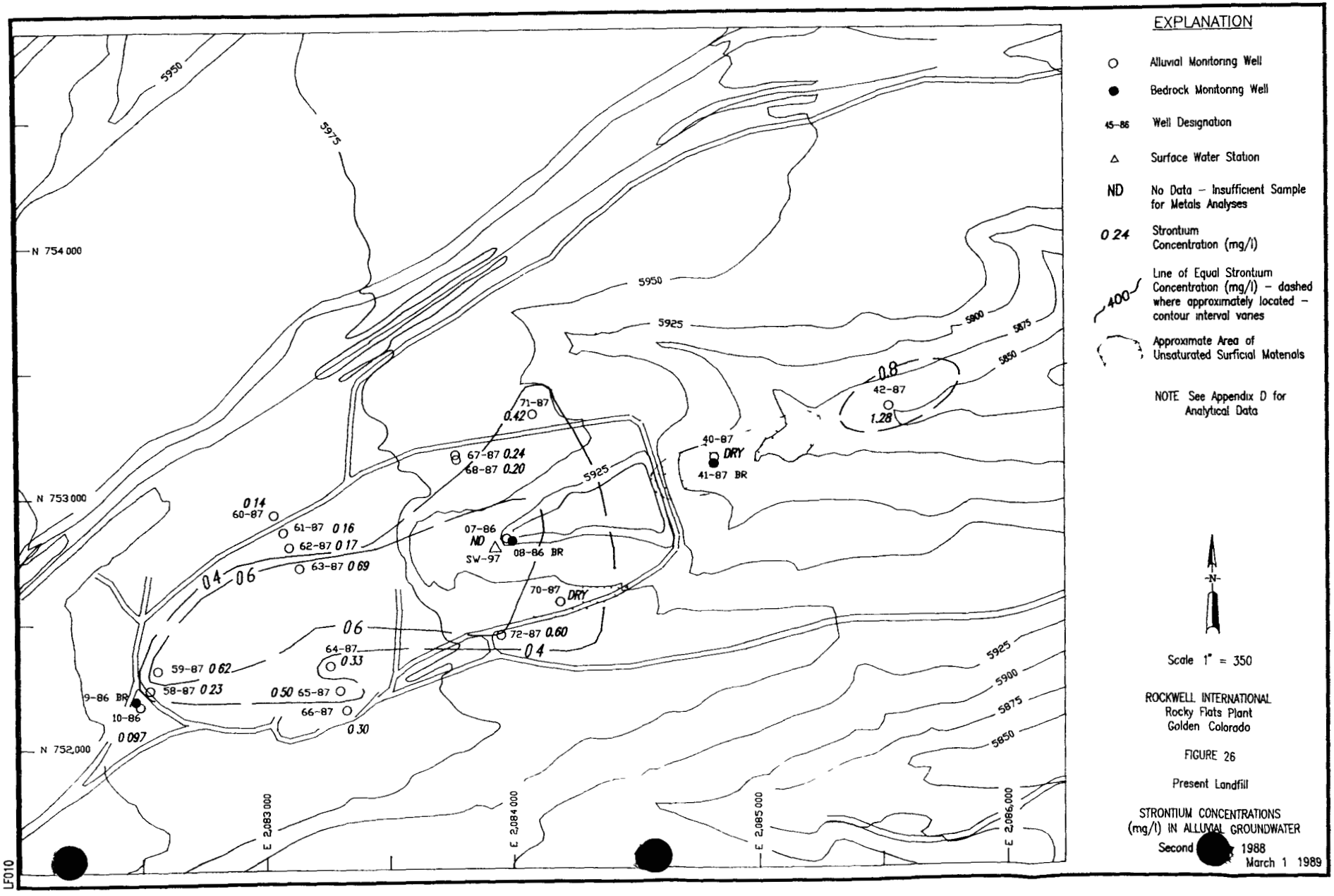
FIGURE 25

Present Landfill

STRONTIUM CONCENTRATIONS
(mg/l) IN ALLUVIAL GROUNDWATER
First Quar[illegible]88
March 1 1989

LF009


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
45-86 Well Designation
LF-5 Approximate Location of Proposed Monitoring Well
NOTE See Table 35 for Well Descriptions
N
Scale 1 = 350
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 27
Present Landfill
PROPOSED MONITORING WELL LOCATIONS
March 1 1989
N 754 000
N 753 000
N 752,000
E 2 083 000
E 2,084 000
E 2 085 000
E 2,086 000
5950
5975
5925
5900
5875
5850
LF-01
LF-02
LF-03
LF-04
LF-05
LF-06
LF-07
LF-08
LF-09
LF-10
LF-11
LF-12
LF-13
LF-14
LF-15
59-87
58-87
9-86 BR
10-86
64-87
65-87
66-87
60-87
61-87
62-87
63-87
67-87
68-87
71-87
07-86
08-86 BR
70-87
72-87
40-87
41-87 BR
42-87
LF011


EXPLANATION
Alluvial Monitoring Well
Bedrock Monitoring Well
45-86 Well Designation
Surface Water Station
ND No Data – Insufficient Sample for Metals Analyses
0 24 Strontium Concentration (mg/l)
400 Line of Equal Strontium Concentration (mg/l) – dashed where approximately located – contour interval varies
Approximate Area of Unsaturated Surficial Materials
NOTE See Appendix D for Analytical Data
N
Scale 1" = 350
ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden Colorado
FIGURE 26
Present Landfill
STRONTIUM CONCENTRATIONS (mg/l) IN ALLUVIAL GROUNDWATER
Second 1988
March 1 1989
N 754 000
N 753 000
N 752,000
E 2,083 000
E 2,084 000
E 2,085 000
E 2,086,000
5950
5975
5925
5900
5875
5850
0.8
42-87
1.28
40-87
DRY
41-87 BR
71-87
0.42
67-87 0.24
68-87 0.20
0 14
60-87
61-87 0 16
62-87 0 17
63-87 0 69
07-86
ND
SW-97
08-86 BR
70-87
DRY
72-87 0.60
0 4
0 6
64-87
0 33
59-87 0 62
58-87 0 23
0 50 65-87
66-87
0 30
9-86 BR
10-86
0 097
LF010

APPENDIX A

BACKGROUND GROUND-WATER QUALITY DATA

VOLATILE ORGANICS

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
54-86	04/08/87	1	NR	NR	NR	NR	NR	NR	NR
54-86	05/27/87	2	NR	NR	NR	NR	NR	NR	NR
54-86	07/14/87	3	NR	NR	NR	NR	NR	NR	NR
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	09/30/87	4	NR	NR	NR	NR	NR	NR	NR
54 86	09/30/87	4	10U	10U	10U	10U	5U	1JB	5U
54 86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54 86	02/08/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
54-86	04/27/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
54-86	07/11/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
54-86	10/14/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
55-86	05/18/87	1	NR	NR	NR	NR	NR	NR	NR
55-86	05/27/87	2	NR	NR	NR	NR	NR	NR	NR
55-86	07/14/87	3	NR	NR	NR	NR	NR	NR	NR
55-86	07/14/87	3	NR	NR	NR	NR	NR	NR	NR
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	09/30/87	4	NR	NR	NR	NR	NR	NR	NR
55 86	09/30/87	4	10U	10U	10U	10U	5U	8JB	5U
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	02/08/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported U = Analyzed but not detected * = Holding time not met E = Estimated value
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
54-86	04/08/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
54-86	05/27/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
54-86	07/14/87	3	4 U	NR	4 U	4 U	4 U	NR	4 U
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	09/30/87	4	5 U	NR	5 U	5 U	5 U	NR	5 U
54-86	09/30/87	4	5U	5U	5U	5U	5U	10U	5U
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54 86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
54-86	04/27/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
54-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
54-86	10/14/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
55-86	05/18/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
55-86	05/27/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
55-86	07/14/87	3	4 U	NR	4 U	4 U	4 U	NR	4 U
55-86	07/14/87	3	4 U	NR	4 U	4 U	4 U	NR	4 U
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	09/30/87	4	5 U	NR	5 U	5 U	5 U	NR	5 U
55 86	09/30/87	4	5U	5U	5U	5U	5U	10U	5U
55 86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55 86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
54-86	04/08/87	1	4 U	NR	NR	NR	NR	4 U	NR
54-86	05/27/87	2	4 U	NR	NR	NR	NR	4 U	NR
54-86	07/14/87	3	4 U	NR	NR	NR	NR	4 U	NR
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	09/30/87	4	5 U	NR	NR	NR	NR	5 U	NR
54-86	09/30/87	4	5U	10U	5U	5U	5U	5U	5U
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	02/08/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
54-86	04/27/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
54-86	07/11/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
54-86	10/14/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
55-86	05/18/87	1	4 U	NR	NR	NR	NR	4 U	NR
55-86	05/27/87	2	4 U	NR	NR	NR	NR	4 U	NR
55-86	07/14/87	3	4 U	NR	NR	NR	NR	4 U	NR
55-86	07/14/87	3	4 U	NR	NR	NR	NR	4 U	NR
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	09/30/87	4	5 U	NR	NR	NR	NR	5 U	NR
55-86	09/30/87	4	5U	10U	5U	5U	5U	5U	5U
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	02/08/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
54-86	04/08/87	1	4 U	NR	NR	NR	NR	NR	NR
54-86	05/27/87	2	4 U	NR	NR	NR	NR	NR	NR
54-86	07/14/87	3	4 U	NR	NR	NR	NR	NR	NR
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
54-86	09/30/87	4	5U	5U	5U	10U	5U	10U	10U
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	02/08/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
54-86	04/27/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
54-86	07/11/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
54-86	10/14/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
55-86	05/18/87	1	4 U	NR	NR	NR	NR	NR	NR
55-86	05/27/87	2	4 U	NR	NR	NR	NR	NR	NR
55-86	07/14/87	3	4 U	NR	NR	NR	NR	NR	NR
55-86	07/14/87	3	4 U	NR	NR	NR	NR	NR	NR
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
55-86	09/30/87	4	5U	5U	5U	10U	5U	10U	10U
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	02/08/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
54-86	04/08/87	1	4 U	NR	NR	NR	NR	NR	NR
54-86	05/27/87	2	4 U	NR	NR	NR	NR	NR	NR
54-86	07/14/87	3	4 U	NR	NR	NR	NR	NR	NR
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
54-86	09/30/87	4	5U	5U	5U	5U	5U	5U	5U
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
54-86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
54-86	04/27/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
54-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
54-86	10/14/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
55-86	05/18/87	1	4 U	NR	NR	NR	NR	NR	NR
55-86	05/27/87	2	4 U	NR	NR	NR	NR	NR	NR
55-86	07/14/87	3	4 U	NR	NR	NR	NR	NR	NR
55-86	07/14/87	3	4 U	NR	NR	NR	NR	NR	NR
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
55-86	09/30/87	4	5U	5U	5U	5U	5U	5U	5U
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
55-86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
55-86	04/27/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
55-86	07/11/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
55-86	07/11/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
55-86	10/14/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
55-86	04/27/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
55-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
55-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
55-86	10/14/88	4	5 U	5 U	5 U	5 B	5 U	10 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
55-86	04/27/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
55-86	07/11/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
55-86	07/11/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
55-86	10/14/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
55-86	04/27/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
55-86	07/11/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
55-86	07/11/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
55-86	10/14/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
55-86	04/27/88	2	141	5 90	1.30	15.5	67.3
55-86	07/11/88	3	136	5.17	1.29	17.9	74.2
55-86	07/11/88	3	136	5 18	1 25	17.1	73.5
55-86	10/14/88	4	128	4 74	0 92	16.5	60.7

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
55-86	04/27/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
55-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
55-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
55-86	10/14/88	4	5 U	5 U	1 JB	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

INORGANICS

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
54-86	04/08/87	1	428	20.7	0 20 U	43 0	246
54-86	05/27/87	2	433	18 9	0 20 U	52.0	318
54-86	07/14/87	3	433	24 0	0 20 U	41.0	267
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
54-86	09/30/87	4	425	20.0	0 20 U	45 0	330
54-86	09/30/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
54-86	02/08/88	1	467	8 28	0 02 U	92.0	347
54-86	04/27/88	2	435	18 6	0.02	39.0	306
54-86	07/11/88	3	431	18 5	0.07	54.5	268
54-86	10/14/88	4	345	3 28	0 02 U	50.0	313
55-86	05/18/87	1	167	6 40	0 80	27.0	74.6
55-86	05/27/87	2	147	8 0	0.97	25.0	77.9
55-86	07/14/87	3	139	6 1	1 32	23.0	73.8
55-86	07/14/87	3	140	6.2	1 28	23 0	75.0
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
55-86	09/30/87	4	138	5.8	1 50	15.3	73.2
55-86	09/30/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
55-86	02/08/88	1	134	19 3	1 32	21 7	79.4

Notes. NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

METALS

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
54-86	04/08/87	1	0.0290 U	0 0600 U	0 01 U	0 1062	0 005 U	0.005 U	104.4088
54-86	05/27/87	2	0.0290 U	0 06 U	0 01 U	0 0570	0 005 U	0 005 U	110.4414
54-86	07/14/87	3	0 0290 U	0 02 U	0.005 U	0 0841	0 005 U	0 0005 J	96.2534
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	09/30/87	4	0 0290 U	0 02 U	0 005 U	0.0809	0.005 U	0 0003 J	86.2544
54-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	02/08/88	1	0 0290 U	0 02 U	0 002 J	0 0882	0 005 U	0 001 U	88.7073
54-86	04/27/88	2	0.0317	0 0340 U	0.005 U	0 0710	0.0010 U	0 0050 U	89.5109
54-86	07/11/88	3	0 0378	0 0405	0 005 U	0 0748	0 0010 U	0 0050 U	86.4242
54-86	10/14/88	4	0 0290 U	0 0340 U	NR	0 0807	0 0010 U	0.0050 U	92.2997
55-86	05/18/87	1	0 2226	0 06 U	0 0100 U	0 0495	0 005 U	0 0050 U	32 5947
55-86	05/27/87	2	0 0331	0 06 U	0 01 U	0 0477	0.005 U	0 005 U	33.7842
55-86	07/14/87	3	0 0290 U	0 02 U	0 005 U	0 0580	0 005 U	0 0005 J	23.8571
55-86	07/14/87	3	0 0290 U	0 02 U	0 005 U	0 0531	0 005 U	0 0004 J	21.8573
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	09/30/87	4	0.0290 U	0 02 U	0 005 U	0 0595	0 005 U	0 0003 J	21.9489
55-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55 86	02/08/88	1	0 0290 U	0 02 U	0 002 J	0 0706	0 005 U	0 001	22 3516

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
54-86	04/08/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0.005 U	NR
54-86	05/27/87	2	0 2 U	0 0100 U	0 0220 U	0 0098	0 0069 U	0 019	NR
54-86	07/14/87	3	0 02 U	0 0100 U	0 0220 U	0 0477	0 0069 U	0 005 U	NR
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	09/30/87	4	0 02 U	0 0100 U	0 0220 U	0 0217	0 0069 U	0.005 U	0.04 J
54-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	02/08/88	1	0.02 U	0 100 U	0 0220 U	0 0072	0.0113	0 005 U	0.06 J
54-86	04/27/88	2	0 02 U	0 0100 U	0.0220 U	0 0177	0.1609	0 005 U	NR
54-86	07/11/88	3	0 020 U	0.0327	0 0220 U	0 0285	0.1599	0.005 U	NR
54-86	10/14/88	4	NR	0 0100 U	0 0220 U	0 0094	0 0250	NR	NR
55-86	05/18/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 1248	0 0050 U	NR
55-86	05/27/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 010	NR
55-86	07/14/87	3	0 02 U	0 0100 U	0 0220 U	0 0125	0 0088	0 005 U	NR
55-86	07/14/87	3	0.02 U	0 0100 U	0 0220 U	0 0463	0 0148	0 005 U	NR
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	09/30/87	4	0 02 U	0.0100 U	0 0220 U	0 0063 U	0 0100	0 005 U	0.01 J
55-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	02/08/88	1	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0189	0 016	0 1 U

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
54-86	04/08/87	1	25 0889	0 2275	0.0002 U	0 0220 U	0 0370 U	5.0 U	0.0050 U
54-86	05/27/87	2	22.3296	0 0850	0 0002 U	0 0220 U	0.0370 U	5.0 U	0.005 U
54-86	07/14/87	3	21.4287	0.0419	0 0002 U	0 0220 U	0.0370 U	5.1	0.002 J
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	09/30/87	4	20.6528	0 0265	0 0002 U	0 0220 U	0.0370 U	4 5	0.005 U
54-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
54-86	02/08/88	1	21.2245	0 1770	0 0002 U	0 0220 U	0.0370 U	5.2	0.005 U
54-86	04/27/88	2	20.7761	0 1744	0 0002 U	0 0220 U	0.0370 U	3 9	0.005 U
54-86	07/11/88	3	23 4344	0 1855	0.0002 U	0 0220 U	0.0539	4 1	0.005 U
54-86	10/14/88	4	20.9279	0 1755	0 0002 U	0 0220 U	0 0370 U	4.5	NR
55-86	05/18/87	1	5.8869	0 0655	0 0002 U	0 0220 U	0 0370 U	5.0 U	0.005 U
55-86	05/27/87	2	5.6911	0 0235	0 0002 U	0 0220 U	0.0370 U	5.0 U	0.005 U
55-86	07/14/87	3	4.0589	0 0078	0 0002 U	0 0220 U	0.0370 U	0 7	0.005 U
55-86	07/14/87	3	3.6568	0 0068	0 0002 U	0 0220 U	0.0370 U	0.7	0.005 U
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	09/30/87	4	4.0631	0.0051 U	0 0002 U	0 0220 U	0 0370 U	0.78	0.005 U
55-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
55-86	02/08/88	1	4 2392	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 8	0 005 U

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
54-86	04/08/87	1	0 0076 U	36 0480	0 8713	0 01 U	0.0240 U	0.05
54-86	05/27/87	2	0.0076 U	35 7643	0 8216	0 01 U	0.0240 U	0.0326
54-86	07/14/87	3	0.0076 U	35 7513	0 8342	0.01 U	0 0240 U	0.0276
54-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
54-86	09/30/87	4	0 0076 U	32.1546	0 7738	0.01 U	0 0240 U	0.0200 U
54-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
54-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
54-86	02/08/88	1	0.0076 U	32 8532	0 8118	0 01 U	0 0240 U	0 0398
54-86	04/27/88	2	0.0076 U	32 2573	0 7243	0 01 U	0 0360 U	0 0200 U
54-86	07/11/88	3	0.0079	33 2859	0 7798	0 010 U	0 0360 U	0 0979
54-86	10/14/88	4	0.0076 U	33 8437	0 8541	NR	0 0360 U	0 0419
55-86	05/18/87	1	0 0076 U	13 0930	0 1497	0.0100 U	0.0240 U	0 02 U
55-86	05/27/87	2	0.0076 U	12 1739	0.1430	0 01 U	0.0240	0.0200
55-86	07/14/87	3	0.0076 U	11 0472	0 1267	0 01 U	0 0240 U	0.0204
55-86	07/14/87	3	0.0076 U	8 0479	0 1134	0 01 U	0 240 U	0.0859
55-86	08/10/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
55-86	09/30/87	4	0.0076 U	9 9340	0 1176	0 01 U	0.0240 U	0 0241
55-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
55-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
55 86	02/08/88	1	0 0076 U	8 5461	0 1201	0 01 U	0 0240 U	0.0623

Notes. NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
55-86	04/27/88	2	0.0434	0 0340 U	0 005 U	0 0554	0 0010 U	0.0050 U	24.7170
55-86	07/11/88	3	0.0290 U	0.0340 U	0.005 U	0 0534	0 0010 U	0.0050 U	22.0771
55-86	07/11/88	3	0 0290 U	0 0340 U	0 005 U	0.0517	0.0010 U	0.0050 U	22.1470
55-86	10/14/88	4	0.0290 U	0 0340 U	NR	0 0670	0.0010 U	0.0050 U	23.6197

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
55-86	04/27/88	2	0.02 U	0.0100 U	0 0220 U	0.0063 U	0 1097	0 005 U	NR
55-86	07/11/88	3	0.020 U	0.0262	0 0220 U	0 0080	0.1619	0.005 U	NR
55-86	07/11/88	3	0.020 U	0 0100 U	0.0220 U	0.0387	0.0523	0.005 U	NR
55-86	10/14/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0.0223	NR	NR

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
55-86	04/27/88	2	4.1914	0 0051 U	0.0002 U	0.0220 U	0.0370 U	0.7	0.005 U
55-86	07/11/88	3	4.1098	0 0051 U	0 0002 U	0.0220 U	0 0370 U	0.6	0.005 U
55-86	07/11/88	3	4.1372	0 0051 U	0.0002 U	0.0220 U	0.0370 U	0.7	0.005 U
55-86	10/14/88	4	4.0424	0 0051 U	0.0002 U	0 0220 U	0.0370 U	0.7	NR

Notes· NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Background Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss. mg/l
55-86	04/27/88	2	0.0076 U	9 9816	0.1256	0 01 U	0.0360 U	0.0276
55-86	07/11/88	3	0.0146	9 1217	0 1177	0.010 U	0 0360 U	0.0703 U
55-86	07/11/88	3	0 0827	8 6695	0.1187	0.010 U	0.0360 U	0.1637
55-86	10/14/88	4	0 0076 U	8.6912	0 1291	NR	0 0360 U	0 0676

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

DISSOLVED RADIONUCLIDES

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Background Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
54-86	04/08/87	1	***							
54-86	05/27/87	2	***							
54-86	07/14/87	3	0 ± 21	40	10 ± 41	76	2 4 ± 1.3		0.0 ± 0.2	0.2
54-86	08/10/87	3	***							
54-86	09/30/87	4	4 ± 4	7	3 ± 9	18	1 4 ± 0.3		0.00 ± .04	.14
54-86	09/30/87	4	***							
54-86	10/01/87	4	NR		NR		1 780 ± 0 380		NR	
54-86	02/08/88	1	6 ± 6		-5 ± 13		0 04 ± 11		0.00 ± 0.06	
54-86	04/27/88	2	4 ± 4	8	1 ± 10	24	0 97 ± 0 27	1.3	0 01 ± 0.03	0.14
54-86	07/11/88	3	4 ± 1		6 ± 2		0 95 ± 0 25		0.02 ± 0.03	0.10
54-86	10/14/88	4	NR		NR		NR		NR	
55-86	05/18/87	1	***							
55-86	05/27/87	2	***							
55-86	07/14/87	3	0 ± 15		14 ± 36		1 1 ± 1.2		0 2 ± 0.4	
55-86	07/14/87	3	4 ± 19	34	12 ± 40	75	0 3 ± 1 1		0.0 ± 0.3	0 2
55-86	08/10/87	3	***							
55-86	09/30/87	4	2 ± 4	6	3 ± 10	18	0 00 ± 06	17	0.00 ± .03	.09
55-86	09/30/87	4	***							
55-86	10/01/87	4	NR		NR		NR		NR	
55-86	02/08/88	1	5 ± 4		14 ± 12		0.00 ± 0 48		0.05 ± 0 28	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Background Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
54-86	04/08/87	1	***							
54-86	05/27/87	2	***							
54-86	07/14/87	3	0.3 ± 0.6		- 08 ± .60	0 5	- 04 ± 60	1 2	<593	
54-86	08/10/87	3	***							
54-86	09/30/87	4	44 ± .12		0 00 ± 22	64	0.00 ± 34	4.6	<460	
54-86	09/30/87	4	***							
54-86	10/01/87	4	0 644 ± 0.127		0 036 ± 0 047		0 048 ± 0.045		NR	
54-86	02/08/88	1	0.04 ± 0.09		0 00 ± 16		NR		<210	
54-86	04/27/88	2	0.35 ± 0.24	1.2	0.00 ± 0 04	0.13	0.00 ± 0.07	0.64	<220	
54-86	07/11/88	3	0.28 ± 0.22	0.80	0.00 ± 0 04	0.11	0 00 ± 0.08	0 49	200	
54-86	10/14/88	4	NR		NR		NR		<200	
55-86	05/18/87	1	***							
55-86	05/27/87	2	***							
55-86	07/14/87	3	0.1 ± 0.8		04 ± .57		-.04 ± .56		<543	
55-86	07/14/87	3	0.0 ± 0.5	0 2	-.14 ± .53	0 3	-.04 ± .44	0.9	<593	
55-86	08/10/87	3	***							
55-86	09/30/87	4	.02 ± .05	.10	0 00 ± .06	29	0.00 ± 16	1.6	<460	
55-86	09/30/87	4	***							
55-86	10/01/87	4	0.115 ± 0.054		0 042 ± 0 054		-0 022 ± 0.034		NR	
55-86	02/08/88	1	0.13 ± 0.51		0 00 ± 0 21		NR		<210	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Background Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
54-86	04/08/87	1	***	
54-86	05/27/87	2	***	
54-86	07/14/87	3	<1 0	
54-86	08/10/87	3	***	
54-86	09/30/87	4	<1.0	
54-86	09/30/87	4	***	
54-86	10/01/87	4	NR	
54-86	02/08/88	1	NR	
54-86	04/27/88	2	NR	
54-86	07/11/88	3	NR	
54-86	10/14/88	4	NR	
55-86	05/18/87	1	***	
55-86	05/27/87	2	***	
55-86	07/14/87	3	<1.0	
55-86	07/14/87	3	<1.0	
55-86	08/10/87	3	***	
55-86	09/30/87	4	<1.0	
55-86	09/30/87	4	***	
55-86	10/01/87	4	NR	
55-86	02/08/88	1	NR	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Background Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
55-86	04/27/88	2	1 ± 5	12	6 ± 10	22	0 00 ± 0.24	1.3	0.00 ± 0.03	0.14
55-86	07/11/88	3	1 ± 1	2	2 ± 1	4	0 23 ± 0 21	0.84	0.00 ± 0.03	0.11
55-86	07/11/88	3	0 ± 1	2	0 ± 2	4	0 00 ± 0.21	0.64	0.00 ± 0.03	0.09
55-86	10/14/88	4	NR		NR		NR		NR	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Background Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
55-86	04/27/88	2	0 00 ± 0 23	1.2	0 00 ± 0.05	0 11	0.02 ± 0.10	1 1	<220	
55-86	07/11/88	3	0.11 ± 0 16	0 62	0 00 ± 0 04	0 09	0.02 ± 0.18	0.61	210	
55-86	07/11/88	3	0 00 ± 0.16	0.47	0 00 ± 0 04	0 10	0 00 ± 0.17	0 61	220 ± 90	
55-86	10/14/88	4	NR		NR		NR		310 ± 90	

Notes. NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Background Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
55-86	04/27/88	2	NR	
55-86	07/11/88	3	NR	
55-86	07/11/88	3	NR	
55-86	10/14/88	4	NR	

Notes. NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

FIELD PARAMETER DATA

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 55-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/18/87	1	244.0	6.20	10.7
05/27/87	2	201.0	7.20	12.0
07/14/87	3	N	N	N
07/14/87	3	N	7.00	13.3
08/10/87	3	N	6.50	13.6
09/30/87	4	177.0	7.10	14.8
09/30/87	4	N	N	N
10/01/87	4	N	N	N
02/08/88	1	N	7.40	10.3
04/27/88	2	187.0	7.10	N
07/11/88	3	171.0	7.70	14.2
07/11/88	3	N	N	N
10/14/88	4	180.0	6.50	13.8

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 54-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/08/87	1	750.0	6.70	14.0
05/27/87	2	684.0	7.70	13.8
07/14/87	3	N	7.10	14.0
08/10/87	3	N	7.30	13.9
09/30/87	4	658.0	7.10	15.4
09/30/87	4	N	N	N
10/01/87	4	N	N	N
02/08/88	1	N	6.90	10.7
04/27/88	2	674.0	7.00	N
07/11/88	3	637.0	7.50	14.4
10/14/88	4	650.0	7.00	14.2

N = Field parameter not measured

APPENDIX B

SOLAR EVAPORATION PONDS GROUND-WATER QUALITY DATA

APPENDIX B-1

SOLAR EVAPORATION PONDS
ALLUVIAL GROUND-WATER QUALITY DATA

VOLATILES

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
56-87	05/23/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	NR	NR	NR	NR	NR	NR	NR
22-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
22-86	08/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	08/28/87	3	NR	NR	NR	NR	NR	NR	NR
22-86	12/18/87	4	10 U	10 U	10 U	10 U	10	4J	5 U
22-86	03/16/88	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	05/17/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
22-86	09/09/88	3	10 U	10 U	10 U	10 U	13	10 U	5 U
22-86	11/28/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	4 J	6	5 U	6	5 U	10 U	29
56-87	05/23/88	2	11	15	5 U	5 U	5 U	10 U	5 U
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	4 U	NR	28	100	4 U	NR	1400
22-86	06/24/87	2	4 U	NR	4 U	36	8000	NR	4 U
22-86	08/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	08/28/87	3	5 U	NR	5 U	80	5 U	NR	5 U
22-86	12/18/87	4	5 U	5 U	5 U	38	5 U	10 U	5 U
22-86	03/16/88	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	05/17/88	2	5 U	5 U	5 U	103	5 U	10 U	5 U
22-86	09/09/88	3	5 U	5 U	5 U	72	5 U	10 U	5 U
22-86	11/28/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	5 U	10 U	5 U	5 U	5 U	57	5 U
56-87	05/23/88	2	5 U	10 U	5 U	5 U	5 U	124	5 U
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	4 U	NR	NR	NR	NR	650	NR
22-86	06/24/87	2	3000	NR	NR	NR	NR	6000	NR
22-86	08/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	08/28/87	3	491	NR	NR	NR	NR	490	NR
22-86	12/18/87	4	161	10 U	5 U	5 U	5 U	186	5 U
22-86	03/16/88	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	05/17/88	2	233	10 U	5 U	5 U	5 U	173	5 U
22-86	09/09/88	3	146	10 U	5 U	5 U	5 U	284	5 U
22-86	11/28/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
26-86	03/18/87	1	NR	NR	NR	NR	NR	NR	NR
26-86	08/28/87	3	NR	NR	NR	NR	NR	NR	NR
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	4 J	5 U	5 U	5 U	5 U	5 U	5 U
56-87	05/23/88	2	7	5 U	5 U	5 U	5 U	5 U	5 U
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	4 U	NR	NR	NR	NR	NR	NR
22-86	06/24/87	2	8	NR	NR	NR	NR	NR	NR
22-86	08/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
22-86	12/18/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
22-86	03/16/88	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	05/17/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
22-86	09/09/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
22-86	11/28/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
56-87	05/23/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	4 U	NR	NR	NR	NR	NR	NR
22-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
22-86	08/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
22-86	12/18/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
22-86	03/16/88	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
22-86	05/17/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
22-86	09/09/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
22-86	11/28/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
26-86	03/18/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
26-86	08/28/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
26-86	03/18/87	1	4 U	NR	NR	NR	NR	8	NR
26-86	08/28/87	3	5 U	NR	NR	NR	NR	5 U	NR
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
26-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
26-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
26-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
26-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
21-87	05/02/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
21-87	08/10/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
21-87	11/08/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
35-86	03/17/87	1	NR	NR	NR	NR	NR	NR	NR
35-86	06/02/87	2	NR	NR	NR	NR	NR	NR	NR
35-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
35-86	08/26/87	3	NR	NR	NR	NR	NR	NR	NR
35-86	10/16/87	4	NR	NR	NR	NR	NR	NR	NR
35-86	10/16/87	4	50U	50U	790	50U	36	50U	25U
35-86	03/02/88	1	10 U	10 U	492	10 U	6	10 U	5 U
35-86	05/02/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
35-86	08/10/88	3	10 U	10 U	403	10 U	5 U	10 U	5 U
35-86	11/04/88	4	10 U	10 U	730 E	10 U	6 B	10 U	5 U
36-86	04/24/87	1	NR	NR	NR	NR	NR	NR	NR
36-86	06/03/87	2	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
21-87	05/02/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
21-87	08/10/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
21-87	11/08/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
35-86	03/17/87	1	48	NR	1600	4 U	4 U	NR	32
35-86	06/02/87	2	40	NR	140	340	4 U	NR	4 U
35-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
35-86	08/26/87	3	19	NR	5 U	5 U	5 U	NR	13
35-86	10/16/87	4	14	NR	5 U	5 U	5 U	NR	5 U
35-86	10/16/87	4	11J	62	370	25U	25U	50U	11J
35-86	03/02/88	1	12	49	5 U	5 U	5 U	10 U	5 U
35-86	05/02/88	2	7	47	2 J	5 U	5 U	10 U	5 U
35-86	08/10/88	3	9	43	5 U	5 U	5 U	10 U	11
35-86	11/04/88	4	5 U	62	5 U	3 JB	5 U	10 U	7
36-86	04/24/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
36-86	06/03/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	4 U	NR	NR	NR	NR	NR	NR
17-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
17-86	08/06/87	3	5 U	NR	NR	NR	NR	NR	NR
17-86	12/08/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
17-86	03/14/88	1	3 J	5 U	5 U	5 U	5 U	5 U	5 U
17-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
17-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
17-86	11/29/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
15-86	04/22/87	1	4 U	NR	NR	NR	NR	NR	NR
15-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
15-86	08/06/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
15-86	08/06/87	3	NR	NR	NR	NR	NR	NR	NR
15-86	12/08/87	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
15-86	03/14/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
15-86	05/16/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
15-86	09/01/88	3	10 U	10 U	10 U	10 U	8 J	10 U	5 U
15-86	11/29/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
13-86	04/23/87	1	NR	NR	NR	NR	NR	NR	NR
13-86	06/11/87	2	NR	NR	NR	NR	NR	NR	NR
13-86	08/04/87	3	NR	NR	NR	NR	NR	NR	NR
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
13-86	05/16/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
13-86	08/31/88	3	10 U	10 U	10 U	10 U	8 J	10 U	5 U
13-86	11/30/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
15-86	08/06/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
15-86	12/08/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
15-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
15-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
15-86	09/01/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
15-86	11/29/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
13-86	04/23/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
13-86	06/11/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
13-86	08/04/87	3	5 U	NR	5 U	125	5 U	NR	5 U
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
13-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
13-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
13-86	11/30/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
15-86	08/06/87	3	5 U	NR	NR	NR	NR	5 U	NR
15-86	12/08/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
15-86	03/14/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
15-86	05/16/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
15-86	09/01/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
15-86	11/29/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
13-86	04/23/87	1	4 U	NR	NR	NR	NR	4 U	NR
13-86	06/11/87	2	4 U	NR	NR	NR	NR	4 U	NR
13-86	08/04/87	3	5 U	NR	NR	NR	NR	5	NR
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	5 U	10 U	5 U	5 U	5 U	55	5 U
13-86	05/16/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
13-86	08/31/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
13-86	11/30/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
15-86	08/06/87	3	5 U	NR	NR	NR	NR	NR	NR
15-86	12/08/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
15-86	03/14/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
15-86	05/16/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
15-86	09/01/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
15-86	11/29/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
13-86	04/23/87	1	4 U	NR	NR	NR	NR	NR	NR
13-86	06/11/87	2	4 U	NR	NR	NR	NR	NR	NR
13-86	08/04/87	3	6	NR	NR	NR	NR	NR	NR
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
13-86	05/16/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
13-86	08/31/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
13-86	11/30/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
04-60	09/07/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
04-60	09/07/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
04-60	12/02/88	4	2 J	5 U	3 JB	5 U	5 U	5 U	5 U
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
28-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
28-86	09/08/87	3	5 U	NR	NR	NR	NR	NR	NR
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
28-86	05/17/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
28-86	09/07/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
28-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
30-86	03/23/87	1	NR	NR	NR	NR	NR	NR	NR
30-86	04/15/87	1	NR	NR	NR	NR	NR	NR	NR
30-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
30-86	09/24/87	3	NR	NR	NR	NR	NR	NR	NR
30-86	01/15/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	10 U	10 U	10 U	10 U	14	10 U	5 U
30-86	05/23/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
30-86	09/15/88	3	10 U	10 U	10 U	10 U	17	10 U	5 U
30-86	12/02/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
02-60	03/19/87	1	NR	NR	NR	NR	NR	NR	NR
02-60	06/25/87	2	NR	NR	NR	NR	NR	NR	NR
02-60	09/24/87	3	NR	NR	NR	NR	NR	NR	NR
02-60	01/05/88	4	10 U	10 U	10 U	10 U	8	13	5 U
02-60	03/16/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
02-60	05/23/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
02-60	09/09/88	3	10 U	10 U	10 U	10 U	11	10 U	5 U
02-60	12/02/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
30-86	03/23/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
30-86	04/15/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
30-86	06/24/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
30-86	09/24/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
30-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	05/23/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	09/15/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	12/02/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U
02-60	03/19/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
02-60	06/25/87	2	4 U	NR	4 U	4 U	18	NR	4 U
02-60	09/24/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
02-60	01/05/88	4	5 U	5 U	5 U	9	5 U	6J	5 U
02-60	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
02-60	05/23/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
02-60	09/09/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
02-60	12/02/88	4	5 U	5 U	5 U	4 JB	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
30-86	03/23/87	1	4 U	NR	NR	NR	NR	4 U	NR
30-86	04/15/87	1	4 U	NR	NR	NR	NR	5	NR
30-86	06/24/87	2	4 U	NR	NR	NR	NR	4 U	NR
30-86	09/24/87	3	5 U	NR	NR	NR	NR	5 U	NR
30-86	01/15/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	05/23/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	09/15/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	12/02/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
02-60	03/19/87	1	4 U	NR	NR	NR	NR	4 U	NR
02-60	06/25/87	2	4 U	NR	NR	NR	NR	4 U	NR
02-60	09/24/87	3	5 U	NR	NR	NR	NR	5 U	NR
02-60	01/05/88	4	7	10 U	5 U	5 U	5 U	5 U	5 U
02-60	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
02-60	05/23/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
02-60	09/09/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
02-60	12/02/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
30-86	03/23/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
30-86	09/24/87	3	5 U	NR	NR	NR	NR	NR	NR
30-86	01/15/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
30-86	05/23/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
30-86	09/15/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
30-86	12/02/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
02-60	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
02-60	06/25/87	2	4 U	NR	NR	NR	NR	NR	NR
02-60	09/24/87	3	5 U	NR	NR	NR	NR	NR	NR
02-60	01/05/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
02-60	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
02-60	05/23/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
02-60	09/09/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
02-60	12/02/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
30-86	03/23/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	06/24/87	2	16	NR	NR	NR	NR	NR	NR
30-86	09/24/87	3	5 U	NR	NR	NR	NR	NR	NR
30-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
30-86	05/23/88	2	4 J	5 U	5 U	5 U	5 U	5 U	5 U
30-86	09/15/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
30-86	12/02/88	4	2 J	5 U	3 JB	5 U	5 U	5 U	5 U
02-60	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
02-60	06/25/87	2	4 U	NR	NR	NR	NR	NR	NR
02-60	09/24/87	3	5 U	NR	NR	NR	NR	NR	NR
02-60	01/05/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
02-60	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
02-60	05/23/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
02-60	09/09/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
02-60	12/02/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	NR	NR	NR	NR	NR	NR	NR
17-86	06/10/87	2	NR	NR	NR	NR	NR	NR	NR
17-86	08/06/87	3	NR	NR	NR	NR	NR	NR	NR
17-86	12/08/87	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
17-86	03/14/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
17-86	05/16/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
17-86	08/31/88	3	10 U	10 U	10 U	10 U	7 J	10 U	5 U
17-86	11/29/88	4	10 U	10 U	10 U	10 U	5 JB	10 U	5 U
15-86	04/22/87	1	NR	NR	NR	NR	NR	NR	NR
15-86	06/10/87	2	NR	NR	NR	NR	NR	NR	NR
15-86	08/06/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
17-86	06/10/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
17-86	08/06/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
17-86	12/08/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
17-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
17-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
17-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
17-86	11/29/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
15-86	04/22/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
15-86	06/10/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
15-86	08/06/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	4 U	NR	NR	NR	NR	4 U	NR
17-86	06/10/87	2	4 U	NR	NR	NR	NR	4 U	NR
17-86	08/06/87	3	5 U	NR	NR	NR	NR	5 U	NR
17-86	12/08/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
17-86	03/14/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
17-86	05/16/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
17-86	08/31/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
17-86	11/29/88	4	5 U	10 U	5 U	5 U	5 U	2 J	5 U
15-86	04/22/87	1	4 U	NR	NR	NR	NR	4 U	NR
15-86	06/10/87	2	4 U	NR	NR	NR	NR	4 U	NR
15-86	08/06/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	4 U	NR	NR	NR	NR	NR	NR
17-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
17-86	08/06/87	3	5 U	NR	NR	NR	NR	NR	NR
17-86	12/08/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
17-86	03/14/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
17-86	05/16/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
17-86	08/31/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
17-86	11/29/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
15-86	04/22/87	1*	4 U	NR	NR	NR	NR	NR	NR
15-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
15-86	08/06/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
21-87	05/02/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
21-87	08/10/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
21-87	11/08/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
35-86	03/17/87	1	4 U	NR	NR	NR	NR	14	NR
35-86	06/02/87	2	12	NR	NR	NR	NR	16	NR
35-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
35-86	08/26/87	3	5 U	NR	NR	NR	NR	8	NR
35-86	10/16/87	4	5 U	NR	NR	NR	NR	5 U	NR
35-86	10/16/87	4	25U	50U	25U	25U	25U	13JB	25U
35-86	03/02/88	1	5 U	10 U	5 U	5 U	5 U	10	5 U
35-86	05/02/88	2	5 U	10 U	5 U	5 U	5 U	19	5 U
35-86	08/10/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
35-86	11/04/88	4	5 U	10 U	5 U	5 U	5 U	9	5 U
36-86	04/24/87	1	4 U	NR	NR	NR	NR	6	NR
36-86	06/03/87	2	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
21-87	05/02/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
21-87	08/10/88	3	5 U	5 U	5 U	10 U	5 U	10 U	10 U
21-87	11/08/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
35-86	03/17/87	1	4 U	NR	NR	NR	NR	NR	NR
35-86	06/02/87	2	4 U	NR	NR	NR	NR	NR	NR
35-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
35-86	08/26/87	3	5 U	NR	NR	NR	NR	NR	NR
35-86	10/16/87	4	5 U	NR	NR	NR	NR	NR	NR
35-86	10/16/87	4	25U	25U	25U	50U	25U	50U	50U
35-86	03/02/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
35-86	05/02/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
35-86	08/10/88	3	5 U	5 U	5 U	10 U	5 U	10 U	10 U
35-86	11/04/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
36-86	04/24/87	1	4 U	NR	NR	NR	NR	NR	NR
36-86	06/03/87	2	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	6	5 U	5 U	5 U	5 U	5 U	5 U
21-87	05/02/88	2	49	5 U	5 U	5 U	5 U	5 U	5 U
21-87	08/10/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
21-87	11/08/88	4	4 J	5 U	5 U	5 U	5 U	5 U	5 U
35-86	03/17/87	1	4 U	NR	NR	NR	NR	NR	NR
35-86	06/02/87	2	4 U	NR	NR	NR	NR	NR	NR
35-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
35-86	08/26/87	3	5 U	NR	NR	NR	NR	NR	NR
35-86	10/16/87	4	5 U	NR	NR	NR	NR	NR	NR
35-86	10/16/87	4	25U	25U	25U	25U	25U	25U	25U
35-86	03/02/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
35-86	05/02/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
35-86	08/10/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
35-86	11/04/88	4	5 U	5 U	5 B	5 U	5 U	5 U	5 U
36-86	04/24/87	1	4 U	NR	NR	NR	NR	NR	NR
36-86	06/03/87	2	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	NR	NR	NR	NR	NR	NR	NR
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
37-87	05/17/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	NR	NR	NR	NR	NR	NR	NR
04-60	06/25/87	2	NR	NR	NR	NR	NR	NR	NR
04-60	09/18/87	3	NR	NR	NR	NR	NR	NR	NR
04-60	09/18/87	3	NR	NR	NR	NR	NR	NR	NR
04-60	01/05/88	4	10 U	10 U	10 U	10 U	6	10	5 U
04-60	03/16/88	1	10 U	10 U	10 U	10 U	17	12	5 U
04-60	05/17/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
37-87	05/17/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
04-60	06/25/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
04-60	09/18/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
04-60	09/18/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
04-60	01/05/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
04-60	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
04-60	05/17/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	5 U	NR	NR	NR	NR	5 U	NR
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
37-87	05/17/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	4 U	NR	NR	NR	NR	4 U	NR
04-60	06/25/87	2	4 U	NR	NR	NR	NR	4 U	NR
04-60	09/18/87	3	5 U	NR	NR	NR	NR	5 U	NR
04-60	09/18/87	3	5 U	NR	NR	NR	NR	5 U	NR
04-60	01/05/88	4	7	10 U	5 U	5 U	5 U	5 U	5 U
04-60	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
04-60	05/17/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	5 U	NR	NR	NR	NR	NR	NR
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
37-87	05/17/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
04-60	06/25/87	2	4 U	NR	NR	NR	NR	NR	NR
04-60	09/18/87	3	5 U	NR	NR	NR	NR	NR	NR
04-60	09/18/87	3	5 U	NR	NR	NR	NR	NR	NR
04-60	01/05/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
04-60	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
04-60	05/17/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	5 U	NR	NR	NR	NR	NR	NR
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
37-87	05/17/88	2	7	5 U	5 U	5 U	5 U	5 U	5 U
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
04-60	06/25/87	2	15	NR	NR	NR	NR	NR	NR
04-60	09/18/87	3	5 U	NR	NR	NR	NR	NR	NR
04-60	09/18/87	3	5 U	NR	NR	NR	NR	NR	NR
04-60	01/05/88	4	5	5 U	5 U	5 U	5 U	5 U	5 U
04-60	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
04-60	05/17/88	2	3 J	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
04-60	09/07/88	3	10 U	10 U	10 U	10 U	12	10 U	5 U
04-60	09/07/88	3	10 U	10 U	10 U	10 U	11	10 U	5 U
04-60	12/02/88	4	10 U	10 U	10 U	10 U	3 JB	10 U	5 U
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	NR	NR	NR	NR	NR	NR	NR
28-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
28-86	09/08/87	3	NR	NR	NR	NR	NR	NR	NR
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
28-86	05/17/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
28-86	09/07/88	3	10 U	10 U	10 U	10 U	12	10 U	5 U
28-86	11/22/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
04-60	09/07/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
04-60	09/07/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
04-60	12/02/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
28-86	06/24/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
28-86	09/08/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
28-86	05/17/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
28-86	09/07/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
28-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
04-60	09/07/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
04-60	09/07/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
04-60	12/02/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	4 U	NR	NR	NR	NR	4 U	NR
28-86	06/24/87	2	4 U	NR	NR	NR	NR	4	NR
28-86	09/08/87	3	5 U	NR	NR	NR	NR	5 U	NR
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
28-86	05/17/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
28-86	09/07/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
28-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
04-60	09/07/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
04-60	09/07/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
04-60	12/02/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
28-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
28-86	09/08/87	3	5 U	NR	NR	NR	NR	NR	NR
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
28-86	05/17/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
28-86	09/07/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
28-86	11/22/88	4	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
15-86	08/06/87	3	5 U	NR	NR	NR	NR	NR	NR
15-86	12/08/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
15-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
15-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
15-86	09/01/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
15-86	11/29/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
13-86	04/23/87	1	4 U	NR	NR	NR	NR	NR	NR
13-86	06/11/87	2	4 U	NR	NR	NR	NR	NR	NR
13-86	08/04/87	3	5 U	NR	NR	NR	NR	NR	NR
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
13-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
13-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
13-86	11/30/88	4	5 U	5 U	3 JB	5 U	5 U	5 U	5 U
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

INORGANICS

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
24-86	09/24/87	3	DRY				
24-86	12/05/87	4	DRY				
24-86	03/16/88	2	DRY				
24-86	05/23/88	2	DRY				
24-86	09/08/88	3	DRY				
24-86	11/22/88	4	DRY				
56-87	03/16/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
56-87	05/23/88	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
56-87	11/28/88	4	DRY				
22-86	03/24/87	1	577	47 0	6 80	81.0	231
22-86	06/24/87	2	477	48 1	2 30	60.5	317
22-86	08/28/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
22-86	08/28/87	3	533	40 4	1 4	59.0	335
22-86	12/18/87	4	478	28 5	1 32	70.0	308
22-86	03/16/88	1	477	43 6	2 74	42.0	170
22-86	05/17/88	2	481	57.8	3 30	61 9	262
22-86	09/09/88	3	453	39 0	5 09	52.5	299
22-86	11/28/88	4	DRY				

Notes· NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
26-86	03/18/87	1	1814	67 7	88 0	390	682
26-86	08/28/87	3	1760	59.7	79	375	650
26-86	12/05/87	4	DRY				
26-86	03/16/88	1	DRY				
26-86	05/17/88	2	DRY				
26-86	09/06/88	3	DRY				
26-86	11/22/88	4	DRY				
38-87	03/16/88	1	DRY				
38-87	05/17/88	2	DRY				
38-87	09/06/88	3	DRY				
38-87	11/22/88	4	DRY				
33-86	09/24/87	3	DRY				
33-86	12/05/87	4	DRY				
33-86	03/07/88	1	DRY				
33-86	05/02/88	2	DRY				
33-86	08/12/88	3	DRY				
33-86	11/08/88	4	DRY				

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
21-87	10/29/87	4	DRY				
21-87	03/07/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
21-87	05/02/88	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
21-87	08/10/88	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
21-87	11/08/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
35-86	03/17/87	1	952	107	0.20 U	100	642
35-86	06/02/87	2	924	84.1	0 20 U	180	533
35-86	07/28/87	3	1004	83.2	0.20 U	160	565
35-86	08/26/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
35-86	10/16/87	4	1006	101	0 02 U	125	613
35-86	10/16/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
35-86	03/02/88	1	1011	97.0	0.02 U	134	349
35-86	05/02/88	2	973	104	0.02 U	125	533
35-86	08/10/88	3	971	95.6	0.02 U	143	598
35-86	11/04/88	4	1003	97.4	0 02 U	170	545
36-86	04/24/87	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
36-86	06/03/87	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
36-86	07/27/87	3	DRY				
36-86	08/26/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
36-86	10/19/87	4	DRY				
36-86	03/07/88	1	DRY				
36-86	05/02/88	2	DRY				
36-86	08/11/88	3	DRY				
36-86	11/08/88	4	DRY				
37-87	03/16/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
37-87	05/17/88	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
37-87	09/06/88	3	DRY				
37-87	11/22/88	4	DRY				
04-60	03/19/87	1	624	14.9	68 0	65 0	238
04-60	06/25/87	2	1192	33.7	104	94.0	288
04-60	09/18/87	3	1182	35 5	96	92.6	297
04-60	09/18/87	3	1157	32.9	97	92 6	297
04-60	01/05/88	4	784	21.2	64 9	84 0	287
04-60	03/16/88	1	615	12.4	37.1	42 0	149
04-60	05/17/88	2	577	10.5	27 0	63.7	238

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
04-60	09/07/88	3	772	22.9	51.8	68 4	297
04-60	09/07/88	3	772	22 6	58.0	68.4	294
04-60	12/02/88	4	830	26 7	73.5	75.7	259
29-86	09/24/87	3	DRY				
29-86	12/05/87	4	DRY				
29-86	03/16/88	2	DRY				
29-86	05/23/88	2	DRY				
29-86	09/08/88	3	DRY				
29-86	11/22/88	4	DRY				
28-86	03/19/87	1	9033	259	1120	290	381
28-86	06/24/87	2	16776	40.1	2200	390	636
28-86	09/08/87	3	NR	NR	NR	NR	NR
28-86	12/05/87	4	DRY				
28-86	03/16/88	1	12052	336	1670	335	314
28-86	05/17/88	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
28-86	09/07/88	3	8129	241	1097	288	443
28-86	11/22/88	4	DRY				

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
30-86	03/23/87	1	8085	179	1440	215	334
30-86	04/15/87	1	9430	215	8.40	340	221
30-86	06/24/87	2	13740	288	2040	280	297
30-86	09/24/87	3	14019	318	1520	301	301
30-86	01/15/88	4	13682	276	1457	282	298
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
30-86	03/16/88	1	10571	210	1410	205	180
30-86	05/23/88	2	1600	216	12100	337	309
30-86	09/15/88	3	12125	277	1611	90.7	338
30-86	12/02/88	4	9750	236	1431	304	271
02-60	03/19/87	1	6229	144	1060	175	267
02-60	06/25/87	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
02-60	09/24/87	3	11941	632	1580	494	126
02-60	01/05/88	4	971	760	1279	190	112
02-60	03/16/88	1	2453	809	15 1	570	500
02-60	05/23/88	2	17400	651	2050	821	92.3
02-60	09/09/88	3	14400	823	1696	779	83.9
02-60	12/02/88	4	12580	933	185	834	71.1

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
18-86	08/05/87	3	DRY				
18-86	12/04/87	4	DRY				
18-86	03/14/88	1	DRY				
18-86	05/16/88	2	DRY				
18-86	08/30/88	3	DRY				
18-86	11/22/88	4	DRY				
17-86	04/22/87	1	1324	97 0	145	208	332
17-86	06/10/87	2	2796	105	305	270	333
17-86	08/06/87	3	3929	11 9	465	290	296
17-86	12/08/87	4	1906	123	516	282	274
17-86	03/14/88	1	4392	130	540	240	146
17-86	05/16/88	2	5214	121	577	406	255
17-86	08/31/88	3	4658	114	635	281	301
17-86	11/29/88	4	4204	130	763	932	240
15-86	04/22/87	1	1125	81.0	28 0	204	409
15-86	06/10/87	2	1153	80.2	120	175	371
15-86	08/06/87	3	1148	83.3	51	202	398

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
15-86	08/06/87	3	1117	87.9	54	195	398
15-86	12/08/87	4	996	74.9	34.5	142	424
15-86	03/14/88	1	1022	76 3	44 0	125	241
15-86	05/16/88	2	1128	82 6	42.8	180	382
15-86	09/01/88	3	1107	77 5	58.0	152	399
15-86	11/29/88	4	936	76 6	56 6	159	354
13-86	04/23/87	1	1137	86.0	0.50	490	417
13-86	06/11/87	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
13-86	08/04/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
13-86	12/04/87	4	DRY				
13-86	03/14/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
13-86	05/16/88	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
13-86	08/31/88	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
13-86	11/30/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
20-86	09/24/87	3	DRY				
20-86	12/05/87	4	DRY				
20-86	03/16/88	1	DRY				

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
20-86	05/23/88	2	DRY				
20-86	09/06/88	3	DRY				
20-86	11/22/88	4	DRY				

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

METALS

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss mg/l
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-87	05/23/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	0 1388	0 0600 U	0 01 U	0 0419	0.005 U	0 005 U	41 9695
22-86	06/24/87	2	0 0330	0.06 U	0 01 U	0 1908	0 005 U	0 005 U	53 8322
22-86	08/28/87	3	0 3777	NR	NR	0 1972	NR	NR	49 3018
22-86	08/28/87	3	0 4234	0 02 U	0 005 U	0 2045	0 005 U	0 0003 J	50 3961
22-86	12/18/87	4	0 0409	0.02 U	0 007	0 1368	0 005 U	0 001 U	64 7845
22-86	03/16/88	1	0 0319	0 02 U	0 005 U	0 0924	0 005 U	0 001	63 0093
22-86	05/17/88	2	0 0549	0 0340 U	0 005 U	0 1043	0 0010 U	0 0050 U	77 7597
22 86	09/09/88	3	0 0897	0 0340 U	0 005 U	0 1273	0 0010 U	0 0050 U	64 7091
22-86	11/28/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-87	05/23/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	0.2 U	0 0100 U	0 0220 U	0 0066	0 0682	0 005 U	NR
22-86	06/24/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0153	0 015	NR
22-86	08/28/87	3	NR	0 0100 U	0 0220 U	0.0094	0 2776	NR	NR
22-86	08/28/87	3	0 02 U	0 0100 U	0 0220 U	0 0099	0 2887	0 005 U	NR
22-86	12/18/87	4	0 02 U	0 0127	0 0220 U	0 0063 U	0 1833	0 002 J	0 17
22-86	03/16/88	1	0 02 U	0 0100 U	0 0220 U	0.0063 U	0 0697	0 001 J	1 3
22-86	05/17/88	2	0 020 U	0 0100 U	0.0220 U	0 0088	0.2612	0.005 U	NR
22-86	09/09/88	3	0 020 U	0 0173	0 0220 U	0 0072	0 9180	0 005 U	NR
22-86	11/28/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
24-86	09/24/87	3	DRY						
24-86	12/05/87	4	DRY						
24-86	03/16/88	2	DRY						
24-86	05/23/88	2	DRY						
24-86	09/08/88	3	DRY						
24-86	11/22/88	4	DRY						
56-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-87	05/23/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-87	11/28/88	4	DRY						
22-86	03/24/87	1	6 5882	0 1034	0 0002 U	0 0220 U	0 1097	6.0	0.0050 U
22-86	06/24/87	2	7 1633	0 0747	0 0002 U	0.0220 U	0 1054	8 2	0.005 U
22-86	08/28/87	3	9 6147	0 2259	NR	0.0220 U	0 1043	NR	NR
22-86	08/28/87	3	9 7533	0 2297	0 0002 U	0.0220 U	0.0938	10.6	0.005 U
22-86	12/18/87	4	10 2115	0 2621	0 0002 U	0 0220 U	0 1973	6.7	0.005
22-86	03/16/88	1	9 0908	0 1930	0 0002 U	0 0220 U	0 1695	2 2	0.003 J
22-86	05/17/88	2	10 8744	0 2318	0 0002 U	0.0220 U	0 1899	6 5	0 005 U
22-86	09/09/88	3	10 1261	0 2858	0 0002 U	0 0220 U	0 2030	6.7	0.005 U
22-86	11/28/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss mg/l
24-86	09/24/87	3	DRY					
24-86	12/05/87	4	DRY					
24-86	03/16/88	2	DRY					
24-86	05/23/88	2	DRY					
24-86	09/08/88	3	DRY					
24-86	11/22/88	4	DRY					
56-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
56-87	05/23/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
56-87	11/28/88	4	DRY					
22-86	03/24/87	1	0 0076 U	185.2432	0 2594	0 01 U	0 0240 U	0.02 U
22-86	06/24/87	2	0 0076 U	145.6882	0 2941	0.01 U	0.0308	0.0240
22-86	08/28/87	3	0 0076 U	126 8963	0 3502	NR	0 0240 U	0.0432
22-86	08/28/87	3	0.0076 U	129.0079	0 3537	0.01 U	0 0240 U	0 0485
22-86	12/18/87	4	0 0076 U	79 2068	0 4488	0 01 U	0 0240 U	0 0200 U
22-86	03/16/88	1	0 0076 U	87 0659	0 3745	0 01 U	0.240 U	0.0380
22-86	05/17/88	2	0 0076 U	76 6992	0 4379	0 010 U	0.0360 U	0.0282
22-86	09/09/88	3	0 0076 U	85 0753	0 4938	0 010 U	0 0360 U	0 0331
22-86	11/28/88	4	DRY					

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss mg/l
26-86	03/18/87	1	0 0290 U	0 06 U	0.40	0.0902	0.005 U	0 005 U	82.9436
26-86	08/28/87	3	0 0419	0.02 U	0 005 U	0.1191	0.005 U	0.001 U	75 8956
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
26-86	03/18/87	1	0 2 U	0.0100 U	0.0220 U	0.0063 U	0 0069 U	0.005 U	NR
26-86	08/28/87	3	0 02 U	0 0100 U	0.0220 U	0.0117	0.0069 U	0.005 U	NR
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
26-86	03/18/87	1	109 4108	0.0092	0 0002 U	0.0220 U	0.0370 U	5.0 U	0 02
26-86	08/28/87	3	127 7899	0 0098	0 0002 U	0 0220 U	0 0370 U	1 4	0 18
26-86	12/05/87	4	DRY						
26-86	03/16/88	1	DRY						
26-86	05/17/88	2	DRY						
26-86	09/06/88	3	DRY						
26-86	11/22/88	4	DRY						
38-87	03/16/88	1	DRY						
38-87	05/17/88	2	DRY						
38-87	09/06/88	3	DRY						
38-87	11/22/88	4	DRY						
33-86	09/24/87	3	DRY						
33-86	12/05/87	4	DRY						
33-86	03/07/88	1	DRY						
33-86	05/02/88	2	DRY						
33-86	08/12/88	3	DRY						
33-86	11/08/88	4	DRY						

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss. mg/l
26-86	03/18/87	1	0 0076 U	368 0944	2.4235	0.01 U	0 0240 U	0.05
26-86	08/28/87	3	0.0076 U	296 0713	2 5126	0 01 U	0 0240 U	0.0251
26-86	12/05/87	4	DRY					
26-86	03/16/88	1	DRY					
26-86	05/17/88	2	DRY					
26-86	09/06/88	3	DRY					
26-86	11/22/88	4	DRY					
38-87	03/16/88	1	DRY					
38-87	05/17/88	2	DRY					
38-87	09/06/88	3	DRY					
38-87	11/22/88	4	DRY					
33-86	09/24/87	3	DRY					
33-86	12/05/87	4	DRY					
33-86	03/07/88	1	DRY					
33-86	05/02/88	2	DRY					
33-86	08/12/88	3	DRY					
33-86	11/08/88	4	DRY					

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss. mg/l
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	05/02/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	08/10/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	11/08/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	03/17/87	1	0 0290 U	0 06 U	0 01 U	0 0610	0.005 U	0.005 U	135.3189
35-86	06/02/87	2	0 0290 U	0 06 U	0 01 U	0 0461	0 005 U	0.005 U	81.1221
35-86	07/28/87	3	0.1061	0 02 U	0 005 U	0 1152	0 005 U	0.0005 J	144 6914
35-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	10/16/87	4	0 0625	0 02 U	0.003 J	0 0871	0.002 J	0.001 U	130.6754
35-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	03/02/88	1	0 0486	0.02 U	0 004 J	0 0821	0 005 U	0 001 U	143.1915
35-86	05/02/88	2	0 0335	0 0340 U	0 005 U	0 0703	0 0010 U	0.0050 U	140 6056
35-86	08/10/88	3	0 0290 U	0 0483	0 005 U	0 0824	0 0010 U	0 0050 U	145 4237
35-86	11/04/88	4	0 0290 U	0 0518	NR	0 0859	0 0010 U	0 0050 U	146 4198
36-86	04/24/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
36-86	06/03/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	05/02/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	08/10/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	11/08/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	03/17/87	1	0 2 U	0.0100 U	0 0220 U	0.0063 U	0.1039	0 0050 U	NR
35-86	06/02/87	2	0.2 U	0 0100 U	0 0220 U	0 0084	0 0206	0 005 U	NR
35-86	07/28/87	3	0 02 U	0.0100 U	0 0220 U	0.0097	0.1100	0 005 U	NR
35-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	10/16/87	4	0.02 U	0.0266	0 0220 U	0 0066	0.5175	0 003 J	0 1 U
35-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	03/02/88	1	0 020 U	0 0100 U	0.0220 U	0 0066	0 6891	0 005 U	0.1 U
35-86	05/02/88	2	0 02 U	0 0100 U	0.0220 U	0 0100	0 5147	0 005 U	NR
35-86	08/10/88	3	0 02 U	0 0100 U	0 0220 U	0 0067	0 3156	0 005 U	NR
35-86	11/04/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 8573	NR	NR
36-86	04/24/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
36-86	06/03/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						

Notes NR = Analyte not reported U = Analyzed but not detected * = Holding time not met
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss mg/l
21-87	10/29/87	4	DRY						
21-87	03/07/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	05/02/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	08/10/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
21-87	11/08/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	03/17/87	1	30 6949	3 8078	0 0002 U	0 0220 U	0 0434	5.0 U	0.005 U
35-86	06/02/87	2	25 0285	0 4866	0 0002 U	0.0220 U	0 0370 U	5.0 U	0 005 U
35-86	07/28/87	3	29 8413	3 4848	0 0002 U	0.0220 U	0.0370 U	1 5	0.005 U
35-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	10/16/87	4	29.1030	3 9109	0 0002 U	0.0220 U	0.0370 U	0 84	0.005 U
35-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
35-86	03/02/88	1	29 3745	4 0113	0.0002 U	0.0220 U	0 0370 U	0 8	0 005 U
35-86	05/02/88	2	33 1548	3 9978	0.0002 U	0.022 U	0.0370 U	0.5	0 005 U
35-86	08/10/88	3	32 9570	4 1966	0 0002 U	0.0220 U	0.0370 U	0.7	0.005 U
35-86	11/04/88	4	31.7132	4 2350	NR	0 0220 U	0 0370 U	NR	NR
36-86	04/24/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
36-86	06/03/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
21-87	10/29/87	4	DRY					
21-87	03/07/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
21-87	05/02/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
21-87	08/10/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
21-87	11/08/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
35-86	03/17/87	1	0 0076 U	207 7142	0.8188	0 01 U	0.0240 U	0 04
35-86	06/02/87	2	0 0076 U	172 5748	0.6088	0.01 U	0.0240 U	0 0200 U
35-86	07/28/87	3	0.0076 U	210.0584	0 8092	0 01 U	0.0241	0.0443
35-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
35-86	10/16/87	4	0 0076 U	194.2592	0 7870	0.01 U	0 0240 U	0 0276
35-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
35-86	03/02/88	1	0 0076 U	183 9421	0 8311	0 010 U	0 0240 U	0.0275
35-86	05/02/88	2	0 0076 U	178 2991	0 8031	0 01 U	0 0360 U	0.0200 U
35-86	08/10/88	3	0 0076 U	196.2784	0 8015	0 01 U	0 0360 U	0.0200 U
35-86	11/04/88	4	0 0076 U	193 4550	0.8984	NR	0 0360 U	0 0244
36-86	04/24/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
36-86	06/03/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss. mg/l
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
37-87	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	0 0290 U	0.06 U	0 01 U	0 0707	0 005 U	0 005 U	55 4904
04-60	06/25/87	2	0 0290 U	0 06 U	0.01 U	0 1157	0 005 U	0 005 U	128 4591
04-60	09/18/87	3	0.0449	0 02 U	0 005 U	0 1507	0 005 U	0.001	94 0216
04-60	09/18/87	3	0 0292	0 02 U	0 005 U	0 1315	0 005 U	0 001	93 5126
04-60	01/05/88	4	0 0312	0 02 U	0 007	0 0824	0 005 U	0 004 J	70 7574
04-60	03/16/88	1	0 0411	0.02 U	0.002 J	0 0800	0.005 U	0 001	67 3504
04-60	05/17/88	2	0 0290 U	0 0340 U	0 005 U	0 0739	0 0010 U	0 0050 U	63 4253

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
37-87	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	0 2 U	0 0100 U	0 0220 U	0.0063 U	0.0069 U	0.0050 U	NR
04-60	06/25/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0.0069 U	0 022	NR
04-60	09/18/87	3	0 02 U	0 0100 U	0 0220 U	0.0063 U	0.0136	0.005 U	NR
04-60	09/18/87	3	0 02 U	0 0116	0 0220 U	0 0093	0 0069 U	0 005 U	NR
04-60	01/05/88	4	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0211	0.005 U	0.1
04-60	03/16/88	1	0 02 U	0 0172	0.0220 U	0 0063 U	0 2336	0.005 U	0 09 J
04-60	05/17/88	2	0 020 U	0 0100 U	0.0220 U	0 0112	0 0083	0 005 U	NR

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss mg/l	Selenium (Se), diss mg/l
36-86	07/27/87	3	DRY						
36-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
36-86	10/19/87	4	DRY						
36-86	03/07/88	1	DRY						
36-86	05/02/88	2	DRY						
36-86	08/11/88	3	DRY						
36-86	11/08/88	4	DRY						
37-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
37-87	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
37-87	09/06/88	3	DRY						
37-87	11/22/88	4	DRY						
04-60	03/19/87	1	17 5236	0.0051 U	0 0002 U	0.0220 U	0 0370 U	12.0	0.005 U
04-60	06/25/87	2	49 0631	0 0051 U	0 0003	0 0220 U	0 0370 U	23	0 005 U
04-60	09/18/87	3	39 1979	0.0072	0 0002 U	0 0220 U	0 0370 U	26	0.011
04-60	09/18/87	3	40 2322	0 0051 U	0 0002 U	0 0220 U	0 0370 U	27	0 011
04-60	01/05/88	4	30 6871	0.0051 U	0 0002 U	0 0220 U	0 0370 U	21 0	0.012
04-60	03/16/88	1	27.2724	0 0051 U	0 0002 U	0 0220 U	0 0370 U	77	0 005
04-60	05/17/88	2	25 0846	0.0051 U	0 0002 U	0 0220 U	0 0370 U	18.2	0.003 J

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
36-86	07/27/87	3	DRY					
36-86	08/26/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
36-86	10/19/87	4	DRY					
36-86	03/07/88	1	DRY					
36-86	05/02/88	2	DRY					
36-86	08/11/88	3	DRY					
36-86	11/08/88	4	DRY					
37-87	03/16/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
37-87	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
37-87	09/06/88	3	DRY					
37-87	11/22/88	4	DRY					
04-60	03/19/87	1	0 0076 U	50 6191	0.4707	0 01 U	0.0240 U	0 93
04-60	06/25/87	2	0 0076 U	151 5230	1 2707	0 01 U	0 0313	0 3797
04-60	09/18/87	3	0 0076 U	142 5424	1.1319	0 01 U	0.0240 U	0 3356
04-60	09/18/87	3	0 0076 U	139 8981	1 1469	0 01 U	0 0240 U	0 3748
04-60	01/05/88	4	0 0076 U	111 0774	0 8570	0 01 U	0 0240 U	0 3483
04-60	03/16/88	1	0 0076 U	93.3555	0 7908	0.01 U	0.0240 U	0 3583
04-60	05/17/88	2	0 0076 U	70 1957	0 6705	0 010 U	0 0360 U	0 2862

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
04-60	09/07/88	3	0.0290 U	0 0340 U	0 005 U	0 0913	0.0010 U	0 0050 U	75.4877
04-60	09/07/88	3	0.0505 U	0 0340 U	0 005 U	0.0927	0.0010 U	0.0050 U	75.2725
04-60	12/02/88	4	0 0383	0 0340 U	NR	0.0880	0.0010 U	0 0050 U	92.4241
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	0 0290 U	0 0600 U	0 01 U	0 1802	0.005 U	0 005 U	346.9876
28-86	06/24/87	2	0 0290 U	0 06 U	0 01 U	0.3422	0 005 U	0.005 U	812.6987
28-86	09/08/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	0 0290 U	0 02 U	0 003 J	0 1665	0 005 U	0 001	479 1007
28-86	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
28-86	09/07/88	3	0 0359	0 1182	0 005 U	0 1843	0 0010 U	0 0050 U	297 9092
28-86	11/22/88	4	DRY						

Notes NR = Analyte not reported U = Analyzed but not detected * = Holding time not met
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
04-60	09/07/88	3	0 020 U	0.0100 U	0 0220 U	0 0063 U	0.0373	0.005 U	NR
04-60	09/07/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0.0319	0.005 U	NR
04-60	12/02/88	4	NR	0.0100 U	0.0220 U	0 0063 U	0.0395 N	NR	NR
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	0 2 U	0 0100 U	0 0312	0.0063 U	0 0147	0.005 U	NR
28-86	06/24/87	2	0 2 U	0 0100 U	0 0428	0.0114	0 0069 U	0.011	NR
28-86	09/08/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	0.02 U	0 0122	0 0502	0 0063 U	0 0069 U	0 005 U	1 4
28-86	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
28-86	09/07/88	3	0 020 U	0 0197	0 0220 U	0 0089	0 0510	0.005 U	NR
28-86	11/22/88	4	DRY						

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
04-60	09/07/88	3	30.5474	0 0104	0.0002 U	0 0220 U	0 0370 U	25	0 004 J
04-60	09/07/88	3	30 5758	0 0111	0 0002 U	0.0220 U	0 0370 U	25	0.004 J
04-60	12/02/88	4	35 3234	0 0051 U	0.0002 U	0 0220 U	0.0370 U	5.3	NR
29-86	09/24/87	3	DRY						
29-86	12/05/87	4	DRY						
29-86	03/16/88	2	DRY						
29-86	05/23/88	2	DRY						
29-86	09/08/88	3	DRY						
29-86	11/22/88	4	DRY						
28-86	03/19/87	1	84 9911	0 7376	0 0002 U	0 0533	0 0869	260 0	0 0050 U
28-86	06/24/87	2	243 2036	1.7085	0 0003	0 0826	0 2854	250	0 005 U
28-86	09/08/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
28-86	12/05/87	4	DRY						
28-86	03/16/88	1	151.2661	1 2420	0.0002 U	0 0477	0 1512	0 5	0 005
28-86	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
28-86	09/07/88	3	89 2169	0.6903	0 0002 U	0 0681	0 0904	435	0 005 U
28-86	11/22/88	4	DRY						

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
04-60	09/07/88	3	0.0076 U	105.6072	0 9348	0.010 U	0 0360 U	0 3696
04-60	09/07/88	3	0.0076 U	105.5950	0.9384	0.010 U	0 0360 U	0.3824
04-60	12/02/88	4	0.0076 U	116 7440	1.0650	NR	0.0360 U	0.4780
29-86	09/24/87	3	DRY					
29-86	12/05/87	4	DRY					
29-86	03/16/88	2	DRY					
29-86	05/23/88	2	DRY					
29-86	09/08/88	3	DRY					
29-86	11/22/88	4	DRY					
28-86	03/19/87	1	0 0076	1211 5603	2 7577	0.01 U	0.0240 U	0 03
28-86	06/24/87	2	0.0076 U	2535.8950	6.1852	0 01 U	0.0240 U	0 0275
28-86	09/08/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
28-86	12/05/87	4	DRY					
28-86	03/16/88	1	0.0076 U	1800.9309	4 4360	0 01 U	0.0240 U	0 0657
28-86	05/17/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
28-86	09/07/88	3	0.0076 U	1411 3809	2.9186	0 010 U	0 0360 U	0 0577
28-86	11/22/88	4	DRY					

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss mg/l
30-86	03/23/87	1	0.0290 U	0.0600 U	0.01 U	0 2099	0 005 U	0 005 U	681.5574
30-86	04/15/87	1	0.0290 U	0 06 U	0.0100 U	0 3108	0 005 U	0.0050 U	1270.2438
30-86	06/24/87	2	0 0290 U	0 06 U	0.01 U	0 3155	0.005 U	0 005 U	1692.0455
30-86	09/24/87	3	0.0290 U	0 02 U	0 002 U	0 3571	0.005 U	0 001 U	1172.4248
30-86	01/15/88	4	0 0952	0 02 U	0 011	0 2230	0 005 U	0 001 U	1130 4343
30-86	01/16/88	4	0 0820	NR	NR	0 2120	NR	NR	1031 3494
30-86	03/16/88	1	0 0311	0 02 U	0 002 J	0 2364	0 005 U	0 001 U	845 0279
30-86	05/23/88	2	0 0435	0 1770	0 005 U	0 1926	0 0010 U	0.0050 U	937.5723
30-86	09/15/88	3	0.0290 U	0 4385	0.005 U	0 2653	0 0016	0 0050 U	1366.2809
30-86	12/02/88	4	0 0315	0 3269	NR	0.2179	0 0010 U	0.0050 U	1126.6920
02-60	03/19/87	1	0 0290 U	0.0600 U	0.01 U	0 3741	0 005 U	0 005 U	649 2593
02-60	06/25/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
02-60	09/24/87	3	0 0427	0 02 U	0.003 J	0 2335	0 005 U	0 002	1174.2546
02-60	01/05/88	4	0 0290 U	0 02 U	0.010	0.1945	0 005 U	0 002	1269.7416
02-60	03/16/88	1	0.0290 U	0 02 U	0 003 J	0 1732	0 005 U	0 001	1186.8484
02-60	05/23/88	2	0.0507	0 4653	0 005 U	0 2360	0.0010 U	0 0050 U	1591.4366
02-60	09/09/88	3	0 0290 U	0 6280	0 003 J	0.2174	0 0017	0 0050 U	1687 3959
02-60	12/02/88	4	0 0290 U	0.5797	NR	0 1862	0.0010 U	0 0050 U	1697.8887

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
30-86	03/23/87	1	0 2 U	0.0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
30-86	04/15/87	1	0.2 U	0 0100 U	0 0220 U	0.0063 U	0.0069 U	0.0050 U	NR
30-86	06/24/87	2	0 2 U	0.0100 U	0 0220 U	0.0063 U	0.0069 U	0 006	NR
30-86	09/24/87	3	0 02 U	0 0169	0 0220 U	0.0064	0 0069 U	0.005 U	NR
30-86	01/15/88	4	0 02 U	0.0122	0 0220 U	0 0375	0 0262	0.005 U	1 2
30-86	01/16/88	4	NR	0.0100 U	0 0220 U	0.0250	0 0069 U	NR	NR
30-86	03/16/88	1	0 02 U	0 0188	0.0220 U	0 0063 U	0.0834	0 005 U	0 82
30-86	05/23/88	2	0 02 U	0 0100 U	0 0220 U	0 0091	0 0069 U	0 005 U	NR
30-86	09/15/88	3	0 020* U	0.0142	0.0220 U	0 0063 U	0.0499	0 005 U	NR
30-86	12/02/88	4	NR	0.0100 U	0 0220 U	0.0063 U	0 0509 N	NR	NR
02-60	03/19/87	1	0.2 U	0 0100 U	0.0220 U	0 0063 U	0 0069 U	0 005 U	NR
02-60	06/25/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
02-60	09/24/87	3	0 02 U	0 0100 U	0.0220 U	0 0090	0 0069 U	0.005 U	NR
02-60	01/05/88	4	0 02 U	0 0142	0 0220 U	0.0145	0 0069 U	0 002 J	0.5
02-60	03/16/88	1	0 02 U	0 0100 U	0 0220 U	0.0063 U	0 0069 U	0 005 U	0.37
02-60	05/23/88	2	0 02 U	0.0100 U	0 0220 U	0 0092	0.0069 U	0 005 U	NR
02-60	09/09/88	3	0.020 U	0 0302	0 0220 U	0 0194	0.2691	0 005 U	NR
02-60	12/02/88	4	NR	0 0100 U	0.0220 U	0.0063 U	0 1934 N	NR	NR

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
30-86	03/23/87	1	135.9616	0 0542	0.0002 U	0.0220 U	0 0370 U	132.0	0 0050 U
30-86	04/15/87	1	215.1646	0.0789	0.0002 U	0.0220 U	0 0370 U	82 0	0.007
30-86	06/24/87	2	308 1397	0.0703	0 0002 U	0 0220 U	0.0370 U	74	0.005 U
30-86	09/24/87	3	309.5655	0.0648	0.0002 U	0 0220 U	0.0370 U	125	0.011
30-86	01/15/88	4	274 2444	0 0224	0.0002 U	0.0220 U	0 0689	146	0.017
30-86	01/16/88	4	264.8040	0.0232	NR	0 0220 U	0.0580	NR	NR
30-86	03/16/88	1	229.4845	0.0051 U	0.0002 U	0.0220 U	0.0433	146	0.005
30-86	05/23/88	2	144.3829	0.0067	0 0002 U	0 0220 U	0.0449	159	0.005 U
30-86	09/15/88	3	367.3962	0.0408	0.0002 U	0.0220 U	0.0717	6.1	0.005 U
30-86	12/02/88	4	296.2248	0.0400	0.0002 U	0.0220 U	0 0619	42	NR
02-60	03/19/87	1	150.7479	0.0465	0.0002 U	0 0220 U	0 0370 U	62 0	0 012
02-60	06/25/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
02-60	09/24/87	3	316 7674	0 2108	0.0002 U	0 0220 U	0.0370 U	78	0.16
02-60	01/05/88	4	312.0335	0 1608	0.0002 U	0 0220 U	0 0370 U	71 0	0.275
02-60	03/16/88	1	338.0800	0 1451	0.0002 U	0.0220 U	0.0370 U	0.5	0.39
02-60	05/23/88	2	157.9515	0.1266	0 0002 U	0 0220 U	0.0370 U	64	0.06
02-60	09/09/88	3	553.2686	0 2395	0 0002 U	0.0220 U	0.0370 U	75	0.21*
02-60	12/02/88	4	548.0552	0 1683	0 0002 U	0.0220 U	0.0370 U	48	NR

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
30-86	03/23/87	1	0.0102	1062 7017	5.6997	0.01 U	0 0240 U	0.03
30-86	04/15/87	1	0 0130	1145 1616	11.7885	0.0100 U	0 0240 U	0 3
30-86	06/24/87	2	0.0076 U	1407.9877	14.2163	0 01 U	0.0240 U	0.0200 U
30-86	09/24/87	3	0 0076 U	1284 9274	12 2595	0 01 U	0 0240 U	0.0265
30-86	01/15/88	4	0 0076 U	1390.1968	10.2243	0 01 U	0 0240 U	0.0267
30-86	01/16/88	4	0.0076 U	1266 8781	9.6899	NR	0 0240 U	0 0211
30-86	03/16/88	1	0 0076 U	1263 3406	7 7581	0 01 U	0.0240 U	0 0360
30-86	05/23/88	2	0 0076 U	1080 7236	8.1262	0.01 U	0 0360 U	0 0265
30-86	09/15/88	3	0.0076 U	1268 4785	14.6200	0.010 U	0.0360 U	0.0595
30-86	12/02/88	4	0.0076 U	1166 8823	11 2875	NR	0 0360 U	0.1224
02-60	03/19/87	1	0 0087	740.5258	5 5709	0 01 U	0.0240 U	1
02-60	06/25/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
02-60	09/24/87	3	0 0076 U	960 8541	13 9848	0 01 U	0 0240 U	3 7362
02-60	01/05/88	4	0 0076 U	1000 0052	14.5473	0.01 U	0.0240 U	4 3253
02-60	03/16/88	1	0.0076 U	880.9340	14 0365	0.01 U	0.0240 U	3 7679
02-60	05/23/88	2	0 0076 U	1043 7209	17 6600	0.01 U	0 0360 U	3 9063
02-60	09/09/88	3	0 0076 U	1173 0037	22 5668	0 010 U	0.0360 U	4 8373
02-60	12/02/88	4	0 0076 U	1155 2202	21 2802	NR	0 0360 U	3 8915

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	0 0290 U	0.0600 U	0 01 U	0 1933	0 005 U	0.005 U	391 9108
17-86	06/10/87	2	1 1794	0 06 U	0.01 U	0.3333	0.007	0.005 U	430.7377
17-86	08/06/87	3	0.0310	0.02 U	0.005 U	0.2893	0 005 U	0 001 U	498.0435
17-86	12/08/87	4	0.0290 U	0.02 U	0 005 U	0 2634	0 005 U	0 001 U	574 3088
17-86	03/14/88	1	0 0602	0.02 U	0 003 J	0 3887	0.005 U	0.001 U	826 6744
17-86	05/16/88	2	0 0290 U	0 0720	0.005 U	0.2392	0.0010 U	0 0050 U	523 1342
17-86	08/31/88	3	0.0290 U	0.1946	0 005 U	0 2706	0.0013	0.0050 U	544.3654
17-86	11/29/88	4	0 3240	0 1976	NR	0.2903	0.0010 U	0.0050 U	596.6366
15-86	04/22/87	1	0.0356	0.0600 U	0 01 U	0 2264	0 005 U	0 005 U	193 8921
15-86	06/10/87	2	0 0290 U	0.06 U	0 01 U	0 2386	0.005 U	0.005 U	202 2351
15-86	08/06/87	3	0 0290 U	0 024	0 005 U	0 2783	0 005 U	0 001	198 6274

Notes. NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	0.2 U	0 0100 U	0 0220 U	0 0063 U	0.0069 U	0 005 U	NR
17-86	06/10/87	2	0 2 U	0 0100 U	0 0220 U	0.0076	0.1339	0 009	NR
17-86	08/06/87	3	0.02 U	0.0100 U	0 0220 U	0 0063 U	0.0069 U	0 005 U	NR
17-86	12/08/87	4	0.02 U	0 0100 U	0 0220 U	0 0118	0.0069 U	0 005 U	0.01 U
17-86	03/14/88	1	0 02 U	0 0289	0 0220 U	0 0063 U	0.1805	0.005 U	0.27
17-86	05/16/88	2	0 020 U	0 0119	0 0220 U	0.0080	0.0069 U	0.005 U	NR
17-86	08/31/88	3	0 020 U	0 0100 U	0 0220 U	0.0063 U	0.0168	0 005 U	NR
17-86	11/29/88	4	NR	0 0180	0 0220 U	0 0063 U	0.2821	NR	NR
15-86	04/22/87	1	0.2 U	0 0100 U	0 0220 U	0 0063 U	0.0069 U	0 005 U	NR
15-86	06/10/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0.0069 U	0 005 U	NR
15-86	08/06/87	3	0 02 U	0 0100 U	0 0220 U	0 0080	0 0069 U	0 005 U	NR

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
18-86	08/05/87	3	DRY						
18-86	12/04/87	4	DRY						
18-86	03/14/88	1	DRY						
18-86	05/16/88	2	DRY						
18-86	08/30/88	3	DRY						
18-86	11/22/88	4	DRY						
17-86	04/22/87	1	129 1389	0 0051 U	0.0002 U	0 0220 U	0.0370 U	5.0 U	0.0050 U
17-86	06/10/87	2	131 4248	0 4029	0 0002 U	0 0220 U	0.0562	5 0 U	0.150
17-86	08/06/87	3	162.2504	0 0051 U	0.0002 U	0 0220 U	0.0370 U	5.1	0.18
17-86	12/08/87	4	162 5240	0 0051 U	0 0002 U	0.0220 U	0.0474	4.7	0.004 J
17-86	03/14/88	1	253 8005	0.0051 U	0 0002 U	0 0220 U	0 0370 U	4 3	0.29
17-86	05/16/88	2	126 9299	0 0051 U	0 0002 U	0 0220 U	0.0370 U	4 2	0.184
17-86	08/31/88	3	172.1500	0.0051 U	0.0002 U	0 0220 U	0 0370 U	5 2	0.32*
17-86	11/29/88	4	171 4852	0.0051 U	0 0002 U	0.0220 U	0 0370 U	3 6	NR
15-86	04/22/87	1	46.7915	0 0168	0.0002 U	0 0220 U	0 0370 U	5.0 U	0.0050 U
15-86	06/10/87	2	43.7933	0.0132	0 0002 U	0 0220 U	0 0370 U	5.0 U	0 0025
15-86	08/06/87	3	44 5754	0 0076	0 0003	0 0220 U	0 0370 U	2 5	0.023

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
18-86	08/05/87	3	DRY					
18-86	12/04/87	4	DRY					
18-86	03/14/88	1	DRY					
18-86	05/16/88	2	DRY					
18-86	08/30/88	3	DRY					
18-86	11/22/88	4	DRY					
17-86	04/22/87	1	0 0076 U	227.9212	3.2177	0 01 U	0.0240 U	0.02 U
17-86	06/10/87	2	0 0076 U	219 4704	3.6146	0.01 U	0 0300	0.0957
17-86	08/06/87	3	0 0076 U	263 3607	4.5343	0.01 U	0.0240 U	0.0200 U
17-86	12/08/87	4	0 0076 U	265 8579	5.0306	0 01 U	0.0240 U	0.0200 U
17-86	03/14/88	1	0 0076 U	369.0358	7.6571	0.01 U	0 0240 U	0.0476
17-86	05/16/88	2	0.0076 U	250 9383	4.5714	0.010 U	0 0360 U	0 0200 U
17-86	08/31/88	3	0 0076 U	260.7015	4.7162	0.010 U	0.0360 U	0.0380
17-86	11/29/88	4	0.0076 U	289 9421	5 8274	NR	0 0360 U	0.0368
15-86	04/22/87	1	0 0076 U	126 0598	1 4422	0 01 U	0 0240 U	0.02 U
15-86	06/10/87	2	0 0076 U	117 9158	1 4210	0.01 U	0.0240 U	0.0580
15-86	08/06/87	3	0 0076 U	125 1801	1 4257	0 01 U	0 0240 U	0 0261

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss. mg/l
15-86	08/06/87	3	0.0290 U	0.004 J	0.005 U	0.2849	0.005 U	0.0005 J	193.4264
15-86	12/08/87	4	0.0290 U	0.02 U	0.005 U	0.0100 U	0.002 J	0 001 U	0 7500 U
15-86	03/14/88	1	0.0742	0.016 J	0.005 U	0.4361	0.005 U	0.001	301.1328
15-86	05/16/88	2	0.0556	0 0340 U	0.005 U	0.2303	0.0010 U	0 0050 U	170.3053
15-86	09/01/88	3	0.0483	0.0558	0 005 U	0.2615	0.0010	0.0050 U	178.0408
15-86	11/29/88	4	0.0657	0 0377	NR	0.2251	0.0010 U	0 0050 U	176.4440
13-86	04/23/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	06/11/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	08/04/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	05/16/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	08/31/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
15-86	08/06/87	3	0.02 U	0 0100 U	0.0220 U	0.0083	0 0069 U	0.005 U	NR
15-86	12/08/87	4	0.02 U	0 0113	0 0220 U	0.0063 U	0 0461	0.005 U	0.1 U
15-86	03/14/88	1	0.02 U	0 0218	0.0220 U	0.0121	0 3684	0.005 U	0.1 U
15-86	05/16/88	2	0.020 U	0 0100 U	0.0220 U	0 0094	0 0069 U	0.005 U	NR
15-86	09/01/88	3	0 020 U	0 0404	0.0220 U	0 0063 U	0 1891	0.005 U	NR
15-86	11/29/88	4	NR	0 0100 U	0.0220 U	0.0063 U	0 0194	NR	NR
13-86	04/23/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	06/11/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	08/04/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	05/16/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	08/31/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

Notes. NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
15-86	08/06/87	3	43.1885	0.0089	0.0002 U	0 0220 U	0.0370 U	2 6	0.022
15-86	12/08/87	4	0.0200 U	0.0051 U	0 0002 U	0 0220 U	0.0370 U	0.5 U	0.005 U
15-86	03/14/88	1	72.3529	0.0119	0.0002 U	0.0220 U	0.0458	2.1	0 039
15-86	05/16/88	2	43.7836	0.0054	0.0002 U	0.0220 U	0.0370 U	1.6	0.023
15-86	09/01/88	3	42.7050	0 0054	0.0002 U	0 0220 U	0.0370 U	2.0	0.027
15-86	11/29/88	4	40 5474	0 0183	0.0002 U	0 0220 U	0.1211	1.4	NR
13-86	04/23/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	06/11/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	08/04/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	12/04/87	4	DRY						
13-86	03/14/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	05/16/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	08/31/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
13-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
20-86	09/24/87	3	DRY						
20-86	12/05/87	4	DRY						
20-86	03/16/88	1	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss mg/l
15-86	08/06/87	3	0.0076 U	122.0968	1.3845	0.01 U	0.0240 U	0.0396
15-86	12/08/87	4	0.0076 U	2.1000 U	0.0200 U	0.01 U	0 0240 U	0.0200 U
15-86	03/14/88	1	0 0076 U	187.2783	2.3490	0.01 U	0.0240 U	0.1261
15-86	05/16/88	2	0.0076 U	104.4949	1.2286	0.010 U	0 0360 U	0 0246
15-86	09/01/88	3	0.0076 U	103.8727	1.2554	0.010 U	0 0360 U	0 0472
15-86	11/29/88	4	0 0076 U	105.2651	1.4031	NR	0 0360 U	0 0317
13-86	04/23/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
13-86	06/11/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
13-86	08/04/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
13-86	12/04/87	4	DRY					
13-86	03/14/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
13-86	05/16/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
13-86	08/31/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
13-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
20-86	09/24/87	3	DRY					
20-86	12/05/87	4	DRY					
20-86	03/16/88	1	DRY					

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
20-86	05/23/88	2	DRY						
20-86	09/06/88	3	DRY						
20-86	11/22/88	4	DRY						

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
20-86	05/23/88	2	DRY					
20-86	09/06/88	3	DRY					
20-86	11/22/88	4	DRY					

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

DISSOLVED RADIONUCLIDES

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
24-86	09/24/87	3	DRY							
24-86	12/05/87	4	DRY							
24-86	03/16/88	2	DRY							
24-86	05/23/88	2	DRY							
24-86	09/08/88	3	DRY							
24-86	11/22/88	4	DRY							
56-87	03/16/88	1	***							
56-87	05/23/88	2	***							
56-87	11/28/88	4	DRY							
22-86	03/24/87	1	***							
22-86	06/24/87	2	***							
22-86	08/28/87	3	***							
22-86	08/28/87	3	40 ± 24		38 ± 40	69	5.8 ± 1.9		0 6 ± 0.5	
22-86	12/18/87	4	13 ± 8	13	22 ± 11		5 6 ± 0.5		12 ± .06	
22-86	03/16/88	1	8 ± 6		8 ± 11		6 3 ± 0.6		0 21 ± .010	
22-86	05/17/88	2	11 ± 6		11 ± 11	24	5.4 ± 0 5		0.17 ± 0.03	
22-86	09/09/88	3	NR		NR		NR		NR	
22-86	11/28/88	4	DRY							

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
24-86	09/24/87	3	DRY							
24-86	12/05/87	4	DRY							
24-86	03/16/88	2	DRY							
24-86	05/23/88	2	DRY							
24-86	09/08/88	3	DRY							
24-86	11/22/88	4	DRY							
56-87	03/16/88	1	***							
56-87	05/23/88	2	***							
56-87	11/28/88	4	DRY							
22-86	03/24/87	1	***							
22-86	06/24/87	2	***							
22-86	08/28/87	3	***							
22-86	08/28/87	3	7 5 ± 2.0		-.32 ± .85	1.5	- 04 ± 18	2.8	723 ± 318	
22-86	12/18/87	4	2.2 ± 0.3		0.00 ± .16	.89	.16 ± .18	1 2	260 ± 80	
22-86	03/16/88	1	3 0 ± 0.4		0.00 ± 0.24		0.00 ± 0.11		340 ± 100	
22-86	05/17/88	2	2.4 ± 0.3		0.00 ± 0.04	0.15	0 03 ± 0.11	0.42	390 ± 100	
22-86	09/09/88	3	NR		NR		NR		360 ± 100	
22-86	11/28/88	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
24-86	09/24/87	3	DRY	
24-86	12/05/87	4	DRY	
24-86	03/16/88	2	DRY	
24-86	05/23/88	2	DRY	
24-86	09/08/88	3	DRY	
24-86	11/22/88	4	DRY	
56-87	03/16/88	1	***	
56-87	05/23/88	2	***	
56-87	11/28/88	4	DRY	
22-86	03/24/87	1	***	
22-86	06/24/87	2	***	
22-86	08/28/87	3	***	
22-86	08/28/87	3	5 7	
22-86	12/18/87	4	<1 0	
22-86	03/16/88	1	NR	
22-86	05/17/88	2	NR	
22-86	09/09/88	3	NR	
22-86	11/28/88	4	DRY	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
26-86	03/18/87	1	***							
26-86	08/28/87	3	72 ± 34		47 ± 44	74	34.2 ± 4.8		1.3 ± 0.7	
26-86	12/05/87	4	DRY							
26-86	03/16/88	1	DRY							
26-86	05/17/88	2	DRY							
26-86	09/06/88	3	DRY							
26-86	11/22/88	4	DRY							
38-87	03/16/88	1	DRY							
38-87	05/17/88	2	DRY							
38-87	09/06/88	3	DRY							
38-87	11/22/88	4	DRY							
33-86	09/24/87	3	DRY							
33-86	12/05/87	4	DRY							
33-86	03/07/88	1	DRY							
33-86	05/02/88	2	DRY							
33-86	08/12/88	3	DRY							
33-86	11/08/88	4	DRY							
21-87	10/29/87	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
26-86	03/18/87	1	***							
26-86	08/28/87	3	31.2 ± 1.0		.07 ± 58	0.3	- 04 ± 60	1.1	1352 ± 343	
26-86	12/05/87	4	DRY							
26-86	03/16/88	1	DRY							
26-86	05/17/88	2	DRY							
26-86	09/06/88	3	DRY							
26-86	11/22/88	4	DRY							
38-87	03/16/88	1	DRY							
38-87	05/17/88	2	DRY							
38-87	09/06/88	3	DRY							
38-87	11/22/88	4	DRY							
33-86	09/24/87	3	DRY							
33-86	12/05/87	4	DRY							
33-86	03/07/88	1	DRY							
33-86	05/02/88	2	DRY							
33-86	08/12/88	3	DRY							
33-86	11/08/88	4	DRY							
21-87	10/29/87	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
26-86	03/18/87	1	***	
26-86	08/28/87	3	<1.0	
26-86	12/05/87	4	DRY	
26-86	03/16/88	1	DRY	
26-86	05/17/88	2	DRY	
26-86	09/06/88	3	DRY	
26-86	11/22/88	4	DRY	
38-87	03/16/88	1	DRY	
38-87	05/17/88	2	DRY	
38-87	09/06/88	3	DRY	
38-87	11/22/88	4	DRY	
33-86	09/24/87	3	DRY	
33-86	12/05/87	4	DRY	
33-86	03/07/88	1	DRY	
33-86	05/02/88	2	DRY	
33-86	08/12/88	3	DRY	
33-86	11/08/88	4	DRY	
21-87	10/29/87	4	DRY	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
21-87	03/07/88	1	***							
21-87	05/02/88	2	***							
21-87	08/10/88	3	***							
21-87	11/08/88	4	***							
35-86	03/17/87	1	***							
35-86	06/02/87	2	***							
35-86	07/28/87	3	-3 ± 24	46	7 ± 41	76	4.8 ± 1.7		0 0 ± 0.3	
35-86	08/26/87	3	***							
35-86	10/16/87	4	3 ± 7	12	9 ± 10	19	3.0 ± 0.5		08 ± .77	.19
35-86	10/16/87	4	***							
35-86	03/02/88	1	16 ± 21	44	27 ± 41	94	2 3 ± 0.4		0 06 ± 0.08	0.38
35-86	05/02/88	2	6 ± 7	13	-3 ± 16	37	1.9 ± 0.3	2.0	0 06 ± 0.03	0.22
35-86	08/10/88	3	Data not yet received							
35-86	11/04/88	4	Data not yet received							
36-86	04/24/87	1	***							
36-86	06/03/87	2	***							
36-86	07/27/87	3	DRY							
36-86	08/26/87	3	***							
36-86	10/19/87	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
21-87	03/07/88	1	***							
21-87	05/02/88	2	***							
21-87	08/10/88	3	***							
21-87	11/08/88	4	***							
35-86	03/17/87	1	***							
35-86	06/02/87	2	***							
35-86	07/28/87	3	3.2 ± 1.3		-.32 ± .96	1 7	0 9 ± 6 7	1 0	<478	
35-86	08/26/87	3	***							
35-86	10/16/87	4	1.7 ± 0.3		0.00 ± .23	1.6	0.00 ± 31	.66	<460	
35-86	10/16/87	4	***							
35-86	03/02/88	1	2.3 ± 0 4		0.00 ± 0.50	4 7	0 00 ± 0.18	0 63	<210	
35-86	05/02/88	2	1 1 ± 0.3	1.9	0 02 ± 0.04	0.22	0 00 ± 0 10	0 45	<210	
35-86	08/10/88	3	Data not yet received							
35-86	11/04/88	4	Data not yet received							
36-86	04/24/87	1	***							
36-86	06/03/87	2	***							
36-86	07/27/87	3	DRY							
36-86	08/26/87	3	***							
36-86	10/19/87	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
21-87	03/07/88	1	***	
21-87	05/02/88	2	***	
21-87	08/10/88	3	***	
21-87	11/08/88	4	***	
35-86	03/17/87	1	***	
35-86	06/02/87	2	***	
35-86	07/28/87	3	1.2	
35-86	08/26/87	3	***	
35-86	10/16/87	4	<1.0	
35-86	10/16/87	4	***	
35-86	03/02/88	1	NR	
35-86	05/02/88	2	NR	
35-86	08/10/88	3	Data not yet received	
35-86	11/04/88	4	Data not yet received	
36-86	04/24/87	1	***	
36-86	06/03/87	2	***	
36-86	07/27/87	3	DRY	
36-86	08/26/87	3	***	
36-86	10/19/87	4	DRY	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
36-86	03/07/88	1	DRY							
36-86	05/02/88	2	DRY							
36-86	08/11/88	3	DRY							
36-86	11/08/88	4	DRY							
37-87	03/16/88	1	***							
37-87	05/17/88	2	***							
37-87	09/06/88	3	DRY							
37-87	11/22/88	4	DRY							
04-60	03/19/87	1	***							
04-60	06/25/87	2	***							
04-60	09/18/87	3	32 ± 48	40	30 ± 39	69	28.1 ± 3.9		0.7 ± 0.5	
04-60	09/18/87	3	60 ± 42		61 ± 44	71	16.4 ± 3.3		2 0 ± 1.2	
04-60	01/05/88	4	39 ± 10		48 ± 12		24 ± 2		1 3 ± 0 2	
04-60	03/16/88	1	24 ± 7		29 ± 12		20 ± 2		0.85 ± 0.19	
04-60	05/17/88	2	26 ± 11		15 ± 10	23	20 ± 2		0.64 ± 0.08	
04-60	09/07/88	3	NR		NR		NR		NR	
04-60	09/07/88	3	NR		NR		NR		NR	
04-60	12/02/88	4	NR		NR		NR		NR	
29-86	09/24/87	3	DRY							

Notes· NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
36-86	03/07/88	1	DRY							
36-86	05/02/88	2	DRY							
36-86	08/11/88	3	DRY							
36-86	11/08/88	4	DRY							
37-87	03/16/88	1	***							
37-87	05/17/88	2	***							
37-87	09/06/88	3	DRY							
37-87	11/22/88	4	DRY							
04-60	03/19/87	1	***							
04-60	06/25/87	2	***							
04-60	09/18/87	3	12 0 ± 2 2		-0 3 ± 7.0	11.6	-.04 ± .37	0.7	2722 ± 403	
04-60	09/18/87	3	10.1 ± 2 4		-0 3 ± 1.5	2 8	0 0 ± 1 6	3.1	3000 ± 420	
04-60	01/05/88	4	8.4 ± 0 8		0.00 ± .15	.69	0.00 ± 22	1.2	1600 ± 100	
04-60	03/16/88	1	7 6 ± 0.8		0 00 ± 0.44		NR		1100 ± 100	
04-60	05/17/88	2	6.5 ± 0.6		0 00 ± 0.09	0.25	0.00 ± 0 09	0.37	790 ± 110	
04-60	09/07/88	3	NR		NR		NR		1300 ± 100	
04-60	09/07/88	3	NR		NR		NR		1300 ± 100	
04-60	12/02/88	4	NR		NR		NR		1300 ± 100	
29-86	09/24/87	3	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
36-86	03/07/88	1	DRY	
36-86	05/02/88	2	DRY	
36-86	08/11/88	3	DRY	
36-86	11/08/88	4	DRY	
37-87	03/16/88	1	***	
37-87	05/17/88	2	***	
37-87	09/06/88	3	DRY	
37-87	11/22/88	4	DRY	
04-60	03/19/87	1	***	
04-60	06/25/87	2	***	
04-60	09/18/87	3	<1 0	
04-60	09/18/87	3	<1 0	
04-60	01/05/88	4	2 2	
04-60	03/16/88	1	NR	
04-60	05/17/88	2	NR	
04-60	09/07/88	3	NR	
04-60	09/07/88	3	NR	
04-60	12/02/88	4	NR	
29-86	09/24/87	3	DRY	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
29-86	12/05/87	4	DRY							
29-86	03/16/88	2	DRY							
29-86	05/23/88	2	DRY							
29-86	09/08/88	3	DRY							
29-86	11/22/88	4	DRY							
28-86	03/19/87	1	***							
28-86	06/24/87	2	***							
28-86	09/08/87	3	***							
28-86	12/05/87	4	DRY							
28-86	03/16/88	1	8.6 ± 1.5		8 9 ± 0.6		3.2 ± 0.2		12 ± 1	
28-86	05/17/88	2	***							
28-86	09/07/88	3	NR		NR		NR		NR	
28-86	11/22/88	4	DRY							
30-86	03/23/87	1	***							
30-86	04/15/87	1	***							
30-86	06/24/87	2	***							
30-86	09/24/87	3	221 ± 224		121 ± 60		139 6 ± 21.1		6 5 ± 2 0	
30-86	01/15/88	4	304 ± 69		215 ± 20		160 ± 34		5 2 ± 1.4	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
29-86	12/05/87	4	DRY							
29-86	03/16/88	2	DRY							
29-86	05/23/88	2	DRY							
29-86	09/08/88	3	DRY							
29-86	11/22/88	4	DRY							
28-86	03/19/87	1	***							
28-86	06/24/87	2	***							
28-86	09/08/87	3	***							
28-86	12/05/87	4	DRY							
28-86	03/16/88	1	220 ± 20		0.00 ± 0.15		0.00 ± 0 49		9000 ± 300	
28-86	05/17/88	2	***							
28-86	09/07/88	3	NR		NR		NR		5900 ± 200	
28-86	11/22/88	4	DRY							
30-86	03/23/87	1	***							
30-86	04/15/87	1	***							
30-86	06/24/87	2	***							
30-86	09/24/87	3	93.1 ± 14 7		-0.2 ± 1.1	1 6	-.04 ± .96	1.8	8611 ± 825	
30-86	01/15/88	4	100 ± 22		0 00 ± 37	3.2	NR		7900 ± 200	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
29-86	12/05/87	4	DRY	
29-86	03/16/88	2	DRY	
29-86	05/23/88	2	DRY	
29-86	09/08/88	3	DRY	
29-86	11/22/88	4	DRY	
28-86	03/19/87	1	***	
28-86	06/24/87	2	***	
28-86	09/08/87	3	***	
28-86	12/05/87	4	DRY	
28-86	03/16/88	1	NR	
28-86	05/17/88	2	***	
28-86	09/07/88	3	NR	
28-86	11/22/88	4	DRY	
30-86	03/23/87	1	***	
30-86	04/15/87	1	***	
30-86	06/24/87	2	***	
30-86	09/24/87	3	NR	
30-86	01/15/88	4	5.6	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
30-86	01/16/88	4	***							
30-86	03/16/88	1	320 ± 60		250 ± 40		NR		NR	
30-86	05/23/88	2	390 ± 60		290 ± 40		210 ± 20		7.8 ± 1.1	
30-86	09/15/88	3	NR		NR		NR		NR	
30-86	12/02/88	4	NR		NR		NR		NR	
02-60	03/19/87	1	***							
02-60	06/25/87	2	***							
02-60	09/24/87	3	65 ± 129		97 ± 59		15.0 ± 8 1		0.3 ± 1 6	2.2
02-60	01/05/88	4	22 ± 16		72 ± 10		10 ± 2		.34 ± .17	
02-60	03/16/88	1	16 ± 50		29 ± 66		5 0 ± 1.7		0.28 ± 0.28	
02-60	05/23/88	2	63 ± 21		110 ± 30		13 ± 1		0.56 ± 0.12	
02-60	09/09/88	3	NR		NR		NR		NR	
02-60	12/02/88	4	NR		NR		NR		NR	
18-86	08/05/87	3	DRY							
18-86	12/04/87	4	DRY							
18-86	03/14/88	1	DRY							
18-86	05/16/88	2	DRY							
18-86	08/30/88	3	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
30-86	01/16/88	4	***							
30-86	03/16/88	1	NR		0.00 ± 0.74		NR		6300 ± 200	
30-86	05/23/88	2	140 ± 10		0.00 ± 0.04	0.14	0.02 ± 0.07	1.6	6100 ± 200	
30-86	09/15/88	3	NR		NR		NR		8100 ± 300	
30-86	12/02/88	4	NR		NR		NR		5900 ± 200	
02-60	03/19/87	1	***							
02-60	06/25/87	2	***							
02-60	09/24/87	3	15 7 ± 7.9		0.5 ± 1 8	2.5	- 04 ± .50	0 8	1027 ± 317	
02-60	01/05/88	4	6 6 ± 1.1		0.00 ± .20	1.1	NR		870 ± 100	
02-60	03/16/88	1	4.1 ± 1.5		0.00 ± 0.22		0.00 ± 1.1		710 ± 110	
02-60	05/23/88	2	9.3 ± 1.0		0.00 ± 0.04	0.12	0.00 ± 0.06	1.8	830 ± 100	
02-60	09/09/88	3	NR		NR		NR		700 ± 110	
02-60	12/02/88	4	NR		NR		NR		470 ± 110	
18-86	08/05/87	3	DRY							
18-86	12/04/87	4	DRY							
18-86	03/14/88	1	DRY							
18-86	05/16/88	2	DRY							
18-86	08/30/88	3	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
30-86	01/16/88	4	***	
30-86	03/16/88	1	NR	
30-86	05/23/88	2	NR	
30-86	09/15/88	3	NR	
30-86	12/02/88	4	NR	
02-60	03/19/87	1	***	
02-60	06/25/87	2	***	
02-60	09/24/87	3	NR	
02-60	01/05/88	4	NR	
02-60	03/16/88	1	NR	
02-60	05/23/88	2	NR	
02-60	09/09/88	3	NR	
02-60	12/02/88	4	NR	
18-86	08/05/87	3	DRY	
18-86	12/04/87	4	DRY	
18-86	03/14/88	1	DRY	
18-86	05/16/88	2	DRY	
18-86	08/30/88	3	DRY	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
18-86	11/22/88	4	DRY							
17-86	04/22/87	1	***							
17-86	06/10/87	2	***							
17-86	08/06/87	3	663 ± 606		347 ± 87		24.8 ± 4 4		0.9 ± 0.7	
17-86	12/08/87	4	52 ± 12		41 ± 13		23 ± 3		1.3 ± 0 4	
17-86	03/14/88	1	28 ± 12		25 ± 13		28 ± 2		1.2 ± 0.2	
17-86	05/16/88	2	34 ± 12		23 ± 17	33	30 ± 3		0 89 ± 0.12	
17-86	08/31/88	3	NR		NR		NR		NR	
17-86	11/29/88	4	NR		NR		NR		NR	
15-86	04/22/87	1	***							
15-86	06/10/87	2	***							
15-86	08/06/87	3	68 ± 38		82 ± 52	85	17 0 ± 2 8		0 7 ± 0.6	
15-86	08/06/87	3	51 ± 54		73 ± 51	83	16.1 ± 2.4		0.9 ± 0.5	
15-86	12/08/87	4	32 ± 8		29 ± 12		17 ± 2		99 ± .28	
15-86	03/14/88	1	26 ± 6		4 ± 11		18 ± 1		0 69 ± 0 14	
15-86	05/16/88	2	25 ± 11		26 ± 15	33	15 ± 1		0.47 ± 0.07	
15-86	09/01/88	3	NR		NR		NR		NR	
15-86	11/29/88	4	NR		NR		NR		NR	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
18-86	11/22/88	4	DRY							
17-86	04/22/87	1	***							
17-86	06/10/87	2	***							
17-86	08/06/87	3	20.9 ± 4 0		-.03 ± 17	3 8	-.04 ± .67	1.3	<540	
17-86	12/08/87	4	21 ± 3		0 00 ± .37	2.0	0.00 ± 41	3.9	730 ± 100	
17-86	03/14/88	1	15 ± 1		0.00 ± 0.40		0.00 ± 0.42		700 ± 100	
17-86	05/16/88	2	23 ± 2		0.00 ± 0.09	0.23	0.00 ± 0.09	0.35	650 ± 110	
17-86	08/31/88	3	NR		NR		NR		840 ± 110	
17-86	11/29/88	4	NR		NR		NR		960 ± 120	
15-86	04/22/87	1	***							
15-86	06/10/87	2	***							
15-86	08/06/87	3	14.1 ± 2 4		-.07 ± 85	1 0	NR		<492	
15-86	08/06/87	3	11.0 ± 1 9		-.32 ± 46	1.5	.05 ± 74	1.2	<492	
15-86	12/08/87	4	13 ± 2		0.00 ± 24	2.0	0.00 ± 18	88	<210	
15-86	03/14/88	1	14 ± 1		0.00 ± 0.78		0.00 ± 0.50		240 ± 100	
15-86	05/16/88	2	13 ± 1		0.00 ± 0.03	0.23	NR		<210	
15-86	09/01/88	3	NR		NR		NR		<200	
15-86	11/29/88	4	NR		NR		NR		<230	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
18-86	11/22/88	4	DRY	
17-86	04/22/87	1	***	
17-86	06/10/87	2	***	
17-86	08/06/87	3	2 6	
17-86	12/08/87	4	1 4	
17-86	03/14/88	1	NR	
17-86	05/16/88	2	NR	
17-86	08/31/88	3	NR	
17-86	11/29/88	4	NR	
15-86	04/22/87	1	***	
15-86	06/10/87	2	***	
15-86	08/06/87	3	2 5	
15-86	08/06/87	3	1.4	
15-86	12/08/87	4	1 8	
15-86	03/14/88	1	NR	
15-86	05/16/88	2	NR	
15-86	09/01/88	3	NR	
15-86	11/29/88	4	NR	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
13-86	04/23/87	1	***							
13-86	06/11/87	2	***							
13-86	08/04/87	3	***							
13-86	12/04/87	4	DRY							
13-86	03/14/88	1	***							
13-86	05/16/88	2	***							
13-86	08/31/88	3	***							
13-86	11/30/88	4	***							
20-86	09/24/87	3	DRY							
20-86	12/05/87	4	DRY							
20-86	03/16/88	1	DRY							
20-86	05/23/88	2	DRY							
20-86	09/06/88	3	DRY							
20-86	11/22/88	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
13-86	04/23/87	1	***							
13-86	06/11/87	2	***							
13-86	08/04/87	3	***							
13-86	12/04/87	4	DRY							
13-86	03/14/88	1	***							
13-86	05/16/88	2	***							
13-86	08/31/88	3	***							
13-86	11/30/88	4	***							
20-86	09/24/87	3	DRY							
20-86	12/05/87	4	DRY							
20-86	03/16/88	1	DRY							
20-86	05/23/88	2	DRY							
20-86	09/06/88	3	DRY							
20-86	11/22/88	4	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l (mda)
13-86	04/23/87	1	***
13-86	06/11/87	2	***
13-86	08/04/87	3	***
13-86	12/04/87	4	DRY
13-86	03/14/88	1	***
13-86	05/16/88	2	***
13-86	08/31/88	3	***
13-86	11/30/88	4	***
20-86	09/24/87	3	DRY
20-86	12/05/87	4	DRY
20-86	03/16/88	1	DRY
20-86	05/23/88	2	DRY
20-86	09/06/88	3	DRY
20-86	11/22/88	4	DRY

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

FIELD PARAMETER DATA

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **2-60**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/19/87	1	N	N	N
06/25/87	2	N	N	N
09/24/87	3	N	7.30	13.9
01/05/88	4	N	7.10	9.0
03/16/88	1	N	7.80	10.0
05/23/88	2	16030.0	7.00	11.0
09/09/88	3	1592.0	6.50	12.6
12/02/88	4	13000.0	7.50	13.4

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 4-60

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/19/87	1	N	N	N
06/25/87	2	N	N	N
09/18/87	3	N	N	N
09/18/87	3	N	7.10	17.3
01/05/88	4	N	7.10	7.9
03/16/88	1	N	7.00	6.8
05/17/88	2	945.0	7.10	11.8
09/07/88	3	N	N	N
09/07/88	3	1094.0	7.20	20.9
12/02/88	4	1200.0	7.60	14.6

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **15-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/22/87	1	1480.0	6.60	11.0
06/10/87	2	1551.0	6.60	11.6
08/06/87	3	N	N	N
08/06/87	3	N	6.40	15.5
12/08/87	4	1451.0	7.20	7.9
03/14/88	1	N	6.80	6.9
05/16/88	2	1666.0	6.50	10.0
09/01/88	3	1642.0	7.20	14.6
11/29/88	4	1400.0	7.20	10.2

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 17-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/22/87	1	2090.0	7.20	11.0
06/10/87	2	3690.0	6.00	10.8
08/06/87	3	N	6.90	17.2
12/08/87	4	4860.0	6.90	9.1
03/14/88	1	N	6.60	5.8
05/16/88	2	5240.0	6.40	9.9
08/31/88	3	5180.0	6.90	16.9
11/29/88	4	5200.0	7.60	10.2

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **18-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
08/05/87	3	DRY		
12/04/87	4	DRY		
03/14/88	1	DRY		
05/16/88	2	DRY		
08/30/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **20-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
09/24/87	3	DRY		
12/05/87	4	DRY		
03/16/88	1	DRY		
05/23/88	2	DRY		
09/06/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **22-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/24/87	1	970.0	6.80	5.0
06/24/87	2	811.0	7.50	17.3
08/28/87	3	N	N	N
08/28/87	3	N	7.20	19.5
12/18/87	4	812.0	7.00	8.0
03/16/88	1	N	7.30	5.4
05/17/88	2	922.0	6.90	11.7
09/09/88	3	810.0	7.10	19.7
11/28/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **24-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
09/24/87	3	DRY		
12/05/87	4	DRY		
03/16/88	2	DRY		
05/23/88	2	DRY		
09/08/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **26-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/18/87	1	2200.0	7.50	10.0
08/28/87	3	N	6.80	18.7
12/05/87	4	DRY		
03/16/88	1	DRY		
05/17/88	2	DRY		
09/06/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **28-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/19/87	1	7400.0	7.00	12.0
06/24/87	2	16180.0	6.90	16.8
09/08/87	3	N	6.90	21.3
12/05/87	4	DRY		
03/16/88	1	N	7.40	5.1
05/17/88	2	N	N	N
09/07/88	3	10200.0	6.90	22.0
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 29-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
09/24/87	3	DRY		
12/05/87	4	DRY		
03/16/88	2	DRY		
05/23/88	2	DRY		
09/08/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **30-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/23/87	1	7100.0	6.10	6.0
04/15/87	1	4700.0	7.30	10.0
06/24/87	2	12630.0	6.50	14.9
09/24/87	3	N	7.30	16.8
01/15/88	4	N	6.90	7.3
01/16/88	4	N	N	N
03/16/88	1	N	6.90	6.2
05/23/88	2	11630.0	7.40	9.9
09/15/88	3	13000.0	6.80	16.1
12/02/88	4	9300.0	6.60	13.3

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 33-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
09/24/87	3	DRY		
12/05/87	4	DRY		
03/07/88	1	DRY		
05/02/88	2	DRY		
08/12/88	3	DRY		
11/08/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 35-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/17/87	1	1340.0	7.30	6.5
06/02/87	2	1427.0	6.90	9.7
07/28/87	3	N	6.90	16.4
08/26/87	3	N	N	N
10/16/87	4	1641.0	7.20	13.2
10/16/87	4	N	N	N
03/02/88	1	1489.0	6.10	5.7
05/02/88	2	1470.0	7.00	N
08/10/88	3	1691.0	6.90	16.1
11/04/88	4	1200.0	7.00	13.6

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 36-86

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/24/87	1	1680.0	6.70	10.0
06/03/87	2	2010.0	6.60	13.2
07/27/87	3	DRY		
08/26/87	3	N	N	N
10/19/87	4	DRY		
03/07/88	1	DRY		
05/02/88	2	DRY		
08/11/88	3	DRY		
11/08/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **21-87**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
10/29/87	4	DRY		
03/07/88	1	N	N	N
05/02/88	2	N	N	N
08/10/88	3	N	N	N
11/08/88	4	N	N	N

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 37-87

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/16/88	1	N	N	N
05/17/88	2	N	N	N
09/06/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **38-87**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/16/88	1	DRY		
05/17/88	2	DRY		
09/06/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 56-87

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/16/88	1	N	N	N
05/23/88	2	N	N	N
11/28/88	4	DRY		

N = Field parameter not measured

INORGANICS

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
16-86	04/22/87	1	4 U	NR	NR	NR	NR	NR	NR
16-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
16-86	08/07/87	3	5 U	NR	NR	NR	NR	NR	NR
16-86	12/17/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
16-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
16-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
16-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
16-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
16-86	11/29/88	4	5 U	5 U	4 J	5 U	5 U	5 U	5 U
14-86	04/16/87	1	4 U	NR	NR	NR	NR	NR	NR
14-86	04/16/87	1	4 U	NR	NR	NR	NR	NR	NR
14-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
14-86	08/05/87	3	5 U	NR	NR	NR	NR	NR	NR
14-86	12/08/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
14-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
14-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
14-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
14-86	11/29/88	4	5 U	5 U	4 J	5 U	5 U	5 U	5 U
14-86	11/29/88	4	5 U	5 U	4 J	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
16-86	04/22/87	1	4 U	NR	NR	NR	NR	NR	NR
16-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
16-86	08/07/87	3	5 U	NR	NR	NR	NR	NR	NR
16-86	12/17/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
16-86	03/14/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
16-86	05/16/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
16-86	08/31/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
16-86	08/31/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
16-86	11/29/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
14-86	04/16/87	1	4 U	NR	NR	NR	NR	NR	NR
14-86	04/16/87	1	4 U	NR	NR	NR	NR	NR	NR
14-86	06/10/87	2	4 U	NR	NR	NR	NR	NR	NR
14-86	08/05/87	3	5 U	NR	NR	NR	NR	NR	NR
14-86	12/08/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
14-86	03/14/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
14-86	05/16/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
14-86	08/31/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
14-86	11/29/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
14-86	11/29/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
16-86	04/22/87	1	4 U	NR	NR	NR	NR	4 U	NR
16-86	06/10/87	2	4 U	NR	NR	NR	NR	4 U	NR
16-86	08/07/87	3	5 U	NR	NR	NR	NR	5 U	NR
16-86	12/17/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
16-86	03/14/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
16-86	05/16/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
16-86	08/31/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
16-86	08/31/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
16-86	11/29/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
14-86	04/16/87	1	4 U	NR	NR	NR	NR	4 U	NR
14-86	04/16/87	1	4 U	NR	NR	NR	NR	4 U	NR
14-86	06/10/87	2	4 U	NR	NR	NR	NR	4 U	NR
14-86	08/05/87	3	5 U	NR	NR	NR	NR	5 U	NR
14-86	12/08/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
14-86	03/14/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
14-86	05/16/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
14-86	08/31/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
14-86	11/29/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
14-86	11/29/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
16-86	04/22/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
16-86	06/10/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
16-86	08/07/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
16-86	12/17/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
16-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
16-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
16-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
16-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
16-86	11/29/88	4	5 U	5 U	5 U	2 J	5 U	10 U	5 U
14-86	04/16/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
14-86	04/16/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
14-86	06/10/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
14-86	08/05/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
14-86	12/08/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
14-86	03/14/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
14-86	05/16/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
14-86	08/31/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
14-86	11/29/88	4	5 U	5 U	5 U	2 J	5 U	10 U	5 U
14-86	11/29/88	4	5 U	5 U	5 U	2 J	5 U	10 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
16-86	04/22/87	1	NR	NR	NR	NR	NR	NR	NR
16-86	06/10/87	2	NR	NR	NR	NR	NR	NR	NR
16-86	08/07/87	3	NR	NR	NR	NR	NR	NR	NR
16-86	12/17/87	4	10 U	10 U	10 U	10 U	12	10 U	5 U
16-86	03/14/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
16-86	05/16/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
16-86	08/31/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
16-86	08/31/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
16-86	11/29/88	4	10 U	10 U	10 U	10 U	5 J	10 U	5 U
14-86	04/16/87	1	NR	NR	NR	NR	NR	NR	NR
14-86	04/16/87	1	NR	NR	NR	NR	NR	NR	NR
14-86	06/10/87	2	NR	NR	NR	NR	NR	NR	NR
14-86	08/05/87	3	NR	NR	NR	NR	NR	NR	NR
14-86	12/08/87	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
14-86	03/14/88	1	10 U	10 U	10 U	10 U	5 U	5 J	5 U
14-86	05/16/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
14-86	08/31/88	3	10 U	10 U	10 U	10 U	8 J	10 U	5 U
14-86	11/29/88	4	10 U	10 U	10 U	10 U	5 J	10 U	5 U
14-86	11/29/88	4	10 U	10 U	10 U	10 U	4 J	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
30-86	12/02/88	4	2 J	5 U	3 JB	5 U	5 U	5 U	5 U
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	4 U	NR	NR	NR	NR	NR	NR
32-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
32-86	06/29/87	2	4 U	NR	NR	NR	NR	NR	NR
32-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR
32-86	12/16/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
32-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
32-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
32-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
32-86	12/02/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
30-86	12/02/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	4 U	NR	NR	NR	NR	NR	NR
32-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
32-86	06/29/87	2	4 U	NR	NR	NR	NR	NR	NR
32-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR
32-86	12/16/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
32-86	03/21/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
32-86	05/18/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
32-86	09/13/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
32-86	12/02/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
30-86	12/02/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	4 U	NR	NR	NR	NR	4 U	NR
32-86	04/15/87	1	4 U	NR	NR	NR	NR	4 U	NR
32-86	06/29/87	2	4 U	NR	NR	NR	NR	4 U	NR
32-86	09/23/87	3	5 U	NR	NR	NR	NR	5 U	NR
32-86	12/16/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
32-86	03/21/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
32-86	05/18/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
32-86	09/13/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
32-86	12/02/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
30-86	12/02/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
32-86	04/15/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
32-86	06/29/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
32-86	09/23/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
32-86	12/16/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
32-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
32-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
32-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
32-86	12/02/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
30-86	12/02/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	NR	NR	NR	NR	NR	NR	NR
32-86	04/15/87	1	NR	NR	NR	NR	NR	NR	NR
32-86	06/29/87	2	NR	NR	NR	NR	NR	NR	NR
32-86	09/23/87	3	NR	NR	NR	NR	NR	NR	NR
32-86	12/16/87	4	10 U	10 U	10 U	10 U	14	10 U	5 U
32-86	03/21/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
32-86	05/18/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
32-86	09/13/88	3	10 U	10 U	10 U	10 U	18	10 U	5 U
32-86	12/02/88	4	10 U	10 U	10 U	10 U	3 JB	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
27-86	12/16/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
27-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
27-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
27-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
27-86	12/06/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U
39-87	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
39-87	05/23/88	2	3	5 U	5 U	5 U	5 U	5 U	5 U
39-87	09/08/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
39-87	11/30/88	4	5 U	5 U	3 JB	5 U	5 U	5 U	5 U
30-86	03/23/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	06/24/87	2	16	NR	NR	NR	NR	NR	NR
30-86	09/24/87	3	5 U	NR	NR	NR	NR	NR	NR
30-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
30-86	05/23/88	2	4 J	5 U	5 U	5 U	5 U	5 U	5 U
30-86	09/15/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
27-86	12/16/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
27-86	03/21/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
27-86	05/18/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
27-86	09/13/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
27-86	12/06/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
39-87	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
39-87	05/23/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
39-87	09/08/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
39-87	11/30/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
30-86	03/23/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
30-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
30-86	09/24/87	3	5 U	NR	NR	NR	NR	NR	NR
30-86	01/15/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
30-86	05/23/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
30-86	09/15/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
27-86	12/16/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
27-86	03/21/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
27-86	05/18/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
27-86	09/13/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
27-86	12/06/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
39-87	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
39-87	05/23/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
39-87	09/08/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
39-87	11/30/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	03/23/87	1	4 U	NR	NR	NR	NR	4 U	NR
30-86	04/15/87	1	4 U	NR	NR	NR	NR	5	NR
30-86	06/24/87	2	4 U	NR	NR	NR	NR	4 U	NR
30-86	09/24/87	3	5 U	NR	NR	NR	NR	5 U	NR
30-86	01/15/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	05/23/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
30-86	09/15/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
27-86	12/16/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
27-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
27-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
27-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
27-86	12/06/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U
39-87	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
39-87	05/23/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
39-87	09/08/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
39-87	11/30/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
30-86	03/23/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
30-86	04/15/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
30-86	06/24/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
30-86	09/24/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
30-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	05/23/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
30-86	09/15/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
27-86	12/16/87	4	10 U	10 U	10 U	10 U	13	10 U	5 U
27-86	03/21/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
27-86	05/18/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
27-86	09/13/88	3	10 U	10 U	10 U	10 U	17	10 U	5 U
27-86	12/06/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
39-87	03/16/88	1	10 U	10 U	10 U	10 U	13	10 U	5 U
39-87	05/23/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
39-87	09/08/88	3	10 U	10 U	10 U	10 U	11	10 U	5 U
39-87	11/30/88	4	10 U	10 U	10 U	10 U	3 JB	10 U	5 U
30-86	03/23/87	1	NR	NR	NR	NR	NR	NR	NR
30-86	04/15/87	1	NR	NR	NR	NR	NR	NR	NR
30-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
30-86	09/24/87	3	NR	NR	NR	NR	NR	NR	NR
30-86	01/15/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
30-86	03/16/88	1	10 U	10 U	10 U	10 U	14	10 U	5 U
30-86	05/23/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
30-86	09/15/88	3	10 U	10 U	10 U	10 U	17	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
22-87	03/07/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
22-87	05/02/88	2	7	5 U	5 U	5 U	5 U	5 U	5 U
22-87	08/10/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
22-87	11/09/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
34-86	03/17/87	1	4 U	NR	NR	NR	NR	NR	NR
34-86	04/06/87	1	4 U	NR	NR	NR	NR	NR	NR
34-86	06/02/87	2	4 U	NR	NR	NR	NR	NR	NR
34-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
34-86	10/16/87	4	5 U	NR	NR	NR	NR	NR	NR
34-86	10/16/87	4	5U	5U	5U	5U	5U	5U	5U
34-86	03/02/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
34-86	05/02/88	2	40	5 U	5 U	5 U	5 U	5 U	5 U
34-86	08/10/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
34-86	11/04/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
27-86	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
27-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
27-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
27-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
22-87	03/07/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
22-87	05/02/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
22-87	08/10/88	3	5 U	5 U	5 U	10 U	5 U	10 U	10 U
22-87	11/09/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
34-86	03/17/87	1	4 U	NR	NR	NR	NR	NR	NR
34-86	04/06/87	1	4 U	NR	NR	NR	NR	NR	NR
34-86	06/02/87	2	4 U	NR	NR	NR	NR	NR	NR
34-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
34-86	10/16/87	4	5 U	NR	NR	NR	NR	NR	NR
34-86	10/16/87	4	5U	5U	5U	10U	5U	10U	10U
34-86	03/02/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
34-86	05/02/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
34-86	08/10/88	3	5 U	5 U	5 U	10 U	5 U	10 U	10 U
34-86	11/04/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
27-86	03/19/87	1	4 U	NR	NR	NR	NR	NR	NR
27-86	04/15/87	1	4 U	NR	NR	NR	NR	NR	NR
27-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
27-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
22-87	03/07/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
22-87	05/02/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
22-87	08/10/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
22-87	11/09/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
34-86	03/17/87	1	4 U	NR	NR	NR	NR	4 U	NR
34-86	04/06/87	1	4 U	NR	NR	NR	NR	4 U	NR
34-86	06/02/87	2	4 U	NR	NR	NR	NR	4 U	NR
34-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
34-86	10/16/87	4	5 U	NR	NR	NR	NR	5 U	NR
34-86	10/16/87	4	5U	10U	5U	5U	5U	5U	5U
34-86	03/02/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
34-86	05/02/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
34-86	08/10/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
34-86	11/04/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
27-86	03/19/87	1	4 U	NR	NR	NR	NR	4 U	NR
27-86	04/15/87	1	4 U	NR	NR	NR	NR	4 U	NR
27-86	06/24/87	2	4 U	NR	NR	NR	NR	4 U	NR
27 86	09/23/87	3	5 U	NR	NR	NR	NR	5 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
22-87	03/07/88	1	5 U	5 U	5 U	5 U	5 U	9 J	5 U
22-87	05/02/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
22-87	08/10/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
22-87	11/09/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
34-86	03/17/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
34-86	04/06/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
34-86	06/02/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
34-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
34-86	10/16/87	4	5 U	NR	5 U	5 U	5 U	NR	5 U
34-86	10/16/87	4	5U	5U	5U	5U	5U	10U	5U
34-86	03/02/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
34-86	05/02/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
34-86	08/10/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
34-86	11/04/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U
27-86	03/19/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
27-86	04/15/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
27-86	06/24/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
27-86	09/23/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
22-87	03/07/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
22-87	05/02/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
22-87	08/10/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
22-87	11/09/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
34-86	03/17/87	1	NR	NR	NR	NR	NR	NR	NR
34-86	04/06/87	1	NR	NR	NR	NR	NR	NR	NR
34-86	06/02/87	2	NR	NR	NR	NR	NR	NR	NR
34-86	07/28/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
34-86	10/16/87	4	NR	NR	NR	NR	NR	NR	NR
34-86	10/16/87	4	10U	10U	10U	10U	5J	10U	5U
34-86	03/02/88	1	10 U	10 U	10 U	10 U	6	10 U	5 U
34-86	05/02/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
34-86	08/10/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
34-86	11/04/88	4	10 U	10 U	10 U	10 U	6 B	10 U	5 U
27-86	03/19/87	1	NR	NR	NR	NR	NR	NR	NR
27-86	04/15/87	1	NR	NR	NR	NR	NR	NR	NR
27-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
27-86	09/23/87	3	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
23-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
23-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
23-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR
23-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	05/23/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	09/08/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	11/30/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
25-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
25-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
25-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
25-86	01/15/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
25-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	12/06/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
23-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
23-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
23-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR
23-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	05/23/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	09/08/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
23-86	11/30/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
25-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
25-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
25-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
25-86	01/15/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
25-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
25-86	12/06/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
23-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
23-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
23-86	09/23/87	3	5 U	NR	NR	NR	NR	NR	NR
23-86	01/15/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
23-86	03/21/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
23-86	05/23/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
23-86	09/08/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
23-86	11/30/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
25-86	03/18/87	1	4 U	NR	NR	NR	NR	NR	NR
25-86	06/24/87	2	4 U	NR	NR	NR	NR	NR	NR
25-86	08/28/87	3	5 U	NR	NR	NR	NR	NR	NR
25-86	01/15/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
25-86	01/15/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
25-86	03/21/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
25-86	05/18/88	2	5 U	5 U	5 U	NR	5 U	10 U	10 U
25-86	09/13/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
25-86	09/13/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
25-86	12/06/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
23-86	03/18/87	1	4 U	NR	NR	NR	NR	4 U	NR
23-86	06/24/87	2	4 U	NR	NR	NR	NR	4 U	NR
23-86	09/23/87	3	5 U	NR	NR	NR	NR	5 U	NR
23-86	01/15/88	4	7	10 U	5 U	5 U	5 U	5 U	5 U
23-86	03/21/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
23-86	05/23/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
23-86	09/08/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
23-86	11/30/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
25-86	03/18/87	1	4 U	NR	NR	NR	NR	4 U	NR
25-86	06/24/87	2	4 U	NR	NR	NR	NR	4 U	NR
25-86	08/28/87	3	5 U	NR	NR	NR	NR	5 U	NR
25-86	01/15/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
25-86	01/15/88	4	7	10 U	5 U	5 U	5 U	5 U	5 U
25-86	03/21/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
25-86	05/18/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
25-86	09/13/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
25-86	09/13/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
25-86	12/06/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
23-86	03/18/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
23-86	06/24/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
23-86	09/23/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
23-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
23-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
23-86	05/23/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
23-86	09/08/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
23-86	11/30/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
25-86	03/18/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
25-86	06/24/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
25-86	08/28/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
25-86	01/15/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
25-86	01/15/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
25-86	03/21/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
25-86	05/18/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
25-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
25-86	09/13/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
25-86	12/06/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
23-86	03/18/87	1	NR	NR	NR	NR	NR	NR	NR
23-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
23-86	09/23/87	3	NR	NR	NR	NR	NR	NR	NR
23-86	01/15/88	4	10 U	10 U	10 U	10 U	13	10 U	5 U
23-86	03/21/88	1	10 U	10 U	10 U	10 U	16	10 U	5 U
23-86	05/23/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
23-86	09/08/88	3	10 U	10 U	10 U	10 U	10	10 U	5 U
23-86	11/30/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
25-86	03/18/87	1	NR	NR	NR	NR	NR	NR	NR
25-86	06/24/87	2	NR	NR	NR	NR	NR	NR	NR
25-86	08/28/87	3	NR	NR	NR	NR	NR	NR	NR
25-86	01/15/88	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
25-86	01/15/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
25-86	03/21/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
25-86	05/18/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
25-86	09/13/88	3	10 U	10 U	10 U	10 U	16	10 U	5 U
25-86	09/13/88	3	10 U	10 U	10 U	10 U	16	10 U	5 U
25-86	12/06/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

VOLATILE ORGANICS

APPENDIX B-2

SOLAR EVAPORATION PONDS
BEDROCK GROUND-WATER QUALITY DATA

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
23-86	03/18/87	1	NR	190	NR	340	NR
23-86	06/24/87	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
23-86	09/23/87	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
23-86	01/15/88	4	962	172	0 02 U	321	190
23-86	03/21/88	1	1040	172	0 07	290	114
23-86	05/23/88	2	991	156	0 02 U	671	190
23-86	09/08/88	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
23-86	11/30/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
25-86	03/18/87	1	2322	52 5	0.28	1100	410
25-86	06/24/87	2	2242	40 5	0 20 U	400	390
25-86	08/28/87	3	2265	42 2	0 45	1060	407
25-86	01/15/88	4	2297	43 6	0.10	1120	435
25-86	01/15/88	4	2337	44 9	0.10	1030	437
25-86	03/21/88	1	2293	43 2	0 12	1050	104
25-86	05/18/88	2	2293	43 8	0 07	1355	373
25-86	09/13/88	3	48	26 7	0 13	0 16	1 0 U
25-86	09/13/88	3	95	26 7	0 02 U	0.10	1.0 U
25-86	12/06/88	4	2126	44 8	0 11	1315	377

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
22-87	03/07/88	1	465	8 22	0 02 U	121	54 0
22-87	05/02/88	2	480	5 70	0 04	230	99
22-87	08/10/88	3	586	6 56	0 04	337	119
22-87	11/09/88	4	638	7 84	0 11	387	97 0
34-86	03/17/87	1	1789	65.9	0.20 U	800	372
34-86	04/06/87	1	1772	53.5	0 20 U	40.0	357
34-86	06/02/87	2	1761	54 0	0 20 U	940	333
34-86	07/28/87	3	1813	54 4	0 20 U	990	319
34-86	10/16/87	4	1773	52.1	0 02 U	900	318
34-86	10/16/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
34-86	03/02/88	1	1700	59 6	0 02 U	763	111
34-86	05/02/88	2	1760	58 3	0 02 U	725	239
34-86	08/10/88	3	1700	47 9	0 02 U	1076	348
34-86	11/04/88	4	1750	56 2	0 02 U	1084	316
27-86	03/19/87	1	793	144	42 0	245	180
27-86	04/15/87	1	756	167	0 20 U	260	161
27-86	06/24/87	2	812	160	0 20 U	188	168
27-86	09/23/87	3	842	166 8	0 20 U	340	186

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
27-86	12/16/87	4	823	141	0 40	219	184 2
27-86	03/21/88	1	818	163	0 43	220	102
27-86	05/18/88	2	827	156	0 61	272	167
27-86	09/13/88	3	791	196	0 62	255	198
27-86	12/06/88	4	821	151	0.30	271	163
39-87	03/16/88	1	296	6.98	0 10	134	46 3
39-87	05/23/88	2	918	72 4	0 15	521	128
39-87	09/08/88	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
39-87	11/30/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
30-86	03/23/87	1	8085	179	1440	215	334
30-86	04/15/87	1	9430	215	8 40	340	221
30-86	06/24/87	2	13740	288	2040	280	297
30-86	09/24/87	3	14019	318	1520	301	301
30-86	01/15/88	4	13682	276	1457	282	298
30-86	01/16/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
30-86	03/16/88	1	10571	210	1410	205	180
30-86	05/23/88	2	1600	216	12100	337	309
30-86	09/15/88	3	12125	277	1611	90 7	338

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
30-86	12/02/88	4	9750	236	1431	304	271
31-86	09/24/87	3	DRY				
31-86	12/05/87	4	DRY				
31-86	03/16/88	2	DRY				
31-86	05/18/88	2	DRY				
31-86	09/13/88	3	DRY				
31-86	11/22/88	4	DRY				
32-86	03/23/87	1	523	107	6.90	92 0	223
32-86	04/15/87	1	575	107	1 88	92 0	195
32-86	06/29/87	2	512	146	0 40	57 0	175
32-86	09/23/87	3	547	121 7	0 46	66	187
32-86	12/16/87	4	507	109	0 19	75 0	198 1
32-86	03/21/88	1	501	121	0 04	65.0	104
32-86	05/18/88	2	514	112	0 21	77 0	180
32-86	09/13/88	3	504	126	0 17	77 7	239
32-86	12/02/88	4	499	117	1.40	77 1	167

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
16-86	04/22/87	1	2489	242	0 60	179	368
16-86	06/10/87	2	1470	202	0 20 U	175	348
16-86	08/07/87	3	1442	201	0 29	495	364
16-86	12/17/87	4	1459	180	0 09	420	381
16-86	03/14/88	1	1462	208	0 06	430	210
16-86	05/16/88	2	1461	193	0 02 U	533	328
16-86	08/31/88	3	1478	184	0 03	566	384
16-86	08/31/88	3	1382	188	0.02 U	569	312
16-86	11/29/88	4	1378	81 9	0 13	584	337
14-86	04/16/87	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
14-86	04/16/87	1	1303	79.2	0 60	550	340
14-86	06/10/87	2	1331	81 7	0 20 U	570	332
14-86	08/05/87	3	1292	83 2	0 20 U	148	347
14-86	12/08/87	4	1358	78 9	0.04	562	384
14-86	03/14/88	1	1367	80.5	0 02 U	480	206
14-86	05/16/88	2	1366	82.7	0 02 U	749	329
14-86	08/31/88	3	1374	79.6	0 08	646	362
14-86	11/29/88	4	1283	84.1	0.02 U	689	338
14-86	11/29/88	4	1263	84.4	0 02 U	697	334

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

METALS

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss mg/l
23-86	03/18/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	06/24/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	09/23/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	01/15/88	4	0 0551	0 02 U	0 005	0 0328	0 005 U	0 001 U	96 4941
23-86	03/21/88	1	0 0773	0 02 U	0 005 U	0 0308	0 005 U	0 001 U	98 7690
23-86	05/23/88	2	0 0380	0 0340 U	0 005 U	0 0250	0 0010 U	0 0050 U	95 7839
23-86	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
25-86	03/18/87	1	0 0290 U	0 06 U	0 01 U	0 0210	0 005 U	0 005 U	192 4488
25-86	06/24/87	2	0 0290 U	0 06 U	0 01 U	0 0301	0 005 U	0 005 U	268 7477
25-86	08/28/87	3	0 0290 U	0 02 U	0 005 U	0 0412	0 005 U	0 0003 J	209 3199
25-86	01/15/88	4	0 0820	0 02 U	0 021	0 0276	0 005 U	0 001 U	240 9251
25-86	01/15/88	4	0 0675	0 02 U	0 019	0 0214	0 005 U	0 001 U	233 6315
25-86	03/21/88	1	0 0446	0 02 U	0 005 U	0 0223	0 005 U	0 001 U	206 6097
25-86	05/18/88	2	0 0624	0 0340 U	0 005 U	0 0193	0 0010 U	0 0050 U	195 7517
25-86	09/13/88	3	0 0329	0 1189	0 005 U	0 0210	0 0010 U	0 0050 U	240 2633
25-86	09/13/88	3	0 0290 U	0 1299	0 005 U	0 0316	0 0010 U	0 0050 U	210 1074
25-86	12/06/88	4	0 0864	0 1080	NR	0 0238	0 0010 U	0 0050 U	249 0929

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
23-86	03/18/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	06/24/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	09/23/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	01/15/88	4	0 02 U	0 0100 U	0 0220 U	0 0287	0 0266	0 003 J	0 08 J
23-86	03/21/88	1	0.02 U	0 0146	0 0220 U	0 0101	0 1262	0 005 U	0 07 J
23-86	05/23/88	2	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0203	0 005 U	NR
23-86	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
25-86	03/18/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
25-86	06/24/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
25-86	08/28/87	3	0 02 U	0 0158	0 0220 U	0 0082	0 0069 U	0 005 U	NR
25-86	01/15/88	4	0 02 U	0 0139	0 0220 U	0 0284	0 0514	0 005 U	0 3
25-86	01/15/88	4	0 02 U	0 0378	0 0220 U	0 0307	0 0226	0 005 U	0 2
25-86	03/21/88	1	0 02 U	0 0161	0 0220 U	0 0108	0 0785	0 005 U	0 18
25-86	05/18/88	2	0 020 U	0 0100 U	0 0220 U	0 0069	0 0069 U	0 005 U	NR
25-86	09/13/88	3	0 020 U	0 0146	0 0220 U	0 0063 U	0 0174	0 005 U	NR
25 86	09/13/88	3	0 020 U	0 0256	0 0220 U	0 0063 U	0 0171	0 005 U	NR
25-86	12/06/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0892 N	NR	NR

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss mg/l	Selenium (Se), diss mg/l
23-86	03/18/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	06/24/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	09/23/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	01/15/88	4	24 7129	0 1107	0 0002 U	0 0200 U	0 0370 U	14 0	0 007
23-86	03/21/88	1	26 1184	0 1349	0 0002 U	0 0301	0 0370 U	11	0 005 U
23-86	05/23/88	2	24 2141	0 1562	0 0002 U	0 0220 U	0 0370 U	13 2	0 005 U
23-86	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
23-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
25-86	03/18/87	1	76 7010	0 2537	0 0002 U	0 0404	0 1249	25 0	0 005 U
25-86	06/24/87	2	107 3566	0 4087	0 0003	0 0378	0 2102	17	0 005 U
25-86	08/28/87	3	101 2028	0 1711	0 0002 U	0 0226	0 1005	18 0	0 005 U
25-86	01/15/88	4	100 4831	0 1532	0 0002 U	0.0227	0 0564	15 3	0 005 U
25-86	01/15/88	4	100.3111	0.1493	0 0002 U	0 0515	0 0757	15 5	0 002 J
25-86	03/21/88	1	85 1800	0 1504	0 0002 U	0 0220 U	0 0370 U	15	0 005 U
25-86	05/18/88	2	96 1038	0 1316	0 0002 U	0 0220 U	0 0370 U	12 4	0 003 J
25-86	09/13/88	3	94 1822	0 1434	0 0002 U	0 0220 U	0 0370 U	15	0 005 U
25-86	09/13/88	3	95 5636	0 1448	0 0002 U	0 0220 U	0 0370 U	15	0 005 U
25-86	12/06/88	4	92 5963	0 1633	0 0002 U	0 0220 U	0 0370 U	9 9	NR

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
23-86	03/18/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
23-86	06/24/87	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
23-86	09/23/87	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
23-86	01/15/88	4	0 0076 U	182 1679	1 1892	0 01 U	0 0288	0 0200 U
23-86	03/21/88	1	0 0076 U	180 2115	1 2860	0 01 U	0 0240 U	0 1830
23-86	05/23/88	2	0 0076 U	158 2133	1 0766	0 01 U	0.0360 U	0 0335
23-86	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
23-86	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
25-86	03/18/87	1	0 0076 U	247 4230	2 5688	0 01 U	0 0240 U	0 07
25-86	06/24/87	2	0 0076 U	306 8792	3 2156	0 01 U	0 0240 U	0 0323
25-86	08/28/87	3	0 0076 U	280 0023	3 1179	0 01 U	0 0240 U	0 0237
25-86	01/15/88	4	0 0076 U	293 8468	3.1630	0 01 U	0 0240 U	0 0315
25-86	01/15/88	4	0.0333	282 6460	3 1450	0 01 U	0 0240 U	0 0232
25-86	03/21/88	1	0 0076 U	259 1834	3 0430	0 01 U	0 0240 U	0 0635
25-86	05/18/88	2	0 0076 U	227 6937	2 5199	0 010 U	0 0360 U	0 0200 U
25-86	09/13/88	3	0 0076 U	295 3115	0 3581	0 010 U	0 0360 U	0 0340
25-86	09/13/88	3	0 0076 U	295 6885	3 5788	0 010 U	0 0360 U	0 0567
25-86	12/06/88	4	0 0076 U	295 4914	3 3826	NR	0 0360 U	0 1052

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss mg/l
22-87	03/07/88	1	0 0406	0 02 U	0 004 J	0 0594	0 005 U	0 001 U	30 2374
22-87	05/02/88	2	0 0376	0 0340 U	0 005 U	0 0343	0.0010 U	0 0050 U	34 1294
22-87	08/10/88	3	0 0344	0 0340 U	0 003 J	0 0363	0 0010 U	0 0050 U	44 8694
22-87	11/09/88	4	0 0476	0 0340 U	NR	0 0411	0 0010 U	0 0050 U	49 0811
34-86	03/17/87	1	0 0290 U	0 06 U	0 01 U	0 0288	0 005 U	0 005 U	241 5299
34-86	04/06/87	1	0 0290 U	0 06 U	0 0100 U	0 0878	0 005 U	0 0050 U	236 2398
34-86	06/02/87	2	0 0334	0 06 U	0 01 U	0 0247	0 005 U	0 005 U	235 2524
34-86	07/28/87	3	0 0524	0 02 U	0 005 U	0 0354	0 005 U	0 001 U	242 3112
34-86	10/16/87	4	0 0290 U	0 02 U	0 002 J	0 0308	0 005 U	0 001 U	209 5497
34-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
34-86	03/02/88	1	0 1729	0 02 U	0 004 J	0 1216	0 005 U	0 001 U	18 6393
34-86	05/02/88	2	0 0290 U	0 0340 U	0 005 U	0 0271	0 0010 U	0 0050 U	207 6940
34-86	08/10/88	3	0 0290 U	0 1059	0 005 U	0 0234	0 0010 U	0 0050 U	222 3501
34-86	11/04/88	4	0 0379	0 0728	NR	0 0276	0 0010 U	0 0050 U	233 7848
27-86	03/19/87	1	0 0290 U	0 0600 U	0 01 U	0 0213	0 005 U	0 005 U	40 8094
27-86	04/15/87	1	0 0429	0 06 U	0 0100 U	0 0313	0 005 U	0 0050 U	51 6383
27-86	06/24/87	2	0 0290 U	0 06 U	0 01 U	0 0279	0 005 U	0 005 U	50 2646
27-86	09/23/87	3	0 0321	0 02 U	0 005 U	0 0574	0 005 U	0 001 U	41 6908

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
22-87	03/07/88	1	0 020 U	0 0115	0 0220 U	0 0063 U	0 0230	0 005 U	0 1 U
22-87	05/02/88	2	0 02 U	0 0100 U	0 0220 U	0 0122	0 0423	0 005 U	NR
22-87	08/10/88	3	0 02 U	0 0100 U	0 0220 U	0 0179	0 0151	0 005 U	NR
22-87	11/09/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0080	NR	NR
34-86	03/17/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 6726	0 005 U	NR
34-86	04/06/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 4421	0 0050 U	NR
34-86	06/02/87	2	0 2 U	0 0114	0 0220 U	0 0096	1 0040	0 005 U	NR
34-86	07/28/87	3	0 02 U	0 0100 U	0 0220 U	0 0063 U	1 5312	0 005 U	NR
34-86	10/16/87	4	0 02 U	0 0120	0 0220 U	0 0063 U	1 4362	0 005 U	0 2
34-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
34-86	03/02/88	1	0 020 U	0 0100 U	0 0220 U	0 0092	0 1353	0 005 U	0 1 U
34-86	05/02/88	2	0 02 U	0 0100 U	0 0220 U	0 0124	1 5495	0 005 U	NR
34-86	08/10/88	3	0 02 U	0 0152	0 0220 U	0 0098	1 5950	0 005 U	NR
34-86	11/04/88	4	NR	0 0100 U	0 0220 U	0 0063 U	2 1817	NR	NR
27-86	03/19/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
27-86	04/15/87	1	0 2 U	0 0100 U	0 0220 U	0 0067	0 0295	0 0050 U	NR
27-86	06/24/87	2	0 2 U	0 0100 U	0 0220 U	0 0067	0 0069 U	0 016	NR
27-86	09/23/87	3	0 02 U	0 0100 U	0 0220 U	0 0315	0 0194	0 005 U	NR

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss mg/l
22-87	03/07/88	1	6 4239	0 0319	0 0002 U	0 0843	0 0372	14	0 005 U
22-87	05/02/88	2	7 8109	0 0439	0 0002 U	0 0764	0 0370 U	13 3	0 005 U
22-87	08/10/88	3	10 9422	0 0372	0 0002 U	0 0657	0 0370 U	15	0 005 U
22-87	11/09/88	4	12 5151	0 0426	NR	0 0582	0 0370 U	NR	NR
34-86	03/17/87	1	62 6727	0 0718	0 0002 U	0 0220 U	0 0370 U	8 6	0 005 U
34-86	04/06/87	1	65 0379	0 1019	0 0002 U	0 0220 U	0 0370 U	8 0	0 005 U
34-86	06/02/87	2	72 6015	0 0159	0 0002 U	0 0220 U	0 0370 U	8 2	0 005 U
34-86	07/28/87	3	72 7323	0 1205	0 0002 U	0 0220 U	0 0370 U	3 2	0 005 U
34-86	10/16/87	4	67 4890	0 1445	0 0001 J	0 0220 U	0 0370 U	10 9	0 005 U
34-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
34-86	03/02/88	1	2 0699	0 0070	0 0002 U	0 0509	0 0370 U	3 1	0 005 U
34-86	05/02/88	2	92 1996	0 0892	0 0002 U	0 0220 U	0 0370 U	8 9	0 005 U
34-86	08/10/88	3	70 8170	0 1059	0 0002 U	0 0220 U	0 0370 U	8 7	0 005 U
34-86	11/04/88	4	68 6772	0 1348	NR	0 0220 U	0 0370 U	NR	NR
27-86	03/19/87	1	14 0300	0 0727	0 0002 U	0 0532	0 1271	9 0	0 0050 U
27-86	04/15/87	1	16 3832	0 1074	0 0002 U	0 0295	0 1869	7 4	0 005 U
27-86	06/24/87	2	13 7816	0 0758	0 0002 U	0 0336	0 1158	5 6	0 005 U
27-86	09/23/87	3	13 3113	0 0627	0 0002 U	0 0220 U	0 0993	9 1	0 005

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
22-87	03/07/88	1	0 0076 U	88 6237	0 4659	0 010 U	0 0261	0 0339
22-87	05/02/88	2	0 0076 U	100.1605	0 4906	0 01 U	0 0360 U	0 0200 U
22-87	08/10/88	3	0 0076 U	126 4044	0 6219	0 01 U	0 0360 U	0 0309
22-87	11/09/88	4	0 0076 U	135 7162	0 7709	NR	0 0360 U	0 0200 U
34-86	03/17/87	1	0 0076 U	227 7501	2 8304	0 01 U	0 0240 U	0 06
34-86	04/06/87	1	0 0076 U	220 6902	2 8040	0 0100 U	0 0240 U	0 08
34-86	06/02/87	2	0 0076 U	221 9862	2 8541	0 01 U	0 0240 U	0 0200 U
34-86	07/28/87	3	0 0076 U	231 0510	2 9499	0 01 U	0 245	0 02004
34-86	10/16/87	4	0 0076 U	221 9791	2 7239	0 01 U	0 0240 U	0 0200 U
34-86	10/16/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
34-86	03/02/88	1	0 0076 U	76 7449	0 2005	0 010 U	0 0240 U	0 0340
34-86	05/02/88	2	0 0076 U	232 1001	2 8410	0 01 U	0 0360 U	0 0200 U
34-86	08/10/88	3	0 0076 U	223 8332	2 6631	0 01 U	0 0360 U	0 0875
34-86	11/04/88	4	0 0076 U	224.1979	3 1113	NR	0 0360 U	0 0200 U
27-86	03/19/87	1	0 0076 U	259 9004	0 6022	0 01 U	0 0240 U	0 02 U
27-86	04/15/87	1	0 0076 U	247 4084	0 6644	0 0100 U	0 0240 U	0 3
27-86	06/24/87	2	0 0089	219 6025	0 6149	0 01 U	0 0300	0 0200 U
27 86	09/23/87	3	0 0076 U	200 8369	0 6258	0 01 U	0 0240 U	0 0200 U

Notes NR = Analyte not reported U = Analyzed but not detected * = Holding time not met
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss mg/l
27-86	12/16/87	4	0 0596	0 02 U	0 005 U	0 0258	0 005 U	0 001 U	43 9156
27-86	03/21/88	1	0 0362	0 02 U	0 005 U	0 0268	0 005 U	0 001 U	44 4459
27-86	05/18/88	2	0 0290 U	0 0340 U	0 005 U	0 0221	0 0010 U	0 0050 U	50.3974
27-86	09/13/88	3	0 0296	0 0340 U	0 005 U	0 0315	0 0010 U	0 0050 U	47 3837
27-86	12/06/88	4	0 0686	0 0340 U	NR	0 0100 U	0 0010 U	0 0050 U	51 4527
39-87	03/16/88	1	0 0297	0 02 U	0 002 J	0 0202	0 005 U	0 001	8 9522
39-87	05/23/88	2	0 0425	0 0340 U	0 005 U	0 0459	0 0010 U	0 0050 U	53 9288
39-87	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
39-87	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
30-86	03/23/87	1	0 0290 U	0 0600 U	0 01 U	0 2099	0 005 U	0 005 U	681 5574
30-86	04/15/87	1	0 0290 U	0 06 U	0 0100 U	0 3108	0 005 U	0 0050 U	1270 2438
30-86	06/24/87	2	0 0290 U	0 06 U	0 01 U	0 3155	0 005 U	0 005 U	1692 0455
30-86	09/24/87	3	0 0290 U	0 02 U	0 002 U	0 3571	0 005 U	0 001 U	1172 4248
30-86	01/15/88	4	0 0952	0 02 U	0 011	0 2230	0 005 U	0 001 U	1130 4343
30-86	01/16/88	4	0 0820	NR	NR	0 2120	NR	NR	1031 3494
30-86	03/16/88	1	0 0311	0 02 U	0 002 J	0 2364	0 005 U	0 001 U	845 0279
30-86	05/23/88	2	0 0435	0.1770	0 005 U	0 1926	0 0010 U	0 0050 U	937 5723
30-86	09/15/88	3	0 0290 U	0 4385	0 005 U	0 2653	0 0016	0 0050 U	1366 2809

Notes NR = Analyte not reported U = Analyzed but not detected * = Holding time not met
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss mg/l
27-86	12/16/87	4	0 02 U	0 0100 U	0 0220 U	0 0374	0 0459	0 002 J	0 1 U
27-86	03/21/88	1	0 02 U	0 0100 U	0 0220 U	0 0477	0 0806	0 005 U	0 06 J
27-86	05/18/88	2	0 020 U	0 0100 U	0 0220 U	0 1120	0 0193	0 005 U	NR
27-86	09/13/88	3	0 020 U	0 0134	0 0220 U	0 0903	0 0210	0 005 U	NR
27-86	12/06/88	4	NR	0 0100 U	0 0220 U	0 0175	0 0675 N	NR	NR
39-87	03/16/88	1	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0276	0 005 U	0 1 U
39-87	05/23/88	2	0 02 U	0 0100 U	0 0220 U	0 0068	0 0162	0 005 U	NR
39-87	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
39-87	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
30-86	03/23/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
30-86	04/15/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 0050 U	NR
30-86	06/24/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 006	NR
30-86	09/24/87	3	0 02 U	0 0169	0 0220 U	0 0064	0 0069 U	0 005 U	NR
30-86	01/15/88	4	0 02 U	0 0122	0 0220 U	0 0375	0 0262	0 005 U	1 2
30-86	01/16/88	4	NR	0 0100 U	0 0220 U	0 0250	0 0069 U	NR	NR
30-86	03/16/88	1	0 02 U	0 0188	0 0220 U	0 0063 U	0 0834	0 005 U	0 82
30-86	05/23/88	2	0 02 U	0 0100 U	0 0220 U	0 0091	0 0069 U	0 005 U	NR
30-86	09/15/88	3	0 020* U	0 0142	0 0220 U	0 0063 U	0 0499	0 005 U	NR

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
27-86	12/16/87	4	12 6190	0 0775	0 0002 U	0 0246	0 0622	5 9	0 006
27-86	03/21/88	1	12 7476	0 0841	0 0002 U	0 0220 U	0 0415	1 0	0 005 U
27-86	05/18/88	2	13 8678	0 0814	0 0002 U	0 0220 U	0 0475	4 7	0 005 U
27-86	09/13/88	3	13 0227	0 0776	0 0002 U	0 0220 U	0 0500	6 1	0 005 U
27-86	12/06/88	4	13 3373	0 1008	0 0002 U	0 0285	0.0564	3 6	NR
39-87	03/16/88	1	1 4221	0 0075	0 0002 U	0 0220 U	0 0370 U	5 0	0 003 J
39-87	05/23/88	2	15 6479	0 1058	0 0002 U	0 0580	0 0370 U	11 4	0 003 J
39-87	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
39-87	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
30-86	03/23/87	1	135 9616	0 0542	0 0002 U	0 0220 U	0 0370 U	132 0	0 0050 U
30-86	04/15/87	1	215 1646	0 0789	0 0002 U	0 0220 U	0 0370 U	82 0	0 007
30-86	06/24/87	2	308 1397	0 0703	0 0002 U	0 0220 U	0 0370 U	74	0 005 U
30-86	09/24/87	3	309 5655	0 0648	0 0002 U	0 0220 U	0 0370 U	125	0 011
30-86	01/15/88	4	274 2444	0 0224	0 0002 U	0 0220 U	0 0689	146	0 017
30-86	01/16/88	4	264 8040	0 0232	NR	0 0220 U	0 0580	NR	NR
30-86	03/16/88	1	229 4845	0 0051 U	0 0002 U	0 0220 U	0 0433	146	0 005
30-86	05/23/88	2	144 3829	0 0067	0 0002 U	0 0220 U	0 0449	159	0 005 U
30-86	09/15/88	3	367 3962	0 0408	0 0002 U	0 0220 U	0 0717	6 1	0 005 U

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
27-86	12/16/87	4	0 0076 U	205 7062	0 6214	0 01 U	0 0240 U	0 0218
27-86	03/21/88	1	0 0076 U	201 6286	0 6457	0 01 U	0 0240 U	0 0507
27-86	05/18/88	2	0 0076 U	209 3877	0 6312	0 010 U	0 0360 U	0 0200 U
27-86	09/13/88	3	0 0076 U	210 8754	0 7020	0 010 U	0 0360 U	0 0375
27-86	12/06/88	4	0 0076 U	216 2554	0 6605	NR	0 0360 U	0 0818
39-87	03/16/88	1	0 0076 U	19 6097	0 0869	0 01 U	0 0240 U	0 0200 U
39-87	05/23/88	2	0 0076 U	196 4473	0 6957	0 01 U	0 0360 U	0 0200 U
39-87	09/08/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
39-87	11/30/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
30-86	03/23/87	1	0 0102	1062 7017	5 6997	0 01 U	0 0240 U	0 03
30-86	04/15/87	1	0 0130	1145 1616	11 7885	0 0100 U	0 0240 U	0 3
30-86	06/24/87	2	0 0076 U	1407 9877	14 2163	0 01 U	0 0240 U	0 0200 U
30-86	09/24/87	3	0 0076 U	1284 9274	12 2595	0 01 U	0 0240 U	0 0265
30-86	01/15/88	4	0 0076 U	1390 1968	10 2243	0 01 U	0 0240 U	0 0267
30-86	01/16/88	4	0 0076 U	1266 8781	9 6899	NR	0 0240 U	0.0211
30-86	03/16/88	1	0 0076 U	1263 3406	7 7581	0 01 U	0 0240 U	0 0360
30-86	05/23/88	2	0 0076 U	1080 7236	8 1262	0 01 U	0 0360 U	0 0265
30-86	09/15/88	3	0 0076 U	1268 4785	14 6200	0 010 U	0 0360 U	0 0595

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss mg/l
30-86	12/02/88	4	0 0315	0 3269	NR	0 2179	0 0010 U	0 0050 U	1126 6920
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	0 0290 U	0 0600 U	0 01 U	0 0385	0 005 U	0 005 U	52.4600
32-86	04/15/87	1	0 0897	0 06 U	0 0100 U	0 1404	0 005 U	0 0050 U	52 2507
32-86	06/29/87	2	0 0290 U	0 06 U	0 01 U	0 1323	0 005 U	0 005 U	62 1752
32-86	09/23/87	3	0 0402	0 02 U	0 005 U	0 1358	0 005 U	0 001 U	37 7962
32-86	12/16/87	4	0 0605	0 02 U	0 005	0 1174	0 005 U	0 001 U	39 0180
32-86	03/21/88	1	0 0560	0 02 U	0 005 U	0 1159	0 005 U	0 001 U	37 0507
32-86	05/18/88	2	0 0340	0 0340 U	0 005 U	0 1037	0 0010 U	0 0050 U	38 7000
32-86	09/13/88	3	0 0332	0 0340 U	0 005 U	0 1152	0 0010 U	0 0050 U	38 6739
32-86	12/02/88	4	0 0583	0 0340 U	NR	0 0776	0 0010 U	0 0050 U	43 5692

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
30-86	12/02/88	4	NR	0.0100 U	0 0220 U	0 0063 U	0 0509 N	NR	NR
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31-86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	0 2 U	0 0100 U	0 0220 U	0 0104	0 0069 U	0 005 U	NR
32-86	04/15/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 0050 U	NR
32-86	06/29/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 009	NR
32-86	09/23/87	3	0 02 U	0 0100 U	0 0220 U	0 0154	0 0250	0 005 U	NR
32-86	12/16/87	4	0 02 U	0.0100 U	0 0220 U	0 0465	0 0401	0 002 J	0 07 J
32-86	03/21/88	1	0 02 U	0.0100 U	0 0220 U	0 0063 U	0 1414	0 005 U	0 1 U
32-86	05/18/88	2	0 020 U	0 0100 U	0 0220 U	0 0070	0 0088	0 005 U	NR
32-86	09/13/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0 0198	0 005 U	NR
32-86	12/02/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0523 N	NR	NR

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
30-86	12/02/88	4	296 2248	0 0400	0 0002 U	0 0220 U	0 0619	42	NR
31-86	09/24/87	3	DRY						
31-86	12/05/87	4	DRY						
31 86	03/16/88	2	DRY						
31-86	05/18/88	2	DRY						
31-86	09/13/88	3	DRY						
31-86	11/22/88	4	DRY						
32-86	03/23/87	1	13.4199	0 0253	0 0002 U	0 0329	0 0370 U	10 0	0.0050 U
32-86	04/15/87	1	12.5789	0 0624	0 0002 U	0 0312	0.0370 U	5 0	0 005 U
32-86	06/29/87	2	12.6078	0 5887	0.0002 U	0 0412	0 0622	5 0 U	0 005 U
32-86	09/23/87	3	9 4922	0 1441	0 0002 U	0 0220 U	0 0370 U	7 0	0 004 J
32-86	12/16/87	4	9 0414	0.1400	0 0002 U	0 0220 U	0 0370 U	7 0	0 005
32-86	03/21/88	1	9 5568	0 1557	0 0002 U	0 0220 U	0 0370 U	5 4	0 005 U
32-86	05/18/88	2	9 0579	0 1370	0 0002 U	0 0220 U	0 0370 U	5 7	0 005 U
32-86	09/13/88	3	9 6009	0 1167	0 0002 U	0 0234	0 0370 U	5 6	0 005 U
32-86	12/02/88	4	9 8755	0 0998	0 0002 U	0 0220 U	0 0370 U	3 0	NR

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
30-86	12/02/88	4	0 0076 U	1166.8823	11 2875	NR	0 0360 U	0 1224
31-86	09/24/87	3	DRY					
31-86	12/05/87	4	DRY					
31-86	03/16/88	2	DRY					
31-86	05/18/88	2	DRY					
31-86	09/13/88	3	DRY					
31-86	11/22/88	4	DRY					
32-86	03/23/87	1	0 0076 U	152 1539	0 6197	0 01 U	0 0240 U	0 02 U
32-86	04/15/87	1	0 0076 U	152 2707	0 5777	0 0100 U	0 0240 U	0 4
32-86	06/29/87	2	0 0076 U	36 2891	0 4252	0 01 U	0 0240 U	0 0200 U
32-86	09/23/87	3	0 0076 U	127 9161	0 4991	0 01 U	0 0240 U	0 0988
32-86	12/16/87	4	0 0076 U	132 8561	0 4950	0 02 U	0 0240 U	0 0416
32-86	03/21/88	1	0 0076 U	121 7173	0 4892	0 01 U	0 0240 U	0 2735
32-86	05/18/88	2	0 0076 U	117 0861	0 4508	0 010 U	0 0360 U	0 0200 U
32-86	09/13/88	3	0 0076 U	127 1060	0 5192	0 010 U	0 0360 U	0 0669
32-86	12/02/88	4	0 0076 U	134 5322	0 5333	NR	0 0360 U	0 0998

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss mg/l
16-86	04/22/87	1	0 0290 U	0 0600 U	0 01 U	0 0516	0 005 U	0 005 U	169 2706
16-86	06/10/87	2	0 0290 U	0 06 U	0 01 U	0 0296	0 005 U	0 005 U	166 9031
16-86	08/07/87	3	0 0290 U	0 02 U	0 005 U	0 0418	0 005 U	0 0006 J	161 1283
16-86	12/17/87	4	0 0384	0 02 U	0 005 U	0 0315	0 003 J	0 001 U	148 0253
16-86	03/14/88	1	0 1211	0 015 J	0 002 J	0 0989	0 002 J	0 001 U	421 0941
16-86	05/16/88	2	0 0347	0 0340 U	0 005 U	0 0247	0 0010 U	0 0050 U	145 9481
16-86	08/31/88	3	0 0315	0 0651	0 005 U	0 0269	0 0011	0 0050 U	145 9260
16-86	08/31/88	3	0 0290 U	0 0757	0 005 U	0 0276	0 0010 U	0 0050 U	146 3779
16-86	11/29/88	4	0 0576	0 0569	NR	0.0220	0 0010 U	0 0050 U	150 0788
14-86	04/16/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
14-86	04/16/87	1	0 1303	0 06 U	0 0100 U	0 0718	0 005 U	0 0050 U	141 4104
14-86	06/10/87	2	0 0290 U	0 06 U	0 01 U	0 0352	0.005 U	0.005 U	155 3028
14-86	08/05/87	3	0 0290 U	0 02 U	0.005 U	0 0678	0 005 U	0 0005 J	140 4949
14-86	12/08/87	4	0 0290 U	0 020 U	0.005 U	0 0350	0 005 U	0 001 U	138 6145
14-86	03/14/88	1	0 0600	0 02 U	0 005 U	0 0432	0 005 U	0 001 U	154 9583
14-86	05/16/88	2	0 0290 U	0.0340 U	0 005 U	0.0291	0 0010 U	0 0050 U	134 1674
14-86	08/31/88	3	0 0459	0 0448	0 005 U	0 0360	0 0010 U	0 0050 U	136 0502
14-86	11/29/88	4	0 0290 U	0 0486	NR	0 0299	0 0010 U	0 0050 U	143 4688
14-86	11/29/88	4	0 0330	0 0383	NR	0 0295	0 0010 U	0 0050 U	140 5247

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
16-86	04/22/87	1	0 2 U	0 0100 U	0 0220 U	0 0452	0 0069 U	0 005 U	NR
16-86	06/10/87	2	0 2 U	0 0100 U	0 0220 U	0 0725	0 0069 U	0 006	NR
16-86	08/07/87	3	0 02 U	0 0198	0 0220 U	0 0545	0 0125	0 005 U	NR
16-86	12/17/87	4	0 02 U	0 0120	0 0220 U	0 0203	0 0169	0 005 U	0 12
16-86	03/14/88	1	0 02 U	0 0452	0 0220 U	0 0510	0 2093	0 005 U	0.11
16-86	05/16/88	2	0 020 U	0 0132	0 0220 U	0 0200	0 0069 U	0 005 U	NR
16-86	08/31/88	3	0 020 U	0 0100 U	0 0220 U	0 0067	0 0188	0 005 U	NR
16-86	08/31/88	3	0 020 U	0 0130	0 0220 U	0 0063 U	0 0109	0 005 U	NR
16-86	11/29/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0.0101	NR	NR
14-86	04/16/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
14-86	04/16/87	1	0.2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 0050 U	NR
14-86	06/10/87	2	0 2 U	0.0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
14-86	08/05/87	3	0.02 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 005 U	NR
14-86	12/08/87	4	0.02 U	0 0100 U	0 0220 U	0 0134	0 0080	0 005 U	0 1
14-86	03/14/88	1	0 02 U	0 0204	0 0220 U	0 0113	0 1385	0 005 U	0 09 J
14-86	05/16/88	2	0 020 U	0 0100 U	0 0220 U	0 0099	0 0069 U	0 005 U	NR
14-86	08/31/88	3	0 020 U	0 0100 U	0 0220 U	0 0070	0 0246	0 005 U	NR
14-86	11/29/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0126	NR	NR
14-86	11/29/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0137	NR	NR

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
16-86	04/22/87	1	49.2672	0 3438	0 0002 U	0 0220 U	0 1672	7 0	0 0050 U
16-86	06/10/87	2	47.9527	0 2145	0 0002 U	0 0220 U	0 2061	7 7	0 005 U
16-86	08/07/87	3	46.9435	0 1336	0 0002 U	0 0220 U	0 0891	8 0	0 004 J
16-86	12/17/87	4	45 2821	0 1375	0 0002 U	0 0220 U	0 0464	8 7	0 005
16-86	03/14/88	1	130 1180	0 3758	0 0002 U	0 0220 U	0 0512	9 9	0 003 J
16-86	05/16/88	2	49 9932	0 1122	0 0002 U	0 0220 U	0 0370 U	6 9	0 003 J
16-86	08/31/88	3	44 7230	0 1289	0 0002 U	0 0220 U	0 0370 U	7 5	0 005 U
16-86	08/31/88	3	46 1470	0 1309	0 0002 U	0 0220 U	0 0370 U	7 5	0 005 U
16-86	11/29/88	4	44 5895	0 1113	0 0002 U	0 0220 U	0 0370 U	5 4	NR
14-86	04/16/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
14-86	04/16/87	1	41 1586	0.1693	0 0002 U	0 0220 U	0 0370 U	7 0	0 005 U
14-86	06/10/87	2	41 0748	0 1361	0 0002 U	0 0220 U	0 0476	7 6	0 005 U
14-86	08/05/87	3	41 2658	0 1968	0 0002 U	0 0220 U	0 0370 U	7 7	0 004 J
14-86	12/08/87	4	39.3763	0 01344	0 0001 J	0 0220 U	0 0370 U	8 2	0 002 J
14-86	03/14/88	1	47 3450	0 1393	0 0002 U	0 220 U	0 0370 U	5 3	0 005 U
14-86	05/16/88	2	43 6580	0 1109	0 0002 U	0 0220 U	0 0370 U	6 4	0 004 J
14-86	08/31/88	3	40 3360	0 1249	0 0002 U	0 0220 U	0 0370 U	6 8	0 005 U
14-86	11/29/88	4	41 0134	0 1084	0 0002 U	0 0220 U	0 0370 U	5 4	NR
14-86	11/29/88	4	42 1602	0 1091	0 0002 U	0 0220 U	0 0370 U	5 6	NR

Notes
NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss mg/l
16-86	04/22/87	1	0 0076 U	291 2435	2 2263	0 01 U	0 0240 U	0 02
16-86	06/10/87	2	0 0076 U	271.1135	2 1208	0 01 U	0 0240 U	0 0492
16-86	08/07/87	3	0 0076 U	287 2474	2.1011	0 01 U	0 0240 U	0 0578
16-86	12/17/87	4	0 0076 U	272 4460	2 0335	0 01 U	0 0240 U	0 0295
16-86	03/14/88	1	0 0076 U	706 6186	6 1678	0 01 U	0 0240 U	0 1149
16-86	05/16/88	2	0 0076 U	253 5057	1 9640	0.010 U	0 0360 U	0 0263
16-86	08/31/88	3	0 0129	262 8087	1 8809	0 010 U	0 0360 U	0 0344
16-86	08/31/88	3	0 0076 U	263 3400	1 9017	0 010 U	0.0360 U	0 0585
16-86	11/29/88	4	0 0076 U	269 1172	2 2065	NR	0 0360 U	0 0200 U
14-86	04/16/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
14-86	04/16/87	1	0 0076 U	251 2908	2 0499	0 0100 U	0 0240 U	0 09
14-86	06/10/87	2	0 0076 U	250 3055	2 1035	0 01 U	0 0240 U	0.1309
14-86	08/05/87	3	0 0076 U	253 3903	2 0727	0 01 U	0 0240 U	0 0226
14-86	12/08/87	4	0 0076 U	237 7085	2 0996	0.01 U	0 0240 U	0 0226
14-86	03/14/88	1	0 0076 U	266 6864	2 4226	0 01 U	0 0240 U	0.0321
14-86	05/16/88	2	0 0076 U	223 8448	1 9257	0 010 U	0 0360 U	0 0200 U
14 86	08/31/88	3	0 0111	231 1095	1 8612	0 010 U	0 0360 U	0 0576
14-86	11/29/88	4	0 0076 U	240 3689	2 2266	NR	0 0360 U	0 0200 U
14-86	11/29/88	4	0 0076 U	245 5151	2 2209	NR	0 0360 U	0 0200 U

Notes· NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% recovery range

DISSOLVED RADIONUCLIDES

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
23-86	03/18/87	1	***							
23-86	06/24/87	2	***							
23-86	09/23/87	3	***							
23-86	01/15/88	4	11 ± 8	12	28 ± 13		2 7 ± 0 4		06 ± 06	14
23-86	03/21/88	1	0 ± 9		17 ± 23		2 9 ± 0 4		0.14 ± 0 08	
23-86	05/23/88	2	19 ± 8		17 ± 15	32	3 3 ± 0 4		0 04 ± 0 04	0 07
23-86	09/08/88	3	***							
23-86	11/30/88	4	***							
25-86	03/18/87	1	***							
25-86	06/24/87	2	***							
25-86	08/28/87	3	16 ± 41	70	54 ± 52	88	1 4 ± 1 7		0 6 ± 0 7	
25-86	01/15/88	4	3 ± 8	15	13 ± 14	25	5 1 ± 0 8		.18 ± 09	
25-86	01/15/88	4	13 ± 11	18	13 ± 14	25	6 6 ± 1 1		19 ± 14	28
25-86	03/21/88	1	0 ± 10		13 ± 22		4 3 ± 0 7		0 26 ± 0 14	
25-86	05/18/88	2	7 ± 7	13	11 ± 17	39	4 3 ± 0 4		0 08 ± 0 04	0 14
25-86	09/13/88	3	NR		NR		NR		NR	
25-86	09/13/88	3	NR		NR		NR		NR	
25-86	12/06/88	4	NR		NR		NR		NR	
22-87	03/07/88	1	22 ± 9		12 ± 16	36	3 0 ± 0 4		0 18 ± 0 10	0 30

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
23-86	03/18/87	1	***							
23-86	06/24/87	2	***							
23-86	09/23/87	3	***							
23-86	01/15/88	4	1 1 ± 0 2		0 00 ± 16	91	01 ± 11	61	<220	
23-86	03/21/88	1	1 0 ± 0 2		0.00 ± 0 71		0 05 ± 0 10		< 210	
23-86	05/23/88	2	1 5 ± 0 3		0 00 ± 0 04	0 13	0 04 ± 0.11	0 67	<200	
23-86	09/08/88	3	***							
23-86	11/30/88	4	***							
25-86	03/18/87	1	***							
25-86	06/24/87	2	***							
25-86	08/28/87	3	2 4 ± 1 7		29 ± 77	0 7	- 04 ± 18	0 4	<492	
25-86	01/15/88	4	1 4 ± 0 3		0 00 ± 49	5 9	NR		<220	
25-86	01/15/88	4	2 1 ± 0 5		0 00 ± 24	1 2	0 00 ± .10	53	<220	
25-86	03/21/88	1	1 1 ± 0 3		NR		0 03 ± 0 30		< 210	
25-86	05/18/88	2	1 7 ± 0 3		0 02 ± 0 05	0 15	NR		<200	
25-86	09/13/88	3	NR		NR		NR		<200	
25-86	09/13/88	3	NR		NR		NR		<200	
25-86	12/06/88	4	NR		NR		NR		<220	
22-87	03/07/88	1	1 6 ± 0 3		0 00 ± 0 16	0 48	0 00 ± 0 31	1 6	<200	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
23-86	03/18/87	1	***	
23-86	06/24/87	2	***	
23-86	09/23/87	3	***	
23-86	01/15/88	4	<1 0	
23-86	03/21/88	1	NR	
23-86	05/23/88	2	NR	
23-86	09/08/88	3	***	
23-86	11/30/88	4	***	
25-86	03/18/87	1	***	
25-86	06/24/87	2	***	
25-86	08/28/87	3	<1 0	
25-86	01/15/88	4	NR	
25-86	01/15/88	4	<1 0	
25-86	03/21/88	1	NR	
25-86	05/18/88	2	NR	
25-86	09/13/88	3	NR	
25-86	09/13/88	3	NR	
25-86	12/06/88	4	NR	
22-87	03/07/88	1	NR	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
22-87	05/02/88	2	6 ± 6	10	5 ± 16	36	2 8 ± 0.4		0 14 ± 0.05	0 13
22-87	08/10/88	3	Data not yet received							
22-87	11/09/88	4	Data not yet received							
34-86	03/17/87	1	***							
34-86	04/06/87	1	***							
34-86	06/02/87	2	***							
34-86	07/28/87	3	0 ± 59	112	9 ± 62	117	1.4 ± 1.3		0 2 ± 0.4	
34-86	10/16/87	4	3 ± 10	18	6 ± 11	20	.66 ± 23		.18 ± 11	22
34-86	10/16/87	4	***							
34-86	03/02/88	1	6 ± 13	28	4 ± 21	49	0 17 ± 0 16	0.56	0 00 ± 0 04	0.28
34-86	05/02/88	2	8 ± 9	17	5 ± 24	55	0 06 ± 0 24	2.1	0 01 ± 0.03	0.24
34-86	08/10/88	3	Data not yet received							
34-86	11/04/88	4	Data not yet received							
27-86	03/19/87	1	***							
27-86	04/15/87	1	***							
27-86	06/24/87	2	***							
27-86	09/23/87	3	***							
27-86	12/16/87	4	3 ± 5	9	5 ± 11	20	55 ± 17		0 00 ± 05	16
27-86	03/21/88	1	-1 ± 9		11 ± 22		NR		NR	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
22-87	05/02/88	2	1 0 ± 0 3	1.1	0 00 ± 0 04	0 16	0 00 ± 0 10	0 35	<210	
22-87	08/10/88	3	Data not yet received							
22-87	11/09/88	4	Data not yet received							
34-86	03/17/87	1	***							
34-86	04/06/87	1	***							
34-86	06/02/87	2	***							
34-86	07/28/87	3	0 4 ± 0 7		- 06 ± .72	0 8	-0 4 ± 5 5	1 0	<478	
34-86	10/16/87	4	1 2 ± 0.3		0 00 ± 07	1 3	0 00 ± 09	26	<460	
34-86	10/16/87	4	***							
34-86	03/02/88	1	0 13 ± 0 13	0 43	0 00 ± 0 40	3 6	0 00 ± 0 47	3 0	<210	
34-86	05/02/88	2	0.19 ± 0 23	2 0	0 00 ± 0 04	0 13	0 02 ± 0 10	0 33	<210	
34-86	08/10/88	3	Data not yet received							
34-86	11/04/88	4	Data not yet received							
27-86	03/19/87	1	***							
27-86	04/15/87	1	***							
27-86	06/24/87	2	***							
27-86	09/23/87	3	***							
27-86	12/16/87	4	45 ± 14	39	0 00 ± 16	82	0 00 ± 69	5 6	<210	
27-86	03/21/88	1	NR		0 00 ± 0 18		0 00 ± 0 51		< 210	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
22-87	05/02/88	2	NR	
22-87	08/10/88	3	Data not yet received	
22-87	11/09/88	4	Data not yet received	
34-86	03/17/87	1	***	
34-86	04/06/87	1	***	
34-86	06/02/87	2	***	
34-86	07/28/87	3	<1 0	
34-86	10/16/87	4	1 2	
34-86	10/16/87	4	***	
34-86	03/02/88	1	NR	
34-86	05/02/88	2	NR	
34-86	08/10/88	3	Data not yet received	
34-86	11/04/88	4	Data not yet received	
27-86	03/19/87	1	***	
27-86	04/15/87	1	***	
27-86	06/24/87	2	***	
27-86	09/23/87	3	***	
27-86	12/16/87	4	<1 0	
27-86	03/21/88	1	NR	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
27-86	05/18/88	2	4 ± 7	7	-4 ± 17	40	0 56 ± 0.14	0 72	0 00 ± 0 02	0 08
27-86	09/13/88	3	NR		NR		NR		NR	
27-86	12/06/88	4	NR		NR		NR		NR	
39-87	03/16/88	1	-2 ± 3		1 ± 11		0 78 ± 0 16		0 01 ± 0 06	
39-87	05/23/88	2	17 ± 8		11 ± 16	37	3 2 ± 0 3		0 37 ± 0 05	
39-87	09/08/88	3	***							
39-87	11/30/88	4	***							
30-86	03/23/87	1	***							
30-86	04/15/87	1	***							
30-86	06/24/87	2	***							
30-86	09/24/87	3	221 ± 224		121 ± 60		139 6 ± 21 1		6 5 ± 2.0	
30-86	01/15/88	4	304 ± 69		215 ± 20		160 ± 34		5 2 ± 1 4	
30-86	01/16/88	4	***							
30-86	03/16/88	1	320 ± 60		250 ± 40		NR		NR	
30-86	05/23/88	2	390 ± 60		290 ± 40		210 ± 20		7 8 ± 1 1	
30-86	09/15/88	3	NR		NR		NR		NR	
30-86	12/02/88	4	NR		NR		NR		NR	
31-86	09/24/87	3	DRY							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
27-86	05/18/88	2	0 17 ± 0 13	0 70	0 02 ± 0 05	0.15	0 01 ± 0 09	0 31	<200	
27-86	09/13/88	3	NR		NR		NR		<200	
27-86	12/06/88	4	NR		NR		NR		<220	
39-87	03/16/88	1	0.33 ± 0 11		0 01 ± 0.10		0 00 ± 0.11		< 210	
39-87	05/23/88	2	1 5 ± 0 2		0.00 ± 0.08	0 19	0 00 ± 0.16	0.60	<210	
39-87	09/08/88	3	***							
39-87	11/30/88	4	***							
30-86	03/23/87	1	***							
30-86	04/15/87	1	***							
30-86	06/24/87	2	***							
30-86	09/24/87	3	93 1 ± 14 7		-0 2 ± 1 1	1 6	- 04 ± 96	1.8	8611 ± 825	
30-86	01/15/88	4	100 ± 22		0.00 ± 37	3.2	NR		7900 ± 200	
30-86	01/16/88	4	***							
30-86	03/16/88	1	NR		0.00 ± 0 74		NR		6300 ± 200	
30-86	05/23/88	2	140 ± 10		0.00 ± 0.04	0.14	0 02 ± 0 07	1 6	6100 ± 200	
30-86	09/15/88	3	NR		NR		NR		8100 ± 300	
30-86	12/02/88	4	NR		NR		NR		5900 ± 200	
31 86	09/24/87	3	DRY							

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
27-86	05/18/88	2	NR	
27-86	09/13/88	3	NR	
27-86	12/06/88	4	NR	
39-87	03/16/88	1	NR	
39-87	05/23/88	2	NR	
39-87	09/08/88	3		***
39-87	11/30/88	4		***
30-86	03/23/87	1		***
30-86	04/15/87	1		***
30-86	06/24/87	2		***
30-86	09/24/87	3	NR	
30-86	01/15/88	4	5 6	
30-86	01/16/88	4		***
30-86	03/16/88	1	NR	
30-86	05/23/88	2	NR	
30-86	09/15/88	3	NR	
30-86	12/02/88	4	NR	
31-86	09/24/87	3		DRY

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
31-86	12/05/87	4	DRY							
31-86	03/16/88	2	DRY							
31-86	05/18/88	2	DRY							
31-86	09/13/88	3	DRY							
31-86	11/22/88	4	DRY							
32-86	03/23/87	1	***							
32-86	04/15/87	1	***							
32-86	06/29/87	2	***							
32-86	09/23/87	3	-2 ± 19	38	6 ± 40	75	0.6 ± 1.3		-0.1 ± 0.7	0 3
32-86	12/16/87	4	5 ± 6	9	-3 ± 10	19	89 ± 21		0 00 ± 02	.15
32-86	03/21/88	1	0 ± 9		5 ± 22		0 33 ± 0 15		0.14 ± 0 10	
32-86	05/18/88	2	3 ± 4	7	-5 ± 10	23	0 65 ± 0 14	0 60	0 04 ± 0 02	0 07
32-86	09/13/88	3	NR		NR		NR		NR	
32-86	12/02/88	4	NR		NR		NR		NR	
16-86	04/22/87	1	***							
16-86	06/10/87	2	***							
16-86	08/07/87	3	29 ± 31	43	18 ± 45	83	2 3 ± 1 8		1 3 ± 1 2	
16-86	12/17/87	4	8 ± 11	19	24 ± 12		63 ± 33	1 1	0.00 ± 10	40

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
31-86	12/05/87	4	DRY							
31-86	03/16/88	2	DRY							
31-86	05/18/88	2	DRY							
31-86	09/13/88	3	DRY							
31-86	11/22/88	4	DRY							
32-86	03/23/87	1	***							
32-86	04/15/87	1	***							
32-86	06/29/87	2	***							
32-86	09/23/87	3	3 2 ± 1 0		0.2 ± 1 0	1 4	- 04 ± 26	0.4	<472	
32-86	12/16/87	4	32 ± .13	38	0 00 ± 21	1 1	0 00 ± 14	63	<210	
32-86	03/21/88	1	1.7 ± 0 3		0 00 ± 0.38		0 10 ± 0 10		< 210	
32-86	05/18/88	2	0 18 ± 0 12	0 54	0 00 ± 0.05	0 21	0 00 ± 0 09	0 65	<200	
32-86	09/13/88	3	NR		NR		NR		<220	
32-86	12/02/88	4	NR		NR		NR		<230	
16-86	04/22/87	1	***							
16-86	06/10/87	2	***							
16-86	08/07/87	3	-0 4 ± 1 2	0.9	-.03 ± .21	3 9	10 ± 33	0.3	<540	
16-86	12/17/87	4	14 ± .18	95	0 00 ± 18	78	NR		<210	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
31-86	12/05/87	4	DRY	
31-86	03/16/88	2	DRY	
31-86	05/18/88	2	DRY	
31-86	09/13/88	3	DRY	
31-86	11/22/88	4	DRY	
32-86	03/23/87	1	***	
32-86	04/15/87	1	***	
32-86	06/29/87	2	***	
32-86	09/23/87	3	<1 0	
32-86	12/16/87	4	<1 0	
32-86	03/21/88	1	NR	
32-86	05/18/88	2	NR	
32-86	09/13/88	3	NR	
32-86	12/02/88	4	NR	
16-86	04/22/87	1	***	
16-86	06/10/87	2	***	
16-86	08/07/87	3	1.3	
16-86	12/17/87	4	<1 0	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
16-86	03/14/88	1	-1 ± 6		12 ± 56		1 1 ± 0 2		0 06 ± 0 07	
16-86	05/16/88	2	-2 ± 11	25	12 ± 14	32	0 39 ± 0 13	0 51	0 01 ± 0 02	0 06
16-86	08/31/88	3	NR		NR		NR		NR	
16-86	08/31/88	3	NR		NR		NR		NR	
16-86	11/29/88	4	NR		NR		NR		NR	
14-86	04/16/87	1	***							
14-86	04/16/87	1	***							
14-86	06/10/87	2	***							
14-86	08/05/87	3	9 ± 28	49	22 ± 47	85	1 6 ± 1 5		0.1 ± 0 4	
14-86	12/08/87	4	5 ± 8	13	-4 ± 12	22	1 1 ± 0 2		0 00 ± 02	.17
14-86	03/14/88	1	0 ± 5		7 ± 11		1.1 ± 0 2		0 00 ± 0 06	
14-86	05/16/88	2	-5 ± 11	26	2 ± 14	32	0 84 ± 0 26	1.7	0 04 ± 0 04	0 20
14-86	08/31/88	3	NR		NR		NR		NR	
14-86	11/29/88	4	NR		NR		NR		NR	
14-86	11/29/88	4	NR		NR		NR		NR	

Notes· NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
16-86	03/14/88	1	0 52 ± 0 15		0.00 ± 0 40		0 03 ± 0.14		< 200	
16-86	05/16/88	2	0 15 ± 0 12	0 50	0.00 ± 0 03	0.24	NR		<220	
16-86	08/31/88	3	NR		NR		NR		<200	
16-86	08/31/88	3	NR		NR		NR		<200	
16-86	11/29/88	4	NR		NR		NR		<220	
14-86	04/16/87	1	***							
14-86	04/16/87	1	***							
14-86	06/10/87	2	***							
14-86	08/05/87	3	-0.9 ± 1 0	0 9	25 ± 82	0.7	04 ± 40	0.5	<492	
14-86	12/08/87	4	22 ± 12	46	0.00 ± 37	3.1	0 00 ± 13	70	<210	
14-86	03/14/88	1	0 30 ± 0 12		0 00 ± 0 40		0 00 ± 0 61		< 210	
14-86	05/16/88	2	0 17 ± 0 23	1 7	0 00 ± 0 03	0.19	0 00 ± 0 09	0 33	<220	
14-86	08/31/88	3	NR		NR		NR		<210	
14-86	11/29/88	4	NR		NR		NR		<240	
14-86	11/29/88	4	NR		NR		NR		<230	

Notes· NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

Solar Ponds Bedrock Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
16-86	03/14/88	1	NR	
16-86	05/16/88	2	NR	
16-86	08/31/88	3	NR	
16-86	08/31/88	3	NR	
16-86	11/29/88	4	NR	
14-86	04/16/87	1	***	
14-86	04/16/87	1	***	
14-86	06/10/87	2	***	
14-86	08/05/87	3	<1.0	
14-86	12/08/87	4	<1 0	
14-86	03/14/88	1	NR	
14-86	05/16/88	2	NR	
14-86	08/31/88	3	NR	
14-86	11/29/88	4	NR	
14-86	11/29/88	4	NR	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

FIELD PARAMETER DATA

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **14-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/16/87	1	1670.0	7.30	15.0
04/16/87	1	1670.0	7.30	15.0
06/10/87	2	1628.0	6.20	13.5
08/05/87	3	N	7.30	15.4
12/08/87	4	1824.0	7.40	9.3
03/14/88	1	N	7.10	9.1
05/16/88	2	2050.0	7.00	10.8
08/31/88	3	1960.0	7.10	12.6
11/29/88	4	1800.0	7.50	11.3
11/29/88	4	1800.0	7.50	11.3

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **16-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/22/87	1	1440.0	6.90	11.0
06/10/87	2	2390.0	6.70	11.6
08/07/87	3	N	7.20	14.7
12/17/87	4	2010.0	7.20	10.0
03/14/88	1	N	7.10	10.4
05/16/88	2	2220.0	6.80	12.6
08/31/88	3	2170.0	6.70	13.8
08/31/88	3	N	N	N
11/29/88	4	2000.0	7.60	10.2

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **23-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/18/87	1	1250.0	7.90	15.0
06/24/87	2	1533.0	7.70	14.5
09/23/87	3	N	7.70	15.3
01/15/88	4	N	7.20	12.6
03/21/88	1	N	7.50	14.3
05/23/88	2	1515.0	7.60	14.5
09/08/88	3	N	N	N
11/30/88	4	N	N	N

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **25-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/18/87	1	2200.0	7.00	12.0
06/24/87	2	2870.0	6.90	14.2
08/28/87	3	N	7.40	13.6
01/15/88	4	N	N	N
01/15/88	4	N	7.10	10.6
03/21/88	1	N	6.70	11.9
05/18/88	2	2920.0	7.10	10.7
09/13/88	3	N	N	N
09/13/88	3	2800.0	6.80	12.4
12/06/88	4	2300.0	6.40	11.4

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **27-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/19/87	1	1200.0	8.50	14.0
04/15/87	1	1350.0	7.90	15.0
06/24/87	2	1244.0	7.80	13.3
09/23/87	3	N	7.30	13.6
12/16/87	4	1268.0	6.90	9.7
03/21/88	1	N	7.30	13.5
05/18/88	2	1503.0	7.00	11.0
09/13/88	3	1400.0	7.40	13.1
12/06/88	4	1200.0	8.00	11.8

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **31-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
09/24/87	3	DRY		
12/05/87	4	DRY		
03/16/88	2	DRY		
05/18/88	2	DRY		
09/13/88	3	DRY		
11/22/88	4	DRY		

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **32-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/23/87	1	950.0	6.80	10.0
04/15/87	1	920.0	7.50	14.0
06/29/87	2	870.0	7.60	12.6
09/23/87	3	N	7.60	14.0
12/16/87	4	928.0	8.90	10.1
03/21/88	1	N	7.70	13.6
05/18/88	2	N	N	N
09/13/88	3	120.0	6.60	12.2
12/02/88	4	840.0	8.30	14.1

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **34-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/17/87	1	1960.0	7.20	10.0
04/06/87	1	N	N	N
06/02/87	2	2050.0	7.30	12.6
07/28/87	3	N	7.80	14.4
10/16/87	4	2390.0	7.60	11.9
10/16/87	4	N	N	N
03/02/88	1	1988.0	7.20	9.2
05/02/88	2	2070.0	7.10	N
08/10/88	3	2320.0	7.20	14.5
11/04/88	4	1800.0	7.00	12.0

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 22-87

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/07/88	1	763.0	8.30	10.6
05/02/88	2	707.0	8.10	N
08/10/88	3	930.0	8.50	15.1
11/09/88	4	840.0	6.90	11.5

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **39-87**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
03/16/88	1	N	7.80	10.7
05/23/88	2	131.0	8.20	14.2
09/08/88	3	N	N	N
11/30/88	4	N	N	N

N = Field parameter not measured

APPENDIX C

WEST SPRAY FIELD
ALLUVIAL GROUND-WATER QUALITY DATA

VOLATILE ORGANICS

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
10-81	05/11/87	1	NR	NR	NR	NR	NR	NR	NR
10-81	06/18/87	2	NR	NR	NR	NR	NR	NR	NR
10-81	08/21/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
10-81	08/21/87	3	NR	NR	NR	NR	NR	NR	NR
10-81	01/12/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
10-81	02/04/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
10-81	04/07/88	2	10 U	10 U	10 U	10 U	25	10 U	5 U
10-81	07/07/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
10-81	10/12/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
10-81	10/12/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
07-82	05/11/87	1	NR	NR	NR	NR	NR	NR	NR
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
07-82	04/07/88	2	10 U	10 U	10 U	10 U	23	10 U	5 U
07-82	07/07/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
07-82	10/11/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
51-86	05/13/87	1	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
10-81	05/11/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
10-81	06/18/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
10-81	08/21/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
10-81	08/21/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
10-81	01/12/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
10-81	02/04/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
10-81	04/07/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
10-81	07/07/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
10-81	10/12/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
10-81	10/12/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
07-82	05/11/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
07-82	04/07/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
07-82	07/07/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
07-82	10/11/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
51-86	05/13/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
10-81	05/11/87	1	4 U	NR	NR	NR	NR	4 U	NR
10-81	06/18/87	2	4 U	NR	NR	NR	NR	4 U	NR
10-81	08/21/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
10-81	08/21/87	3	5 U	NR	NR	NR	NR	5 U	NR
10-81	01/12/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
10-81	02/04/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
10-81	04/07/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
10-81	07/07/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
10-81	10/12/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
10-81	10/12/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
07-82	05/11/87	1	4 U	NR	NR	NR	NR	4 U	NR
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
07-82	04/07/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
07-82	07/07/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
07-82	10/11/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
51-86	05/13/87	1	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
10-81	05/11/87	1	4 U	NR	NR	NR	NR	NR	NR
10-81	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
10-81	08/21/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
10-81	08/21/87	3	5 U	NR	NR	NR	NR	NR	NR
10-81	01/12/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
10-81	02/04/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
10-81	04/07/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
10-81	07/07/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
10-81	10/12/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
10-81	10/12/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
07-82	05/11/87	1	4 U	NR	NR	NR	NR	NR	NR
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
07-82	04/07/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
07-82	07/07/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
07-82	10/11/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
51-86	05/13/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
10-81	05/11/87	1	4 U	NR	NR	NR	NR	NR	NR
10-81	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
10-81	08/21/87	3	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
10-81	08/21/87	3	5 U	NR	NR	NR	NR	NR	NR
10-81	01/12/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
10-81	02/04/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
10-81	04/07/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
10-81	07/07/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
10-81	10/12/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
10-81	10/12/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
07-82	05/11/87	1	4 U	NR	NR	NR	NR	NR	NR
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
07-82	04/07/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
07-82	07/07/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
07-82	10/11/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
51-86	05/13/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
51-86	06/17/87	2	NR	NR	NR	NR	NR	NR	NR
51-86	08/20/87	3	NR	NR	NR	NR	NR	NR	NR
51-86	12/10/87	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
51-86	02/08/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
51-86	04/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
51-86	04/26/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
51-86	07/07/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
51-86	10/14/88	4	Data not yet received						
50-86	05/11/87	1	NR	NR	NR	NR	NR	NR	NR
50-86	06/16/87	2	NR	NR	NR	NR	NR	NR	NR
50-86	08/14/87	3	NR	NR	NR	NR	NR	NR	NR
50-86	12/10/87	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
50-86	03/25/88	1	10 U	10 U	10 U	10 U	26	10 U	5 U
50-86	05/31/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
50-86	10/04/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
50-86	12/20/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
49-86	04/08/87	1	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
51-86	06/17/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
51-86	08/20/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
51-86	12/10/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
51-86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
51-86	04/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
51-86	04/26/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
51-86	07/07/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
51-86	10/14/88	4	Data not yet received						
50-86	05/11/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
50-86	06/16/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
50-86	08/14/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
50-86	12/10/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
50-86	03/25/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
50-86	05/31/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
50-86	10/04/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
50-86	12/20/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
49-86	04/08/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
51-86	06/17/87	2	4 U	NR	NR	NR	NR	4 U	NR
51-86	08/20/87	3	5 U	NR	NR	NR	NR	5 U	NR
51-86	12/10/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
51-86	02/08/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
51-86	04/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
51-86	04/26/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
51-86	07/07/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
51-86	10/14/88	4	Data not yet received						
50-86	05/11/87	1	4 U	NR	NR	NR	NR	4 U	NR
50-86	06/16/87	2	4 U	NR	NR	NR	NR	4 U	NR
50-86	08/14/87	3	5 U	NR	NR	NR	NR	5 U	NR
50-86	12/10/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
50-86	03/25/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
50-86	05/31/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
50-86	10/04/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
50-86	12/20/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
49-86	04/08/87	1	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported U = Analyzed but not detected * = Holding time not met E = Estimated value
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
51-86	06/17/87	2	4 U	NR	NR	NR	NR	NR	NR
51-86	08/20/87	3	5 U	NR	NR	NR	NR	NR	NR
51-86	12/10/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
51-86	02/08/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
51-86	04/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
51-86	04/26/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
51-86	07/07/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
51-86	10/14/88	4	Data not yet received						
50-86	05/11/87	1	4 U	NR	NR	NR	NR	NR	NR
50-86	06/16/87	2	4 U	NR	NR	NR	NR	NR	NR
50-86	08/14/87	3	5 U	NR	NR	NR	NR	NR	NR
50-86	12/10/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
50-86	03/25/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
50-86	05/31/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
50-86	10/04/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
50-86	12/20/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
49-86	04/08/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
51-86	06/17/87	2	4 U	NR	NR	NR	NR	NR	NR
51-86	08/20/87	3	5 U	NR	NR	NR	NR	NR	NR
51-86	12/10/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
51-86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
51-86	04/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
51-86	04/26/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
51-86	07/07/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
51-86	10/14/88	4	Data not yet received						
50-86	05/11/87	1	4 U	NR	NR	NR	NR	NR	NR
50-86	06/16/87	2	4 U	NR	NR	NR	NR	NR	NR
50-86	08/14/87	3	5 U	NR	NR	NR	NR	NR	NR
50-86	12/10/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
50-86	03/25/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
50-86	05/31/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
50-86	10/04/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
50-86	12/20/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U
49-86	04/08/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
49-86	06/18/87	2	NR	NR	NR	NR	NR	NR	NR
49-86	08/25/87	3	NR	NR	NR	NR	NR	NR	NR
49-86	12/14/87	4	10 U	10 U	10 U	10 U	8	10 U	5 U
49-86	03/29/88	1	10 U	10 U	10 U	10 U	27	10 U	5 U
49-86	05/31/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
49-86	09/30/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
49-86	12/20/88	4	10 U	10 U	10 U	10 U	5 JB	10 U	5 U
05-82	05/13/87	1	NR	NR	NR	NR	NR	NR	NR
05-82	06/18/87	2	NR	NR	NR	NR	NR	NR	NR
05-82	09/17/87	3	NR	NR	NR	NR	NR	NR	NR
05-82	01/07/88	4	10 U	10 U	10 U	10 U	6	3J	5 U
05-82	03/24/88	1	10 U	10 U	10 U	10 U	16	10 U	5 U
05-82	05/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
05-82	09/27/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
05-82	12/20/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
06-82	05/12/87	1	NR	NR	NR	NR	NR	NR	NR
06-82	06/18/87	2	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
49-86	06/18/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
49-86	08/25/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
49-86	12/14/87	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
49-86	03/29/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
49-86	05/31/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
49-86	09/30/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
49-86	12/20/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U
05-82	05/13/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
05-82	06/18/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
05-82	09/17/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
05-82	01/07/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
05-82	03/24/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
05-82	05/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
05-82	09/27/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
05-82	12/20/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
06-82	05/12/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
06-82	06/18/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
49-86	06/18/87	2	4 U	NR	NR	NR	NR	4 U	NR
49-86	08/25/87	3	5 U	NR	NR	NR	NR	5 U	NR
49-86	12/14/87	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
49-86	03/29/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
49-86	05/31/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
49-86	09/30/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
49-86	12/20/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
05-82	05/13/87	1	4 U	NR	NR	NR	NR	4 U	NR
05-82	06/18/87	2	4 U	NR	NR	NR	NR	4 U	NR
05-82	09/17/87	3	5 U	NR	NR	NR	NR	5 U	NR
05-82	01/07/88	4	8	10 U	5 U	5 U	5 U	5 U	5 U
05-82	03/24/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
05-82	05/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
05-82	09/27/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
05-82	12/20/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
06-82	05/12/87	1	4 U	NR	NR	NR	NR	4 U	NR
06-82	06/18/87	2	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
49-86	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
49-86	08/25/87	3	5 U	NR	NR	NR	NR	NR	NR
49-86	12/14/87	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
49-86	03/29/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
49-86	05/31/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
49-86	09/30/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
49-86	12/20/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
05-82	05/13/87	1	4 U	NR	NR	NR	NR	NR	NR
05-82	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
05-82	09/17/87	3	5 U	NR	NR	NR	NR	NR	NR
05-82	01/07/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
05-82	03/24/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
05-82	05/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
05-82	09/27/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
05-82	12/20/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
06-82	05/12/87	1	4 U	NR	NR	NR	NR	NR	NR
06-82	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
49-86	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
49-86	08/25/87	3	5 U	NR	NR	NR	NR	NR	NR
49-86	12/14/87	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
49-86	03/29/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
49-86	05/31/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
49-86	09/30/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
49-86	12/20/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U
05-82	05/13/87	1	4 U	NR	NR	NR	NR	NR	NR
05-82	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
05-82	09/17/87	3	5 U	NR	NR	NR	NR	NR	NR
05-82	01/07/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
05-82	03/24/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
05-82	05/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
05-82	09/27/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
05-82	12/20/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U
06-82	05/12/87	1	4 U	NR	NR	NR	NR	NR	NR
06-82	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
06-82	08/18/87	3	NR	NR	NR	NR	NR	NR	NR
06-82	01/07/88	4	10 U	10 U	10 U	10 U	7	4J	5 U
06-82	03/24/88	1	10 U	10 U	10 U	10 U	17	8 J	5 U
06-82	05/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
06-82	09/27/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
06-82	12/19/88	4	10 U	10 U	10 U	10 U	5 B	10 U	5 U
47-86	05/13/87	1	NR	NR	NR	NR	NR	NR	NR
47-86	06/22/87	2	NR	NR	NR	NR	NR	NR	NR
47-86	08/14/87	3	NR	NR	NR	NR	NR	NR	NR
47-86	10/05/87	4	NR	NR	NR	NR	NR	NR	NR
47-86	10/05/87	4	10U	10U	10U	10U	5U	3JB	5U
47-86	02/08/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
47-86	04/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
47-86	07/11/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
47-86	10/14/88	4	10 U	10 U	10 U	10 U	3 JB	10 U	5 U
45-86	05/14/87	1	NR	NR	NR	NR	NR	NR	NR
45-86	06/12/87	2	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
06-82	08/18/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
06-82	01/07/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
06-82	03/24/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
06-82	05/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
06-82	09/27/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
06-82	12/19/88	4	5 U	5 U	5 U	3 JB	5 U	10 U	5 U
47-86	05/13/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
47-86	06/22/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
47-86	08/14/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
47-86	10/05/87	4	5 U	NR	5 U	5 U	5 U	NR	5 U
47-86	10/05/87	4	5U	5U	5U	5U	5U	10U	5U
47-86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
47-86	04/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
47-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
47-86	10/14/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
45-86	05/14/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
45-86	06/12/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
06-82	08/18/87	3	5 U	NR	NR	NR	NR	5 U	NR
06-82	01/07/88	4	8	10 U	5 U	5 U	5 U	5 U	5 U
06-82	03/24/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
06-82	05/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
06-82	09/27/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
06-82	12/19/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
47-86	05/13/87	1	4 U	NR	NR	NR	NR	4 U	NR
47-86	06/22/87	2	4 U	NR	NR	NR	NR	4 U	NR
47-86	08/14/87	3	5 U	NR	NR	NR	NR	5 U	NR
47-86	10/05/87	4	5 U	NR	NR	NR	NR	5 U	NR
47-86	10/05/87	4	5U	10U	5U	5U	5U	5U	5U
47-86	02/08/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
47-86	04/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
47-86	07/11/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
47-86	10/14/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
45-86	05/14/87	1	4 U	NR	NR	NR	NR	4 U	NR
45-86	06/12/87	2	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
06-82	08/18/87	3	5 U	NR	NR	NR	NR	NR	NR
06-82	01/07/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
06-82	03/24/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
06-82	05/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
06-82	09/27/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
06-82	12/19/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
47-86	05/13/87	1	4 U	NR	NR	NR	NR	NR	NR
47-86	06/22/87	2	4 U	NR	NR	NR	NR	NR	NR
47-86	08/14/87	3	5 U	NR	NR	NR	NR	NR	NR
47-86	10/05/87	4	5 U	NR	NR	NR	NR	NR	NR
47-86	10/05/87	4	5U	5U	5U	10U	5U	10U	10U
47-86	02/08/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
47-86	04/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
47-86	07/11/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
47-86	10/14/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
45-86	05/14/87	1	4 U	NR	NR	NR	NR	NR	NR
45-86	06/12/87	2	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
06-82	08/18/87	3	5 U	NR	NR	NR	NR	NR	NR
06-82	01/07/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
06-82	03/24/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
06-82	05/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
06-82	09/27/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
06-82	12/19/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U
47-86	05/13/87	1	4 U	NR	NR	NR	NR	NR	NR
47-86	06/22/87	2	4 U	NR	NR	NR	NR	NR	NR
47-86	08/14/87	3	5 U	NR	NR	NR	NR	NR	NR
47-86	10/05/87	4	5 U	NR	NR	NR	NR	NR	NR
47-86	10/05/87	4	5U	5U	5U	5U	5U	5U	5U
47-86	02/08/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
47-86	04/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
47-86	07/11/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
47-86	10/14/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
45-86	05/14/87	1	4 U	NR	NR	NR	NR	NR	NR
45-86	06/12/87	2	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
45-86	08/14/87	3	NR	NR	NR	NR	NR	NR	NR
45-86	09/30/87	4	NR	NR	NR	NR	NR	NR	NR
45-86	09/30/87	4	10U	10U	10U	10U	5U	1JB	5U
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
45-86	03/25/88	1	Data not yet received						
45-86	05/26/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
45-86	09/29/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
45-86	12/16/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
08-81	05/14/87	1	NR	NR	NR	NR	NR	NR	NR
08-81	06/23/87	2	NR	NR	NR	NR	NR	NR	NR
08-81	08/18/87	3	NR	NR	NR	NR	NR	NR	NR
08-81	01/14/88	4	10 U	10 U	10 U	10 U	9	10 U	5 U
08-81	03/24/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
08-81	05/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
08-81	10/04/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
08-81	10/04/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
08-81	12/22/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
09-81	05/19/87	1	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
45-86	08/14/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
45-86	09/30/87	4	5 U	NR	5 U	5 U	5 U	NR	5 U
45-86	09/30/87	4	5U	5U	5U	5U	5U	10U	5U
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
45-86	03/25/88	1	Data not yet received						
45-86	05/26/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
45-86	09/29/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
45-86	12/16/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
08-81	05/14/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
08-81	06/23/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
08-81	08/18/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
08-81	01/14/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
08-81	03/24/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
08-81	05/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
08-81	10/04/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
08-81	10/04/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
08-81	12/22/88	4	5 U	5 U	5 U	2 JB	5 U	10 U	5 U
09-81	05/19/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
45-86	08/14/87	3	5 U	NR	NR	NR	NR	5 U	NR
45-86	09/30/87	4	5 U	NR	NR	NR	NR	5 U	NR
45-86	09/30/87	4	5U	10U	5U	5U	5U	5U	5U
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
45-86	03/25/88	1	Data not yet received						
45-86	05/26/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
45-86	09/29/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
45-86	12/16/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
08-81	05/14/87	1	4 U	NR	NR	NR	NR	4 U	NR
08-81	06/23/87	2	4 U	NR	NR	NR	NR	4 U	NR
08-81	08/18/87	3	5 U	NR	NR	NR	NR	5 U	NR
08-81	01/14/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
08-81	03/24/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
08-81	05/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
08-81	10/04/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
08-81	10/04/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
08-81	12/22/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	05/19/87	1	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
45-86	08/14/87	3	5 U	NR	NR	NR	NR	NR	NR
45-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
45-86	09/30/87	4	5U	5U	5U	10U	5U	10U	10U
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
45-86	03/25/88	1	Data not yet received						
45-86	05/26/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
45-86	09/29/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
45-86	12/16/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
08-81	05/14/87	1	4 U	NR	NR	NR	NR	NR	NR
08-81	06/23/87	2	4 U	NR	NR	NR	NR	NR	NR
08-81	08/18/87	3	5 U	NR	NR	NR	NR	NR	NR
08-81	01/14/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
08-81	03/24/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
08-81	05/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
08-81	10/04/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
08-81	10/04/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
08-81	12/22/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
09-81	05/19/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
45-86	08/14/87	3	5 U	NR	NR	NR	NR	NR	NR
45-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
45-86	09/30/87	4	5U	5U	5U	5U	5U	5U	5U
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
45-86	03/25/88	1	Data not yet received						
45-86	05/26/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
45-86	09/29/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
45-86	12/16/88	4	5 U	5 U	3 JB	5 U	5 U	5 U	5 U
08-81	05/14/87	1	4 U	NR	NR	NR	NR	NR	NR
08-81	06/23/87	2	4 U	NR	NR	NR	NR	NR	NR
08-81	08/18/87	3	5 U	NR	NR	NR	NR	NR	NR
08-81	01/14/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
08-81	03/24/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
08-81	05/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
08-81	10/04/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
08-81	10/04/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
08-81	12/22/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
09-81	05/19/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
09-81	06/23/87	2	NR	NR	NR	NR	NR	NR	NR
09-81	08/18/87	3	NR	NR	NR	NR	NR	NR	NR
09-81	01/13/88	4	10 U	10 U	10 U	10 U	5 U	10 U	5 U
09-81	03/24/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
09-81	03/24/88	1	10 U	10 U	10 U	10 U	17	10 U	5 U
09-81	05/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
09-81	05/26/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
09-81	09/27/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
09-81	12/22/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
03-82	05/20/87	1	NR	NR	NR	NR	NR	NR	NR
03-82	06/18/87	2	NR	NR	NR	NR	NR	NR	NR
03-82	08/25/87	3	NR	NR	NR	NR	NR	NR	NR
03-82	03/29/88	1	10 U	10 U	10 U	10 U	27	11	5 U
03-82	05/25/88	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
03-82	09/28/88	3	10 U	10 U	10 U	10 U	5 U	10 U	5 U
03-82	12/19/88	4	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
56-86	05/19/87	1	NR	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
09-81	06/23/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
09-81	08/18/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
09-81	01/13/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
09-81	03/24/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
09-81	03/24/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
09-81	05/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
09-81	05/26/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
09-81	09/27/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
09-81	12/22/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
03-82	05/20/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U
03-82	06/18/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
03-82	08/25/87	3	5 U	NR	5 U	5 U	5 U	NR	5 U
03-82	03/29/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
03-82	05/25/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
03-82	09/28/88	3	5 U	5 U	5 U	5 U	5 U	10 U	5 U
03-82	12/19/88	4	5 U	5 U	5 U	5 U	5 U	10 U	5 U
56-86	05/19/87	1	4 U	NR	4 U	4 U	4 U	NR	4 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
09-81	06/23/87	2	4 U	NR	NR	NR	NR	4 U	NR
09-81	08/18/87	3	5 U	NR	NR	NR	NR	5 U	NR
09-81	01/13/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	03/24/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	03/24/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	05/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	05/26/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	09/27/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
09-81	12/22/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
03-82	05/20/87	1	4 U	NR	NR	NR	NR	4 U	NR
03-82	06/18/87	2	4 U	NR	NR	NR	NR	4 U	NR
03-82	08/25/87	3	5 U	NR	NR	NR	NR	5 U	NR
03-82	03/29/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
03-82	05/25/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
03-82	09/28/88	3	5 U	10 U	5 U	5 U	5 U	5 U	5 U
03-82	12/19/88	4	5 U	10 U	5 U	5 U	5 U	5 U	5 U
56-86	05/19/87	1	4 U	NR	NR	NR	NR	4 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
09-81	06/23/87	2	4 U	NR	NR	NR	NR	NR	NR
09-81	08/18/87	3	5 U	NR	NR	NR	NR	NR	NR
09-81	01/13/88	4	5 U	5 U	5 U	NR	5 U	10 U	10 U
09-81	03/24/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
09-81	03/24/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
09-81	05/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
09-81	05/26/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
09-81	09/27/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
09-81	12/22/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
03-82	05/20/87	1	4 U	NR	NR	NR	NR	NR	NR
03-82	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
03-82	08/25/87	3	5 U	NR	NR	NR	NR	NR	NR
03-82	03/29/88	1	5 U	5 U	5 U	NR	5 U	10 U	10 U
03-82	05/25/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
03-82	09/28/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
03-82	12/19/88	4	5 U	5 U	5 U	10 U	5 U	10 U	10 U
56-86	05/19/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
09-81	06/23/87	2	4 U	NR	NR	NR	NR	NR	NR
09-81	08/18/87	3	5 U	NR	NR	NR	NR	NR	NR
09-81	01/13/88	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U
09-81	03/24/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
09-81	03/24/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
09-81	05/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
09-81	05/26/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
09-81	09/27/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
09-81	12/22/88	4	5 U	5 U	4 JB	5 U	5 U	5 U	5 U
03-82	05/20/87	1	4 U	NR	NR	NR	NR	NR	NR
03-82	06/18/87	2	4 U	NR	NR	NR	NR	NR	NR
03-82	08/25/87	3	5 U	NR	NR	NR	NR	NR	NR
03-82	03/29/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
03-82	05/25/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
03-82	09/28/88	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U
03-82	12/19/88	4	5 U	5 U	5 JB	5 U	5 U	5 U	5 U
56-86	05/19/87	1	4 U	NR	NR	NR	NR	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Chloro methane uG/L	Bromo methane uG/L	Vinyl Chloride uG/L	Chloro ethane uG/L	Methylene Chloride uG/L	Acetone uG/L	Carbon Disulfide uG/L
56-86	05/27/87	2	NR	NR	NR	NR	NR	NR	NR
56-86	07/15/87	3	NR	NR	NR	NR	NR	NR	NR
56-86	09/30/87	4	NR	NR	NR	NR	NR	NR	NR
56-86	09/30/87	4	10U	10U	10U	10U	1J	8JB	5U
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
56-86	02/15/88	1	10 U	10 U	10 U	10 U	5 U	10 U	5 U
56-86	04/07/88	2	10 U	10 U	10 U	10 U	23	10 U	5 U
56-86	09/14/88	3	10 U	10 U	10 U	10 U	20	10 U	5 U
56-86	10/20/88	4	Data not yet received						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1-Dichloro ethene uG/L	1,1-Dichloro ethane uG/L	Trans-1,2-Di chloroethene uG/L	Chloroform uG/L	1,2-Dichloro ethane uG/L	2-Butanone uG/L	1,1,1-Tri chloroethane uG/L
56-86	05/27/87	2	4 U	NR	4 U	4 U	4 U	NR	4 U
56-86	07/15/87	3	4 U	NR	4 U	4 U	4 U	NR	4 U
56-86	09/30/87	4	5 U	NR	5 U	5 U	NR	NR	5 U
56-86	09/30/87	4	5U	5U	5U	5U	5U	8J	5U
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
56-86	02/15/88	1	5 U	5 U	5 U	5 U	5 U	10 U	5 U
56-86	04/07/88	2	5 U	5 U	5 U	5 U	5 U	10 U	5 U
56-86	09/14/88	3	15	17	5 U	5 U	5 U	10 U	11
56-86	10/20/88	4	Data not yet received						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbon Tetra chloride uG/L	Vinyl Acetate uG/L	Bromodichlo-romethane uG/L	1,2-Dichloro propane uG/L	Trans-1,3-Di chloropro-pene (uG/L)	Trichloro ethene uG/L	Dibromochlo-romethane uG/L
56-86	05/27/87	2	4 U	NR	NR	NR	NR	4 U	NR
56-86	07/15/87	3	4 U	NR	NR	NR	NR	4 U	NR
56-86	09/30/87	4	5 U	NR	NR	NR	NR	5 U	NR
56-86	09/30/87	4	5U	10U	5U	5U	5U	5U	5U
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
56-86	02/15/88	1	5 U	10 U	5 U	5 U	5 U	5 U	5 U
56-86	04/07/88	2	5 U	10 U	5 U	5 U	5 U	5 U	5 U
56-86	09/14/88	3	5 U	10 U	5 U	5 U	5 U	114	5 U
56-86	10/20/88	4	Data not yet received						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	1,1,2-Tri chloroethane uG/L	Benzene uG/L	Cis-1,3-Di chloropro-pene (uG/L)	2-Chloro ethylvinyl ether (uG/L)	Bromoform uG/L	4-Methyl-2-pentanone uG/L	2-Hexanone uG/L
56-86	05/27/87	2	4 U	NR	NR	NR	NR	NR	NR
56-86	07/15/87	3	4 U	NR	NR	NR	NR	NR	NR
56-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
56-86	09/30/87	4	5U	5U	5U	10U	5U	10U	10U
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
56-86	02/15/88	1	5 U	5 U	5 U	10 U	5 U	10 U	10 U
56-86	04/07/88	2	5 U	5 U	5 U	10 U	5 U	10 U	10 U
56-86	09/14/88	3	5 U	5 U	5 U	NR	5 U	10 U	10 U
56-86	10/20/88	4	Data not yet received						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Volatile Organic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Tetrachloro ethene uG/L	1,1,2,2-Tetrachloro ethane(uG/L)	Toluene uG/L	Chloro benzene uG/L	Ethyl benzene uG/L	Styrene uG/L	Total Xylenes uG/L
56-86	05/27/87	2	4 U	NR	NR	NR	NR	NR	NR
56-86	07/15/87	3	4 U	NR	NR	NR	NR	NR	NR
56-86	09/30/87	4	5 U	NR	NR	NR	NR	NR	NR
56-86	09/30/87	4	5U	5U	5U	5U	5U	5U	5U
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
56-86	02/15/88	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U
56-86	04/07/88	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U
56-86	09/14/88	3	6	5 U	5 U	5 U	5 U	5 U	5 U
56-86	10/20/88	4	Data not yet received						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

INORGANICS

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
10-81	05/11/87	1	123	8 60	2.00	20 0	28 0
10-81	06/18/87	2	140	444	7 30	22.0	36.9
10-81	08/21/87	3	138	3 76	7 85	18 0	40
10-81	08/21/87	3	163	3.79	7 65	21 0	39
10-81	01/12/88	4	152	5 69	6 10	23 5	46.4
10-81	02/04/88	1	143	3 15	5 98	19 6	46.1
10-81	04/07/88	2	146	7 20	2 80	27.0	80.4
10-81	07/07/88	3	142	3 21	6 29	20 4	42.5
10-81	10/12/88	4	133	4 17	6 76	16 6	32.6
10-81	10/12/88	4	133	4 16	6 78	16 8	31.8
07-82	05/11/87	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
07-82	08/20/87	3	DRY				
07-82	12/05/87	4	DRY				
07-82	02/04/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
07-82	04/07/88	2	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
07-82	07/07/88	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
07-82	10/11/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
51-86	05/13/87	1	145	5 70	4 65	31.0	36.0

Notes NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
51-86	06/17/87	2	141	5 00	4 60	28.0	31.6
51-86	08/20/87	3	149	4 75	5 15	26 5	38 5
51-86	12/10/87	4	126	5 20	3 45	190	46 2
51-86	02/08/88	1	163	8 86	4 91	56 0	40 2
51-86	04/25/88	2	135	4 40	5 22	33.5	35 9
51-86	04/26/88	2	133	4 35	4 83	31 3	39.8
51-86	07/07/88	3	138	3 92	4 35	30 1	39.6
51-86	10/14/88	4	138	5 32	3 17	27 8	28.1
50-86	05/11/87	1	167	10 4	0 87	28 0	95.0
50-86	06/16/87	2	171	9 70	1 20	13.5	92 5
50-86	08/14/87	3	159	9 70	0 87	12 5	95.7
50-86	12/10/87	4	162	9 39	0 63	27.4	119
50-86	03/25/88	1	164	9 31	0 79	15.6	89 7
50-86	05/31/88	2	176	9 52	0 82	12.5	90.3
50-86	10/04/88	3	150	11 2	0 76	11.1	86.9
50-86	12/20/88	4	170	21.2	0 82	11.4	85.8
49-86	04/08/87	1	264	20 2	9 10	150	32 8

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
49-86	06/18/87	2	269	23 7	16.3	30 5	34.0
49-86	08/25/87	3	201	30 6	12 6	19 0	41
49-86	12/14/87	4	309	13 3	6 58	1340	48.0
49-86	03/29/88	1	212	21 1	10 0	56 2	17.9
49-86	05/31/88	2	244	22 9	12 2	45 5	31.2
49-86	09/30/88	3	192	22 8	13 2	9 25	30.6
49-86	12/20/88	4	183	16 3	12 4	9 17	39.1
05-82	05/13/87	1	186	16 5	1 88	60.0	43.0
05-82	06/18/87	2	228	32.3	2 60	49 0	33.7
05-82	09/17/87	3	210	53 4	3 8	62	38
05-82	01/07/88	4	232	43 1	3.38	653	37.2
05-82	03/24/88	1	251	16 4	0 94	68 8	15.8
05-82	05/25/88	2	265	8.41	0 52	95.0	36.4
05-82	09/27/88	3	203	36.3	1 52	61 6	29.1
05-82	12/20/88	4	176	23 8	2 00	61.1	34.6
06-82	05/12/87	1	365	2 80	0 20 U	80 0	26.0
06-82	06/18/87	2	145	3 57	0 31	37 5	29.4

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
06-82	08/18/87	3	110	3 70	0 28	28 5	28 5
06-82	01/07/88	4	192	5 93	0 46	90.2	32.1
06-82	03/24/88	1	151	4.72	0 09	32 8	9 80
06-82	05/25/88	2	180	2 0 U	0 03	41 0	27 0
06-82	09/27/88	3	100	4 55	0 49	16 9	20.3
06-82	12/19/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
47-86	05/13/87	1	115	3 60	1 0	7 80	76 0
47-86	06/22/87	2	119	2.42	1 10	1 0 U	76.5
47-86	08/14/87	3	118	1 96	1 2	3.5	79.7
47-86	10/05/87	4	113	2.4	1 15	2.9	79 7
47-86	10/05/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
47-86	02/08/88	1	119	5 90	1 05	11 7	87 3
47-86	04/25/88	2	64	2 94	0 93	18 6	78.9
47-86	07/11/88	3	119	1 94	0 98	4.40	82 6
47-86	10/14/88	4	127	2 0 U	0 86	4 34	67.8
45-86	05/14/87	1	143	4 90	0 56	24.5	22 0
45-86	06/12/87	2	92.0	9 30	0 51	19.0	18 4

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
45-86	08/14/87	3	124	6 39	0 75	14 5	39.1
45-86	09/30/87	4	125	6 5	1 02	17 5	45 1
45-86	09/30/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
45-86	03/25/88	1	81	14 0	1 09	10 9	39.7
45-86	05/26/88	2	79	3.97	0 21	14 8	22.3
45-86	09/29/88	3	93	11 3	0 94	8 74	21.6
45-86	12/16/88	4	131	8 39	0 84	9 06	50 0
08-81	05/14/87	1	185	7 80	0 22	19 0	131
08-81	06/23/87	2	213	6 53	0 49	32 0	109
08-81	08/18/87	3	150	5 08	0 45	19 5	50.3
08-81	01/14/88	4	194	6 64	0 21	19 0	153
08-81	03/24/88	1	199	4 78	0 12	10 0	80.7
08-81	05/25/88	2	203	4 44	0 04	12 5	152
08-81	10/04/88	3	183	3 76	0 04	18 0	151
08-81	10/04/88	3	195	3.90	0 06	17.9	150
08-81	12/22/88	4	219	4 95	0 02 U	18 5	139
09-81	05/19/87	1	269	54.6	0 42	49 5	102

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Carbonate (mg/l)
45-86	08/14/87	3	NR
45-86	09/30/87	4	NR
45-86	09/30/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS
45-86	03/25/88	1	NR
45-86	05/26/88	2	NR
45-86	09/29/88	3	NR
45-86	12/16/88	4	NR
08-81	05/14/87	1	NR
08-81	06/23/87	2	7 45
08-81	08/18/87	3	NR
08-81	01/14/88	4	NR
08-81	03/24/88	1	NR
08-81	05/25/88	2	NR
08-81	10/04/88	3	NR
08-81	10/04/88	3	NR
08-81	12/22/88	4	NR
09-81	05/19/87	1	5.0

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
09-81	06/23/87	2	277	51 3	0 43	48 0	71.5
09-81	08/18/87	3	286	52 6	0 20 U	47 0	84 4
09-81	01/13/88	4	249	51 6	0 02 U	39 9	100
09-81	03/24/88	1	247	47 1	0 52	36 2	40 5
09-81	03/24/88	1	242	47 0	0 50	36 2	40 4
09-81	05/25/88	2	282	48 5	0 79	42 0	71.1
09-81	05/26/88	2	274	48 9	0 81	54 5	70 5
09-81	09/27/88	3	241	60 4	0 54	44 5	94.3
09-81	12/22/88	4	257	55 5	0 02 U	31 1	93 2
03-82	05/20/87	1	138	9 8	67 0	21 0	22 8
03-82	06/18/87	2	188	10 9	10 0	12.5	28 1
03-82	08/25/87	3	158	1 U	7 6	24 0	30
03-82	03/29/88	1	129	10 8	3 91	28 1	13.6
03-82	05/25/88	2	144	5.77	0 24	12 0	30.1
03-82	09/28/88	3	106	5 06	0.95	15 6	41.1
03-82	12/19/88	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
56-86	05/19/87	1	185	15 1	0.48	19 0	105

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

Groundwater Inorganic Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Total Dissolved Solids (mg/l)	Chloride (mg/l)	Nitrate+ Nitrite-Nitrogen (mg/l)	Sulfate (mg/l)	Bicarbonate (mg/l)
56-86	05/27/87	2	202	19 3	0 2 U	1 0 U	121
56-86	07/15/87	3	186	13 0	0 20 U	15 9	124
56-86	09/30/87	4	191	19 6	0 20 U	4 3	122
56-86	09/30/87	4	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
56-86	02/15/88	1	213	49 5	1 66	39 5	91 7
56-86	04/07/88	2	183	38 4	0 57	25 0	74.5
56-86	09/14/88	3	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
56-86	10/20/88	4	144	13.7	0 06	10 7	82.4

Notes: NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank

METALS

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
10-81	05/11/87	1	0 0433	0 0600 U	0 01 U	0 1354	0 005 U	0 005 U	14.6231
10-81	06/18/87	2	0.0290 U	0 06 U	0 01 U	0 0461	0 005 U	0 005 U	17 2256
10-81	08/21/87	3	0 0509	0 02 U	0 005 U	0 1024	0 005 U	0 001 U	17 3812
10-81	08/21/87	3	0.0400	0 02 U	0 005 U	0 1010	0 005 U	0 001 U	17 7583
10-81	01/12/88	4	0 0290 U	0 02 U	0 005	0 0698	0 002 J	0.018	15 4546
10-81	02/04/88	1	0 0476	0 02 U	0 005 U	0 0866	0 005 U	0 001 U	16.2702
10-81	04/07/88	2	0 4605	0 0340 U	0 005 U	0 0936	0 0010 U	0 0050 U	11 9050
10-81	07/07/88	3	0 0399	0 0340 U	0 005 U	0 0467	0 0010 U	0 0050 U	16 4269
10-81	10/12/88	4	0 0407	0 0340 U	NR	0 0835	0 0010 U	0 0050 U	18 7846
10-81	10/12/88	4	0.0343	0 0340 U	NR	0 0654	0 0010 U	0 0050 U	18 3709
07-82	05/11/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	04/07/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	07/07/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	10/11/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
51-86	05/13/87	1	0 1042	0 06 U	0 0100 U	0 1330	0 005 U	0 0050 U	23 0047

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
10-81	05/11/87	1	0 2 U	0 0100 U	0 0220 U	0 0090	0 0282	0.005 U	NR
10-81	06/18/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0144	0 010	NR
10-81	08/21/87	3	0.02 U	0 0100 U	0 0220 U	0 0066	0 0263	0 005 U	NR
10-81	08/21/87	3	0 02 U	0 0144	0 0220 U	0 0099	0 0246	0 005 U	NR
10-81	01/12/88	4	0.02 U	0 0100 U	0 0220 U	0 0063 U	0 0317	0.006	0.1 U
10-81	02/04/88	1	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0348	0.005 U	0.1 U
10-81	04/07/88	2	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 2958	0 005 U	0.1 U
10-81	07/07/88	3	0.020 U	0 0100 U	0 0220 U	0 0205	0 2224	0 005 U	NR
10-81	10/12/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0122	NR	NR
10-81	10/12/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0105	NR	NR
07-82	05/11/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	04/07/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	07/07/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	10/11/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
51-86	05/13/87	1	0 2 U	0 0100 U	0 0220 U	0 0174 U	0 0711	0 0050 U	NR

NR = Analyte not reported U = Analyzed but not detected * = Holding time not met E = Estimated value
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
10-81	05/11/87	1	2.7824	0 0051 U	0 0002 U	0 0220 U	0 0370 U	5 0 U	0 0050 U
10-81	06/18/87	2	2.9793	0 0051 U	0 002 U	0 0220 U	0 0370 U	5.0 U	0 005 U
10-81	08/21/87	3	3.2901	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 8	0 005 U
10-81	08/21/87	3	3.3620	0 0051 U	0 0002 U	0.0220 U	0 0370 U	1.0	0.005 U
10-81	01/12/88	4	2 9601	0 0051 U	0 0002	0 0220 U	0 0370 U	0.5	0 004 J
10-81	02/04/88	1	3.3184	0 0051	0 0002 U	0 0220 U	0 0370 U	0 5	0.005 U
10-81	04/07/88	2	2 1358	0 0051 U	0.0002 U	0 0220 U	0 0370 U	0.5 U	0.005 U
10-81	07/07/88	3	3.1045	0.0051 U	0 0002* U	0 0220 U	0 0370 U	0 5 U	0 005 U
10-81	10/12/88	4	3 3279	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 5 U	NR
10-81	10/12/88	4	3.3431	0.0051 U	0 0002 U	0.0220 U	0 0400	0.5 U	NR
07-82	05/11/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	08/20/87	3	DRY						
07-82	12/05/87	4	DRY						
07-82	02/04/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	04/07/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	07/07/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
07-82	10/11/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
51-86	05/13/87	1	4.5871	0 0265	0 0002 U	0.0220 U	0 0370 U	5 0 U	0.005 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
10-81	05/11/87	1	0 0076 U	10 6409	0 0832	0 01 U	0.0240 U	0.04
10-81	06/18/87	2	0 0076 U	9 5838	0 0908	0 01 U	0 0245	0 0200 U
10-81	08/21/87	3	0 0076 U	13 9764	0 0961	0 01 U	0 0240 U	0 1135
10-81	08/21/87	3	0 0076 U	14 4885	0 0963	0 01 U	0 0240 U	0 1858
10-81	01/12/88	4	0 0076 U	10 0773	0 0845	0 01 U	0 0240 U	0 0398
10-81	02/04/88	1	0 0076 U	13 0288	0 0938	0.01 U	0 0240 U	0 0303
10-81	04/07/88	2	0 0076 U	11 7919	0 0733	0 01 U	0 0360 U	0 0332
10-81	07/07/88	3	0 0489	12 0209	0 0883	0 010 U	0 0360 U	0 1111
10-81	10/12/88	4	0 0076 U	14 0523	0.1063	NR	0 0360 U	0 0444
10-81	10/12/88	4	0.0076 U	12 4193	0 1072	NR	0 0360 U	0 0564
07-82	05/11/87	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
07-82	08/20/87	3	DRY					
07-82	12/05/87	4	DRY					
07-82	02/04/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
07-82	04/07/88	2	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
07-82	07/07/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
07-82	10/11/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
51-86	05/13/87	1	0 0076 U	14 6574	0 1227	0 0100 U	0.0240 U	0 07

NR = Analyte not reported U = Analyzed but not detected * = Holding time not met E = Estimated value
J = Present below detection limit B = Present in laboratory blank N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
51-86	06/17/87	2	0 0290 U	0 06 U	0 01 U	0 0514	0 005 U	0 005 U	19.1503
51-86	08/20/87	3	0 8289	0 02 U	0 005 U	0 1502	0 005 U	0 001 U	18.9247
51-86	12/10/87	4	0 0290 U	0 02 U	0 005 U	0.0745	0 005 U	0 001 U	15.8726
51-86	02/08/88	1	0 0429	0 02 U	0 005 U	0 0997	0 005 U	0 001 U	15 6339
51-86	04/25/88	2	0 0372	0 0340 U	0.005 U	0.0763	0 0010 U	0 0050 U	16 5195
51-86	04/26/88	2	0 0409	0.0340 U	0 005 U	0.0539	0 0010 U	0.0050 U	16 5313
51-86	07/07/88	3	0 0313	0 0340 U	0 005 U	0.0538	0 0010 U	0 0050 U	15 9110
51-86	10/14/88	4	0 0290 U	0 0340 U	NR	0 0736	0 0010 U	0.0050 U	17.9216
50-86	05/11/87	1	0 0567	0.06 U	0 0100 U	0.1558	0.005 U	0 0011	36 4507
50-86	06/16/87	2	0.0290 U	0 06 U	0 01 U	0 0597	0 005 U	0.005 U	34 4230
50-86	08/14/87	3	0.0290 U	0 02 U	0 005 U	0.0822	0 005 U	0 001 U	31.0017
50-86	12/10/87	4	0 5854	0.02 U	0.005 U	0 1607	0 005 U	0 005 J	30.4438
50-86	03/25/88	1	0 0434	0 02 U	0 005 U	0 0648	0 005 U	0.001 U	28 0055
50-86	05/31/88	2	0.0290 U	0 0340 U	0 005 U	0.0741	0 0010 U	0.0050 U	30 5352
50-86	10/04/88	3	0 0525	0 0340 U	0.005 U	0 1042	0 0010 U	0.0050 U	31.1225
50-86	12/20/88	4	0 0385	0 0340 U	NR	0 0937	0.0010 U	0.0050 U	29.6162
49-86	04/08/87	1	0.2107	0.06 U	0 0100 U	0 5163	0 005 U	0 0050 U	34 7669

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
51-86	06/17/87	2	0 2 U	0 0100 U	0.0220 U	0 0063 U	0.0069 U	0 036	NR
51-86	08/20/87	3	0 02 U	0 0173	0 0220 U	0 0063 U	0 5748	0 005 U	NR
51-86	12/10/87	4	0 02 U	0 0152	0 0220 U	0 0141	0 0669	0 005 U	0.1 U
51-86	02/08/88	1	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0316	0 005 U	0.1 U
51-86	04/25/88	2	0.02 U	0 0100 U	0 0220 U	0 0068	0.2600	0 005 U	NR
51-86	04/26/88	2	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0374	0 005 U	NR
51-86	07/07/88	3	0 020 U	0 0100 U	0 0220 U	0 0152	0 0766	0 005 U	NR
51-86	10/14/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0251	NR	NR
50-86	05/11/87	1	0 2 U	0 1356	0 0220 U	0 0261	0.5953	0 0050 U	NR
50-86	06/16/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 015	NR
50-86	08/14/87	3	0.02 U	0 0114	0.0220 U	0 0063 U	0.0106	0 005 U	NR
50-86	12/10/87	4	0.02 U	0 0148	0 0220 U	0 0383	0 4740	0 005 U	0 1 U
50-86	03/25/88	1	0 020 U	0 0100 U	0 0220 U	0 0116	0.1054	0 005 U	0.1 U
50-86	05/31/88	2	0 02 U	0 0100 U	0.0220 U	0 0063 U	0 0223	0 005 U	NR
50-86	10/04/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0 0386	0 005 U	NR
50-86	12/20/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 0874 N	NR	NR
49-86	04/08/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0293	0 0050 U	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
51-86	06/17/87	2	3.3494	0 0065	0 0002 U	0 0220 U	0 0370 U	5 0 U	0.005 U
51-86	08/20/87	3	3 4800	0 0242	0 0002 U	0 0220 U	0 0370 U	0 6	0.005 U
51-86	12/10/87	4	2 9424	0 0051 U	0.0002 U	0 0220 U	0 0370 U	0 5	0.005 U
51-86	02/08/88	1	3.1273	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 8	0.005 U
51-86	04/25/88	2	2 9980	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0.6	0.005 U
51-86	04/26/88	2	3 0911	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0.7	0 005 U
51-86	07/07/88	3	3 0868	0 0051 U	0 0002* U	0 0220 U	0 0370 U	0 5	0.005 U
51-86	10/14/88	4	3 2041	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 6	NR
50-86	05/11/87	1	5 3889	0.1940	0 0002 U	0 0220 U	0 0701	5.0 U	0.005 U
50-86	06/16/87	2	5.1092	0 0051 U	0 0002 U	0 0220 U	0 0370 U	5 0 U	0.005 U
50-86	08/14/87	3	5 0253	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 8	0.005 U
50-86	12/10/87	4	4 8416	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 8	0 005 U
50-86	03/25/88	1	4 8259	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 3 J	0 005 U
50-86	05/31/88	2	5 1850	0.0051 U	0 0002 U	0.0220 U	0 0370 U	0.8	0.005 U
50-86	10/04/88	3	5.0346	0 0051 U	0 0002 U	0.0220 U	0 0370 U	0 7	0 005 U
50-86	12/20/88	4	4 6623	0.0051 U	0 0002 U	0 0220 U	0 0370 U	1 0 U	NR
49-86	04/08/87	1	7 3621	0 2289	0 0002 U	0 0220 U	0 0370 U	5.0 U	0 005 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss. mg/l
51-86	06/17/87	2	0 0076 U	9 4233	0 0913	0 01 U	0 0240 U	0 0200 U
51-86	08/20/87	3	0 0076 U	16 3487	0 0984	0 01 U	0 0240 U	0 0336
51-86	12/10/87	4	0.0076 U	9 5898	0 0929	0 01 U	0 0240 U	0 0200 U
51-86	02/08/88	1	0 0076 U	11 4788	0 0948	0 01 U	0 0240 U	0 1683
51-86	04/25/88	2	0.0076 U	12.0066	0 0862	0 01 U	0 0360 U	0 0398
51-86	04/26/88	2	0 0140	10.7508	0 0890	0 01 U	0 0360 U	0 0230
51-86	07/07/88	3	0.0261	11 1069	0 0872	0 010 U	0 0360 U	0 0982
51-86	10/14/88	4	0.0076 U	11 5044	0 1021	NR	0 0360 U	0 0903
50-86	05/11/87	1	0 0076	12 9888	0 1750	0 0100 U	0 0240 U	0 07
50-86	06/16/87	2	0.0076 U	9 6210	0 1768	0 01 U	0 0240 U	0 0200 U
50-86	08/14/87	3	0 0076 U	10 7212	0 1791	0.01 U	0 0240 U	0 0237
50-86	12/10/87	4	0 0076 U	10 2008	0 1834	0 01 U	0 0240 U	0 0269
50-86	03/25/88	1	0.0076 U	10 2593	0 1750	0 010 U	0 0240 U	0 0378
50-86	05/31/88	2	0.0076 U	10 6554	0 1693	0.01 U	0 0360 U	0 0433
50-86	10/04/88	3	0 0076 U	12 5665	0.1967	0 010 U	0 0360 U	0.0310
50-86	12/20/88	4	0 0076 U	12 3708	0 1784	NR	0 0360 U	0 0598
49-86	04/08/87	1	0 0076 U	36 0378	0 1843	0 0100 U	0 0240 U	0.49

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
49-86	06/18/87	2	0 0290 U	0 06 U	0.01 U	0 0551	0 005 U	0 005 U	29 4858
49-86	08/25/87	3	0 0392	0 02 U	0 005 U	0 1204	0 005 U	0 001 U	20 5711
49-86	12/14/87	4	0 0473	0 02 U	0 005 U	0 1046	0.005 U	0 001 U	14 8498
49-86	03/29/88	1	0 0333	0 02 U	0 005 U	0 0934	0.005 U	0.001 U	21.2668
49-86	05/31/88	2	0 0415	0 0340 U	0.005 U	0 0803	0 0010 U	0.0050 U	25 5903
49-86	09/30/88	3	0 1590	0.0340 U	0 005 U	0 1148	0 0010 U	0.0050 U	20 6904
49-86	12/20/88	4	0 1199	0 0340 U	NR	0.1077	0 0027	0 0050 U	19 8760
05-82	05/13/87	1	0 2338	0 0600 U	0 01 U	0 0903	0 005 U	0 005 U	19 3959
05-82	06/18/87	2	0 0290 U	0 06 U	0.01 U	0 0668	0 005 U	0 005 U	29.8760
05-82	09/17/87	3	0.2831	0 02 U	0.005 U	0.1056	0 005 U	0 002	29 7368
05-82	01/07/88	4	0 0290 U	0.02 U	0 005	0 0774	0.001 J	0 0007 J	29.2540
05-82	03/24/88	1	0 2063	0 02 U	0 005 U	0.1083	0 005 U	0 001	14 0696
05-82	05/25/88	2	3.9934	0.0340 U	0 005 U	0 1207	0.0010 U	0.0050 U	12.4798
05-82	09/27/88	3	0 0393	0 0340 U	0.005 U	0 0880	0.0010 U	0 0050 U	28.9121
05-82	12/20/88	4	0 0847	0 0340 U	NR	0 0702	0 0010 U	0.0050 U	26 4190
06-82	05/12/87	1	1 8569	0 0600 U	0 01 U	0 2237	0 005 U	0 005 U	11 1874
06-82	06/18/87	2	0 1125	0 06 U	0 01 U	0 0403	0 005 U	0 005 U	12 7749

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
49-86	06/18/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0078	0 020	NR
49-86	08/25/87	3	0 02 U	0 0100 U	0 0220 U	0 0084	0 0211	0 005 U	NR
49-86	12/14/87	4	0 02 U	0 0100 U	0 0220 U	0 0080	0.0406	0 005 U	0 1 U
49-86	03/29/88	1	0 020 U	0 0100 U	0 0220 U	0 0063 U	0 0726	0 005 U	0.1 U
49-86	05/31/88	2	0 02 U	0 0148	0 0220 U	0 0090	0 0314	0.005 U	NR
49-86	09/30/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0 1099	0.005 U	NR
49-86	12/20/88	4	NR	0 0100 U	0 0220 U	0 0063 U	0 3417	NR	NR
05-82	05/13/87	1	0 2 U	0 0100 U	0 0220 U	0 0087	0 1632	0 005 U	NR
05-82	06/18/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0.0072	0 014	NR
05-82	09/17/87	3	0 02 U	0 0100 U	0 0220 U	0 0099	0.2598	0 005 U	NR
05-82	01/07/88	4	0 02 U	0 0100 U	0 0220 U	0 0094	0 0275	0 005 U	0.1 U
05-82	03/24/88	1	0 020 U	0 0100 U	0 0220 U	0 0118	0 1778	0 005 U	0 1 U
05-82	05/25/88	2	0 02 U	0 0100 U	0 0220 U	0.0105	2 6688	0 004 J	NR
05-82	09/27/88	3	0 020 U	0.0100 U	0 0220 U	0 0063 U	0 0457	0 005 U	NR
05-82	12/20/88	4	NR	0.0100 U	0 0220 U	0 0074	0 1436 N	NR	NR
06-82	05/12/87	1	0.2 U	0 0100 U	0 0220 U	0 0111	1 2989	0 005 U	NR
06-82	06/18/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0794	0 021	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
49-86	06/18/87	2	5 6582	0.0248	0.0002 U	0 0220 U	0.0370 U	5 0 U	0.005 U
49-86	08/25/87	3	4 3797	0.0210	0 0002 U	0 0220 U	0.0370 U	1.3	0.005 U
49-86	12/14/87	4	2 8133	0.0051 U	0 0002 U	0 0220 U	0 0370 U	0 7	0.003 J
49-86	03/29/88	1	4 6769	0.0051 U	0 0002 U	0 0220 U	0 0370 U	0.5 U	0 005 U
49-86	05/31/88	2	5 5208	0.0053	0 0002 U	0 0220 U	0.0370 U	0 6	0.005 U
49-86	09/30/88	3	3 7172	0 0051 U	0 0002 U	0 0220 U	0.0370 U	0 7	0 005 U
49-86	12/20/88	4	3 5021	0 0051 U	0 0002 U	0 0220 U	0 0370 U	1 0 U	NR
05-82	05/13/87	1	3 7560	0 0091	0 0002 U	0 0220 U	0 0370 U	5.0 U	0.0050 U
05-82	06/18/87	2	4 9821	0 0066	0 0003	0.0220 U	0.0431	5.0 U	0.005 U
05-82	09/17/87	3	5.8898	0.0210	0 0002 U	0 0220 U	0 0370 U	0.95	0.005 U
05-82	01/07/88	4	5 2697	0 0134	0 0002 U	0 0220 U	0 0370 U	0 8	0.003 J
05-82	03/24/88	1	2 8276	0 0078	0 0002 U	0 0220 U	0 0370 U	0 5	0 005 U
05-82	05/25/88	2	2 7187	0.0217	0 0002 U	0 0220 U	0 0370 U	1 3	0.005 U
05-82	09/27/88	3	5 0920	0 0209	0 0002 U	0 0220 U	0 0370 U	0 6	0 005 U
05-82	12/20/88	4	4 5496	0 0163	0 0002 U	0 0220 U	0 0370 U	1.0 U	NR
06-82	05/12/87	1	2 1660	0 1355	0 0002 U	0 0220 U	0 0370 U	5.0 U	0.0050 U
06-82	06/18/87	2	1 9752	0 2864	0 0002 U	0 0220 U	0 0485	5 0 U	0 005 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss mg/l
49-86	06/18/87	2	0 0076 U	27 8577	0.1487	0 01 U	0 0240 U	0.0200 U
49-86	08/25/87	3	0 0076 U	26 6908	0 1356	0 01 U	0 0240 U	0 0267
49-86	12/14/87	4	0 0076 U	21 2591	0 0771	0 01 U	0 0240 U	0 0200 U
49-86	03/29/88	1	0 0076 U	25 8141	0.1261	0 010 U	0 0240 U	0 0227
49-86	05/31/88	2	0 0076 U	29 1848	0 1403	0 01 U	0 0360 U	0 0392
49-86	09/30/88	3	0 0076 U	22 5076	0 1174	0 010 U	0 0360 U	0.0362
49-86	12/20/88	4	0 0076 U	21 9245	0 1178	NR	0 0360 U	0.0486
05-82	05/13/87	1	0 0076 U	18 5408	0 1089	0 01 U	0 0240 U	0 23
05-82	06/18/87	2	0 0076 U	20 5830	0 1578	0 01 U	0 0240 U	0 0786
05-82	09/17/87	3	0 0076 U	25 5351	0 1891	0 01 U	0.0240 U	0 1695
05-82	01/07/88	4	0 0076 U	23 6020	0 1720	0 01 U	0 0240 U	1 7771
05-82	03/24/88	1	0 0076 U	14 4226	0 0933	0 010 U	0 0240 U	1 8396
05-82	05/25/88	2	0 0076 U	19.1925	0 0734	0 01 U	0 0360 U	0 0909
05-82	09/27/88	3	0 0076 U	23 2478	0 1850	0.010 U	0 0360 U	0 4065
05-82	12/20/88	4	0 0076 U	25 5137	0 1629	NR	0.0360 U	0.1162
06-82	05/12/87	1	0 0076 U	6 6292	0 0595	0 0100 U	0 0240 U	0 05
06-82	06/18/87	2	0 0076 U	2 9816	0.0564	0 01 U	0 0240 U	0.0200 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss. mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
06-82	08/18/87	3	0 2177	0 02 U	0 005 U	0 1270	0 005 U	0 005 J	11.4882
06-82	01/07/88	4	0 0831	0 02 U	0 006	0 0758	0 005 U	0 006	9.8562
06-82	03/24/88	1	0 0717	0 02 U	0 005 U	0 0815	0 005 U	0 001	6.7013
06-82	05/25/88	2	2 7735	0 0340 U	0 005 U	0 1387	0.0010 U	0 0050 U	9 6128
06-82	09/27/88	3	0.1822	0 0340 U	0 005 U	0 0839	0.0010 U	0 0050 U	10 3409
06-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
47-86	05/13/87	1	0 0290 U	0 0600 U	0 01 U	0 0663	0 005 U	0 005 U	21 8236
47-86	06/22/87	2	0 0290 U	0 06 U	0 01 U	0 0474	0 005 U	0.005 U	19.1714
47-86	08/14/87	3	0 0290 U	0 02 U	0 005 U	0 1017	0 005 U	0 001 U	18 6199
47-86	10/05/87	4	0 0290 U	0 02 U	0 005 U	0 0492	0 005 U	0 001 U	16.4384
47-86	10/05/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
47-86	02/08/88	1	0 0290 U	0 02 U	0.005 U	0 0554	0.005 U	0 001 U	17 1793
47-86	04/25/88	2	0 0328	0 0340 U	0 005 U	0 0559	0 0010 U	0 0050 U	17.4709
47-86	07/11/88	3	0 0291	0 0340 U	0 005 U	0 0530	0.0010 U	0 0050 U	17 2913
47-86	10/14/88	4	0 0449	0.0340 U	NR	0 0549	0 0010 U	0 0050 U	17 2175
45-86	05/14/87	1	0 1786	0.06 U	0 0100 U	0 0308	0 005 U	0 0050 U	11 5612
45-86	06/12/87	2	0 0405	0 06 U	0 01 U	0 0265	0 005 U	0 005 U	9 0966

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss mg/l	Lithium (Li), diss. mg/l
06-82	08/18/87	3	0 02 U	0 0100 U	0 0220 U	0 0088	0.1506	0.005 U	NR
06-82	01/07/88	4	0 02 U	0 0124	0 0220 U	0 0137	0 0949	0 003 J	0 1 U
06-82	03/24/88	1	0 020 U	0 0100 U	0 0220 U	0 0067	0 1377	0 005 U	0 1 U
06-82	05/25/88	2	0 02 U	0 0129	0 0220 U	0 0087	1 4855	0 002 U	NR
06-82	09/27/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0 1428	0.005 U	NR
06-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
47-86	05/13/87	1	0.2 U	0 0100 U	0 0220 U	0 0087	0 0069 U	0.005 U	NR
47-86	06/22/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0147	0 036	NR
47-86	08/14/87	3	0.02 U	0 0100 U	0 0220 U	0.0068	0 0149	0 005 U	NR
47-86	10/05/87	4	0 02 U	0 0100 U	0.0220 U	0 0063 U	0 0069 U	0.005 U	0 1 U
47-86	10/05/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
47-86	02/08/88	1	0 02 U	0 0100 U	0.0220 U	0 0063 U	0 0162	0 005 U	0 1 U
47-86	04/25/88	2	0.02 U	0 0100 U	0.0220 U	0 0063 U	0 0560	0 013	NR
47-86	07/11/88	3	0 020 U	0 0126	0.0220 U	0 0063 U	0 0809	0 005 U	NR
47-86	10/14/88	4	NR	0 0100 U	0.0220 U	0 0063 U	0 0281	NR	NR
45-86	05/14/87	1	0 2 U	0 0100 U	0.0220 U	0 0063 U	0 0948	0 0050 U	NR
45-86	06/12/87	2	0 2 U	0.0100 U	0.0220 U	0 0063 U	0 0311	0 011	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss mg/l	Selenium (Se), diss. mg/l
06-82	08/18/87	3	1 8879	0 0296	0 0002 U	0.0220 U	0 0370 U	1.0	0.005 U
06-82	01/07/88	4	1.9435	0 0565	0 0002 U	0 0220 U	0 0370 U	1.3	0 004 J
06-82	03/24/88	1	1.3903	0 0097	0 0002 U	0 0220 U	0 0370 U	0 6	0 005 U
06-82	05/25/88	2	2.0039	0 0161	0.0002 U	0 0220 U	0 0421	1.1	0.005 U
06-82	09/27/88	3	1 7574	0 0071	0 0002 U	0 0220 U	0.0370 U	0 8	0.005 U
06-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
47-86	05/13/87	1	3 8325	0.0325	0 0002 U	0 0220 U	0 0370 U	5 0 U	0.0050 U
47-86	06/22/87	2	3.1143	0 0263	0 003	0 0220 U	0 0370 U	5.0 U	0 005 U
47-86	08/14/87	3	3.1834	0 0192	0 0002 U	0 0220 U	0 0370 U	0 5	0.005 U
47-86	10/05/87	4	2.8904	0 0139	0 0002 U	0 0220 U	0 0370 U	0 57	0.005 U
47-86	10/05/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
47-86	02/08/88	1	3 1210	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0 6	0 005 U
47-86	04/25/88	2	3 0397	0 0051 U	0 0002 U	0 0220 U	0.0370 U	0.6	0.005 U
47-86	07/11/88	3	3 3072	0 0051 U	0 0002 U	0 0220 U	0 0370 U	0.6	0.005 U
47-86	10/14/88	4	3 0618	0 0051 U	0 0002 U	0.0220 U	0 0370 U	0.6	NR
45-86	05/14/87	1	2 6072	0 0141	0 0002 U	0 0220 U	0.0370 U	5.0 U	0 005 U
45-86	06/12/87	2	2 1295	0 0051 U	0 0002 U	0 0220 U	0 0370 U	5 0 U	0 005 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss mg/l	Zinc (Zn), diss. mg/l
06-82	08/18/87	3	0 0076 U	9 9753	0 0609	0 01 U	0 0240 U	0 0590
06-82	01/07/88	4	0 0076 U	9 5266	0 0524	0 01 U	0 0240 U	0.1000
06-82	03/24/88	1	0 0076 U	6 1571	0 0391	0 010 U	0 0240 U	0 1359
06-82	05/25/88	2	0 0076 U	9 8275	0 0505	0 01 U	0 0360 U	0.0504
06-82	09/27/88	3	0 0076 U	9 1477	0 0553	0 010 U	0 0360 U	0 0366
06-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
47-86	05/13/87	1	0 0076 U	15 6347	0.1075	0 01 U	0.0240 U	0 02
47-86	06/22/87	2	0.0076 U	13 0281	0 0933	0 01 U	0 0275	0.0200 U
47-86	08/14/87	3	0 0076 U	17 2126	0 0998	0 01 U	0 0240 U	0 0264
47-86	10/05/87	4	0 0076 U	13.2303	0 0903	0 01 U	0 0240 U	0 0200 U
47-86	10/05/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
47-86	02/08/88	1	0 0076 U	13 0176	0.1006	0 01 U	0 0240 U	0 1072
47-86	04/25/88	2	0.0076 U	13.7898	0 0983	0 01 U	0 0360 U	0 0200 U
47-86	07/11/88	3	0.0076 U	13 5163	0.1023	0 010 U	0 0360 U	0 0364
47-86	10/14/88	4	0 0076 U	12 8942	0 1067	NR	0 0360 U	0 0283
45-86	05/14/87	1	0 0076 U	7 3332	0.0633	0 0100 U	0 0240 U	0 02 U
45-86	06/12/87	2	0.0076 U	6 5707	0 0550	0 01 U	0 0240 U	0 0200 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
45-86	08/14/87	3	0 0727	0 02 U	0 005 U	0 0615	0 005 U	0 001 U	10.0692
45-86	09/30/87	4	0 0336	0 011 J	0 005 U	0 0556	0 005 U	0 001 U	12 8262
45-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
45-86	03/25/88	1	0 1279	0 02 U	0 005 U	0 0616	0 005 U	0 001 U	7 7460
45-86	05/26/88	2	2.0950	0 0340 U	0 005 U	0 0357	0 0010 U	0 0050 U	6.6549
45-86	09/29/88	3	1 5414	0 0340 U	0 005 U	0 1284	0 0010 U	0 0050 U	9.0395
45-86	12/16/88	4	0 2929	0 0340 U	NR	0 1438	0 0010 U	0 0050 U	16.7922
08-81	05/14/87	1	0 0556	0 0600 U	0 01 U	0 1228	0 005 U	0 005 U	36 2560
08-81	06/23/87	2	0 0373	0 06 U	0 01 U	0 0762	0.005 U	0 005 U	49.8042
08-81	08/18/87	3	0 0587	0.02 U	0 003 J	0 1143	0 005 U	0 001 U	45.0880
08-81	01/14/88	4	0.0564	0 02 U	0 006	0 0981	0 005 U	0.008	36.2776
08-81	03/24/88	1	0 0492	0 02 U	0 005 U	0 0919	0 002 J	0.001	34.0653
08-81	05/25/88	2	0.0393	0.0340 U	0.005 U	0 0974	0 0010 U	0 0050 U	36.2416
08-81	10/04/88	3	0.0507	0.0340 U	0 005 U	0 0919	0.0010 U	0 0050 U	39.0569
08-81	10/04/88	3	0 0531	0 0340 U	0 005 U	0 0971	0.0010 U	0 0050 U	39 6638
08-81	12/22/88	4	0 0478	0 0340 U	NR	0 1005	0 0010 U	0 0050 U	39 8202
09-81	05/19/87	1	0 0386	0 0600 U	0 01 U	0 0360	0 005 U	0 005 U	50 6558

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Cesium (Cs), diss mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
45-86	08/14/87	3	0.02 U	0 0115	0 0220 U	0 0068 U	0.0495	0.005 U	NR
45-86	09/30/87	4	0.02 U	0 0100 U	0 0220 U	0 0063 U	0 0143	0.002 J	0.1 U
45-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
45-86	03/25/88	1	0 020 U	0 0100 U	0.0220 U	0 0086	0 2948	0 005 U	0.1 U
45-86	05/26/88	2	0 02 U	0 0110	0 0220 U	0.0063 U	1 0378	0 005 U	NR
45-86	09/29/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0.9975	0 005 U	NR
45-86	12/16/88	4	NR	0 0100 U	0 0220 U	0 0076	0 3369 N	NR	NR
08-81	05/14/87	1	0.2 U	0 0100 U	0.0220 U	0 0063 U	0 0136	0.005 U	NR
08-81	06/23/87	2	0.2 U	0 0100 U	0 0220 U	0 0063 U	0 0093	0.019	NR
08-81	08/18/87	3	0 02 U	0 0100 U	0.0220 U	0.0063 U	0 0185	0 005 U	NR
08-81	01/14/88	4	0 02 U	0 0100 U	0 0220 U	0.0193	0.0763	0 005 U	0.1 U
08-81	03/24/88	1	0 020 U	0.0100 U	0 0220 U	0 0065	0 0633	0 003 J	0 1 U
08-81	05/25/88	2	0 02 U	0 0129	0.0220 U	0 0063 U	0 0390	0.005 U	NR
08-81	10/04/88	3	0.020 U	0 0100 U	0 0220 U	0 0063 U	0.0198	0 005 U	NR
08-81	10/04/88	3	0.020 U	0.0100 U	0 0220 U	0 0063 U	0 0177	0 005 U	NR
08-81	12/22/88	4	NR	0 0100 U	0.0220 U	0 0063 U	0 0140	NR	NR
09-81	05/19/87	1	0 2 U	0 0100 U	0.0220 U	0 0063 U	0 0307	0 005 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
45-86	08/14/87	3	2 3749	0 0062	0 0002 U	0 0220 U	0 0370 U	0 6	0.005 U
45-86	09/30/87	4	3.2490	0 0051 U	0.0002 U	0 0220 U	0 0370 U	0 67	0 005 U
45-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
45-86	03/25/88	1	2.0558	0.0051 U	0 0002 U	0 0220 U	0 0370 U	0 5 U	0 005 U
45-86	05/26/88	2	1 8503	0 0060	0 0002 U	0 0220 U	0 0370 U	0 5	0 005 U
45-86	09/29/88	3	2 2715	0 0103	0 0002 U	0 0220 U	0 0370 U	1 1	0.005 U
45-86	12/16/88	4	3 7107	0 0075	0 0002 U	0 0220 U	0 0370 U	1 0 U	NR
08-81	05/14/87	1	7 9690	0 0107	0 0002 U	0 0220 U	0.0370 U	5.0 U	0.0050 U
08-81	06/23/87	2	7.0867	0 0051 U	0 0002 U	0 0220 U	0 0370 U	5 0 U	0 005 U
08-81	08/18/87	3	7.4774	0 0051 U	0 0002 U	0.0220 U	0 0370 U	1 8	0.005 U
08-81	01/14/88	4	8 8584	0 0051 U	0.0002 U	0 0220 U	0.0370 U	2 3	0.004 J
08-81	03/24/88	1	8 8369	0 0051 U	0 0002 U	0.0220 U	0 0370 U	1.6	0.005 U
08-81	05/25/88	2	9.0606	0 0164	0.0002 U	0 0220 U	0 0370 U	1 7	0 005 U
08-81	10/04/88	3	8.2290	0 0069	0.0002 U	0 0220 U	0 0370 U	1 9	0 005 U
08-81	10/04/88	3	8.4894	0 0078	0 0002 U	0 0220 U	0 0370 U	1.9	0.005 U
08-81	12/22/88	4	8.9205	0 0154	0 0002 U	0 0220 U	0 0370 U	1 6	NR
09-81	05/19/87	1	3 5687	0 0051 U	0 0002 U	0 0220 U	0 0370 U	5 0 U	0 0050 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
45-86	08/14/87	3	0 0076 U	10 7756	0.0617	0 01 U	0 0240 U	0 0498
45-86	09/30/87	4	0 0076 U	10 8467	0 0847	0 01 U	0 0334	0.0200 U
45-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
45-86	10/01/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
45-86	03/25/88	1	0 0076 U	9 2472	0 0556	0 010 U	0 0240 U	0.0294
45-86	05/26/88	2	0.0076 U	6 5515	0 0444	0 01 U	0 0360 U	0 0480
45-86	09/29/88	3	0 0076 U	17 7234	0.0614	0 010 U	0 0360 U	0 0593
45-86	12/16/88	4	0.0076 U	15 6076	0 1115	NR	0 0360 U	0.0803
08-81	05/14/87	1	0.0076 U	17 6824	0 2554	0 01 U	0 0240 U	0.02 U
08-81	06/23/87	2	0.0076 U	18.9038	0 2935	0 01 U	0 0398	0 0200 U
08-81	08/18/87	3	0.0076 U	20.8643	0 2981	0 01 U	0 0240 U	0.0200 U
08-81	01/14/88	4	0 0076 U	18 0305	0 2996	0 01 U	0.0240 U	0.0200 U
08-81	03/24/88	1	0 0076 U	17 0344	0.3062	0 010 U	0 0240 U	0 0808
08-81	05/25/88	2	0.0076 U	19 1913	0.2907	0 01 U	0 0360 U	0.0200 U
08-81	10/04/88	3	0.0076 U	18 4505	0·3231	0 010 U	0 0360 U	0 0200 U
08-81	10/04/88	3	0.0076 U	19 3266	0 3368	0 010 U	0 0360 U	0.0200 U
08-81	12/22/88	4	0 0076 U	18 1307	0.3422	NR	0 0360 U	0 0200 U
09-81	05/19/87	1	0 0076 U	22 5516	0 4268	0 01 U	0 0240 U	0 02 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
09-81	06/23/87	2	0 0364	0 06 U	0 01 U	0 0339	0 005 U	0 005 U	54.8688
09-81	08/18/87	3	0 0546	0 02 U	0 005 U	0 0496	0.005 U	0 001 U	49.6003
09-81	01/13/88	4	0 1024	0 02 U	0 006	0 0353	0 005 U	0 0005 J	45.0152
09-81	03/24/88	1	0 0462	0 02 U	0 003 J	0 0466	0 005 U	0 001	41 9736
09-81	03/24/88	1	0.0476	0 02 U	0 003 J	0 0308	0.005 U	0 001	40 7740
09-81	05/25/88	2	0 0583	0 0340 U	0 006	0 0484	0.0010 U	0 0050 U	46 4877
09-81	05/26/88	2	0.0874	0 0340 U	0 006	0 0500	0 0010 U	0 0050 U	46 7207
09-81	09/27/88	3	0 0369	0 0340 U	0 005 U	0 0355	0.0010 U	0 0050 U	47.0098
09-81	12/22/88	4	0 0648	0 0340 U	NR	0 0518	0 0010 U	0 0050 U	53 2872
03-82	05/20/87	1	0 2525	0.06 U	0.0100 U	0 0428	0 005 U	0 0050 U	19 4273
03-82	06/18/87	2	0 0290 U	0 06 U	0 01 U	0 0676	0 005 U	0.005 U	23 7220
03-82	08/25/87	3	0 0470	0 02 U	0 005 U	0 1173	0 005 U	0 0005 J	18.7112
03-82	03/29/88	1	0 0449	0 02 U	0 005 U	0 0464	0 005 U	0 001 U	14.3734
03-82	05/25/88	2	0.8308	0 0340 U	0 005 U	0 0709	0.0010 U	0 0050 U	9.1870
03-82	09/28/88	3	0.0605 U	0.0340 U	0 005 U	0 1053	0.0010 U	0 0050 U	14.4178
03-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	05/19/87	1	0 0921	0 0600 U	0 01 U	0 0668	0 005 U	0 005 U	30.7456

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
09-81	06/23/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0145	0 018	NR
09-81	08/18/87	3	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0585	0.005 U	NR
09-81	01/13/88	4	0 02 U	0 0100 U	0 0220 U	0 0065	0 0819	0 002 J	0.1 U
09-81	03/24/88	1	0 020 U	0 0100 U	0.0220 U	0 0079	0 1054	0 005 U	0.1 U
09-81	03/24/88	1	0 020 U	0 0100 U	0 0220 U	0 0074	0 0810	0 005 U	0.1 U
09-81	05/25/88	2	0 02 U	0 0102	0 0220 U	0 0063 U	0 0378	0.005 U	NR
09-81	05/26/88	2	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0393	0 005 U	NR
09-81	09/27/88	3	0 020 U	0 0100 U	0 0220 U	0 0063 U	0 0250	0 005 U	NR
09-81	12/22/88	4	NR	0 0100 U	0.0220 U	0 0063 U	0 0286	NR	NR
03-82	05/20/87	1	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 3464	0 0050 U	NR
03-82	06/18/87	2	0 2 U	0 0100 U	0 0220 U	0 0063 U	0 0069 U	0 014	NR
03-82	08/25/87	3	0 02 U	0 0100 U	0.0220 U	0 0122	0.0236	0.005 U	NR
03-82	03/29/88	1	0.020 U	0 0100 U	0 0220 U	0 0063 U	0.0783	0 005 U	0.1 U
03-82	05/25/88	2	0 02 U	0 0100 U	0 0220 U	0.0066	0 6761	0 005 U	NR
03-82	09/28/88	3	0 020 U	0.0100 U	0 0220 U	0 0063 U	0.0596	0 005 U	NR
03-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	05/19/87	1	0 2 U	0 0257	0 0220 U	0 0063 U	0 3115	0 005 U	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
09-81	06/23/87	2	4 1392	0 0051 U	0 0002 U	0 0220 U	0 0370 U	5 0 U	0.005 U
09-81	08/18/87	3	4 2665	0 0051 U	0 0002 U	0 0220 U	0 0370 U	1 4	0 005 U
09-81	01/13/88	4	3.5654	0 0101	0 0002 U	0 0220 U	0 0370 U	1 4	0 004 J
09-81	03/24/88	1	3 7788	0.0059	0 0002 U	0 0220 U	0 0370 U	1 5	0 005 U
09-81	03/24/88	1	3 7109	0 0051 U	0 0002 U	0 0220 U	0 0370 U	1 5	0 005 U
09-81	05/25/88	2	3 4315	0.0051 U	0 0002 U	0 0220 U	0 0370 U	1 8	0.005 U
09-81	05/26/88	2	3.4350	0 0051 U	0 0002 U	0 0220 U	0 0370 U	1 7	0.005 U
09-81	09/27/88	3	4 4347	0 0125	0 0002 U	0 0220 U	0.0370 U	1 5	0 005 U
09-81	12/22/88	4	3.3925	0 0051 U	0 0002 U	0 0220 U	0 0370 U	1 8	NR
03-82	05/20/87	1	3.6566	0 0330	0 0002 U	0 0220 U	0 0370 U	5 0 U	0 005 U
03-82	06/18/87	2	4.2934	0 0654	0 0002 U	0.0220 U	0 0370 U	5 0 U	0 005 U
03-82	08/25/87	3	3 7123	0.0716	0 0002 U	0 0220 U	0 0481	2 2	0 005 U
03-82	03/29/88	1	3.0936	0.0087	0.0002 U	0 0220 U	0 0370 U	0 9	0 005 U
03-82	05/25/88	2	1.9978	0.0082	0.0002 U	0 0220 U	0 0370 U	2 5	0 005 U
03-82	09/28/88	3	2.7523	0.0190	0 0002 U	0 0220 U	0 0370 U	1 5	0 005 U
03-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	05/19/87	1	6 8858	0 0481	0 0002 U	0 0222	0 0370 U	5 0 U	0 0050 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss mg/l
09-81	06/23/87	2	0 0076 U	22 6974	0 4635	0 01 U	0 0302	0 0200 U
09-81	08/18/87	3	0 0076 U	25 8222	0 4518	0 01 U	0 0240 U	0 0268
09-81	01/13/88	4	0 0076 U	22 8651	0 4188	0 01 U	0 0240 U	0 0200 U
09-81	03/24/88	1	0 0076 U	19 0225	0 4322	0 010 U	0 0240 U	0 0649
09-81	03/24/88	1	0.0076 U	19 1561	0 4262	0 010 U	0 0240 U	0 0334
09-81	05/25/88	2	0 0076 U	22 0677	0 4281	0 01 U	0 0360 U	0 0200 U
09-81	05/26/88	2	0 0076 U	23 8479	0 4273	0 01 U	0 0360 U	0 0200 U
09-81	09/27/88	3	0.0076 U	22 8380	0 4818	0 010 U	0 0360 U	0 0200 U
09-81	12/22/88	4	0.0076 U	23 6533	0 5004	NR	0 0401	0 0200 U
03-82	05/20/87	1	0 0076 U	9 6362	0 0910	0 0100 U	0.0240 U	0 02 U
03-82	06/18/87	2	0.0076 U	9 6364	0.1067	0 01 U	0 0240 U	0 0200 U
03-82	08/25/87	3	0 0076 U	12 9497	0 0988	0 01 U	0 0240 U	0 1007
03-82	03/29/88	1	0 0076 U	9 4690	0 0790	0 010 U	0 0240 U	0 0563
03-82	05/25/88	2	0.0076 U	6 0265	0 0496	0 01 U	0 0360 U	0 0385
03-82	09/28/88	3	0.0076 U	13.0844	0.0787	0 010 U	0 0360 U	0 0543
03-82	12/19/88	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
56-86	05/19/87	1	0 0076 U	21 4615	0 1668	0 01 U	0 0240 U	0 02 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss mg/l	Antimony (Sb), diss mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss mg/l	Calcium (Ca), diss. mg/l
56-86	05/27/87	2	0.3316	0 06 U	0 01 U	0 0599	0 005 U	0 005 U	25 8710
56-86	07/15/87	3	0 0309	0 02 U	0 005 U	0 0847	0 005 U	0 001 U	31 0749
56-86	09/30/87	4	0 0290 U	0 02 U	0 005 U	0 1029	0 005 U	0 001 U	27.0996
56-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	02/15/88	1	0 0400	0.02 U	0 005 U	0 1220	0 005 U	0 001 U	27.4721
56-86	04/07/88	2	0 0290 U	0.0340 U	0 005 U	0 0675	0 0010 U	0 0050 U	23.5967
56-86	09/14/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	10/20/88	4	0 0999	0.0340 U	NR	0 0983	0 0021	0 0050 U	23.7039

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss mg/l	Copper (Cu), diss mg/l	Iron (Fe), diss mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
56-86	05/27/87	2	0 2 U	0 0100 U	0 0220 U	0 0071	0 3674	0.018	NR
56-86	07/15/87	3	0 02 U	0 0100 U	0 0220 U	0 0127	0.0145	0 005 U	NR
56-86	09/30/87	4	0 02 U	0 0100 U	0 0220 U	0 0063 U	0 0300	0 002 J	0.1 U
56-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	02/15/88	1	0.02 U	0 0100 U	0 02204 U	0 0063 U	0 0312	0 005 U	0.1 U
56-86	04/07/88	2	0.02 U	0 0100 U	0 0220 U	0 0063 U	0 0343	0 005 U	0.1 U
56-86	09/14/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	10/20/88	4	NR	0 0100 U	0 0220 U	NR	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss mg/l	Nickel (Ni), diss mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
56-86	05/27/87	2	5 4196	0 0197	0 0002 U	0 0220 U	0 0370 U	5 0 U	0 005 U
56-86	07/15/87	3	6 8215	0 0220	0 0002 U	0 220 U	0 0370 U	2 9	0.005 U
56-86	09/30/87	4	6 4920	0 0196	0 0002 U	0 0220 U	0 0370 U	2 4	0 005 U
56-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	02/15/88	1	6 8235	0 0071	0 0002 U	0 0220 U	0 0370 U	1 7	0 005 U
56-86	04/07/88	2	5 9775	0 0090	0 0002 U	0 0220 U	0 0396	1 0	0 005 U
56-86	09/14/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
56-86	10/20/88	4	5.5449	0 0058	NR	0 0220 U	0 0370 U	NR	NR

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Groundwater Dissolved Metals Results

For Wells at Rockwell (Rocky Flats)

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss mg/l	Thallium (Tl), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss mg/l
56-86	05/27/87	2	0 0076 U	19 2985	0.1393	0 01 U	0 0240 U	0 0306
56-86	07/15/87	3	0 0076 U	21 9101	0.1740	0 01 U	0 0323	0 0373
56-86	09/30/87	4	0 0076 U	19.9013	0 1674	0 01 U	0 0240 U	0 0279
56-86	09/30/87	4	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
56-86	10/01/87	5	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
56-86	02/15/88	1	0 0076 U	24.6484	0 1697	0 01 U	0 0240 U	0 0261
56-86	04/07/88	2	0 0076 U	21 8491	0.1380	0 01 U	0 0360 U	0 0226
56-86	09/14/88	3	INSUFFICIENT SAMPLE FOR METALS ANALYSIS					
56-86	10/20/88	4	0 0076 U	17.7216	0 1539	NR	0 0360 U	0 0495

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

DISSOLVED RADIONUCLIDES

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
49-86	08/25/87	3	0 0 ± 1.0		-.32 ± 64	0 8	03 ± .45	0 6	2218 ± 397	
49-86	12/14/87	4	01 ± 06	22	0 00 ± 18	1 0	NR		<220	
49-86	03/29/88	1	4 7 ± 0.6		0 00 ± 0 18	0 99	0 13 ± 0 22	1 2	<200	
49-86	05/31/88	2	0 00 ± 0 22	0 51	0 00 ± 0 04	0 12	0.00 ± 0 10	0 39	<200	
49-86	09/30/88	3	NR		NR		NR		<220	
49-86	12/20/88	4	NR		NR		NR		<240	
05-82	05/13/87	1	***							
05-82	06/18/87	2	***							
05-82	09/17/87	3	-0 3 ± 1 0	1 7	.11 ± 76	0 7	.04 ± 62	1 0	1005 ± 316	
05-82	01/07/88	4	0 00 ± 07	32	0 00 ± 14	79	NR		<200	
05-82	03/24/88	1	0 00 ± 0 11	0 74	0 00 ± 0 39	1 5	NR		<200	
05-82	05/25/88	2	0.18 ± 0.23	0 55	0 00 ± 0 04	0 13	0.06 ± 0 09	0 40	<210	
05-82	09/27/88	3	NR		NR		NR		<200	
05-82	12/20/88	4	NR		NR		NR		<240	
06-82	05/12/87	1	***							
06-82	06/18/87	2	***							
06-82	08/18/87	3	-0 2 ± 0 6	0 7	- 32 ± 60	0.7	-.04 ± .43	0 9	<459	
06-82	01/07/88	4	14 ± .10	29	0 00 ± 17	83	0.00 ± .20	3 7	<200	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
49-86	08/25/87	3	1 5	
49-86	12/14/87	4	<1 0	
49-86	03/29/88	1	NR	
49-86	05/31/88	2	NR	
49-86	09/30/88	3	NR	
49-86	12/20/88	4	NR	
05-82	05/13/87	1		***
05-82	06/18/87	2		***
05-82	09/17/87	3	1.2	
05-82	01/07/88	4	<1 0	
05-82	03/24/88	1	NR	
05-82	05/25/88	2	NR	
05-82	09/27/88	3	NR	
05-82	12/20/88	4	NR	
06-82	05/12/87	1		***
06-82	06/18/87	2		***
06-82	08/18/87	3	<1.0	
06-82	01/07/88	4	<1.0	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
06-82	03/24/88	1	0 ± 3	7	-1 ± 9	22	0 00 ± 0 12	0.56	0 03 ± 0.07	0 53
06-82	05/25/88	2	5 ± 3	6	11 ± 9	18	0 04 ± 0 17	0 72	0 00 ± 0 02	0 08
06-82	09/27/88	3	NR		NR		NR		NR	
06-82	12/19/88	4	***							
47-86	05/13/87	1	***							
47-86	06/22/87	2	***							
47-86	08/14/87	3	10 ± 17	27	6 ± 41	76	0 4 ± 1 4	0 8	4 0 ± 1 4	
47-86	10/05/87	4	3 ± 4	6	7 ± 9	17	.15 ± 09	26	04 ± 04	.17
47-86	10/05/87	4	***							
47-86	02/08/88	1	3 ± 4		15 ± 13		0 16 ± 0 12		0 00 ± 0 06	
47-86	04/25/88	2	2 ± 4	11	-6 ± 6	22	0 11 ± 0 24	1 1	0 01 ± 0 03	0 13
47-86	07/11/88	3	2 ± 1	2	0 ± 2	4	0 14 ± 0.21	0 68	0 00 ± 0 03	0 09
47-86	10/14/88	4	NR		NR		NR		NR	
45-86	05/14/87	1	***							
45-86	06/12/87	2	***							
45-86	08/14/87	3	25 ± 24	30	27 ± 41	72	2 0 ± 1 5		0 2 ± 0 6	
45-86	09/30/87	4	21 ± 5		26 ± 10		0 00 ± 0 06	23	0 00 ± 0 03	.13
45-86	09/30/87	4	***							
45-86	10/01/87	4	NR		NR		0 099 ± 0.174		NR	

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
06-82	03/24/88	1	0 03 ± 0 07	0 51	0 00 ± 0 13	0 67	NR		<210	
06-82	05/25/88	2	0 07 ± 0.17	0 69	0 00 ± 0 03	0.12	0 00 ± 0 09	0 63	<200	
06-82	09/27/88	3	NR		NR		NR		<190	
06-82	12/19/88	4	***							
47-86	05/13/87	1	***							
47-86	06/22/87	2	***							
47-86	08/14/87	3	5 5 ± 2 1		11 ± 78	0 7	- 04 ± 82	1 9	<526	
47-86	10/05/87	4	18 ± 08	24	11 ± 14	71	0 00 ± 05	13	<460	
47-86	10/05/87	4	***							
47-86	02/08/88	1	0 05 ± 0 07		0 00 ± 0 21		NR		<210	
47-86	04/25/88	2	0 18 ± 0 23	1.1	0 00 ± 0 05	0.13	0 08 ± 0 10	0 37	<200	
47-86	07/11/88	3	0 23 ± 0 17	0 50	0.12 ± 0 07		0 01 ± 0 17	1 2	200	
47-86	10/14/88	4	NR		NR		NR		<220	
45-86	05/14/87	1	***							
45-86	06/12/87	2	***							
45-86	08/14/87	3	9 8 ± 2.3		10 ± 86	1.1	69 ± 91	0 6	<535	
45-86	09/30/87	4	0.02 ± 0 96	.14	0 00 ± 0 09	40	0.00 ± 0 44	5 5	<460	
45-86	09/30/87	4	***							
45-86	10/01/87	4	0 085 ± 0.053		0 106 ± 0 062		-0 019 ± 0 036		NR	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
06-82	03/24/88	1	NR	
06-82	05/25/88	2	NR	
06-82	09/27/88	3	NR	
06-82	12/19/88	4		***
47-86	05/13/87	1		***
47-86	06/22/87	2		***
47-86	08/14/87	3	<1 0	
47-86	10/05/87	4	<1 0	
47-86	10/05/87	4		***
47-86	02/08/88	1	NR	
47-86	04/25/88	2	NR	
47-86	07/11/88	3	NR	
47-86	10/14/88	4	NR	
45-86	05/14/87	1		***
45-86	06/12/87	2		***
45-86	08/14/87	3	2.1	
45-86	09/30/87	4	<1.0	
45-86	09/30/87	4		***
45-86	10/01/87	4	NR	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
45-86	03/25/88	1	3 ± 3	6	-4 ± 10	23	0 09 ± 0 11	0 42	0 03 ± 0 07	0 41
45-86	05/26/88	2	8 ± 4		2 ± 9	21	0 00 ± 0 23	0 60	0 00 ± 0 03	0 07
45-86	09/29/88	3	NR		NR		NR		NR	
45-86	12/16/88	4	NR		NR		NR		NR	
08-81	05/14/87	1	***							
08-81	06/23/87	2	***							
08-81	08/18/87	3	29 ± 24	33	7 ± 39	73	4 4 ± 1 6		0 2 ± 0 4	
08-81	01/14/88	4	4 ± 7	13	-2 ± 11	22	3 6 ± 0 5		12 ± 06	16
08-81	03/24/88	1	10 ± 6	10	4 ± 10	21	3 3 ± 0 4		0 16 ± 0 09	0 29
08-81	05/25/88	2	11 ± 4		15 ± 9	18	3 2 ± 0 3		0 06 ± 0 03	0 13
08-81	10/04/88	3	NR		NR		NR		NR	
08-81	10/04/88	3	NR		NR		NR		NR	
08-81	12/22/88	4	NR		NR		NR		NR	
09-81	05/19/87	1	***							
09-81	06/23/87	2	***							
09-81	08/18/87	3	14 ± 27	46	43 ± 44	76	-0.1 ± 1.1	0.6	0 0 ± 0 2	0.4
09-81	01/13/88	4	3 ± 7	13	5 ± 12	22	0 00 ± 07	64	0 00 ± 04	.19
09-81	03/24/88	1	7 ± 6	12	-6 ± 14	34	0 42 ± 0 26	0 81	0 02 ± 0.10	0 77

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
45-86	03/25/88	1	0 03 ± 0.08	0 41	0 00 ± 0.13	0 51	NR		<210	
45-86	05/26/88	2	0 00 ± 0 22	0.58	0 00 ± 0 04	0 15	NR		<210	
45-86	09/29/88	3	NR		NR		NR		<200	
45-86	12/16/88	4	NR		NR		NR		<240	
08-81	05/14/87	1	***							
08-81	06/23/87	2	***							
08-81	08/18/87	3	4 6 ± 1.4		- 32 ± 55	0 5	- 04 ± 65	3 4	<535	
08-81	01/14/88	4	2 5 ± 0.4		0 00 ± 18	82	07 ± .10	48	<220	
08-81	03/24/88	1	2 0 ± 0.3		0 00 ± 0 18	0 61	NR		<200	
08-81	05/25/88	2	·2 0 ± 0 2		0 00 ± 0 03	0 12	0 11 ± 0 10	2 9	<200	
08-81	10/04/88	3	NR		NR		NR		<220	
08-81	10/04/88	3	NR		NR		NR		<210	
08-81	12/22/88	4	NR		NR		NR		<220	
09-81	05/19/87	1	***							
09-81	06/23/87	2	***							
09-81	08/18/87	3	0 1 ± 0.7	0 6	- 13 ± .58	0 4	16 ± 38		<535	
09-81	01/13/88	4	.08 ± .11	.54	0.00 ± .17	1 0	0 00 ± .21	1 6	<220	
09-81	03/24/88	1	0 24 ± 0 19	0.75	0 00 ± 0 23	1.7	NR		<200	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
10-81	05/11/87	1	***							
10-81	06/18/87	2	***							
10-81	08/21/87	3	8 ± 19	33	39 ± 43	73	-0 4 ± 1 7	2 2	3 2 ± 1 9	3 4
10-81	08/21/87	3	7 ± 17	30	29 ± 45	79	0 0 ± 1 0		0 4 ± 0 4	
10-81	01/12/88	4	3 ± 4	7	1 ± 9	16	05 ± 10	42	0 00 ± 02	12
10-81	02/04/88	1	-2 ± 4		-9 ± 11		0 02 ± 0 08		0 01 ± 0 06	
10-81	04/07/88	2	0 ± 4	9	15 ± 10	21	0 08 ± 0 22	1 8	0.02 ± 0.05	0 20
10-81	07/07/88	3	1 ± 1	2	1 ± 1	4	0 00 ± 0 21	0 54	0.00 ± 0.03	0.07
10-81	10/12/88	4	NR		NR		NR		NR	
10-81	10/12/88	4	NR		NR		NR		NR	
07-82	05/11/87	1	***							
07-82	08/20/87	3	DRY							
07-82	12/05/87	4	DRY							
07-82	02/04/88	1	***							
07-82	04/07/88	2	***							
07-82	07/07/88	3	***							
07-82	10/11/88	4	***							
51-86	05/13/87	1	***							

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
10-81	05/11/87	1	***							
10-81	06/18/87	2	***							
10-81	08/21/87	3	-1 1 ± 2 3	4.2	- 04 ± 50		- 04 ± .18	1 6	<471	
10-81	08/21/87	3	-0 3 ± 0 6	0 7	- 32 ± 46	0 4	- 04 ± 56	1 0	<526	
10-81	01/12/88	4	.20 ± .12	35	0 00 ± 14	.98	0 00 ± 47	3 3	<220	
10-81	02/04/88	1	0 12 ± 0.08		0 00 ± 0 21		0 00 ± 0 32		230 ± 100	
10-81	04/07/88	2	0 09 ± 0 26	2 1	0 00 ± 0 04	0 18	0 00 ± 0 19	0 51	380 ± 100	
10-81	07/07/88	3	0.00 ± 0 16	0 40	0 00 ± 0 04	0 09	0 00 ± 0 12	0 36	210	
10-81	10/12/88	4	NR		NR		NR		<220	
10-81	10/12/88	4	NR		NR		NR		330 ± 100	
07-82	05/11/87	1	***							
07-82	08/20/87	3	DRY							
07-82	12/05/87	4	DRY							
07-82	02/04/88	1	***							
07-82	04/07/88	2	***							
07-82	07/07/88	3	***							
07-82	10/11/88	4	***							
51-86	05/13/87	1	***							

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
10-81	05/11/87	1	***	
10-81	06/18/87	2	***	
10-81	08/21/87	3	1 3	
10-81	08/21/87	3	<1 0	
10-81	01/12/88	4	<1 0	
10-81	02/04/88	1	NR	
10-81	04/07/88	2	NR	
10-81	07/07/88	3	NR	
10-81	10/12/88	4	NR	
10-81	10/12/88	4	NR	
07-82	05/11/87	1	***	
07-82	08/20/87	3	DRY	
07-82	12/05/87	4	DRY	
07-82	02/04/88	1	***	
07-82	04/07/88	2	***	
07-82	07/07/88	3	***	
07-82	10/11/88	4	***	
51-86	05/13/87	1	***	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
51-86	06/17/87	2	***							
51-86	08/20/87	3	4 ± 19	35	6 ± 44	83	-0 4 ± 1 1	0 8	0 0 ± 0 3	0 5
51-86	12/10/87	4	43 ± 9		42 ± 10		10 ± 10	42	02 ± 04	11
51-86	02/08/88	1	9 ± 5		12 ± 12		0 03 ± 0 12		0 02 ± 0 06	
51-86	04/25/88	2	2 ± 3	6	4 ± 8	20	0 00 ± 0 24	1 2	0 00 ± 0 03	0 13
51-86	04/26/88	2	3 ± 3	6	-3 ± 9	22	0 00 ± 0 24	1 6	0 00 ± 0 03	0 18
51-86	07/07/88	3	1 ± 1	2	0 ± 1	4	0 00 ± 0 20	0 69	0 00 ± 0 03	0 09
51-86	10/14/88	4	NR		NR		NR		NR	
50-86	05/11/87	1	***							
50-86	06/16/87	2	***							
50-86	08/14/87	3	6 ± 15	27	-8 ± 42	81	NR		NR	
50-86	12/10/87	4	30 ± 8		32 ± 9		23 ± 12	40	01 ± 04	12
50-86	03/25/88	1	8 ± 5	8	-14 ± 15	37	0 23 ± 0 11	0 32	0 01 ± 0 06	0 31
50-86	05/31/88	2	6 ± 3		3 ± 9	20	0 41 ± 0 25	0 66	0 03 ± 0 04	0 08
50-86	10/04/88	3	NR		NR		NR		NR	
50-86	12/20/88	4	NR		NR		NR		NR	
49-86	04/08/87	1	***							
49-86	06/18/87	2	***							

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
51-86	06/17/87	2	***							
51-86	08/20/87	3	0 0 ± 0 5		-1.6 ± 6 0	0 5	- 04 ± 47	1 0	<492	
51-86	12/10/87	4	07 ± .08	.32	0 00 ± 14	.76	0 00 ± 19	99	<220	
51-86	02/08/88	1	0 13 ± 0 10		0 00 ± 0 18		NR		<210	
51-86	04/25/88	2	0 00 ± 0 23	1 1	0 02 ± 0 05	0 11	0 02 ± 0 10	0 38	220 ± 100	
51-86	04/26/88	2	0 05 ± 0.23	1.5	0 01 ± 0 05	0 13	0 05 ± 0 10	0 38	<220	
51-86	07/07/88	3	0 00 ± 0 15	0.51	0 00 ± 0 04	0 09	0 00 ± 0 09	0 40	210	
51-86	10/14/88	4	NR		NR		NR		270 ± 90	
50-86	05/11/87	1	***							
50-86	06/16/87	2	***							
50-86	08/14/87	3	NR		- 32 ± 65	0 9	- 04 ± 43	0 8	487 ± 291	
50-86	12/10/87	4	18 ± 10	31	0 00 ± 10	.55	0 00 ± 19	95	<220	
50-86	03/25/88	1	0.16 ± 0.09	0 29	0 02 ± 0 33	1 6	NR		<220	
50-86	05/31/88	2	0 17 ± 0.23	0.64	0.00 ± 0 04	0 11	0 02 ± 0 10	0 44	230 ± 90	
50-86	10/04/88	3	NR		NR		NR		<220	
50-86	12/20/88	4	NR		NR		NR		<240	
49-86	04/08/87	1	***							
49-86	06/18/87	2	***							

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr	Strontium 89, 90 pCi/l	(mda)
51-86	06/17/87	2	***	
51-86	08/20/87	3	<1.0	
51-86	12/10/87	4	<1 0	
51-86	02/08/88	1	NR	
51-86	04/25/88	2	NR	
51-86	04/26/88	2	NR	
51-86	07/07/88	3	NR	
51-86	10/14/88	4	NR	
50-86	05/11/87	1	***	
50-86	06/16/87	2	***	
50-86	08/14/87	3	3 5	
50-86	12/10/87	4	<1 0	
50-86	03/25/88	1	NR	
50-86	05/31/88	2	NR	
50-86	10/04/88	3	NR	
50-86	12/20/88	4	NR	
49-86	04/08/87	1	***	
49-86	06/18/87	2	***	

Notes NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
49-86	08/25/87	3	6 ± 16	27	-9 ± 34	66	0 9 ± 1 4		0 6 ± 0 7	0 8
49-86	12/14/87	4	620 ± 110		440 ± 30		13 ± 09	28	01 ± 03	.08
49-86	03/29/88	1	16 ± 5		4 ± 10	23	3 9 ± 0 5		0 21 ± 0 11	0 35
49-86	05/31/88	2	2 ± 5	12	-6 ± 13	31	0 01 ± 0 24	0 53	0 00 ± 0 03	0 06
49-86	09/30/88	3	NR		NR		NR		NR	
49-86	12/20/88	4	NR		NR		NR		NR	
05-82	05/13/87	1	***							
05-82	06/18/87	2	***							
05-82	09/17/87	3	4 ± 16	28	-4 ± 40	77	0 0 ± 1 2	1 0	0 0 ± 0 4	0 7
05-82	01/07/88	4	1 ± 7	13	8 ± 12	21	0 00 ± 09	39	0.00 ± 04	14
05-82	03/24/88	1	1 ± 6	12	4 ± 18	42	0 22 ± 0 18	0 77	0 07 ± 0 12	0 76
05-82	05/25/88	2	3 ± 4	7	7 ± 8	18	0 13 ± 0 24	0 57	0 00 ± 0 03	0.07
05-82	09/27/88	3	NR		NR		NR		NR	
05-82	12/20/88	4	NR		NR		NR		NR	
06-82	05/12/87	1	***							
06-82	06/18/87	2	***							
06-82	08/18/87	3	12 ± 19	32	14 ± 39	71	0 1 ± 1.1		0 0 ± 0 3	
06-82	01/07/88	4	26 ± 8		24 ± 12		03 ± 08	35	01 ± 04	11

Notes NR = Analyte not reported

*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
45-86	03/25/88	1	NR	
45-86	05/26/88	2	NR	
45-86	09/29/88	3	NR	
45-86	12/16/88	4	NR	
08-81	05/14/87	1		***
08-81	06/23/87	2		***
08-81	08/18/87	3	2 6	
08-81	01/14/88	4	<1.0	
08-81	03/24/88	1	NR	
08-81	05/25/88	2	NR	
08-81	10/04/88	3	NR	
08-81	10/04/88	3	NR	
08-81	12/22/88	4	NR	
09-81	05/19/87	1		***
09-81	06/23/87	2		***
09-81	08/18/87	3	<1 0	
09-81	01/13/88	4	<1.0	
09-81	03/24/88	1	NR	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
09-81	03/24/88	1	1 ± 5	12	2 ± 16	37	0 39 ± 0.14		0 00 ± 0.06	0.34
09-81	05/25/88	2	6 ± 5	10	17 ± 14	31	0 72 ± 0 26		0 03 ± 0.04	0 08
09-81	05/26/88	2	7 ± 5	10	17 ± 14	31	0 72 ± 0 19		0 02 ± 0 03	0.08
09-81	09/27/88	3	NR		NR		NR		NR	
09-81	12/22/88	4	NR		NR		NR		NR	
03-82	05/20/87	1	***							
03-82	06/18/87	2	***							
03-82	08/25/87	3	12 ± 19	30	46 ± 46	78	0 1 ± 1 3	0 9	0.2 ± 0 4	
03-82	03/29/88	1	15 ± 11	16	-7 ± 9	2	6 4 ± 0 9		0 47 ± 0 17	0 53
03-82	05/25/88	2	8 ± 4		3 ± 8	18	0 00 ± 0 23	0 63	0 00 ± 0 03	0 07
03-82	09/28/88	3	NR		NR		NR		NR	
03-82	12/19/88	4	***							
56-86	05/19/87	1	***							
56-86	05/27/87	2	***							
56-86	07/15/87	3	7 ± 24	43	88 ± 49		0 8 ± 1.1		0 5 ± 0 3	
56-86	09/30/87	4	6 ± 4	6	16 ± 10	18	04 ± .13	.59	.04 ± .05	24
56-86	09/30/87	4	***							
56-86	10/01/87	5	NR		NR		NR		NR	
56-86	02/15/88	1	10 ± 4		4 ± 12		0 00 ± 0 09		0 00 ± 0 06	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
09-81	03/24/88	1	0 29 ± 0 13	0 33	0 00 ± 0 21	1 4	NR		<200	
09-81	05/25/88	2	0 54 ± 0 25	0.67	0 00 ± 0 03	0 14	NR		<200	
09-81	05/26/88	2	0 60 ± 0 18	0 66	0 00 ± 0 03	0 13	NR		<200	
09-81	09/27/88	3	NR		NR		NR		<190	
09-81	12/22/88	4	NR		NR		NR		<240	
03-82	05/20/87	1	***							
03-82	06/18/87	2	***							
03-82	08/25/87	3	1 5 ± 1 3		.05 ± 55	0.4	- 04 ± .18		557 ± 323	
03-82	03/29/88	1	5 8 ± 0 8		0.00 ± 0 43	2 0	0.00 ± 0.18	0 87	<200	
03-82	05/25/88	2	0 00 ± 0.22	0 60	0 00 ± 0 03	0.15	0.00 ± 0 09	0 37	<210	
03-82	09/28/88	3	NR		NR		NR		<210	
03-82	12/19/88	4	***							
56-86	05/19/87	1	***							
56-86	05/27/87	2	***							
56-86	07/15/87	3	0 4 ± 0.6		.00 ± 46	0 8	- 04 ± .59	1 1	<493	
56-86	09/30/87	4	.11 ± 09	40	0.00 ± 05	78	0.00 ± .17	3.6	<500	
56-86	09/30/87	4	***							
56-86	10/01/87	5	0.172 ± 0.064		0 001 ± 0 045		-0 008 ± 0 038		NR	
56-86	02/15/88	1	0 00 ± 0 08		0 00 ± 0.19		0.00 ± 0 16		<210	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
09-81	03/24/88	1	NR	
09-81	05/25/88	2	NR	
09-81	05/26/88	2	NR	
09-81	09/27/88	3	NR	
09-81	12/22/88	4	NR	
03-82	05/20/87	1		***
03-82	06/18/87	2		***
03-82	08/25/87	3	<1 0	
03-82	03/29/88	1	NR	
03-82	05/25/88	2	NR	
03-82	09/28/88	3	NR	
03-82	12/19/88	4		***
56-86	05/19/87	1		***
56-86	05/27/87	2		***
56-86	07/15/87	3	1.3	
56-86	09/30/87	4	<1.0	
56-86	09/30/87	4		***
56-86	10/01/87	5	NR	
56-86	02/15/88	1	NR	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Gross Alpha pCi/l	(mda)	Gross Beta pCi/l	(mda)	Uranium 233, 234 pCi/l	(mda)	Uranium 235 pCi/l	(mda)
56-86	04/07/88	2	1 ± 4	10	-3 ± 10	23	0 13 ± 0 22	1 3	0 02 ± 0 03	0 19
56-86	09/14/88	3	***							
56-86	10/20/88	4	Data not yet received							

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Uranium 238 pCi/l	(mda)	Plutonium 239, 240 pCi/l	(mda)	Americium 241 pCi/l	(mda)	Tritium pCi/l	(mda)
56-86	04/07/88	2	0 00 ± 0 26	1 6	0 04 ± 0 04	0 26	0 00 ± 0.16	0 47	<220	
56-86	09/14/88	3	***							
56-86	10/20/88	4	Data not yet received							

Notes· NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

Groundwater Dissolved Radiochemistry Results

for Regulated Units at Rocky Flats Plant

West Spray Field Alluvial Wells

Well Number	Date Sampled	Qtr.	Strontium 89, 90 pCi/l	(mda)
56-86	04/07/88	2	NR	
56-86	09/14/88	3	***	
56-86	10/20/88	4	Data not yet received	

Notes: NR = Analyte not reported
*** = Insufficient Sample for Radiochemistry Analyses

FIELD PARAMETER DATA

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **8-81**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/14/87	1	N	N	N
06/23/87	2	N	N	N
08/18/87	3	N	8.30	14.0
01/14/88	4	N	7.90	10.9
03/24/88	1	3290.0	7.30	10.0
05/25/88	2	332.0	8.40	15.3
10/04/88	3	N	N	N
10/04/88	3	410.0	8.20	11.5
12/22/88	4	310.0	7.70	11.6

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **9-81**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/19/87	1	N	N	N
06/23/87	2	N	N	N
08/18/87	3	N	8.10	18.5
01/13/88	4	N	9.00	11.9
03/24/88	1	371.0	7.30	7.9
03/24/88	1	371.0	7.30	7.9
05/25/88	2	395.0	9.60	16.1
05/26/88	2	N	N	N
09/27/88	3	N	N	N
12/22/88	4	360.0	8.40	11.8

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **10-81**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/11/87	1	N	N	N
06/18/87	2	N	N	N
08/21/87	3	N	N	N
08/21/87	3	N	7.00	16.4
01/12/88	4	N	7.00	12.2
02/04/88	1	N	8.40	10.1
04/07/88	2	139.0	7.60	N
07/07/88	3	170.0	6.80	13.1
10/12/88	4	190.0	6.00	15.3
10/12/88	4	190.0	6.00	15.3

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **3-82**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/20/87	1	N	N	N
06/18/87	2	N	N	N
08/25/87	3	N	6.80	15.5
03/29/88	1	176.0	6.80	8.2
05/25/88	2	91.0	6.30	16.6
09/28/88	3	150.0	6.50	16.8
12/19/88	4	N	N	N

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: 5-82

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/13/87	1	N	N	N
06/18/87	2	N	N	N
09/17/87	3	N	6.40	16.9
01/07/88	4	N	6.40	9.8
03/24/88	1	227.0	7.30	9.2
05/25/88	2	140.0	6.40	13.4
09/27/88	3	320.0	6.80	14.5
12/20/88	4	260.0	7.60	10.9

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **6-82**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/12/87	1	N	N	N
06/18/87	2	N	N	N
08/18/87	3	N	7.20	13.9
01/07/88	4	N	7.20	8.8
03/24/88	1	82.0	6.90	9.1
05/25/88	2	82.0	6.50	14.9
09/27/88	3	100.0	6.20	13.7
12/19/88	4	N	N	N

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **7-82**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/11/87	1	N	N	N
08/20/87	3	DRY		
12/05/87	4	DRY		
02/04/88	1	N	N	N
04/07/88	2	N	N	N
07/07/88	3	N	N	N
10/11/88	4	N	N	N

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **45-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/14/87	1	91.0	6.40	12.0
06/12/87	2	114.0	6.50	14.7
08/14/87	3	N	5.80	12.1
09/30/87	4	105.0	6.90	15.3
09/30/87	4	N	N	N
10/01/87	4	N	N	N
03/25/88	1	111.0	7.60	8.2
05/26/88	2	87.0	7.10	14.4
09/29/88	3	114.0	5.90	13.1
12/16/88	4	120.0	7.50	13.1

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **47-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/13/87	1	195.0	6.00	12.0
06/22/87	2	164.0	7.40	11.9
08/14/87	3	N	7.30	13.1
10/05/87	4	163.0	6.50	15.1
10/05/87	4	N	N	N
02/08/88	1	N	6.10	7.2
04/25/88	2	165.0	6.80	N
07/11/88	3	149.0	8.10	15.1
10/14/88	4	150.0	7.60	13.6

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **49-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
04/08/87	1	400.0	7.00	11.0
06/18/87	2	330.0	6.20	11.7
08/25/87	3	N	7.40	12.5
12/14/87	4	188.0	7.20	8.8
03/29/88	1	317.0	6.70	10.2
05/31/88	2	327.0	6.50	11.0
09/30/88	3	250.0	6.80	12.1
12/20/88	4	230.0	8.00	10.1

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **50-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/11/87	1	280.0	7.00	N
06/16/87	2	166.0	7.50	13.6
08/14/87	3	N	6.50	14.5
12/10/87	4	261.0	7.00	11.5
03/25/88	1	230.0	7.20	13.3
05/31/88	2	257.0	7.80	11.4
10/04/88	3	290.0	7.60	11.8
12/20/88	4	230.0	7.40	10.5

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **51-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/13/87	1	N	N	N
06/17/87	2	178.0	7.20	13.2
08/20/87	3	N	7.40	15.5
12/10/87	4	170.0	7.10	11.5
02/08/88	1	N	8.40	10.6
04/25/88	2	129.0	7.10	N
04/26/88	2	N	N	N
07/07/88	3	164.0	6.10	13.9
10/14/88	4	170.0	7.20	13.8

N = Field parameter not measured

02/24/89

GROUND-WATER FIELD DATA
ROCKY FLATS PLANT

WELL NUMBER: **56-86**

DATE MEASURED	QUARTER	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	FIELD TEMPERATURE (degrees C)
05/19/87	1	295.0	6.70	13.9
05/27/87	2	318.0	6.60	13.6
07/15/87	3	N	6.60	19.9
09/30/87	4	276.0	6.30	19.3
09/30/87	4	N	N	N
10/01/87	5	N	N	N
02/15/88	1	N	7.40	6.1
04/07/88	2	312.0	7.40	N
09/14/88	3	N	N	N
10/20/88	4	N	N	N

N = Field parameter not measured

EXPLANATION

● 9-87BR	Bedrock Monitor Well
○ 18-86	Alluvial Monitor Well
△ 16-74	Existing Wells (Pre 1986)

Contour Interval: 5 feet

Scale: 1"=500'

500' 0 500' 1000 feet

Prepared by: Scharf & Associates, Inc., Denver, Colorado
from photography dated 5/20/86

WESTON
MANAGERS DESIGNERS/CONSULTANTS

215 Union Boulevard
Suite 600
Lakewood, Colorado 80228
(303) 980-6800

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden, Colorado

PLATE I

MONITOR WELL LOCATIONS