

**DRAFT
NATURE AND EXTENT OF
SURFACE WATER AND SEDIMENT
CONTAMINATION**

SUMMARY REPORT

**ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE
10808 HIGHWAY 93
GOLDEN, CO 80403-8200**

JULY 29, 2005



**Document Classification
Review Waiver per
Classification Office
Waiver No.: CEX-105-01**

ADMIN RECORD

SW-A-005201

1/92

TABLE OF CONTENTS

1.0 INTRODUCTION1

2.0 SURFACE WATER AND SEDIMENT MONITORING AT RFETS2

3.0 SURFACE WATER AND SEDIMENT DATA5

 3.1 Data Source.....5

 3.2 Data Adequacy and Quality.....5

4.0 IDENTIFICATION OF SURFACE WATER AOIs6

 4.1 Surface Water AOI Screening and Identification Process.....6

 4.1.1 AOI Screening Step 1 – Determination of Surface Water Standard.....6

 4.1.2 AOI Screening Step 2 - Background Comparison.....6

 4.1.3 AOI Screening Step 3 – Surface Water Standard Comparison.....7

 4.1.4 AOI Screening Step 4 - Recent Result Above Surface Water Standard.....7

 4.1.5 AOI Screen 5 – Process Knowledge Evaluation.....7

 4.2 Results of Surface Water AOI Screening.....8

 4.2.1 Polychlorinated Biphenyls (PCBs), Dioxins, and Furans.....8

 4.2.2 Pesticides, Herbicides, and Fungicides.....8

 4.2.3 Semivolatile Organic Compounds (SVOCs).....8

 4.2.4 Volatile Organic Compounds (VOCs).....8

 4.2.5 Metals.....9

 4.2.6 Radionuclides.....9

 4.2.7 Water Quality Parameters.....9

5.0 IDENTIFICATION OF SEDIMENT AOIs10

 5.1 Sediment AOI Screening and Identification Process10

 5.1.1 AOI Screening Step 1 – Preliminary Remediation Goal (PRG) Identification10

 5.1.2 AOI Screening Step 2 - Background Comparison.....10

 5.1.3 AOI Screening Step 3 – PRG Comparison.....10

 5.1.4 AOI Screening Step 4 – Process Knowledge Evaluation11

 5.2 Results of Sediment AOI Screening.....11

 5.2.1 Polychlorinated Biphenyls (PCBs), Dioxins, and Furans.....11

 5.2.2 Pesticides, Herbicides, and Fungicides.....11

 5.2.3 Semivolatile Organic Compounds (SVOCs).....11

 5.2.4 Volatile Organic Compounds (VOCs).....12

 5.2.5 Metals.....12

 5.2.6 Radionuclides.....12

5.2.7 Water Quality Parameters12

6.0 NATURE AND EXTENT OF SURFACE WATER CONTAMINATION.....13

6.1 Surface Water AOI Extent Maps.....13

6.2 Temporal Data13

6.3 Extent of AOIs in Surface Water.....13

6.3.1 Volatile Organic Compounds (VOCs).....14

6.3.2 Metals.....15

6.3.3 Radionuclides.....16

6.3.4 Water Quality Parameters17

6.4 Summary of Surface Water AOIs.....17

7.0 NATURE AND EXTENT OF SEDIMENT CONTAMINATION18

7.1 Sediment AOI Extent Maps.....18

7.2 Temporal Data18

7.3 Extent of AOIs in Sediment19

7.3.1 Semivolatile Organic Compounds (SVOCs)19

7.3.2 Metals.....19

7.3.3 Radionuclides.....20

7.4 Summary of Sediment AOIs20

8.0 REFERENCES21

LIST OF ATTACHMENTS

Attachment A Draft Surface Water Data and Figures

Attachment B Draft Sediment Data and Figures

LIST OF TABLES

Table 1. Summary of Surface Water and Sediment Monitoring Locations and Sampling Frequencies

Table 2. Surface Water Analyte of Interest (AOI) Screening

Table 3. Surface Water Analytes of Interest (AOIs)

Table 4 Summary of Surface Water AOIs and Drainage Basin

Table 5. Sediment Analyte of Interest (AOI) Screening

Table 6. Sediment Analytes of Interest (AOIs)

Table 7 Summary of the Sediment AOIs by Drainage Basin.

LIST OF FIGURES

- Figure 1. Surface Water Drainage Basins and Monitoring Locations
- Figure 2. Sediment Monitoring Locations
- Figure 3. Surface Water Analyte of Interest (AOI) Identification Process
- Figure 4. Extent of Benzene in Surface Water
- Figure 5. Extent of Carbon Tetrachloride in Surface Water
- Figure 6. Extent of Chloroform in Surface Water
- Figure 7. Extent of cis-1,2-Dichloroethene in Surface Water
- Figure 8. Extent of Tetrachloroethene in Surface Water
- Figure 9. Extent of Trichloroethene in Surface Water
- Figure 10. Extent of Dissolved Aluminum in Surface Water
- Figure 11. Extent of Total Antimony in Surface Water
- Figure 12. Extent of Total Arsenic in Surface Water
- Figure 13. Extent of Total Chromium in Surface Water
- Figure 14. Extent of Total Lead in Surface Water
- Figure 15. Extent of Total Zinc in Surface Water
- Figure 16. Extent of Total Americium-241 in Surface Water
- Figure 17. Extent of Total Gross Alpha in Surface Water
- Figure 18. Extent of Gross Beta in Surface Water
- Figure 19. Extent of Total Plutonium-239/240 in Surface Water
- Figure 20. Extent of Total Uranium Isotopes in Surface Water
- Figure 21. Extent of Ammonia (as N) in Surface Water
- Figure 22. Extent of Nitrate/Nitrite (as N) in Surface Water
- Figure 23. Sediment Analyte of Interest (AOI) Identification Process
- Figure 24. Extent of Benzo(a)pyrene in Sediments
- Figure 25. Extent of Antimony in Sediments
- Figure 26. Extent of Arsenic in Sediments
- Figure 27. Extent of Chromium in Sediments
- Figure 28. Extent of Americium-241 in Sediments
- Figure 29. Extent of Cesium-137 in Sediments
- Figure 30. Extent of Plutonium-239/240 in Sediments
- Figure 31. Extent of Uranium-238 in Sediments

1.0 INTRODUCTION

This Nature and Extent of Surface Water and Sediment Contamination Summary Report (SR) has been prepared pursuant to Task 11 of the Final Work Plan for the Development of the Remedial Investigation and Feasibility Study (RI/FS) Report (DOE 2002). This SR will be incorporated into the RI/FS Report as Section 5.

The purpose of this SR is to define the current nature and extent of surface water and sediment analytes of interest (AOIs) at the Rocky Flats Environmental Technology Site (RFETS or site) after the accelerated actions are complete. Surface water AOIs are those analytes that are present above the background mean plus two standard deviations (M2SD) and greater than a 1 percent frequency of detection above the surface water standard¹ or practical quantitation limit (PQL) if greater than the standard. Sediment AOIs are those analytes that are present above the background M2SD and preliminary remediation goals (PRGs) for a wildlife refuge worker (WRW) based on a target excess carcinogenic risk of 1E-06 or a hazard quotient of 0.1. Surface water and sediment AOIs will be further evaluated in Section 7, Fate and Transport, of the RI/FS Report.

Data used in this SR are the result of previous investigations conducted at the site, from site-wide sampling programs, from samples after accelerated actions were implemented, and as data were collected during the site-wide RI/FS effort to support the CRA. The surface water nature and extent is based on data collected between June 28, 1991² and April 19, 2005. The sediment nature and extent is based on data collected between June 28, 1991³ and June 23, 2005. Given that water quality and chemical loading conditions are dynamic and affected by variable of site releases, accelerated action efforts, flow, etc., it was determined that data reflective of more current conditions would be representative of surface water quality for the evaluation of AOIs. Therefore, surface water data were queried to develop a post-1999 data summary. The post-1999 surface water data were used to determine current conditions as compared to the comprehensive data condition.

A brief chronology of surface water and sediment monitoring at the RFETS is presented to provide a historical perspective of surface water and sediment characterization and monitoring at the site.

¹ See Section 4.4 for source of surface water quality standards for RFETS.

² This date correlates to approved workplans and sampling and analysis plans (SAPs) developed pursuant to the 1991 Inter-Agency Agreement (IAG).

³ This date correlates to approved workplans and sampling and analysis plans (SAPs) developed pursuant to the 1991 Inter-Agency Agreement (IAG).

2.0 SURFACE WATER AND SEDIMENT MONITORING AT RFETS

Surface-water monitoring has been conducted at RFETS throughout the site's history, from 1952 to the present. Data were initially collected for effluent monitoring of plant releases and reservoir and drinking water monitoring. Subsequently, surface water and sediment data have been reported in numerous RFETS reports and were warehoused in the Rocky Flats Environmental Database System (RFEDS) and its successor the Soil and Water Database (SWD). Table 1 provides a summary of surface water and sediment monitoring locations and sampling frequencies.

Past data was collected under a variety of programs. These programs included, but were not limited to:

- Sitewide characterization (e.g., Operable Unit RFI/RIs);
- Accelerated actions and interim measures/interim remedial action (IM/IRAs);
- National Pollutant Discharge Elimination System (NPDES) sampling;
- Event-related surface-water monitoring;
- Automated surface-water monitoring;
- Ponds A-4, B-5, and C-2 pre-discharge sampling;
- B891 treatment facility effluent monitoring;
- Incidental waters;
- Remediation projects;
- Groundwater plume treatment system effluent monitoring; and
- Other special projects.

An Integrated Monitoring Plan (IMP) is required under RFCA to implement environmental media monitoring programs at the site and serves as the current surface water and sediment monitoring plan for RFETS. The IMP outlines the monitoring goals for surface water and sediment and describes the various components of the surface water and sediment monitoring program. The IMP, originally published in May 1997, replaced the numerous permit, event-related, and characterization surface water monitoring programs conducted at the site. Since Fiscal Year (FY) 2004, the IMP has been updated quarterly (as needed) and annually to reflect changes to the monitoring programs.

IMP updates include input derived from consultation with the U. S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and the Environment (CDPHE), cities, and stakeholders. This consultative process determined the locations of new surface water and sediment stations, analytical suites for surface water and sediment, and the overall design of the current monitoring network. Agency and community input was obtained by DOE, and DOE strategies were transmitted to the communities through quarterly information exchange and Water Working Group meetings. In addition, IMP meetings were frequently scheduled to address the evolving nature of the IMP as the site moved toward closure. City and stakeholder participants include, but are not limited to, representatives of the City and County of Broomfield, City of Arvada, City of Westminster, City of Northglenn, City of Thornton, Rocky Flats Coalition of Local Governments, and Rocky Flats Citizens Advisory Board.

The IMP was developed to guide the majority of surface-water monitoring at RFETS. The IMP was developed using the EPA data quality objectives (DQO) process. The DQO process is a structured decision-making process that requires the identification of and agreement on decisions for which data are required. This process resulted in multiple surface-water monitoring objectives detailed in the IMP. Though surface-water data continue to be collected outside of the IMP by special projects, much of the current surface-water monitoring at the site since October 1996 has been covered by the following objectives:

- Source location monitoring to identify potential 'new sources';
- Ad hoc monitoring for special temporary projects such as actinide migration evaluation (AME), site-wide water balance, agency studies (e.g., CDPHE uranium inductively-coupled plasma/mass spectrometry (ICP/MS) study), and operational monitoring (e.g. footing drain monitoring);
- Indicator parameter monitoring to provide information for special data assessment;
- Incidental waters monitoring to facilitate proper disposition of water collected in utility pits, excavations, secondary containment, etc;
- Sanitary system monitoring including:
 - Internal wastestream characterization to characterize routine internal wastestreams to meet NPDES permit requirements
 - Monitoring discharges to the wastewater treatment plant (WWTP) to determine authorization for non-routine wastestreams to be discharged to the WWTP
 - WWTP collection system protective monitoring to ensure inflows will not disrupt proper WWTP operation
 - WWTP collection system flow monitoring to evaluate for abnormal conditions
 - CDPHE WWTP influent radiological and metals monitoring to track loads and concentrations;
- Performance monitoring of specific projects to ensure effectiveness of administrative and engineering controls (e.g., erosion controls);
- Performance monitoring for Mound, East Trenches, and Solar Pond Plume Treatment Systems to evaluate system operation;
- NPDES permit monitoring as specified by the permit;
- New source detection monitoring to evaluate for statistically significant changes in water-quality for water leaving the IA and entering the site retention ponds;
- Stream Segment 5/Point of Evaluation (POE) monitoring to evaluate a specific set of constituents against RFCA action levels specifically for locations GS10, SW027, and SW093;
- Pre-discharge monitoring to confirm that retained pond waters meet stream standards prior to discharge;
- Stream Segment 4/Point of Compliance (POC) monitoring to evaluate a specific set of constituents against RFCA action levels specifically for locations GS01, GS03, GS08, GS11, and GS31;
- Non-POC monitoring at Indiana Street to provide supplemental data to CDPHE;
- Monitoring uncharacterized discharges only required when other monitoring is not performed due to unusual conditions such as extreme flood events (similar to ad hoc monitoring);
- Community assurance off-site monitoring; and

- Buffer Zone hydrologic monitoring in support of watershed and ecological health evaluation.

3.0 SURFACE WATER AND SEDIMENT DATA

3.1 Data Source

Surface water data used in this SR were obtained from the CRA superset extracted from the Soil and Water Database (SWD) on April 27, 2005. Sediment data used in this SR were obtained from the CRA superset extracted from the Soil and Water Database (SWD) on June 23, 2005. CRA data extraction and processing procedures can be found in Volume 2 of the RI/FS. Surface water and sediment data within this superset consisted of analytical records that represent the time period between June 28, 1991 and June 23, 2005. Surface water data have been collected from 404 locations (Figure 1) and sediment data from 369 locations (Figure 2) in four drainage basins (Rock Creek, Walnut Creek, including the McKay Ditch, Woman Creek, and Lower Smart Ditch) since June 28, 1991. These records include analytical results for pesticides, herbicides, fungicides, aroclors (polychlorinated biphenyls [PCBs]), dioxins, semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), total and dissolved metals, total and dissolved radionuclides, and water quality parameters.

Data within the CRA superset that were used to evaluate the nature and extent of contamination in surface water and sediment included 203,380 records for surface water and 40,998 records for sediment. Only data that were identified as "CRA-ready" were used in this evaluation. The CRA-ready data do not include tentatively identified compounds (TICs). Three hundred seven (307) surface water and 372 sediment TICs exist in the superset; however, they do not have surface water or sediment standards or PRGs. Therefore, TICs were not evaluated further in this SR. Specific data sets used for evaluation of the nature and extent of contamination in surface water and sediment are presented on a compact disk (CD) in Attachments A (surface water) and B (sediment) in Microsoft Access 2002 format.

3.2 Data Adequacy and Quality

Data adequacy and quality were assessed in Volume 2 of the CRA (K-H 2005). The distribution of data, both spatially and temporally, was assessed to ensure that the nature and extent of contamination is well characterized. The results of the data adequacy assessment are presented in the Data Adequacy Report (Attachment C of Volume 2 of the CRA). Data quality was assessed using a standard precision, accuracy, representativeness, completeness, and comparability (PARCC) parameter analysis (EPA 2000). The Data Quality Assessment presented as Attachment D of Volume 2 of the CRA (K-H 2005) is based on an evaluation of site-wide field and laboratory control samples. Data used to evaluate surface water and sediment nature and extent met data adequacy and data quality criteria for the CRA.

4.0 IDENTIFICATION OF SURFACE WATER AOIs

Surface water constituents evaluated in this summary report are listed in Table 2. In screening the surface water constituents, analytical data from January 1, 2000 to present were used. Historical data from June 28, 1991 and December 31, 1999 were used to corroborate the AOI screening results by comparing AOIs developed from the full data set to the post-1999 data AOIs. Surface water constituents were screened and eliminated or retained as analytes of interest (AOIs) using the screening approach shown on Figure 3. This approach is described in the following sections. The results of the surface water AOI screening are listed in Table 3. The color highlighted constituents shown on Tables 2 and 3 identify those constituents that have a frequency of detection [less than 1 % (green), between 1% and 5% (yellow), and greater than 5% (orange)] above the lowest surface water standard or PQL (whichever is higher). A summary of the surface water AOIs by drainage basin is provided in Table 4.

4.1 Surface Water AOI Screening and Identification Process

4.1.1 AOI Screening Step 1 – Determination of Surface Water Standard

To evaluate the potential for impacts to surface water quality, AOI Screening Step 1 determines whether a surface water standard exists for each constituent. The surface water quality standards are the RFETS site-specific and state-wide standards in 5 CCR 1002:

- Statewide surface water radioactive materials standards in Section 31.11(2);
- Statewide surface water interim organic pollutant standards in Section 31.11(3); and
- Site-specific surface water quality standards for segments 4a, 4b, and 5 of Big Dry Creek in Section 38.6 of the South Platte Basin Classifications and Standards.

The surface water standard in this SR is defined as the greater of the lowest surface water standard or the PQL. Basic surface water standards considered include water supply, water+fish, fish ingestion, acute aquatic, chronic aquatic, aquatic life class 2, agriculture, and site-specific surface water standards for Walnut and Woman Creeks.

For constituents that have a surface water standard and appropriate methodology (i.e., total versus dissolved analysis; see Table 2), the constituent is carried forward to AOI Screening Step 2. Constituents that do not have a surface water standard are eliminated as an AOI.

4.1.2 AOI Screening Step 2 - Background Comparison

Surface water analyte results were compared against the background mean + 2 standard deviation (M2SD) values presented in the CRA (DOE 2005), where available. Background values are not available for organic constituents and other selected inorganic and radionuclide constituents. Detection of these constituents above the detection limit are assumed to indicate their presence in the environment. Laboratory qualifier codes were used to identify whether a constituent is detected or not.

In AOI Screening Step 2, surface water analytical results are compared with the corresponding background M2SD value. For those analytes where sample results are below the corresponding background M2SD, the analyte is eliminated as a potential AOI. Analytes that have at least one sample result above the background M2SD value are carried forward to AOI Screening Step 3. For analytes that do not have a background M2SD (e.g., organic constituents) this screening step is skipped and the analyte proceeds to AOI Screening Step 3.

4.1.3 AOI Screening Step 3 – Surface Water Standard Comparison

In AOI Screening Step 3, surface water results are compared with the corresponding surface water standard. For surface water analytes where all sample results are below or equal to the surface water standard, the analyte is eliminated as an AOI. Surface water analytes that have at least one sample result above the surface water standard are retained and proceed to AOI Screening Step 5. Analytes with a frequency of detection above the identified surface water standard of less than 1% are eliminated as AOIs, while those greater than 1% proceed to Screening Step 4.

Elimination of the less than 1% frequency analytes is based on application of Colorado's guidance on data requirements and interpretation methods used to establish existing water quality in Colorado Water Quality Control Commission (CWQCC) rulemaking proceedings (CWQCD, 1993, 2004 and 2005). In particular, data should be ranked and the 85th percentile is used as the indicative value for dissolved parameters, while the 50th percentile is indicative of totals. Given the large number of samples for these analytes, greater than 99% of the data below the identified standard is adequately representative to show that these contaminants do not adversely impact surface water quality.

4.1.4 AOI Screening Step 4 - Recent Result Above Surface Water Standard

For each surface water analyte that passes Screening Step 3, the most recent available sample result at any location is compared against the surface water standard. The most recent surface water result was selected to reflect current surface water conditions at the site. If the most recent surface water result is above both the M2SD and surface water standard, the analyte is carried forward to AOI Screening Step 5. If the most recent surface water result is less than or equal to the surface water standard, the analyte is eliminated as an AOI.

4.1.5 AOI Screen 5 – Process Knowledge Evaluation

AOI Screen 5 involves the determination of whether an AOI should be retained or eliminated based on process knowledge or other criteria involving professional judgement. This screen involves an assessment of contaminants that are not reasonably expected to be AOIs based on historical site process knowledge even though they may equal or exceed the surface water standard. Process knowledge of a constituent's historical use at the site, or lack of use, and an understanding of a constituent's natural occurrence and distribution in the environment, all

provide useful information regarding whether the analyte is related to site activities and should be further evaluated as an AOI.

4.2 Results of Surface Water AOI Screening

Based on the AOI screening process shown in Figure 3, 19 surface water AOIs were retained and included 6 VOCs, 6 metals (total and dissolved), 5 radionuclides, and 2 WQP. Table 4 lists the surface water AOIs by drainage basin. The frequency of detection for the surface water AOIs ranges between greater than 0% and less than 1 percent (1 constituent), 1 to less than 5 percent (8 constituents), and greater than 5 percent (10 constituents). The AOIs identified and retained in surface water are listed in Table 3 along with summary statistics for each constituent. Figures 4 through 22 show the nature and extent of surface water AOIs. Maps of surface water analytes eliminated as AOIs are included on a compact disk (CD) in Attachment A as Figures A-1 through A-190.

4.2.1 Polychlorinated Biphenyls (PCBs), Dioxins, and Furans

No PCB, dioxin, or furan AOIs were identified in surface water. Table 2 summarizes the PCBs, dioxins, and furans analyzed and reported in the data evaluated in this SR, but not retained as surface water AOIs. The nature and extent of PCBs, dioxins, and furans that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-1 through A-10).

4.2.2 Pesticides, Herbicides, and Fungicides

No pesticide, herbicide, and fungicide AOIs were identified in surface water. Table 2 summarizes the pesticides, herbicides, and fungicides analyzed and reported in the data evaluated in this SR, but not retained as surface water AOIs. The nature and extent of pesticides, herbicides, and fungicides that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-11 through A-41).

4.2.3 Semivolatile Organic Compounds (SVOCs)

No SVOC AOIs were identified in surface water. Table 2 summarizes the SVOCs analyzed and reported in the data evaluated in this SR, but not retained as surface water AOIs. The nature and extent of SVOCs that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-42 through A-100).

4.2.4 Volatile Organic Compounds (VOCs)

Seven VOC AOIs (benzene, carbon tetrachloride, chloroform, cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene) were identified in surface water. Table 2 summarizes the VOCs analyzed and reported in the data evaluated in this SR, but not retained as surface water

AOIs. The nature and extent of VOCs that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-101 through A-139). Table 3 lists the 6 VOCs retained as AOIs. See Section 6.5.4 and Figures 4 through 9 for further discussion of the nature and extent of VOC AOIs in surface water.

4.2.5 Metals

Six metal AOIs (dissolved aluminum and total antimony, arsenic, chromium, lead, and zinc) were identified in surface water. Table 2 summarizes the metals analyzed and reported in the data evaluated in this SR, but not retained as surface water AOIs. The nature and extent of metals that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-140 through A-168). Table 3 lists 6 metals retained as AOIs. See Section 6.5.5 and Figures 10 through 15 for further discussion of the nature and extent of metal AOIs in surface water.

4.2.6 Radionuclides

Five radionuclide AOIs (total americium-241, gross alpha, gross beta, plutonium-239/240, and uranium isotopes) were identified in surface water. Table 2 summarizes the radionuclides analyzed and reported in the data evaluated in this SR but not retained as surface water AOIs. The nature and extent of radionuclides that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-169 through A-183). Table 3 lists 5 radionuclides retained as AOIs. See Section 6.5.6 and Figures 16 through 20 for further discussion of the nature and extent of radionuclide AOIs in surface water.

4.2.7 Water Quality Parameters

Two water quality parameter (WQP) AOIs (ammonia (as N) and nitrate/nitrite (as N)) were identified in surface water. Table 2 summarizes the WQPs analyzed and reported in the data evaluated in this SR, but not retained as surface water AOIs. The nature and extent of WQPs that were not identified as AOIs are shown on the extent maps in Attachment A (Figures A-184 through A-190). Table 3 lists 2 WQPs retained as AOIs. See Section 6.5.7 and Figures 21 through 22 for further discussion of the nature and extent of WQP AOIs in surface water.

5.0 IDENTIFICATION OF SEDIMENT AOIs

Sediment constituents evaluated in this summary report are listed in Table 5. These constituents were screened and eliminated or retained as analytes of interest (AOIs) using the screening approach shown on Figure 23. This approach is described in the following sections. The results of the sediment AOI screening are listed in Table 6. The color highlighted constituents shown on Tables 5 and 6 identify those constituents that have a frequency of detection [less than 1 % (green), between 1% and 5% (yellow), and greater than 5% (orange)] above the WRW PRG. A summary of the sediment AOIs by drainage basin is provided in Table 7.

5.1 Sediment AOI Screening and Identification Process

5.1.1 AOI Screening Step 1 – Preliminary Remediation Goal (PRG) Identification

To evaluate the potential for impacts to sediments, AOI Screening Step 1 determines whether a preliminary remediation goal (PRG) exists for the sediment constituent. The PRG values used to compare the sediment results were developed in the CRA for a WRW based on a target excess carcinogenic risk of 1E-06 or a hazard quotient of 0.1. Constituents without a PRG are eliminated as an AOI and are discussed in the uncertainty section of the RI/FS Report Appendix A, Comprehensive Risk Assessment. Constituents that have a PRG are carried forward to Screening Step 2.

5.1.2 AOI Screening Step 2 - Background Comparison

Sediment analyte results were compared against the background mean + 2 standard deviation (M2SD) values presented in the CRA (DOE 2005), where available. Background values are not available for organic constituents and other selected inorganic and radionuclide constituents. Detection of these constituents above the detection limit indicates their presence in the environment. Laboratory qualifier codes were used to identify whether a constituent is detected or not.

In AOI Screening Step 2, sediment analytical results are compared with the corresponding background M2SD value. For those analytes where sample results are below the corresponding background M2SD, the analyte is eliminated as a potential AOI. Analytes that have at least one sample result above the background M2SD are carried forward to AOI Screening Step 3. Analytes that do not have a background M2SD proceed to Screening Step 3.

5.1.3 AOI Screening Step 3 – PRG Comparison

AOI Screening Step 3 involves comparison of the sediment results with the PRG. If a constituent's maximum result is less than the PRG, it is eliminated as an AOI. For constituents where the maximum result is equal to or greater than the PRG, it is retained as an AOI and carried forward to Screening Step 4.

5.1.4 AOI Screening Step 4 – Process Knowledge Evaluation

AOI Screen 4 involves the determination of whether an AOI should be retained or eliminated based on process knowledge or other criteria involving professional judgement. This screen involves an assessment of contaminants that can not be reasonably expected to be AOIs based on historic site process knowledge even though they may equal or exceed the WRW PRG. Process knowledge of a constituent's historical use at the site, or lack of use, and an understanding of a constituent's natural occurrence and distribution in the environment, all provide useful information regarding whether the analyte is related to site activities and should be further evaluated as an AOI.

5.2 Results of Sediment AOI Screening

Based on the sediment AOI screening process shown in Figure 23, 8 sediment AOIs were identified and retained, including 3 metals, 4 radionuclides, and 1 SVOC. The frequency of detection for the sediment AOIs above the PRG ranges between greater than 0% and less than 1 percent (3 constituents), 1 to less than 5 percent (2 constituents), and greater than 5 percent (3 constituents). The sediment constituents identified and retained as AOIs are listed in Table 6 along with summary statistics for each constituent. Figures 24 through 31 show the nature and extent of sediment AOIs. Maps showing nature and extent of other sediment analytes that were not retained as AOIs are included on a CD in Attachment B as Figures B-1 through B-187.

5.2.1 Polychlorinated Biphenyls (PCBs), Dioxins, and Furans

No PCBs, dioxins, or furans were identified as sediment AOIs. Table 5 summarizes PCBs and dioxins analyzed and reported in the data evaluated in this SR. The nature and extent of PCBs, dioxins, or furans that were not identified as AOIs are listed in Table 5 and shown on the extent maps in Attachment B (Figures B-1 through B-12).

5.2.2 Pesticides, Herbicides, and Fungicides

No pesticides, herbicides, or fungicides were identified as sediment AOIs. Table 5 summarizes pesticides, herbicides, or fungicides analyzed and reported in the data evaluated in this SR. The nature and extent of pesticides, herbicides, or fungicides that were not identified as AOIs are listed in Table 5 and shown on the extent maps in Attachment B (Figures B-13 and B-47).

5.2.3 Semivolatile Organic Compounds (SVOCs)

Benzo(a)pyrene was the only SVOC retained as a sediment AOI (Table 6). Figure 24 shows the extent of benzo(a)pyrene in sediments. Benzo(a)pyrene concentrations in sediment are above Table 5 summarizes SVOCs analyzed and reported in the data evaluated in this SR. The nature and extent of SVOCs that were not identified as AOIs are listed in Table 5 and shown on the

extent map in Attachment B (Figure B-48 through 103). See Section 7.3.2 and Figure 24 for further discussion of SVOC AOIs.

5.2.4 Volatile Organic Compounds (VOCs)

No VOCs were identified as sediment AOIs. Table 5 summarizes VOCs analyzed and reported in the data evaluated in this SR. The nature and extent of VOCs that were not identified as AOIs are listed in Table 5 and shown on the extent maps in Attachment B (Figures B-104 through B-153).

5.2.5 Metals

Three metals (antimony, arsenic, and chromium) were identified as sediment AOIs (Table 6). Table 5 summarizes metals analyzed and reported in the data evaluated in this SR, but not retained as a sediment AOI. The nature and extent of metals that were not identified as AOIs are shown on the extent maps in Attachment B (Figures B-154 through B-176). See Section 7.3.3 and Figures 25 through 27 for further discussion of the nature and extent of metal AOIs.

5.2.6 Radionuclides

Four radionuclides (americium-241, cesium-137, plutonium-239/240, and uranium-238) were identified as sediment AOIs (Table 6). Table 5 summarizes radionuclides analyzed and reported in the data evaluated in this SR, but not retained as a sediment AOI. The nature and extent of radionuclides that were not identified as AOIs are shown on the extent maps in Attachment B (Figures B-177 through B-182). See Section 7.3.4 and Figures 28 through 31 for further discussion of the nature and extent of radionuclide AOIs.

5.2.7 Water Quality Parameters

No water quality parameters were identified as sediment AOIs. Table 5 summarizes sediment water quality parameters analyzed and reported in the data evaluated in this SR. The nature and extent of sediment water quality parameters that were not identified as AOIs are listed in Table 5 and shown on the extent maps in Attachment B (Figures B-183 through B-187).

6.0 NATURE AND EXTENT OF SURFACE WATER CONTAMINATION

This section summarizes the nature and extent of surface water AOIs at the RFETS. For each of the 19 AOIs in surface water, maps were created to show the relative concentration and extent of contamination at the site (Figures 4 through 22).

6.1 Surface Water AOI Extent Maps

For each surface water AOI extent map, the results are displayed as four categories, as listed below, to identify the predominant areas of contaminant extent. These categories are defined as:

- Locations where the AOI is not detected;
- Locations where the AOI is detected but less than or equal to the surface water background mean plus two standard deviations (background M2SD);
- Locations where the AOI is greater than the background M2SD but less than or equal to the surface water standard (i.e., lowest surface water standard or PQL, whichever is higher); and
- Locations where the AOI is greater than the surface water standard (i.e., lowest surface water standard or PQL, whichever is higher).

6.2 Temporal Data

AOI sample location symbol shapes are designed to show the 5-year time interval that the sample was collected. The time intervals identified on the AOI extent figures are defined as:

- Sample collected between June 28, 1991 and December 31, 1994;
- Sample collected between January 1, 1995 and December 31, 1999; and
- Sample collected since January 1, 2000.

6.3 Extent of AOIs in Surface Water

Each of the surface water AOIs are mapped on Figures 4 through 22 and are discussed by analyte group below. Figure 1 shows the location of surface water drainage basins and site features discussed in the text.

6.3.1 Volatile Organic Compounds (VOCs)

Benzene, carbon tetrachloride, chloroform, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride were the only VOCs identified as surface water AOIs (Table 3). Figures 4 through 9 show the areal distribution of the VOC AOIs.

Figure 4 shows the extent of benzene in surface water. The majority (93%) of the sample results are less than the surface water standard. The frequency of detection of benzene in surface water above the surface water standard is about 7%. Benzene occurrences above the surface water standard are primarily found at the East Landfill Seep and at the Pond A-3 outfall.

Figure 5 shows the extent of carbon tetrachloride in surface water. The majority (92%) of the sample results are less than the surface water standard. The frequency of detection of carbon tetrachloride in surface water above the surface water standard is about 8%. Carbon tetrachloride occurrences above the surface water standard are primarily found at the footing drain outfalls from Buildings 771 and 774 and at SW061 on South Walnut Creek.

Figure 6 shows the extent of chloroform in surface water. The majority (89%) of the sample results are less than the surface water standard. The frequency of detection of chloroform in surface water above the surface water standard is about 11%. Chloroform occurrences above the surface water standard are primarily found at the footing drain outfalls from Buildings 771 and 774, at SW33503 on the unnamed drainage between Buildings 371 and 771, and at SW061 on South Walnut Creek.

Figure 7 shows the extent of cis-1,2-dichloroethene in surface water. The majority (99%) of the sample results are less than the surface water standard. The frequency of detection of cis-1,2-dichloroethene in surface water above the surface water standard is about 1%. Cis-1,2-dichloroethene occurrences above the surface water standard at SW056 outfall south of the 991 parking lot.

Figure 8 shows the extent of tetrachloroethene in surface water. The majority (95%) of the sample results are less than the surface water standard. The frequency of detection of tetrachloroethene in surface water above the surface water standard is about 5%. Tetrachloroethene occurrences above the surface water standard are primarily found at the Building 771 footing drain outfall and SW132 along South Walnut Creek.

Figure 9 shows the extent of trichloroethene in surface water. The majority (96%) of the sample results are less than the surface water standard. The frequency of detection of trichloroethene in surface water above the surface water standard is about 4%. Trichloroethene occurrences above the surface water standard are primarily found along South Walnut Creek at Ponds B-2 and B-4 and at a seep between Woman Creek and the SID at SW10300 southeast of the 903 Pad.

6.3.2 Metals

Dissolved aluminum and total antimony, arsenic, chromium, lead, and zinc were the only metals identified as surface water AOIs (Table 3). Figures 10 through 15 show the areal distribution of the metal AOIs.

Figure 10 shows the extent of dissolved aluminum in surface water. The majority (97%) of the sample results are less than the background M2SD. Note that the background M2SD for dissolved aluminum is above the surface water standard. The frequency of detection of dissolved aluminum in surface water above both the background M2SD and the surface water standard is about 3%. Dissolved aluminum occurrences above the surface water standard are primarily found at the footing drain outfall (SW085) of Building 779 and SW061 along South Walnut Creek below the former Solar Evaporation Pond 207-C.

Figure 11 shows the extent of total antimony in surface water. The majority (more than 99%) of the sample results are less than the background M2SD. Note that the background M2SD for total antimony is above the surface water standard. The frequency of detection of total antimony in surface water above both the background M2SD and the surface water standard is less than 1%. Total antimony occurrences above the surface water standard are primarily found at GS40 a storm drain just east of 750 Pad that drains the 700 area.

Figure 12 shows the extent of total arsenic in surface water. The majority (93%) of the sample results are less than the background M2SD. Note that the background M2SD for total arsenic is above the surface water standard. The frequency of detection of total arsenic in surface water above both the background M2SD and the surface water standard is about 7%. Total arsenic occurrences above the surface water standard are primarily found at GS06 (Owl Branch to Woman Creek), GS32 (storm drain from Building 779), GS38 (corner of 8th and Central along the Central Avenue Ditch), GS49 (west-northwest side of Building 776), GS50 (south side of Solar Ponds and contractor yard), GS55 (runoff from Buildings 881 and 883), SW060 (outfall from concrete pipe that collects Industrial Area parking lot runoff and overflow from Central Avenue Ditch), and SW134 (pumped water from gravel mining operations that is discharged to Rock Creek).

Figure 13 shows the extent of total chromium in surface water. The majority (98%) of the sample results are less than the background M2SD. Note that the background M2SD for total chromium is slightly above the surface water standard. The frequency of detection of total chromium in surface water above both the background M2SD and the surface water standard is about 2%. Total chromium occurrences above the surface water standard are primarily found at GS06 (Owl Branch to Woman Creek), GS10 (on South Walnut Creek above the Pond B-1 bypass), GS44 (drainage ditch between T771F and T771L), GS49 (west-northwest side of Building 776), GS55 (runoff from Buildings 881 and 883), SW021 (Building 991), SW060 (outfall from concrete pipe that collects Industrial Area parking lot runoff and overflow from Central Avenue Ditch), SW091 and SW119 (in the former Solar Evaporation Ponds area), and SW134 (pumped water from gravel mining operations that is discharged to Rock Creek).

Figure 14 shows the extent of total lead in surface water. The majority (84%) of the sample results are less than the background M2SD. The frequency of detection of total lead in surface

water above the surface water standard is about 4%. Total lead occurrences above the surface water standard are primarily found at GS06 (Owl Branch to Woman Creek), GS32 (storm drain from Building 779), GS38 (corner of 8th and Central along the Central Avenue Ditch), GS49 (west-northwest side of Building 776), GS50 (south side of Solar Ponds and contractor yard), GS55 (runoff from Buildings 881 and 883), SW060 (outfall from concrete pipe that collects Industrial Area parking lot runoff and overflow from Central Avenue Ditch), and SW134 (pumped water from gravel mining operations that is discharged to Rock Creek).

Figure 15 shows the extent of total zinc in surface water. The majority (87%) of the sample results are less than the background M2SD. The frequency of detection of total zinc in surface water above the surface water standard is about 2%. Total zinc occurrences above the surface water standard are primarily found at GS32 (storm drain from Building 779), GS40 (concrete spillway east of 10th Street, south of Building 997), GS57 (ditch northeast of Building 444).

6.3.3 Radionuclides

Total americium-241, gross alpha, gross beta, plutonium-239/240, and uranium isotopes were the only radionuclides identified as surface water AOIs (Table 3). Figures 16 through 20 show the areal distribution of the radionuclide AOIs.

Figure 16 shows the extent of total americium-241 in surface water. Most (61%) of the sample results are less than the background M2SD. The frequency of detection of total americium-241 in surface water above the surface water standard is about 17%. Total americium-241 occurrences above the surface water standard are primarily found within the Industrial Area and along Walnut and Woman Creeks downstream of the Industrial Area.

Figure 17 shows the extent of total gross alpha in surface water. The majority (98%) of the sample results are less than the background M2SD. Note that the background M2SD for total gross alpha is above the surface water standard. The frequency of detection of total gross alpha in surface water above both the background M2SD and the surface water standard is about 2%. Total gross alpha occurrences above the surface water standard are primarily found at SW20105 along the unnamed drainage between Buildings 371 and 771 and at CG49-031 in the Bowman's Pond area.

Figure 18 shows the extent of total gross beta in surface water. The majority (97%) of the sample results are less than the background M2SD. Note that the background M2SD for total gross beta is above the surface water standard. The frequency of detection of total gross beta in surface water above both the background M2SD and the surface water standard is about 3%. Total gross beta occurrences above the surface water standard are primarily found at SW20105 along the unnamed drainage between Buildings 371 and 771.

Figure 19 shows the extent of total plutonium-239/240 in surface water. Most (54%) of the sample results are less than the background M2SD. The frequency of detection of total plutonium-239/240 in surface water above the surface water standard is about 19%. Total plutonium-239/240 occurrences above the surface water standard are primarily found within the Industrial Area and along Walnut and Woman Creeks downstream of the Industrial Area.

Figure 20 shows the extent of total uranium isotopes in surface water. The majority (91%) of the sample results are less than the background M2SD. The frequency of detection of total uranium isotopes in surface water above the surface water standard is less than 1%. The only total uranium isotopes occurrence above the surface water standard is found along North Walnut Creek at the Solar Evaporation Ponds discharge gallery along North Walnut Creek.

6.3.4 Water Quality Parameters

Ammonia (as N) and nitrate/nitrite (as N) were the only water quality parameters identified as surface water AOIs (Table 3). Figures 21 and 22 show the areal distribution of the water quality parameter AOIs.

Figure 21 shows the extent of ammonia (as N) in surface water. Most of the sample results are above the surface water standard. The frequency of detection of ammonia (as N) in surface water above the surface water standard is about 77%. Ammonia (as N) occurrences above the surface water standard are only found at the East Landfill Seep and along North Walnut Creek at GS03.

Figure 22 shows the extent of nitrate/nitrite (as N) in surface water. Most (55%) of the sample results are less than the background M2SD. The frequency of detection of nitrate/nitrite (as N) in surface water above the surface water standard is about 14%. Nitrate/nitrite (as N) occurrences above the surface water standard are primarily found at the outfall from the Building 771 footing drain, at the Solar Evaporation Ponds discharge gallery, Pond A-3, and GS03 along North Walnut Creek, the former Building 995 effluent outfall.

6.4 Summary of Surface Water AOIs

Nineteen surface water AOIs were identified and retained for further evaluation. These AOIs include 6 VOCs, 6 metals (total and dissolved), 5 radionuclides, and 1 WQP. Table 4 lists the AOIs by drainage basin. These AOIs will be further evaluated in Section 7, Fate and Transport, of the RI/FS Report.

22

7.0 NATURE AND EXTENT OF SEDIMENT CONTAMINATION

This section summarizes the nature and extent of sediment AOIs at the RFETS. For each of the 8 sediment AOIs, maps were made to show the extent of contaminants in sediment at the site. Sediment data are shown as sediment AOI extent maps (Figures 24 through 31).

7.1 Sediment AOI Extent Maps

For each sediment AOI extent map, results are displayed as five categories, as listed below, to identify the predominant areas of contaminant extent. These categories are defined as:

- Locations where the AOI is not detected;
- Locations where the AOI is detected but less than or equal to the sediment background mean plus two standard deviations (background M2SD);
- Locations where the AOI is greater than the M2SD but less than or equal to the wildlife refuge worker (WRW) preliminary remediation goal (PRG; i.e., a target $1E-6$ excess carcinogenic risk or a hazard quotient (HQ) of 0.1);
- Locations where the AOI is greater than the WRW PRG but less than or equal to ten times the WRW PRG (i.e., $1E-5$ excess carcinogenic risk or a hazard quotient (HQ) of 1); and
- Locations where the AOI is greater than 10 times the WRW PRG.

7.2 Temporal Data

AOI sample location symbol shapes are designed to show the 5-year time interval that the sample was collected. The time intervals identified on the AOI extent figures are defined as:

- Samples collected between June 28, 1991 and December 31, 1994;
- Samples collected between January 1, 1995 and December 31, 1999; and
- Samples collected since January 1, 2000.

7.3 Extent of AOIs in Sediment

Each of the sediment AOIs are mapped on Figures 24 through 31 and are discussed by analyte group below. Figure 2 shows the sediment sample locations, surface water drainage basins, and site features discussed in the text.

7.3.1 Semivolatile Organic Compounds (SVOCs)

Benzo(a)pyrene was the only SVOC identified as a sediment AOI (Table 6). Figure 24 shows the extent of benzo(a)pyrene in sediments. Benzo(a)pyrene concentrations in sediment are above the PRG (9.6%), but less than 10 times the PRG. Benzo(a)pyrene occurrences above the PRG are primarily found along South Walnut Creek at Pond B-4, the Bowman's Pond area, the Central Avenue Ditch adjacent to Tanks 221 and 224, the 750 Pad, the 904 Pad, the Central Avenue Ditch upstream of the North Perimeter Road, the North Perimeter Road west of Building 371, and a tributary to the SID that drains the Building 881 area.

7.3.2 Metals

Antimony, arsenic, and chromium were the only metals identified as sediment AOIs (Table 6). Figures 25 through 27 show the areal distribution of the metal AOIs.

Figure 25 shows the extent of antimony in sediments. The majority (94%) of the sample results are less than the background M2SD. The frequency of detection of antimony in sediment above the WRW PRG is about 0.3%. None of the antimony samples exceed 10 times the WRW PRG. Only one occurrence of antimony in sediments above the PRG is found at the site. This occurrence is in a tributary ditch to the SID southwest of Building 664.

Figure 26 shows the extent of arsenic in sediments. The majority (79%) of the sample results are less than the background M2SD. Note that the arsenic background M2SD is greater than the WRW PRG. The frequency of arsenic concentrations in sediment above both the background M2SD and PRG is about 21%. Only 0.3% of the arsenic sediment samples have a frequency of detection above 10 times the WRW PRG. Arsenic occurrences above the PRG are primarily found along North and South Walnut Creeks, the SID, 400 Area, Central Avenue Ditch, Pond C-2, No Name Gulch downstream of the Landfill Pond, Rock Creek, and at Ponds D-1 and D-2. Single occurrences are found on Owl Branch, a tributary to Woman Creek south of Owl Branch, and the Antelope Creek headwaters. The sediment sample from the headwaters of Antelope Creek is greater than 10 times the WRW PRG.

Figure 27 shows the extent of chromium in sediments. The majority (94%) of the sample results are less than the background M2SD. The frequency of detection of chromium in sediment above the WRW PRG is about 3%. None of the chromium samples exceed 10 times the WRW PRG. Chromium occurrences above the WRW PRG are primarily found along North Walnut Creek upstream of Pond A-1 and in Ponds A-2 and A-3, along the West Diversion Ditch, 400 Area, along the tributary ditch to the South Interceptor Ditch (SID) southwest of Building 664, and along the 750 Pad.

7.3.3 Radionuclides

Americium-241, cesium-137, plutonium-239/240, and uranium-238 were identified as sediment AOIs (Table 6). Figures 28 through 31 show the areal distribution of the radionuclide AOIs.

Figure 28 shows the extent of total americium-241 in sediments. Half (50%) of the sample results are less than the background M2SD. The frequency of detection of americium-241 in sediment above the WRW PRG is about 1%. None of the americium-241 samples exceed 10 times the WRW PRG. The only occurrences of americium-241 above the WRW PRG at the site are found in Pond A-1.

Figure 29 shows the extent of cesium-137 in sediments. The majority (99%) of the sample results are less than the background M2SD. Note that the cesium-137 background M2SD is greater than the WRW PRG. The frequency of detection of cesium-137 in sediment above both the background M2SD and the PRG is less than 1%. None of the cesium-137 samples exceed 10 times the WRW PRG. Only 2 occurrences of cesium-137 above both the background M2SD and WRW PRG are found in sediments at the site, one on the uppermost reach of Rock Creek and the other on No Name Gulch downstream of the Landfill Pond.

Figure 30 shows the extent of plutonium-239/240 in sediments. Most (63%) of the sample results are less than the background M2SD. The frequency of detection of plutonium-239/240 in sediment above the WRW PRG is about 3%. None of the plutonium-239/240 samples exceed 10 times the WRW PRG. Plutonium-239/240 occurrences in sediment above the PRG are primarily found along North Walnut Creek at Pond A-1, South Walnut Creek at Ponds B-2 and B-4, and single occurrences along the SID south of the 903 Pad, a ditch southeast of the 903 Pad in the Lip Area, and the Central Avenue Ditch at the corner of 8th and Central Avenue.

Figure 31 shows the extent of uranium-238 in sediments. The majority (95%) of the sample results are less than the background M2SD. The frequency of detection of uranium-238 in sediment above the PRG is about 0.3%. None of the uranium-238 samples exceed 10 times the WRW PRG. Only one occurrence of uranium-238 in sediments above the PRG is found at the site. This occurrence is in a drainage ditch along the south side of Building 444.

7.4 Summary of Sediment AOIs

Eight sediment AOIs were identified and retained for further evaluation. These AOIs include 1 SVOC (benzo(a)pyrene), 3 metals (antimony, arsenic, and chromium), and 4 radionuclides (americium-241, cesium-137, plutonium-239/240, and uranium-238). All of these AOIs are above their respective PRGs. Only arsenic has results that are above 10 times the WRW PRG. These AOIs will be further evaluated in Section 7, Fate and Transport, of the RI/FS Report. A summary of the AOIs by drainage basin is provided in Table 7.

8.0 REFERENCES

ChemRisk, 1992, Project Tasks 3 & 4 Final Draft Report Reconstruction of Historical Rocky Flats Operations & Identification of Release Points, Health Studies on Rocky Flats Phase I: Historical Public Exposures, Prepared for the Colorado Department of Health, August.

ChemRisk, 1994, Project Task 5 Report Estimating Historical Emissions From Rocky Flats 1952-1989, Health Studies on Rocky Flats Phase I: Historical Public Exposures, Prepared for the Colorado Department of Health, March.

CDPHE, 1999, CDPHE Hazardous Material and Waste Management Division, Rocky Flats Oversight Unit Technical Report, Buffer Zone Contamination Review - A Review of Information Related to Contamination of the Rocky Flats Buffer Zone, August 23 (D. Kruchek).

CWQCD, 1993, Guidance On Data Requirements And Data Interpretation Methods Used In Stream Standards And Classification Proceedings, July.

CWQCD, 2004, Guidance On Data Requirements And Data Interpretation Methods Used In Water Quality Standards And Classification Proceedings, August.

CWQCD, 2005, Section 303(d) Listing Methodology, 2006 Listing Cycle, Joint CWQCC and CWQD document (not dated - available on CDPHE website)

DOE, 1986a, Comprehensive Environmental Assessment and Response Program Phase I: Draft Installation Assessment Rocky Flats Plant, U.S. DOE unnumbered draft report, April.

DOE, 1993, U.S. Department of Energy, *Background Geochemical Report*, RFETS September.

DOE, 1995, U.S. Department of Energy, Corrective Action Decision/Record of Decision, Operable Unit 11: West Spray Field, Rocky Flats Environmental Technology Site, Golden, Colorado, September. Approved in October 1995. (Administrative Record reference number OU11-A-000184).

DOE, 1999b, Industrial Area Characterization and Remediation Strategy, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 2000a, Rocky Flats Environmental Technology Site Industrial Area Data Summary Report, September.

DOE, 2000b, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado.

DOE, 2001a, Rocky Flats Environmental Technology Site Buffer Zone Data Summary Report.

DOE, 2002a, Final Work Plan for the Development of the Remedial Investigation and Feasibility Study Report, Rocky Flats Environmental Technology Site, Golden Colorado, March 11.

DOE, 2002b, Buffer Zone Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado.

DOE, 2004a, Final Comprehensive Risk Assessment Work Plan and Methodology, Rocky Flats Environmental Technology Site, Golden, CO, September.

DOE, 2004b, IA/BZ Sampling and Analysis Plan, Modification 1, Rocky Flats Environmental Technology Site, Golden, Colorado, May.

DOE, 2005, Draft Final Interim Measure/Interim Remedial Action for Groundwater at the Rocky Flats Environmental Technology Site, May 3.

K-H, 2002, Actinide Migration Evaluation Pathway Analysis Report, Kaiser-Hill Company, LLC. Rocky Flats Environmental Technology Site, Golden, Colorado, April.

K-H, 2004a, Uranium in Surface Soil, Surface Water, and Groundwater at the Rocky Flats Environmental Technology Site, June.

K-H, 2004b, Rocky Flats Environmental Technology Site, Remediation, Industrial D&D and Site Services Procedure, ER RADMS Data Extraction and Reduction Accelerated Action Procedure, Kaiser-Hill Company LLC, September 30.

K-H, 2005, Draft Comprehensive Risk Assessment for the Rocky Flats Environmental Technology Site, Volume 2, Site Description and Data Evaluation, March 31.

Table 1. Summary of Surface Water and Sediment Monitoring Locations and Sampling Frequencies

Station/Location	Number of Samples	Sampling Period		Media
750CULVERT	104	07/03/91	12/02/94	Surface Water
771 FD OUT #2	5	03/26/99	04/26/04	Surface Water
995EFF	2711	06/28/91	11/04/04	Surface Water
995POE	22	11/28/00	10/24/02	Surface Water
A1	17	07/08/91	11/30/04	Surface Water
A1BYPASS	11	05/26/92	09/25/00	Surface Water
A2	26	07/08/91	03/28/05	Surface Water
A3	166	07/09/91	04/19/05	Surface Water
A3EFF	426	07/25/91	10/05/00	Surface Water
A4	176	07/02/91	03/16/05	Surface Water
A4BG	4	07/02/91	09/10/91	Surface Water
A4EFF	492	06/28/91	06/15/00	Surface Water
B1	18	07/04/91	02/17/95	Surface Water
B1-001	1	02/13/98	02/13/98	Surface Water
B1-002	1	02/13/98	02/13/98	Surface Water
B1-003	1	02/13/98	02/13/98	Surface Water
B2	22	07/04/91	05/24/95	Surface Water
B2-001	1	02/16/98	02/16/98	Surface Water
B2-002	2	02/16/98	09/23/02	Surface Water
B2-003	2	02/16/98	09/23/02	Surface Water
B3	9	07/11/91	12/16/99	Surface Water
B3-001	1	09/23/02	09/23/02	Surface Water
B371BAS	12	08/15/92	08/20/03	Surface Water
B371SUBBAS	22	03/07/92	08/20/03	Surface Water
B3EFF	564	07/01/91	10/26/00	Surface Water
B4	5	07/15/91	11/20/91	Surface Water
B4INF	1	09/16/03	09/16/03	Surface Water
B5	174	07/01/91	04/19/05	Surface Water
B5 POND	2	05/25/00	04/04/05	Surface Water
B5EFF	85	03/23/94	09/19/00	Surface Water
B5TRANS	60	07/23/91	01/19/99	Surface Water
B779RD-01	4	12/14/98	07/24/99	Surface Water
B886RD-01	4	01/23/99	07/24/99	Surface Water
BM69-001	1	12/30/04	12/30/04	Surface Water
BOWMANS POND EAST	1	04/22/99	04/22/99	Surface Water
BOWMANS POND MIDDLE	2	04/20/99	04/22/99	Surface Water
BOWMANS POND WEST	2	04/20/99	04/22/99	Surface Water
BQ49-001	1	12/29/04	12/29/04	Surface Water
BU70-001	1	12/30/04	12/30/04	Surface Water
C1	977	06/28/91	07/12/96	Surface Water
C2	137	06/28/91	11/22/04	Surface Water
C2BG	1	11/08/04	11/08/04	Surface Water
C2EFF	54	03/24/92	06/07/99	Surface Water
CC16-001	1	12/29/04	12/29/04	Surface Water
CD78-001	1	12/30/04	12/30/04	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
CG49-031	1	06/02/04	06/02/04	Surface Water
CO66-000	1	01/11/05	01/11/05	Surface Water
CX19-001	1	12/29/04	12/29/04	Surface Water
D1	1	04/22/92	04/22/92	Surface Water
DO13-001	1	01/10/05	01/10/05	Surface Water
DY05-001	1	01/10/05	01/10/05	Surface Water
FD-111-1	5	03/07/92	06/01/94	Surface Water
FD-371-2	1	06/11/95	06/11/95	Surface Water
FD-371COMP	1	03/07/92	03/07/92	Surface Water
FD-444-460	8	03/07/92	03/19/95	Surface Water
FD-774-1	12	07/25/92	04/23/03	Surface Water
FD-774-2	2	06/20/02	04/24/03	Surface Water
FD-774-4	5	05/30/01	04/23/03	Surface Water
FD-774-5	3	05/30/01	04/23/03	Surface Water
FD-991-1	5	04/26/93	06/01/94	Surface Water
GS01	190	03/24/92	04/11/05	Surface Water
GS01A	2	03/17/92	04/01/92	Surface Water
GS02	13	08/08/91	04/17/98	Surface Water
GS03	273	08/28/91	03/29/05	Surface Water
GS03T	1	11/05/02	11/05/02	Surface Water
GS04	31	03/31/92	10/06/04	Surface Water
GS05	36	07/23/91	06/10/04	Surface Water
GS06	27	08/08/91	05/23/02	Surface Water
GS07	6	07/24/91	10/17/93	Surface Water
GS08	110	04/28/97	03/24/05	Surface Water
GS09	8	06/03/92	11/08/94	Surface Water
GS10	292	07/23/91	04/12/05	Surface Water
GS11	100	05/28/92	03/24/05	Surface Water
GS12	2	09/24/92	09/29/94	Surface Water
GS13	368	06/28/91	03/28/05	Surface Water
GS14	1	10/17/93	10/17/93	Surface Water
GS15	1	10/26/92	10/26/92	Surface Water
GS16	3	10/17/93	10/17/94	Surface Water
GS17	3	10/17/93	12/14/01	Surface Water
GS1704	1	06/09/04	06/09/04	Surface Water
GS18	1	10/17/93	10/17/93	Surface Water
GS21	34	05/02/94	01/12/05	Surface Water
GS22	48	05/03/95	03/15/05	Surface Water
GS24	10	05/02/95	07/09/96	Surface Water
GS25	9	05/02/95	07/09/96	Surface Water
GS26	3	04/18/95	03/14/96	Surface Water
GS27	82	05/23/95	04/10/04	Surface Water
GS28	30	05/16/95	02/22/05	Surface Water
GS29	5	05/24/96	07/09/96	Surface Water
GS30	2	05/09/96	05/24/96	Surface Water
GS31	25	01/23/97	12/13/04	Surface Water
GS32	91	04/25/97	11/10/04	Surface Water
GS33	13	10/28/97	05/04/99	Surface Water
GS34	30	02/12/98	09/14/00	Surface Water
GS35	15	10/27/97	04/03/00	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
GS37	17	10/29/97	10/27/98	Surface Water
GS38	78	02/16/98	12/13/04	Surface Water
GS39	68	01/15/98	01/30/05	Surface Water
GS40	98	03/03/98	03/07/05	Surface Water
GS41	4	04/25/99	05/04/01	Surface Water
GS42	9	04/30/99	07/23/04	Surface Water
GS43	34	06/04/99	09/21/04	Surface Water
GS44	44	10/04/00	07/24/04	Surface Water
GS49	40	02/11/01	02/03/05	Surface Water
GS50	16	04/12/01	10/06/04	Surface Water
GS51	20	05/24/02	10/06/04	Surface Water
GS52	15	05/24/02	10/13/04	Surface Water
GS5204	1	06/09/04	06/09/04	Surface Water
GS53	5	03/17/03	08/18/04	Surface Water
GS54	3	03/25/03	05/13/04	Surface Water
GS55	43	04/10/02	01/20/05	Surface Water
GS56	14	03/17/03	02/14/05	Surface Water
GS57	49	04/05/02	04/11/05	Surface Water
GS58	7	03/19/02	05/23/02	Surface Water
GS59	22	11/19/02	02/10/05	Surface Water
GS60	20	08/30/03	04/12/05	Surface Water
GS61	19	10/30/03	01/20/05	Surface Water
IHSS209	2	04/24/92	03/18/93	Surface Water
INT. DITCH	1	08/24/92	08/24/92	Surface Water
LANDFILL POND	10	07/15/91	05/24/95	Surface Water
OU1EFF	31	03/22/92	10/10/94	Surface Water
SED00695	2	02/28/95	04/25/95	Surface Water
SED01595	1	04/25/95	04/25/95	Surface Water
SED02295	1	04/27/95	04/27/95	Surface Water
SED02695	2	02/21/95	04/25/95	Surface Water
SED02995	1	04/25/95	04/25/95	Surface Water
SED04195	2	03/17/95	04/25/95	Surface Water
SED04395	2	02/27/95	04/27/95	Surface Water
SED04595	2	02/23/95	04/28/95	Surface Water
SED04695	2	02/27/95	04/27/95	Surface Water
SED04795	1	04/27/95	04/27/95	Surface Water
SED05095	2	03/16/95	04/25/95	Surface Water
SED05395	2	02/21/95	05/02/95	Surface Water
SED05495	2	02/21/95	05/02/95	Surface Water
SED05995	1	04/28/95	04/28/95	Surface Water
SED06295	2	03/01/95	05/02/95	Surface Water
SED06595	2	02/22/95	04/28/95	Surface Water
SED06695	2	02/22/95	04/28/95	Surface Water
SED06895	2	03/01/95	05/02/95	Surface Water
SED07095	2	03/15/95	04/27/95	Surface Water
SED07195	2	03/15/95	04/27/95	Surface Water
SED07395	2	02/22/95	04/28/95	Surface Water
SED07495	2	02/22/95	04/28/95	Surface Water
SED07895	2	02/23/95	04/27/95	Surface Water
SED07995	2	03/01/95	05/02/95	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
SED08195	2	03/16/95	05/02/95	Surface Water
SED08295	2	03/16/95	04/25/95	Surface Water
SED08895	2	03/16/95	04/25/95	Surface Water
SED09095	2	03/17/95	04/25/95	Surface Water
SPP DIS GALLERY	88	12/28/99	03/28/05	Surface Water
SPPDGA	2	05/04/01	08/10/01	Surface Water
SPPDGB	2	05/04/01	08/10/01	Surface Water
SPPMM01EAST	1	05/23/00	05/23/00	Surface Water
SW001	1	03/17/92	03/17/92	Surface Water
SW00196	54	05/29/96	01/20/05	Surface Water
SW00198	1	02/17/98	02/17/98	Surface Water
SW002	3	11/07/91	04/01/92	Surface Water
SW00298	1	02/17/98	02/17/98	Surface Water
SW003	5	07/22/91	02/06/92	Surface Water
SW004	3	03/30/92	03/16/93	Surface Water
SW00495	1	10/26/00	10/26/00	Surface Water
SW005	10	07/01/91	03/23/05	Surface Water
SW006	9	07/01/91	02/25/93	Surface Water
SW007	7	03/05/92	05/05/95	Surface Water
SW009	1	03/16/92	03/16/92	Surface Water
SW014	1	03/30/92	03/30/92	Surface Water
SW017	5	07/29/91	02/26/92	Surface Water
SW018	22	07/15/91	01/20/05	Surface Water
SW01893	1	11/30/93	11/30/93	Surface Water
SW019	1	07/23/91	07/23/91	Surface Water
SW020	1	07/23/91	07/23/91	Surface Water
SW021	26	04/29/00	10/21/04	Surface Water
SW022	108	07/10/91	02/15/05	Surface Water
SW023	19	07/17/91	03/07/05	Surface Water
SW024	2	05/16/95	06/16/04	Surface Water
SW026	9	07/12/91	04/25/94	Surface Water
SW027	90	07/10/91	04/12/05	Surface Water
SW028	4	07/11/91	10/09/91	Surface Water
SW029	10	07/11/91	04/25/94	Surface Water
SW030	2	08/08/91	10/03/91	Surface Water
SW031	3	08/12/91	10/16/91	Surface Water
SW032	7	07/10/91	04/02/92	Surface Water
SW033	9	07/10/91	03/24/93	Surface Water
SW034	9	07/10/91	04/25/94	Surface Water
SW035	11	07/10/91	09/26/95	Surface Water
SW036	27	08/13/91	02/21/05	Surface Water
SW03604	1	06/08/04	06/08/04	Surface Water
SW038	15	07/25/91	06/08/04	Surface Water
SW039	6	07/08/91	04/15/92	Surface Water
SW040	2	11/04/92	03/24/93	Surface Water
SW041	6	07/08/91	03/24/93	Surface Water
SW044	1	07/09/91	07/09/91	Surface Water
SW046	4	07/09/91	10/17/91	Surface Water
SW050	1	03/25/92	03/25/92	Surface Water
SW051	1	03/25/92	03/25/92	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
SW052	1	03/25/92	03/25/92	Surface Water
SW053	9	07/24/91	06/29/95	Surface Water
SW054	6	07/11/91	07/20/92	Surface Water
SW055	19	07/24/91	04/23/04	Surface Water
SW056	6	07/15/91	05/13/02	Surface Water
SW057	1	03/25/92	03/25/92	Surface Water
SW058	1	03/25/92	03/25/92	Surface Water
SW059	132	08/07/91	06/04/98	Surface Water
SW060	11	07/12/91	10/22/00	Surface Water
SW061	160	07/12/91	12/27/04	Surface Water
SW062	3	08/06/91	10/09/91	Surface Water
SW063	3	08/09/91	08/30/91	Surface Water
SW064	2	08/30/91	03/26/92	Surface Water
SW068	5	07/10/91	11/30/93	Surface Water
SW069	4	07/10/91	10/10/91	Surface Water
SW070	13	07/10/91	09/26/95	Surface Water
SW077	2	08/09/91	08/30/91	Surface Water
SW080	2	12/17/92	03/03/93	Surface Water
SW083	4	03/16/92	05/05/95	Surface Water
SW084	3	07/15/91	10/07/91	Surface Water
SW085	5	05/04/01	09/10/02	Surface Water
SW086	4	07/16/91	02/12/92	Surface Water
SW089	2	05/26/93	06/18/93	Surface Water
SW090	4	07/16/91	10/08/91	Surface Water
SW091	30	05/17/95	07/23/04	Surface Water
SW092	6	07/09/91	04/25/94	Surface Water
SW093	298	07/10/91	04/12/05	Surface Water
SW093T	12	01/27/03	05/10/03	Surface Water
SW097	11	07/29/91	10/30/02	Surface Water
SW098	20	07/23/91	11/10/97	Surface Water
SW099	10	07/02/91	04/02/03	Surface Water
SW100	4	03/02/92	04/02/03	Surface Water
SW100100	5	04/29/00	10/22/00	Surface Water
SW101	3	07/16/91	02/10/92	Surface Water
SW10100	1	06/28/00	06/28/00	Surface Water
SW10195	1	06/30/95	06/30/95	Surface Water
SW10200	1	06/28/00	06/28/00	Surface Water
SW10295	1	07/03/95	07/03/95	Surface Water
SW10300	2	06/29/00	03/15/01	Surface Water
SW10395	1	06/30/95	06/30/95	Surface Water
SW104	1	06/15/92	06/15/92	Surface Water
SW10495	1	06/30/95	06/30/95	Surface Water
SW105	5	07/16/91	02/10/92	Surface Water
SW10595	1	06/28/95	06/28/95	Surface Water
SW106	1	09/09/91	09/09/91	Surface Water
SW10695	1	06/28/95	06/28/95	Surface Water
SW107	7	07/01/91	04/25/94	Surface Water
SW10795	1	07/03/95	07/03/95	Surface Water
SW108	5	07/01/91	03/16/93	Surface Water
SW10895	1	06/30/95	06/30/95	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
SW109	2	05/01/95	05/05/95	Surface Water
SW10995	1	06/30/95	06/30/95	Surface Water
SW11095	1	06/28/95	06/28/95	Surface Water
SW116	4	07/23/91	03/16/92	Surface Water
SW117	1	03/12/92	03/12/92	Surface Water
SW118	45	07/10/91	12/14/01	Surface Water
SW11804	2	06/14/04	12/03/04	Surface Water
SW118-P	2	08/24/92	08/26/92	Surface Water
SW118-S	2	08/24/92	08/26/92	Surface Water
SW119	25	04/11/01	10/13/04	Surface Water
SW120	43	03/22/00	02/23/05	Surface Water
SW122	5	07/15/91	02/10/92	Surface Water
SW127	7	08/01/91	04/25/94	Surface Water
SW128	5	07/24/91	03/16/92	Surface Water
SW129	4	07/22/91	10/23/91	Surface Water
SW130	6	08/01/91	03/01/93	Surface Water
SW131	5	07/08/91	12/17/92	Surface Water
SW132	169	07/22/91	12/27/04	Surface Water
SW134	36	03/23/92	07/14/04	Surface Water
SW135	2	03/23/92	02/25/93	Surface Water
SW136	2	03/19/92	03/22/93	Surface Water
SW137	2	03/19/92	03/22/93	Surface Water
SW20105	4	12/04/04	12/21/04	Surface Water
SW20205	1	12/03/04	12/03/04	Surface Water
SW20305	1	12/04/04	12/04/04	Surface Water
SW20405	1	12/04/04	12/04/04	Surface Water
SW20505	1	12/04/04	12/04/04	Surface Water
SW20605	1	12/04/04	12/04/04	Surface Water
SW20705	1	12/04/04	12/04/04	Surface Water
SW20805	1	12/04/04	12/04/04	Surface Water
SW20905	1	12/04/04	12/04/04	Surface Water
SW21005	2	12/04/04	01/17/05	Surface Water
SW30195	1	05/17/95	05/17/95	Surface Water
SW30295	1	05/17/95	05/17/95	Surface Water
SW30395	1	05/17/95	05/17/95	Surface Water
SW30495	1	05/17/95	05/17/95	Surface Water
SW30595	1	05/17/95	05/17/95	Surface Water
SW30695	1	05/17/95	05/17/95	Surface Water
SW30795	1	05/17/95	05/17/95	Surface Water
SW30895	1	05/17/95	05/17/95	Surface Water
SW30995	1	05/17/95	05/17/95	Surface Water
SW31095	1	05/17/95	05/17/95	Surface Water
SW31195	1	05/17/95	05/17/95	Surface Water
SW31295	1	05/17/95	05/17/95	Surface Water
SW31395	1	05/17/95	05/17/95	Surface Water
SW31495	1	05/17/95	05/17/95	Surface Water
SW31595	1	05/17/95	05/17/95	Surface Water
SW31695	1	05/17/95	05/17/95	Surface Water
SW31795	1	05/24/95	05/24/95	Surface Water
SW31895	1	06/09/95	06/09/95	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
SW33195	1	06/09/95	06/09/95	Surface Water
SW33503	1	01/15/04	01/15/04	Surface Water
SW34495	1	06/29/95	06/29/95	Surface Water
SW500	1	10/05/92	10/05/92	Surface Water
SW501	3	11/04/92	04/25/94	Surface Water
SW50193	1	03/24/93	03/24/93	Surface Water
SW50293	1	03/24/93	03/24/93	Surface Water
SW506	3	11/04/92	04/25/94	Surface Water
SW50604	1	06/10/04	06/10/04	Surface Water
SW507	3	03/24/93	05/17/93	Surface Water
SW51104	1	06/09/04	06/09/04	Surface Water
SW55193	1	05/24/93	05/24/93	Surface Water
SW60092	1	09/16/92	09/16/92	Surface Water
SW60192	1	09/17/92	09/17/92	Surface Water
SW60292	1	09/16/92	09/16/92	Surface Water
SW60392	1	09/17/92	09/17/92	Surface Water
SW60492	1	09/17/92	09/17/92	Surface Water
SW60592	1	09/16/92	09/16/92	Surface Water
SW60692	1	09/16/92	09/16/92	Surface Water
SW60792	1	09/10/92	09/10/92	Surface Water
SW60892	1	09/16/92	09/16/92	Surface Water
SW60992	1	09/15/92	09/15/92	Surface Water
SW61092	1	09/10/92	09/10/92	Surface Water
SW61192	1	09/10/92	09/10/92	Surface Water
SW61292	1	09/09/92	09/09/92	Surface Water
SW61392	1	09/09/92	09/09/92	Surface Water
SW61492	1	09/10/92	09/10/92	Surface Water
SW61592	1	09/02/92	09/02/92	Surface Water
SW61692	1	09/02/92	09/02/92	Surface Water
SW61792	1	09/03/92	09/03/92	Surface Water
SW61892	1	09/03/92	09/03/92	Surface Water
SW61992	1	09/03/92	09/03/92	Surface Water
SW62092	1	09/21/92	09/21/92	Surface Water
SW62192	1	09/21/92	09/21/92	Surface Water
SW62292	1	09/21/92	09/21/92	Surface Water
SW62392	1	09/23/92	09/23/92	Surface Water
SW62492	1	09/21/92	09/21/92	Surface Water
SW62592	1	09/23/92	09/23/92	Surface Water
SW62692	1	09/24/92	09/24/92	Surface Water
SW62792	1	09/23/92	09/23/92	Surface Water
SW62892	1	09/23/92	09/23/92	Surface Water
SW62992	1	09/24/92	09/24/92	Surface Water
SW63092	1	10/05/92	10/05/92	Surface Water
SW63192	1	10/05/92	10/05/92	Surface Water
SW63292	1	10/05/92	10/05/92	Surface Water
SW63392	1	10/05/92	10/05/92	Surface Water
SW63492	1	10/05/92	10/05/92	Surface Water
SW63592	1	10/01/92	10/01/92	Surface Water
SW63692	1	10/01/92	10/01/92	Surface Water
SW63792	1	10/01/92	10/01/92	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
SW63892	1	10/01/92	10/01/92	Surface Water
SW63992	1	10/01/92	10/01/92	Surface Water
SW64092	1	09/28/92	09/28/92	Surface Water
SW64192	1	09/28/92	09/28/92	Surface Water
SW64292	1	09/24/92	09/24/92	Surface Water
SW64392	1	09/28/92	09/28/92	Surface Water
SW64492	2	09/28/92	09/16/03	Surface Water
SW64592	1	09/02/92	09/02/92	Surface Water
SW64692	1	09/02/92	09/02/92	Surface Water
SW64792	1	09/01/92	09/01/92	Surface Water
SW64892	1	09/02/92	09/02/92	Surface Water
SW64992	1	09/01/92	09/01/92	Surface Water
SW67093	1	04/05/93	04/05/93	Surface Water
SW67193	1	04/05/93	04/05/93	Surface Water
SW67393	1	04/05/93	04/05/93	Surface Water
SW67493	1	04/05/93	04/05/93	Surface Water
SW67593	1	04/06/93	04/06/93	Surface Water
SW67693	1	04/06/93	04/06/93	Surface Water
SW67893	1	04/06/93	04/06/93	Surface Water
SW67993	1	04/06/93	04/06/93	Surface Water
SW68093	1	04/07/93	04/07/93	Surface Water
SW68193	1	04/06/93	04/06/93	Surface Water
SW68293	1	04/06/93	04/06/93	Surface Water
SW68593	1	05/17/93	05/17/93	Surface Water
SW68693	1	05/17/93	05/17/93	Surface Water
SW68793	1	05/17/93	05/17/93	Surface Water
SW68893	1	05/17/93	05/17/93	Surface Water
SW68993	1	05/17/93	05/17/93	Surface Water
SW69093	1	05/17/93	05/17/93	Surface Water
SW69293	1	05/17/93	05/17/93	Surface Water
SW998	19	08/24/92	07/09/96	Surface Water
SWA104	1	06/14/04	06/14/04	Surface Water
SWA204	1	06/14/04	06/14/04	Surface Water
SWA3	1	12/11/91	12/11/91	Surface Water
SWA304	1	06/14/04	06/14/04	Surface Water
SWA4	1	12/17/91	12/17/91	Surface Water
SWA404	1	06/14/04	06/14/04	Surface Water
SWB1	1	12/11/91	12/11/91	Surface Water
SWB104	1	06/16/04	06/16/04	Surface Water
SWB2	2	12/11/91	09/23/02	Surface Water
SWB204	1	06/16/04	06/16/04	Surface Water
SWB3	1	12/16/91	12/16/91	Surface Water
SWB304	1	06/16/04	06/16/04	Surface Water
SWB3B4	1	06/16/04	06/16/04	Surface Water
SWB4	2	12/16/91	09/16/03	Surface Water
SWB403	1	09/16/03	09/16/03	Surface Water
SWB404	1	06/16/04	06/16/04	Surface Water
SWB5	1	09/16/03	09/16/03	Surface Water
SWB504	1	06/15/04	06/15/04	Surface Water
SWC104	1	06/09/04	06/09/04	Surface Water

Station/Location	Number of Samples	Sampling Period		Media
SWC2	1	12/12/91	12/12/91	Surface Water
SWC204	1	06/08/04	06/08/04	Surface Water
SWLF04	1	06/16/04	06/16/04	Surface Water
SWMP04	1	06/16/04	06/16/04	Surface Water
SWNWC04	1	06/09/04	06/09/04	Surface Water
SWWC104	1	06/09/04	06/09/04	Surface Water
SWWC204	1	06/09/04	06/09/04	Surface Water
W+I	868	06/28/91	10/05/04	Surface Water
WC-CULVERT	1	02/16/98	02/16/98	Surface Water
090100	1	12/27/99	12/27/99	Sediment
090200	1	12/27/99	12/27/99	Sediment
090300	1	12/27/99	12/27/99	Sediment
10199	1	04/20/99	04/20/99	Sediment
10299	1	04/21/99	04/21/99	Sediment
10399	1	04/21/99	04/21/99	Sediment
11199	2	04/20/99	04/28/99	Sediment
124POND	1	05/13/94	05/13/94	Sediment
13090299	1	06/17/99	06/17/99	Sediment
15197	1	08/21/97	08/21/97	Sediment
15297	1	08/21/97	08/21/97	Sediment
15397	1	08/21/97	08/21/97	Sediment
15497	1	08/21/97	08/21/97	Sediment
15597	1	08/21/97	08/21/97	Sediment
15697	1	08/21/97	08/21/97	Sediment
15797	1	08/21/97	08/21/97	Sediment
15897	1	08/21/97	08/21/97	Sediment
15997	1	08/21/97	08/21/97	Sediment
16097	1	08/21/97	08/21/97	Sediment
16197	1	08/21/97	08/21/97	Sediment
16297	1	08/21/97	08/21/97	Sediment
16397	1	08/21/97	08/21/97	Sediment
16497	1	08/21/97	08/21/97	Sediment
16597	1	08/21/97	08/21/97	Sediment
16697	1	08/21/97	08/21/97	Sediment
16797	1	08/21/97	08/21/97	Sediment
16897	1	08/21/97	08/21/97	Sediment
16997	1	08/21/97	08/21/97	Sediment
A4	1	05/04/92	05/04/92	Sediment
B5	1	05/04/92	05/04/92	Sediment
B5 OUTLET (N)	1	10/13/97	10/13/97	Sediment
B5 OUTLET (S)	1	10/13/97	10/13/97	Sediment
BD08-000	1	12/29/04	12/29/04	Sediment
BM69-000	1	12/30/04	12/30/04	Sediment
BQ49-000	1	12/29/04	12/29/04	Sediment
BU70-000	1	12/30/04	12/30/04	Sediment
BZ35-003-01	1	06/26/03	06/26/03	Sediment
C1	1	05/05/92	05/05/92	Sediment
C2	1	05/04/92	05/04/92	Sediment
CC16-000	1	12/29/04	12/29/04	Sediment

Station/Location	Number of Samples	Sampling Period		Media
CD78-000	1	12/30/04	12/30/04	Sediment
CG49-018	1	05/24/04	05/24/04	Sediment
CG49-021	1	05/24/04	05/24/04	Sediment
CH49-017	1	05/25/04	05/25/04	Sediment
CH49-018	1	05/25/04	05/25/04	Sediment
CH49-019	1	05/25/04	05/25/04	Sediment
CH49-025	1	06/02/04	06/02/04	Sediment
CI38-022	1	05/29/02	05/29/02	Sediment
CI48-000	1	08/23/02	08/23/02	Sediment
CJ41-004	1	09/16/04	09/16/04	Sediment
CJ42-006	1	09/16/04	09/16/04	Sediment
CJ42-007	1	09/16/04	09/16/04	Sediment
CJ42-008	1	09/16/04	09/16/04	Sediment
CJ43-009	1	09/16/04	09/16/04	Sediment
CJ43-010	1	09/16/04	09/16/04	Sediment
CJ43-011	1	09/28/04	09/28/04	Sediment
CM37-031	1	02/06/03	02/06/03	Sediment
CM37-032	1	02/06/03	02/06/03	Sediment
CN37-012	1	02/10/03	02/10/03	Sediment
CN38-016	1	02/06/03	02/06/03	Sediment
CN38-017	1	02/06/03	02/06/03	Sediment
CN66-000	1	12/29/04	12/29/04	Sediment
CP46-000	1	11/12/02	11/12/02	Sediment
CR31-004	1	01/04/05	01/04/05	Sediment
CR32-001	1	09/26/02	09/26/02	Sediment
CS53-000	1	12/21/04	12/21/04	Sediment
CW54-000	1	12/22/04	12/22/04	Sediment
CX19-000	1	12/29/04	12/29/04	Sediment
CX32-002	1	08/19/04	08/19/04	Sediment
DC45-000	1	04/16/02	04/16/02	Sediment
DO13-000	1	01/10/05	01/10/05	Sediment
DY05-000	1	01/10/05	01/10/05	Sediment
SED00001	1	05/07/97	05/07/97	Sediment
SED001	2	11/12/91	04/01/92	Sediment
SED0010101	1	01/23/01	01/23/01	Sediment
SED0010400	1	06/20/00	06/20/00	Sediment
SED001900	1	09/26/00	09/26/00	Sediment
SED002	4	09/03/91	04/01/92	Sediment
SED0020101	1	01/23/01	01/23/01	Sediment
SED0020400	1	06/20/00	06/20/00	Sediment
SED002900	1	09/26/00	09/26/00	Sediment
SED0030101	1	01/23/01	01/23/01	Sediment
SED0030400	1	06/20/00	06/20/00	Sediment
SED003900	1	09/26/00	09/26/00	Sediment
SED004	6	08/05/91	03/01/93	Sediment
SED0040101	1	01/23/01	01/23/01	Sediment
SED0040400	1	06/20/00	06/20/00	Sediment
SED004900	1	09/26/00	09/26/00	Sediment
SED0050101	1	01/23/01	01/23/01	Sediment

Station/Location	Number of Samples	Sampling Period		Media
SED0050400	1	06/20/00	06/20/00	Sediment
SED005900	1	09/26/00	09/26/00	Sediment
SED006	3	08/26/91	03/04/92	Sediment
SED0060101	1	01/23/01	01/23/01	Sediment
SED0060400	1	06/20/00	06/20/00	Sediment
SED0070101	1	01/23/01	01/23/01	Sediment
SED0070400	1	06/20/00	06/20/00	Sediment
SED00795	1	02/14/95	02/14/95	Sediment
SED008	4	08/27/91	03/04/92	Sediment
SED0080400	1	06/20/00	06/20/00	Sediment
SED009	3	08/27/91	02/26/92	Sediment
SED0090400	1	06/20/00	06/20/00	Sediment
SED0100400	1	06/20/00	06/20/00	Sediment
SED01095	1	02/14/95	02/14/95	Sediment
SED011	6	09/03/91	06/20/00	Sediment
SED0110400	1	06/20/00	06/20/00	Sediment
SED01195	1	02/14/95	02/14/95	Sediment
SED0120400	1	06/20/00	06/20/00	Sediment
SED01295	1	02/14/95	02/14/95	Sediment
SED0130400	1	06/20/00	06/20/00	Sediment
SED0140400	1	06/20/00	06/20/00	Sediment
SED0150400	1	06/20/00	06/20/00	Sediment
SED016	6	08/14/91	03/18/93	Sediment
SED017	2	08/05/91	11/05/92	Sediment
SED018	2	11/18/91	03/03/93	Sediment
SED019	1	11/18/91	11/18/91	Sediment
SED020	6	08/05/91	03/18/93	Sediment
SED021	4	08/26/91	03/16/93	Sediment
SED022	2	08/26/91	12/09/91	Sediment
SED0220400	1	06/20/00	06/20/00	Sediment
SED023	4	08/05/91	03/31/93	Sediment
SED0230400	1	06/20/00	06/20/00	Sediment
SED024	4	09/03/91	11/05/92	Sediment
SED02495	1	03/10/95	03/10/95	Sediment
SED025	2	08/12/91	11/05/92	Sediment
SED0250400	1	06/20/00	06/20/00	Sediment
SED02595	1	03/10/95	03/10/95	Sediment
SED026	1	08/21/91	08/21/91	Sediment
SED02695	1	02/21/95	02/21/95	Sediment
SED027	5	08/28/91	11/05/92	Sediment
SED0270400	1	06/20/00	06/20/00	Sediment
SED02795	1	03/10/95	03/10/95	Sediment
SED028	1	08/28/91	08/28/91	Sediment
SED029	4	09/04/91	07/20/92	Sediment
SED030	1	08/21/91	08/21/91	Sediment
SED031	1	08/21/91	08/21/91	Sediment
SED0320400	1	06/20/00	06/20/00	Sediment
SED03295	1	02/15/95	02/15/95	Sediment
SED0330400	1	06/20/00	06/20/00	Sediment

Station/Location	Number of Samples	Sampling Period		Media
SED034	1	08/27/91	08/27/91	Sediment
SED0340400	1	06/20/00	06/20/00	Sediment
SED03495	1	03/14/95	03/14/95	Sediment
SED0350400	1	06/20/00	06/20/00	Sediment
SED036	1	08/26/91	08/26/91	Sediment
SED03695	1	03/02/95	03/02/95	Sediment
SED037	2	11/06/91	04/08/92	Sediment
SED038	1	11/05/91	11/05/91	Sediment
SED039	3	11/05/91	07/20/92	Sediment
SED0390400	1	06/20/00	06/20/00	Sediment
SED040	1	02/24/92	02/24/92	Sediment
SED041	1	02/24/92	02/24/92	Sediment
SED0410400	1	06/20/00	06/20/00	Sediment
SED0430400	1	06/20/00	06/20/00	Sediment
SED04395	1	02/27/95	02/27/95	Sediment
SED04492	1	06/05/92	06/05/92	Sediment
SED04495	1	02/27/95	02/27/95	Sediment
SED04795	1	03/15/95	03/15/95	Sediment
SED04895	1	03/03/95	03/03/95	Sediment
SED05095	1	03/16/95	03/16/95	Sediment
SED05195	1	03/16/95	03/16/95	Sediment
SED05295	1	03/16/95	03/16/95	Sediment
SED05395	1	02/21/95	02/21/95	Sediment
SED05795	1	02/15/95	02/15/95	Sediment
SED06095	1	02/24/95	02/24/95	Sediment
SED06195	1	02/24/95	02/24/95	Sediment
SED06295	1	03/01/95	03/01/95	Sediment
SED06695	1	02/22/95	02/22/95	Sediment
SED06895	1	03/01/95	03/01/95	Sediment
SED06995	1	03/03/95	03/03/95	Sediment
SED07095	1	03/15/95	03/15/95	Sediment
SED07295	1	03/15/95	03/15/95	Sediment
SED07495	1	02/22/95	02/22/95	Sediment
SED07595	1	03/03/95	03/03/95	Sediment
SED07695	1	03/03/95	03/03/95	Sediment
SED07995	1	03/01/95	03/01/95	Sediment
SED08195	1	03/16/95	03/16/95	Sediment
SED08295	1	03/16/95	03/16/95	Sediment
SED08395	1	02/20/95	02/20/95	Sediment
SED08495	1	02/20/95	02/20/95	Sediment
SED08895	1	03/16/95	03/16/95	Sediment
SED09195	1	03/15/95	03/15/95	Sediment
SED09295	1	03/02/95	03/02/95	Sediment
SED09395	1	03/02/95	03/02/95	Sediment
SED09495	1	03/02/95	03/02/95	Sediment
SED09595	1	03/02/95	03/02/95	Sediment
SED10101	1	02/07/01	02/07/01	Sediment
SED10104	1	09/15/04	09/15/04	Sediment
SED10204	1	09/15/04	09/15/04	Sediment

Station/Location	Number of Samples	Sampling Period		Media
SED10304	1	09/15/04	09/15/04	Sediment
SED10404	1	09/16/04	09/16/04	Sediment
SED10604	1	09/16/04	09/16/04	Sediment
SED10704	1	09/16/04	09/16/04	Sediment
SED10804	1	09/16/04	09/16/04	Sediment
SED10904	1	09/16/04	09/16/04	Sediment
SED11004	1	09/16/04	09/16/04	Sediment
SED116	1	09/04/91	09/04/91	Sediment
SED117	3	08/13/91	02/27/92	Sediment
SED118	4	08/13/91	11/18/04	Sediment
SED120	1	08/20/91	08/20/91	Sediment
SED125	1	08/14/91	08/14/91	Sediment
SED126	1	08/28/91	08/28/91	Sediment
SED127	2	12/08/92	03/18/93	Sediment
SED20104	1	11/18/04	11/18/04	Sediment
SED20193	1	05/31/94	05/31/94	Sediment
SED20204	1	11/18/04	11/18/04	Sediment
SED20293	1	05/31/94	05/31/94	Sediment
SED20304	1	11/18/04	11/18/04	Sediment
SED20393	1	05/19/94	05/19/94	Sediment
SED20493	1	04/06/94	04/06/94	Sediment
SED20593	1	04/06/94	04/06/94	Sediment
SED20693	1	04/06/94	04/06/94	Sediment
SED20793	1	04/07/94	04/07/94	Sediment
SED20893	1	03/21/94	03/21/94	Sediment
SED20993	1	03/21/94	03/21/94	Sediment
SED21093	1	03/21/94	03/21/94	Sediment
SED21193	1	03/21/94	03/21/94	Sediment
SED21293	1	04/11/94	04/11/94	Sediment
SED21393	1	04/11/94	04/11/94	Sediment
SED21493	1	04/05/94	04/05/94	Sediment
SED21593	1	04/05/94	04/05/94	Sediment
SED21693	1	04/05/94	04/05/94	Sediment
SED40100	1	10/03/00	10/03/00	Sediment
SED40196	1	02/13/96	02/13/96	Sediment
SED40200	1	10/03/00	10/03/00	Sediment
SED40296	1	02/13/96	02/13/96	Sediment
SED40300	1	10/03/00	10/03/00	Sediment
SED40396	1	02/13/96	02/13/96	Sediment
SED40500	1	10/03/00	10/03/00	Sediment
SED40600	1	10/03/00	10/03/00	Sediment
SED40700	1	10/03/00	10/03/00	Sediment
SED40800	1	10/04/00	10/04/00	Sediment
SED40900	1	10/04/00	10/04/00	Sediment
SED41000	1	10/03/00	10/03/00	Sediment
SED41100	1	10/04/00	10/04/00	Sediment
SED41200	1	10/04/00	10/04/00	Sediment
SED41300	1	10/04/00	10/04/00	Sediment
SED41400	1	10/04/00	10/04/00	Sediment

Station/Location	Number of Samples	Sampling Period		Media
SED41500	1	10/04/00	10/04/00	Sediment
SED41600	1	10/04/00	10/04/00	Sediment
SED41700	1	10/03/00	10/03/00	Sediment
SED41800	1	10/03/00	10/03/00	Sediment
SED41900	1	10/03/00	10/03/00	Sediment
SED42000	1	10/03/00	10/03/00	Sediment
SED42100	1	10/04/00	10/04/00	Sediment
SED42200	1	10/04/00	10/04/00	Sediment
SED42300	1	10/04/00	10/04/00	Sediment
SED42400	1	10/04/00	10/04/00	Sediment
SED42500	1	10/10/00	10/10/00	Sediment
SED42600	1	10/10/00	10/10/00	Sediment
SED42700	1	10/10/00	10/10/00	Sediment
SED42800	1	10/11/00	10/11/00	Sediment
SED42900	1	10/11/00	10/11/00	Sediment
SED43000	1	10/11/00	10/11/00	Sediment
SED43100	1	10/10/00	10/10/00	Sediment
SED43200	1	10/10/00	10/10/00	Sediment
SED43300	1	10/10/00	10/10/00	Sediment
SED43400	1	10/03/00	10/03/00	Sediment
SED43500	1	10/03/00	10/03/00	Sediment
SED501	1	11/05/92	11/05/92	Sediment
SED506	1	11/05/92	11/05/92	Sediment
SED507	1	11/05/92	11/05/92	Sediment
SED508	1	11/09/92	11/09/92	Sediment
SED509	1	11/09/92	11/09/92	Sediment
SED510	1	11/09/92	11/09/92	Sediment
SED511	1	11/10/92	11/10/92	Sediment
SED512	1	11/10/92	11/10/92	Sediment
SED513	1	11/10/92	11/10/92	Sediment
SED51593	1	07/08/93	07/08/93	Sediment
SED51693	1	07/08/93	07/08/93	Sediment
SED51793	1	07/08/93	07/08/93	Sediment
SED51893	1	07/08/93	07/08/93	Sediment
SED60092	2	10/29/92	06/06/94	Sediment
SED60192	2	11/02/92	06/06/94	Sediment
SED60292	2	10/29/92	06/06/94	Sediment
SED60392	2	10/29/92	06/06/94	Sediment
SED60492	2	11/02/92	06/06/94	Sediment
SED60592	2	11/12/92	06/01/94	Sediment
SED60692	2	11/12/92	06/01/94	Sediment
SED60792	2	11/12/92	06/01/94	Sediment
SED60892	2	11/12/92	06/01/94	Sediment
SED60992	2	11/12/92	06/01/94	Sediment
SED61092	2	10/21/92	06/21/94	Sediment
SED61192	2	10/21/92	06/21/94	Sediment
SED61292	2	10/22/92	06/21/94	Sediment
SED61392	2	10/21/92	06/21/94	Sediment
SED61492	2	10/22/92	06/21/94	Sediment

Station/Location	Number of Samples	Sampling Period		Media
SED61592	2	10/14/92	07/05/94	Sediment
SED61692	2	10/15/92	07/05/94	Sediment
SED61792	2	10/15/92	07/06/94	Sediment
SED61892	2	10/19/92	07/05/94	Sediment
SED61992	2	10/15/92	07/06/94	Sediment
SED63092	2	10/27/92	06/14/94	Sediment
SED63192	2	10/27/92	06/14/94	Sediment
SED63492	2	10/28/92	06/14/94	Sediment
SED63592	2	10/22/92	06/08/94	Sediment
SED63692	2	10/26/92	06/08/94	Sediment
SED63792	2	10/26/92	06/08/94	Sediment
SED63892	2	10/22/92	06/08/94	Sediment
SED63992	2	10/26/92	06/08/94	Sediment
SED64092	2	10/19/92	06/10/94	Sediment
SED64192	2	10/19/92	06/15/94	Sediment
SED64292	2	10/20/92	06/15/94	Sediment
SED64392	2	10/20/92	06/15/94	Sediment
SED64492	2	10/20/92	06/10/94	Sediment
SED64592	1	11/19/92	11/19/92	Sediment
SED64692	1	11/19/92	11/19/92	Sediment
SED64792	1	11/19/92	11/19/92	Sediment
SED64892	1	11/19/92	11/19/92	Sediment
SED64992	1	11/19/92	11/19/92	Sediment
SED65092	1	02/11/93	02/11/93	Sediment
SED65192	1	02/11/93	02/11/93	Sediment
SED65292	1	02/11/93	02/11/93	Sediment
SED65392	1	02/11/93	02/11/93	Sediment
SED65492	1	02/11/93	02/11/93	Sediment
SED65592	1	02/11/93	02/11/93	Sediment
SED65692	1	02/11/93	02/11/93	Sediment
SED65792	1	02/11/93	02/11/93	Sediment
SED65892	1	02/17/93	02/17/93	Sediment
SED65992	1	02/17/93	02/17/93	Sediment
SED66092	1	02/17/93	02/17/93	Sediment
SED66192	1	02/17/93	02/17/93	Sediment
SED66292	1	02/18/93	02/18/93	Sediment
SED66392	1	02/18/93	02/18/93	Sediment
SED66492	1	02/18/93	02/18/93	Sediment
SED66592	1	02/18/93	02/18/93	Sediment
SED66692	1	02/18/93	02/18/93	Sediment
SED66792	1	02/18/93	02/18/93	Sediment
SED68192	1	02/19/93	02/19/93	Sediment
SED68492	1	05/06/93	05/06/93	Sediment
SED68592	1	05/06/93	05/06/93	Sediment
SED68692	1	05/06/93	05/06/93	Sediment
SED68792	1	05/06/93	05/06/93	Sediment
SED68892	1	05/06/93	05/06/93	Sediment
SED68992	1	05/07/93	05/07/93	Sediment
SED69292	1	05/07/93	05/07/93	Sediment

Station/Location	Number of Samples	Sampling Period		Media
SED69392	1	05/10/93	05/10/93	Sediment
SED69492	1	05/10/93	05/10/93	Sediment
SED69692	1	05/10/93	05/10/93	Sediment
SED69792	1	05/10/93	05/10/93	Sediment
SED69892	1	05/10/93	05/10/93	Sediment
SED69992	1	05/10/93	05/10/93	Sediment
SED70092	1	05/10/93	05/10/93	Sediment
SED70093	1	03/18/93	03/18/93	Sediment
SED70193	1	03/22/93	03/22/93	Sediment
SED70293	1	03/23/93	03/23/93	Sediment
SED750101	1	01/25/01	01/25/01	Sediment
SED750201	1	01/25/01	01/25/01	Sediment
SED750301	1	01/25/01	01/25/01	Sediment
SED750401	1	01/25/01	01/25/01	Sediment
SED750501	1	01/25/01	01/25/01	Sediment
SED80093	1	12/12/94	12/12/94	Sediment
SED80193	1	12/12/94	12/12/94	Sediment
SED80393	1	12/13/94	12/13/94	Sediment
SED80693	1	12/13/94	12/13/94	Sediment
SS120194	1	10/11/94	10/11/94	Sediment
SS204293	1	03/25/93	03/25/93	Sediment
SS224293	1	03/07/94	03/07/94	Sediment
SS305493	1	06/20/94	06/20/94	Sediment
SS30599	1	12/14/98	12/14/98	Sediment
SS306693	1	06/29/94	06/29/94	Sediment
SS441494	1	09/07/94	09/07/94	Sediment
SS460394	1	10/10/94	10/10/94	Sediment
SS614792	1	10/06/92	10/06/92	Sediment
SS711193	2	12/11/92	04/08/93	Sediment
SS711593	1	12/18/92	12/18/92	Sediment
SS9040400	1	02/28/00	02/28/00	Sediment
SW01793	1	11/29/93	11/29/93	Sediment
SW022	1	06/21/94	06/21/94	Sediment
SW030	1	11/29/93	11/29/93	Sediment
SW036	1	11/29/93	11/29/93	Sediment

Group	Analyte	Total or Dissolved	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5
VOC	1,1,1-Trichloroethane	Total	265	1	0.4	5.5	Yes	ug/L	1	200	0	No	No
VOC	1,1,2,2-Tetrachloroethane	Total	265	0	0.0	10	Yes	ug/L	1	2.7	0	No	No
VOC	1,1,2-Trichloroethane	Total	265	32	12.1	3	Yes	ug/L	3650	7	0	No	No
VOC	1,1-Dichloroethane	Total	265	7	2.6	5	Yes	ug/L	7	3650	0	No	No
VOC	1,1-Dichloroethane	Total	265	3	1.1	33	Yes	ug/L	10	1	0	No	No
SVOC	1,2,4,5-Tetrachlorobenzene	Total	3	0	0.0	0	Yes	ug/L	10	1	0	No	No
SVOC	1,2,4-Trichlorobenzene	Total	166	2	1.2	0.2	Yes	ug/L	10	35	0	No	No
VOC	1,2-Dibromoethane	Total	153	0	0.0	5	Yes	ug/L	1	420	0	No	No
VOC	1,2-Dichlorobenzene	Total	267	22	8.2	0.4	Yes	ug/L	1	420	0	No	No
VOC	1,2-Dichloroethane	Total	241	0	0.0	10	Yes	ug/L	1	1	0	No	No
VOC	1,2-Dichloropropane	Total	265	0	0.0	10	Yes	ug/L	1	70	0	No	No
VOC	1,3-Dichlorobenzene	Total	267	10	3.7	0.82	Yes	ug/L	94	1	0	No	No
VOC	1,4-Dichlorobenzene	Total	267	66	24.7	4.1	Yes	ug/L	63	700	0	No	No
SVOC	2,4,5-Trichlorophenol	Total	32	0	0.0	84	Yes	ug/L	50	700	0	No	No
SVOC	2,4,6-Trichlorophenol	Total	32	0	0.0	33	Yes	ug/L	50	700	0	No	No
SVOC	2,4-Dichlorophenol	Total	32	0	0.0	33	Yes	ug/L	50	700	0	No	No
SVOC	2,4-Dimethylphenol	Total	32	0	0.0	33	Yes	ug/L	50	140	0	No	No
SVOC	2,4-Dinitrophenol	Total	32	0	0.0	84	Yes	ug/L	50	50	0	No	No
SVOC	2,4-Dinitrotoluene	Total	35	0	0.0	33	Yes	ug/L	10	10	0	No	No
SVOC	2,6-Dinitrotoluene	Total	152	6	3.9	16	Yes	ug/L	21900	230	0	No	No
VOC	2-Butanone	Total	152	6	3.9	16	Yes	ug/L	21900	230	0	No	No
SVOC	2-Chloronaphthalene	Total	35	0	0.0	33	Yes	ug/L	560	560	0	No	No
SVOC	2-Chlorophenol	Total	32	0	0.0	33	Yes	ug/L	50	1830	0	No	No
SVOC	2-Methylphenol	Total	29	0	0.0	11.2	Yes	ug/L	1830	10	0	No	No
SVOC	3,3'-Dichlorobenzidine	Total	35	0	0.0	33	Yes	ug/L	10	10	0	No	No
SVOC	4,6-Dinitro-2-methylphenol	Total	32	0	0.0	84	Yes	ug/L	50	50	0	No	No
SVOC	4-Chloro-3-methylphenol	Total	32	0	0.0	33	Yes	ug/L	50	50	0	No	No
VOC	4-Methyl-2-pentanone	Total	160	0	0.0	50	Yes	ug/L	2920	2920	0	No	No
HERB	4-Nitrophenol	Total	32	0	0.0	84	Yes	ug/L	56	56	0	No	No
SVOC	Acenaphthene	Total	35	3	8.6	2.7	Yes	ug/L	420	420	0	No	No
SVOC	Acenaphthylene	Total	35	0	0.0	33	Yes	ug/L	10	10	0	No	No
VOC	Acetone	Total	154	45	29.2	63.1	Yes	ug/L	3650	3650	0	No	No
SVOC	Aniline	Total	1	0	0.0	10	Yes	ug/L	10	10	0	No	No
SVOC	Anthracene	Total	35	0	0.0	33	Yes	ug/L	2100	2100	0	No	No
SVOC	Aranite	Total	3	0	0.0	67	Yes	ug/L	1.4	1.4	0	No	No
MEET	Arsenic	Dissolved	74	18	24.3	4.1	B	ug/L	12	0	0.0	No	No

Table 2
Surface Water AOI Screening
For Results From January 1, 2000 To Present

HH

Table 2
Surface Water AOI Screening
For Results From January 1, 2000 To Present

Group	Analyte	Total or Dissolved	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1					Screen 2			Screen 3			Screen 4	Screen 5	Is Constituent an AOI ?		
									Is There a Surface Water Standard ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	Lowest Surface Water Standard or PQL	Number of Detections Above the Lowest Surface Water Standard or PQL	Frequency of Detection (%) Above the Surface Water Standard or PQL	Is the Maximum Result Above the Surface Water Standard or PQL ?	Is the Most Recent Result Above the Lowest Surface Water Standard or PQL ?	Is Constituent Eliminated or Retained By Process Knowledge ?					
SVOC	Benzol(a)anthracene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No	
SVOC	Benzol(a)pyrene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Benzol(b)fluoranthene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Benzol(g,h,i)perylene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Benzol(k)fluoranthene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	bis(2-Chloroethyl) ether	Total	32	0	0.0	11.2	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	bis(2-Chloroisopropyl) ether	Total	32	0	0.0	11.2	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	bis(2-ethylhexyl)phthalate	Total	32	0	0.0	11.2	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
MET	Boron	Total	10	6	60.0	180	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Bromodichloromethane	Total	265	15	5.7	0.4	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Bromoforn	Total	265	3	1.1	1.9	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Bromomethane	Total	265	0	0.0	10	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Burylbisphthalate	Total	35	3	8.6	2	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
MET	Cadmium	Dissolved	411	134	32.6	2.1	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Carbon Disulfide	Total	160	1	0.6	0.1	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Chlorobenzene	Total	265	21	7.9	0.95	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Chloroethane	Total	265	25	9.4	24	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Chloromethane	Total	265	5	1.9	2.8	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
MET	Chromium	Dissolved	76	36	47.4	7.6	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Chrysene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	cis-1,3-Dichloropropene	Total	35	0	0.0	10	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
MET	Copper	Dissolved	74	48	64.9	8.5	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Dibenz(a,h)anthracene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Dibromochloromethane	Total	265	0	0.0	10	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Diethylphthalate	Total	35	1	2.9	2	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Dimethylphthalate	Total	35	3	8.6	3.6	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Di-n-butylphthalate	Total	35	1	2.9	1.5	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Ethylbenzene	Total	265	12	4.5	1	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Fluoranthene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Fluorene	Total	35	3	8.6	2.6	J	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Hexachlorobenzene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Hexachlorobutadiene	Total	166	0	0.0	11	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
PEST	Hexachlorocyclopentadiene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
VOC	Hexachloroethane	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Indenol(1,2,3-cd)pyrene	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
SVOC	Isophorone	Total	35	0	0.0	33	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No
MET	Lead	Dissolved	74	11	14.9	5.62	U	ug/L	Yes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No

Table 2
Surface Water AOI Screening
For Results From January 1, 2000 To Present

Group	Analyte	Total or Dissolved	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2		Screen 3		Screen 4	Screen 5	Is Constituent an AOI ?		
									Is There a Surface Water Standard ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	Lowest Surface Water Standard or PQL	Number of Detections Above the Lowest Surface Water Standard or PQL	Frequency of Detection (%) Above the Surface Water Standard or PQL		Is the Maximum Result Above the Surface Water Standard or PQL ?	Is the Most Recent Result Above the Lowest Surface Water Standard or PQL ?	Is Constituent Eliminated or Retained By Process Knowledge ?
VOC	m,p-Xylene	Total	9	0	0.0	5	U	ug/L	Yes	1	0	0.0	No	1400	0	0.00	No	No	No
MEET	Mercury	Dissolved	74	10	13.5	0.31	U	ug/L	Yes	1	0	0.0	No	1.4	0	0.00	No	No	No
SVOC	Naphthalene	Total	166	22	13.3	27	U	ug/L	Yes	28	0	0.00	No	28	0	0.00	No	No	No
RAD	Naphtalium-237	Total	19	1	5.3	0.238	B	PC/L	Yes	30	0	0.00	No	30	0	0.00	No	No	No
MEET	Nickel	Dissolved	74	45	60.8	6	U	ug/L	Yes	28	0	0.0	No	70.4	0	0.00	No	No	No
SVOC	Nitrobenzene	Total	35	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	N-Nitrosodimethylamine	Total	3	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	N-Nitrosodimethylamine	Total	3	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	N-Nitrosod-n-butylamine	Total	3	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	N-Nitroso-d-n-propylamine	Total	35	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	n-Nitrosodiphenylamine	Total	35	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	n-Nitrosomethylamine	Total	3	0	0.0	33	U	ug/L	Yes	0.0016	0	0.00	No	0.0016	0	0.00	No	No	No
SVOC	N-Nitrosopyrrolidine	Total	3	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	o-Xylene	Total	9	0	0.0	5	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	Parathion	Total	3	0	0.0	0.52	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
PCB	PCB-1016	Total	9	0	0.0	0.5	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
PCB	PCB-1221	Total	9	0	0.0	0.5	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
PCB	PCB-1232	Total	9	0	0.0	0.5	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
PCB	PCB-1242	Total	9	0	0.0	0.5	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
PCB	PCB-1248	Total	9	0	0.0	0.5	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
PCB	PCB-1254	Total	9	2	22.2	0.7	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
PCB	PCB-1260	Total	9	0	0.0	0.5	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
SVOC	Pentachlorobenzene	Total	3	0	0.0	33	U	ug/L	Yes	50	0	0.00	No	50	0	0.00	No	No	No
SVOC	Pentachlorophenol	Total	32	0	0.0	84	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
SVOC	Phenanthrene	Total	35	2	5.7	3.5	J	ug/L	Yes	2100	0	0.00	No	2100	0	0.00	No	No	No
SVOC	Phenol	Total	32	2	6.3	3.5	J	ug/L	Yes	210	0	0.00	No	210	0	0.00	No	No	No
SVOC	Pyrene	Total	35	0	0.0	33	U	ug/L	Yes	10	0	0.00	No	10	0	0.00	No	No	No
MEET	Selenium	Dissolved	74	38	51.4	8.9	N	ug/L	Yes	6	3	4.1	Yes	10	0	0.00	No	No	No
MEET	Silver	Total	892	168	18.8	73.6	U	ug/L	Yes	6	1	0.1	Yes	100	0	0.00	No	No	No
VOC	Styrene	Total	165	1	0.6	3	U	ug/L	Yes	100	0	0.00	No	100	0	0.00	No	No	No
MEET	Thallium	Total	868	62	7.1	7.1	U	ug/L	Yes	27	0	0.0	No	12	0	0.00	No	No	No
MEET	Thallium	Dissolved	72	10	13.9	4.1	J	ug/L	Yes	31	0	0.0	No	1000	0	0.00	No	No	No
VOC	Toluene	Total	265	67	25.3	10	J	ug/L	Yes	1000	0	0.00	No	1000	0	0.00	No	No	No
VOC	trans-1,2-Dichloroethene	Total	254	1	0.4	0.7	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
VOC	trans-1,3-Dichloropropene	Total	265	0	0.0	10	U	ug/L	Yes	1	0	0.00	No	1	0	0.00	No	No	No
MEET	Uranium	Total	681	110	16.2	52.76579	B	PC/L	Yes	8	27	4.0	Yes	137.05	0	0.00	No	No	No
MEET	Uranium	Dissolved	55	16	29.1	10.27905	B	PC/L	Yes	2442	0	0.00	No	2442	0	0.00	No	No	No

Table 2
Surface Water AOI Screening
For Results From January 1, 2000 To Present

Group	Analyte	Total or Dissolved	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2		Screen 3		Screen 4	Screen 5	Is Constituent an AOI ?		
									Is There a Surface Water Standard ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	Lowest Surface Water Standard or PQL	Number of Detections Above the Lowest Surface Water Standard or PQL	Frequency of Detection (%) Above the Surface Water Standard or PQL		Is the Maximum Result Above the Surface Water Standard or PQL ?	Is the Most Recent Result Above the Lowest Surface Water Standard or PQL ?	Is Constituent Eliminated or Retained By Process Knowledge ?
RAD	Uranium Isotopes	Dissolved	33	33	100.0	17.97		PC/L	Yes	0.18	165	9.0	Yes	2442	0	0.00	No	No	No
RAD	Uranium-235	Total	1825	1030	56.4	3.14		PC/L	Yes	---	---	---	---	10	0	0.00	No	No	No
VOC	Xylene, total	Total	165	19	11.5	4.1		ug/L	Yes	---	---	---	---	1400	0	0.00	No	No	No
RAD	Uranium Isotopes	Total	1639	1639	100.0	167.34		PC/L	Yes	8	141	8.6	Yes	137.05	1	0.06	Yes	Retained	Yes
MET	Copper	Total	868	827	95.3	259		ug/L	Yes	22	211	24.3	Yes	200	1	0.12	Yes	---	No
MET	Silver	Dissolved	583	40	6.9	32.4		ug/L	Yes	9	2	0.2	Yes	5	1	0.17	Yes	---	No
MET	Selenium	Total	868	354	40.8	19		ug/L	Yes	7	2	0.2	Yes	10	2	0.23	Yes	---	No
MET	Mercury	Total	793	112	14.1	5.5		ug/L	Yes	0.27	24	3.0	Yes	1	4	0.50	Yes	---	No
MET	Cadmium	Total	870	606	69.7	13.5		ug/L	Yes	3	21	2.4	Yes	5	6	0.69	Yes	---	No
MET	Barium	Total	868	867	99.9	2360		ug/L	Yes	236	200	23.0	Yes	1000	6	0.69	Yes	---	No
VOC	Methylene Chloride	Total	265	15	5.7	9.6		ug/L	Yes	---	0	0.0	---	4.6	2	0.75	Yes	---	No
MET	Nickel	Total	868	840	96.8	272		ug/L	Yes	36	35	4.0	Yes	100	7	0.81	Yes	---	No
RAD	Tritium	Total	368	20	5.4	575		PC/L	Yes	439	3	0.8	Yes	500	3	0.82	Yes	---	No
WQP	Fluoride	Total	110	106	96.4	9600		ug/L	Yes	586	4	3.6	Yes	2000	1	0.91	Yes	---	No
WQP	Sulfate	Total	110	109	99.1	350000		ug/L	Yes	42709	10	9.1	Yes	250000	1	0.91	Yes	---	No
MET	Beryllium	Total	1186	787	66.4	25.5		ug/L	Yes	2	29	2.4	Yes	5	11	0.93	Yes	---	No
VOC	Vinyl Chloride	Total	265	23	8.7	9.7		ug/L	Yes	---	0	0.0	---	2	3	1.13	Yes	---	No
VOC	cis-1,2-Dichloroethene	Total	153	25	16.3	210		ug/L	Yes	---	0	0.0	---	70	2	1.31	Yes	---	Yes
MET	Antimony	Dissolved	74	37	50.0	10.2		ug/L	Yes	104	0	0.0	No	10	1	1.35	Yes	---	No
MET	Chromium	Total	1325	1146	86.5	348		ug/L	Yes	56	23	1.7	Yes	50	27	2.04	Yes	---	Yes
MET	Zinc	Total	867	797	91.9	12200		ug/L	Yes	544	114	13.1	Yes	2000	21	2.42	Yes	---	Yes
MET	Lead	Total	862	671	77.8	262		ug/L	Yes	18	135	15.7	Yes	50	31	3.60	Yes	---	Yes
VOC	Trichloroethene	Total	265	42	15.8	66		ug/L	Yes	---	0	0.0	---	2.5	10	3.77	Yes	---	Yes
RAD	Gross Alpha	Total	148	28	18.9	521		PC/L	Yes	18	3	2.0	Yes	7	6	4.05	Yes	---	Yes
MET	Aluminum	Dissolved	73	34	46.6	1330		ug/L	Yes	430	2	2.7	Yes	87	3	4.11	Yes	---	Yes
RAD	Uranium-233/234	Total	1825	1800	98.6	99.2		PC/L	No	2	433	23.7	Yes	10	75	4.11	---	---	No
RAD	Uranium-238	Total	1825	1805	98.9	65		PC/L	No	2	409	22.4	Yes	10	76	4.16	---	---	No
WQP	Chloride	Total	110	110	100.0	340000		ug/L	Yes	44842	50	45.5	Yes	250000	5	4.55	Yes	Eliminated	No
VOC	Tetrachloroethene	Total	260	29	11.2	44		ug/L	Yes	---	0	0.0	---	1	12	4.62	Yes	---	Yes
MET	Zinc	Dissolved	74	66	89.2	354		ug/L	Yes	428	0	0.0	No	158.7	5	6.76	Yes	---	No
VOC	Benzene	Total	265	29	10.9	4.7		ug/L	Yes	---	0	0.0	---	1.2	18	6.79	Yes	---	Yes
VOC	Carbon Tetrachloride	Total	265	29	10.9	310		D	Yes	---	0	0.0	---	---	22	8.30	Yes	---	Yes
MET	Antimony	Total	868	580	66.8	108		ug/L	Yes	71	2	0.2	Yes	10	96	11.06	Yes	---	Yes
VOC	Chloroform	Total	265	108	40.8	120		D	Yes	---	0	0.0	---	3.4	30	11.32	Yes	---	Yes
WQP	Nitrate/Nitrite (as N)	Total	1504	1471	97.8	1200000		ug/L	Yes	3485	683	45.4	Yes	10000	212	14.10	Yes	---	Yes

Table 2
Surface Water AOI Screening
For Results From January 1, 2000 To Present

Group	Analyte	Total or Dissolved	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1	Screen 2				Screen 3			Screen 4	Screen 5	Is Constituent an AOI ?	
									Is There a Surface Water Standard ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	Lowest Surface Water Standard or PQL	Number of Detections Above the Lowest Surface Water Standard or PQL	Frequency of Detection (%) Above the Surface Water Standard or PQL	Is the Maximum Result Above the Surface Water Standard or PQL ?	Is the Most Recent Result Above the Lowest Surface Water Standard or PQL ?		Is Constituent Eliminated or Retained By Process Knowledge ?
MET	Iron	Dissolved	74	53	71.6	46000		ug/L	Yes	13149	1	1.4	Yes	300	11	14.86	Yes	Yes	----	Yes ⁶
RAD	Americium-241	Total	1926	809	42.0	84		pCi/L	Yes	0.02	748	38.8	Yes	0.15	317	16.46	Yes	Yes	----	Yes
RAD	Plutonium-239/240	Total	1958	929	47.4	259		pCi/L	Yes	0.02	891	45.5	Yes	0.15	373	19.05	Yes	Yes	----	Yes
MET	Arsenic	Total	868	709	81.7	147		ug/L	Yes	12	57	6.6	Yes	5	207	23.85	Yes	Yes	----	Yes
RAD	Gross Beta	Total	147	138	93.9	398		pCi/L	Yes	15	4	2.7	Yes	8	44	29.93	Yes	Yes	----	Yes
MET	Manganese	Total	868	864	99.5	4470		ug/L	Yes	758	72	8.3	Yes	200	275	31.68	Yes	Yes	Eliminated	No ⁷
WQP	Nitrite (as N)	Total	655	652	99.5	6600		ug/L	Yes	36	645	98.5	Yes	500	248	37.86	Yes	Yes	----	No ⁸
WQP	Cyanide	Total	2	2	100.0	36.5		ug/L	Yes	935	0	0.0	No	5	1	50.00	Yes	Yes	----	No ³
MET	Manganese	Dissolved	74	64	86.5	1400		ug/L	Yes	378	11	14.9	Yes	50	38	51.35	Yes	Yes	Eliminated	No ⁷
MET	Iron	Total	868	860	99.1	398000		ug/L	Yes	23461	92	10.6	Yes	1000	637	73.39	Yes	Yes	----	Yes ⁶
WQP	Ammonia (as N)	Total	1025	895	87.3	21000		ug/L	Yes	----	----	----	----	100	790	77.07	Yes	Yes	----	Yes

Notes

- Not Applicable
- The frequency of detection of the analyte concentration above the lowest surface water standard or PQL, whichever is higher, is greater than (>) 0 % and less than (<) 1 %.
- The frequency of detection of the analyte concentration above the lowest surface water standard or PQL, whichever is higher, is greater than (>) or equal to 1 % and less than (<) 5 %.
- The frequency of detection of the analyte concentration above the lowest surface water standard or PQL, whichever is higher, is greater than (>) 5 %.
- 1 Total uranium isotopes, which is the sum of the individual uranium isotopes (U-233/234, U-235, and U-238), was retained as an AOI even though the frequency of detection above the lowest surface water standard or PQL was less than 1%. Total uranium isotopes was retained because there is a surface water standard for total uranium, however, there is not a surface water standard for individual uranium isotopes which have a frequency of detection above 1%.
- 2 Analytes not retained as AOIs because their frequency of detection above the surface water standard is less than 1%.
- 3 Although dissolved antimony, dissolved zinc, and cyanide have frequency of detections above 1%, they were not retained as AOIs because their maximum results were less than the background mean + 2 standard deviations.
- 4 Although uranium-233/234 and uranium-238 have frequency of detections above 1%, they were not retained as AOIs because there is not a surface water standard for these isotopes. Total uranium was retained instead (see Note 1).
- 5 Although chloride has a frequency of detection above 1%, it was not retained as an AOI because the primary source of chloride at RFETS was salt used as a deicer on roads during the winter.
- 6 Dissolved iron was not retained as an AOI because it only occurs above the surface water standard at the former Present Landfill seep which has been remediated. Total iron was not retained as an AOI because it is a ubiquitous, naturally-occurring constituent of the particulates that comprise the total iron analysis. Iron commonly occurs as a chemical component of the particulate, suspended ferric oxyhydroxides, and as coatings on particulates. Based on results of different exposure scenarios, iron was not carried forward as a material of concern for the ChemRisk process (DOE, 2005).
- 7 Manganese was eliminated as an AOI based on process knowledge that it was not identified or discussed in building process information (CDH, 1992; DOE, 2004d). Manganese has not been found associated with UBC sites (DOE, 2004d). Only small quantities were identified to be in inventory with the exception of manganous sulfate which had an inventory in 1974 of 2560 kilograms and then later in 1988 of 0.06 kilograms (the specific use was not clear in the ChemRisk reports). Based on results of different exposure scenarios, manganese was not carried forward as a material of concern for the ChemRisk process (DOE, 2005).
- 8 Nitrite (as N) was not retained as an AOI because the only result that exceeded the surface water standard was at the Water Treatment Plant effluent outfall (i.e., 995Efl).

b7

Table 3
Surface Water AOs
For Results From January 1, 2000 To Present

Group	Analyte	Total or Dissolved	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1	Screen 2				Screen 3			Screen 4	Screen 5	Is Constituent an AOI ?	
									Is There a Surface Water Standard ?	Background Mean + 2 Standard Deviations	Number of Detects Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	Lowest Surface Water Standard or PQL	Number of Detects Above the Lowest Surface Water Standard or PQL	Frequency of Detection (%) Above the Surface Water Standard or PQL	Is the Maximum Result Above the Surface Water Standard or PQL ?	Is the Most Recent Result Above the Lowest Surface Water Standard or PQL ?		Is Constituent Eliminated or Retained By Process Knowledge ?
RAD	Uranium Isotopes	Total	1639	1639	100.0	167.34		pCi/L	Yes	8	141	8.6	Yes	137.05	1	0.06	Yes	Yes	Retained	Yes
VOC	cis-1,2-Dichloroethene	Total	153	25	16.3	210		ug/L	Yes	---	---	---	---	70	2	1.31	Yes	Yes	---	Yes
MET	Chromium	Total	1325	1146	86.5	348		ug/L	Yes	56	23	1.7	Yes	50	27	2.04	Yes	Yes	---	Yes
MET	Zinc	Total	867	797	91.9	12200		ug/L	Yes	544	114	13.1	Yes	2000	21	2.42	Yes	Yes	---	Yes
MET	Lead	Total	862	671	77.8	262		ug/L	Yes	18	135	15.7	Yes	50	31	3.60	Yes	Yes	---	Yes
VOC	Trichloroethene	Total	265	42	15.8	66		ug/L	Yes	---	---	---	---	2.5	10	3.77	Yes	Yes	---	Yes
RAD	Gross Alpha	Total	148	28	18.9	521		pCi/L	Yes	18	3	2.0	Yes	7	6	4.05	Yes	Yes	---	Yes
MET	Aluminum	Dissolved	73	34	46.6	1330		ug/L	Yes	430	2	2.7	Yes	87	3	4.11	Yes	Yes	---	Yes
VOC	Tetrachloroethene	Total	260	29	11.2	44		ug/L	Yes	---	---	---	---	1	12	4.62	Yes	Yes	---	Yes
VOC	Benzene	Total	265	29	10.9	4.7		ug/L	Yes	---	---	---	---	1.2	18	6.79	Yes	Yes	---	Yes
VOC	Carbon Tetrachloride	Total	265	29	10.9	310	D	ug/L	Yes	---	---	---	---	1	22	8.30	Yes	Yes	---	Yes
MET	Antimony	Total	868	580	66.8	108		ug/L	Yes	71	2	0.2	Yes	10	96	11.06	Yes	Yes	---	Yes
VOC	Chloroform	Total	265	108	40.8	120	D	ug/L	Yes	---	---	---	---	3.4	30	11.32	Yes	Yes	---	Yes
WQP	Nitrate/Nitrite (as N)	Total	1504	1471	97.8	1200000		ug/L	Yes	3485	683	45.4	Yes	10000	212	14.10	Yes	Yes	---	Yes
RAD	Americium-241	Total	1926	809	42.0	84		pCi/L	Yes	0.02	748	38.8	Yes	0.15	317	16.46	Yes	Yes	---	Yes
RAD	Plutonium-239/240	Total	1958	929	47.4	259		pCi/L	Yes	0.02	891	45.5	Yes	0.15	373	19.05	Yes	Yes	---	Yes
MET	Arsenic	Total	868	709	81.7	147		ug/L	Yes	12	57	6.6	Yes	5	207	23.85	Yes	Yes	---	Yes
RAD	Gross Beta	Total	147	138	93.9	398		pCi/L	Yes	15	4	2.7	Yes	8	44	29.93	Yes	Yes	---	Yes
WQP	Ammonia (as N)	Total	1025	895	87.3	21000		ug/L	Yes	---	---	---	---	100	790	77.07	Yes	Yes	---	Yes
Notes																				
--- Not Applicable																				
The frequency of detection of the analyte concentration above the lowest surface water standard or PQL, whichever is higher, is greater than (>) 0 % and less than (<) 1 %.																				
The frequency of detection of the analyte concentration above the lowest surface water standard or PQL, whichever is higher, is greater than (>) or equal to 1 % and less than (<) 5 %.																				
The frequency of detection of the analyte concentration above the lowest surface water standard or PQL, whichever is higher, is greater than (>) 5 %.																				

Table 4 Summary of Surface Water AOIs and Drainage Basin

Drainage Basin	Surface Water AOIs
Walnut Creek	Benzene
Walnut Creek	Carbon Tetrachloride
Walnut Creek	Chloroform
Walnut Creek	cis-1,2-Dichloroethene
Walnut Creek	Tetrachloroethene
Walnut Creek, Woman Creek	Trichloroethene
Walnut Creek	Dissolved Aluminum
Walnut Creek	Total Antimony
Walnut Creek, Woman Creek	Total Arsenic
Walnut Creek, Woman Creek	Total Chromium
Walnut Creek, Woman Creek, Rock Creek	Total Lead
Walnut Creek	Total Zinc
Walnut Creek, Woman Creek	Total Americium-241
Walnut Creek	Total Gross Alpha
Walnut Creek	Total Gross Beta
Walnut Creek, Woman Creek	Total Plutonium-239/240
Walnut Creek	Total Uranium Isotopes
Walnut Creek	Ammonia (as N)
Walnut Creek	Nitrate/Nitrite (as N)
Walnut Creek	Nitrite (as N)

Table 5
Sediment AOI Screening

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1	Screen 2			Screen 3			Screen 4	Is Constituent an AOI ?		
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG		Is the Maximum Result Above the WRW PRG ?	Is Constituent Eliminated or Retained By Process Knowledge ?
DIOXINS	123478-HxCDD	6	1	16.67	0.00126	J	ug/kg	Yes	---	---	---	---	0.48	0	0.00	No	---	No
DIOXINS	123678-HxCDD	6	2	33.33	0.00455		ug/kg	Yes	---	---	---	---	0.48	0	0.00	No	---	No
DIOXINS	123789-HxCDD	6	2	33.33	0.00329		ug/kg	Yes	---	---	---	---	0.48	0	0.00	No	---	No
DIOXINS	2378-TCDD	6	1	16.67	0.00278		ug/kg	Yes	---	---	---	---	0.02	0	0.00	No	---	No
HERB	2,4,5-T	1	0	0.00	60	U	ug/kg	Yes	---	---	---	---	801	0	0.00	No	---	No
HERB	2,4,5-TP (Silvex)	1	0	0.00	60	U	ug/kg	Yes	---	---	---	---	169369	0	0.00	No	---	No
HERB	2,4-D	1	0	0.00	180	U	ug/kg	Yes	---	---	---	---	801435	0	0.00	No	---	No
HERB	2,4-DB	1	0	0.00	1400	U	ug/kg	Yes	---	---	---	---	641148	0	0.00	No	---	No
HERB	4-Nitrophenol	259	1	0.39	1300	J	ug/kg	Yes	---	---	---	---	641148	0	0.00	No	---	No
HERB	Dalapon	1	0	0.00	2300	U	ug/kg	Yes	---	---	---	---	2404306	0	0.00	No	---	No
HERB	Dicamba	1	0	0.00	96	U	ug/kg	Yes	---	---	---	---	2404306	0	0.00	No	---	No
HERB	Dinoseb	1	0	0.00	84	U	ug/kg	Yes	---	---	---	---	80144	0	0.00	No	---	No
HERB	MCPA	1	0	0.00	94000	U	ug/kg	Yes	---	---	---	---	40072	0	0.00	Yes	---	No
HERB	MCPD	1	0	0.00	140000	U	ug/kg	Yes	---	---	---	---	80144	0	0.00	Yes	---	No
MET	Barium	325	324	99.69	404000		ug/kg	Yes	196504	25	7.69	Yes	2872415	0	0.00	No	---	No
MET	Beryllium	319	212	66.46	2500		ug/kg	Yes	1468	11	3.45	Yes	100105	0	0.00	No	---	No
MET	Boron	45	42	93.33	26000		ug/kg	Yes	---	---	---	---	9476518	0	0.00	No	---	No
MET	Cadmium	316	105	33.23	6200		ug/kg	Yes	1215	31	9.81	Yes	91387	0	0.00	No	---	No
MET	Chromium VI	42	14	33.33	13		ug/kg	Yes	---	---	---	---	28418	0	0.00	No	---	No
MET	Cobalt	323	299	92.57	20100		ug/kg	Yes	12587	14	4.33	Yes	121791	0	0.00	No	---	No
MET	Copper	325	309	95.08	324000		ug/kg	Yes	27633	30	9.23	Yes	4443478	0	0.00	No	---	No
MET	Lead	325	325	100.00	234000		ug/kg	Yes	38052	41	12.62	Yes	1000000	0	0.00	No	---	No
MET	Lithium	318	260	81.76	37000		ug/kg	Yes	20454	6	1.89	Yes	2221739	0	0.00	No	---	No
MET	Mercury	292	75	25.68	3800		ug/kg	Yes	200	15	5.14	Yes	32925	0	0.00	No	---	No
MET	Molybdenum	317	85	26.81	11700		ug/kg	Yes	16791	0	0.00	No	555435	0	0.00	No	---	No
MET	Nickel	324	293	90.43	216000		ug/kg	Yes	17557	70	21.60	Yes	2221739	0	0.00	No	---	No

Table 5
Sediment AOI Screening

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2			Screen 3			Screen 4	Is Constituent an AOI ?	
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG	Is the Maximum Result Above the WRW PRG ?		Is Constituent Eliminated or Retained By Process Knowledge ?
MET	Selenium	314	78	24.84	3800	B	ug/kg	Yes	1726	8	2.55	Yes	555435	0	0.00	No	---	No
MET	Silver	310	48	15.48	102000		ug/kg	Yes	2045	16	5.16	Yes	555435	0	0.00	No	---	No
MET	Strontium	322	321	99.69	59600	B	ug/kg	Yes	151351	7	2.17	No	66652174	0	0.00	No	---	No
MET	Thallium	315	57	18.10	2600	B	ug/kg	Yes	821	13	4.13	Yes	7776	0	0.00	No	---	No
MET	Tin	316	51	16.14	77200		ug/kg	Yes	70911	1	0.32	Yes	66652174	0	0.00	No	---	No
MET	Titanium	45	45	100.00	330000		ug/kg	Yes	---	---	---	---	169568303	0	0.00	No	---	No
MET	Uranium	74	8	10.81	13.7054		pc/l/g	Yes	---	---	---	---	228	0	0.00	No	---	No
MET	Vanadium	325	317	97.54	96000		ug/kg	Yes	51319	15	4.62	Yes	111087	0	0.00	No	---	No
MET	Zinc	325	324	99.69	2080000	*	ug/kg	Yes	329843	25	7.69	Yes	33326087	0	0.00	No	---	No
PCB	PCB-1016	282	0	0.00	990	U	ug/kg	Yes	---	---	---	---	1349	0	0.00	No	---	No
PCB	PCB-1221	282	0	0.00	990	U	ug/kg	Yes	---	---	---	---	1349	0	0.00	No	---	No
PCB	PCB-1232	282	0	0.00	990	U	ug/kg	Yes	---	---	---	---	1349	0	0.00	No	---	No
PCB	PCB-1242	282	0	0.00	990	U	ug/kg	Yes	---	---	---	---	1349	0	0.00	No	---	No
PCB	PCB-1248	282	0	0.00	990	U	ug/kg	Yes	---	---	---	---	1349	0	0.00	No	---	No
PCB	4,4'-DDD	231	0	0.00	200	U	ug/kg	Yes	---	---	---	---	15528	0	0.00	No	---	No
PCB	4,4'-DDE	231	1	0.43	4.1	J	ug/kg	Yes	---	---	---	---	10961	0	0.00	No	---	No
PCB	4,4'-DDT	231	5	2.16	18	J	ug/kg	Yes	---	---	---	---	10927	0	0.00	No	---	No
PCB	Aldrin	229	3	1.31	54		ug/kg	Yes	---	---	---	---	176	0	0.00	No	---	No
PCB	alpha-BHC	231	0	0.00	99	U	ug/kg	Yes	---	---	---	---	570	0	0.00	No	---	No
PCB	alpha-Chlordane	229	2	0.87	0	I	ug/kg	Yes	---	---	---	---	10261	0	0.00	No	---	No
PCB	Atrazine	5	1	20.00	120		ug/kg	Yes	---	---	---	---	13636	0	0.00	No	---	No
PCB	beta-BHC	231	3	1.30	28		ug/kg	Yes	---	---	---	---	1995	0	0.00	No	---	No
PCB	beta-Chlordane	157	0	0.00	400	U	ug/kg	Yes	---	---	---	---	10261	0	0.00	No	---	No
PCB	Chlordane	2	0	0.00	94	U	ug/kg	Yes	---	---	---	---	10261	0	0.00	No	---	No
PCB	delta-BHC	231	3	1.30	13		ug/kg	Yes	---	---	---	---	570	0	0.00	No	---	No
PCB	Dieldrin	231	1	0.43	4.6	J	ug/kg	Yes	---	---	---	---	187	0	0.00	No	---	No

**Table 5
Sediment AOI Screening**

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2		Screen 3		Screen 4	Is Constituent an AOI ?
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG		Frequency of Detection (%) Above the WRW PRG	Is the Maximum Result Above the WRW PRG ?	Is Constituent Eliminated or Retained By Process Knowledge ?
PEST	Endosulfan I	231	3	1.30	20	J	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Endosulfan II	231	0	0.00	200	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Endosulfan sulfate	231	0	0.00	200	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Endrin	231	0	0.00	200	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Endrin aldehyde	53	0	0.00	27	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Endrin ketone	221	0	0.00	200	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	gamma-BHC (lindane)	230	2	0.87	25	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	gamma-Chlordane	72	2	2.78	0	I	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Heptachlor	231	3	1.30	3.1	J	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Heptachlor epoxide	231	0	0.00	33	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Hexachlorocyclopentadiene	253	3	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Methoxychlor	231	1	0.43	2.7	J	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Simazine	4	0	0.00	50	U	ug/kg	Yes	---	---	---	---	---	---	No
PEST	Toxaphene	231	0	0.00	2300	U	ug/kg	Yes	---	---	---	---	---	---	No
RAD	Strontium-89/90	200	149	74.50	4.86	U	pCi/g	Yes	1	23	11.50	Yes	13	0	No
RAD	Uranium-233/234	361	361	100.00	15	U	pCi/g	Yes	4	5	1.39	Yes	25	0	No
RAD	Uranium-235	361	243	67.31	0.8517	U	pCi/g	Yes	0.15	16	4.43	Yes	1	0	No
SVOC	1,2,4-Trichlorobenzene	283	1	0.35	2	J	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2,4,5-Trichlorophenol	262	0	0.00	10000	U	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2,4,6-Trichlorophenol	262	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2,4-Dichlorophenol	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2,4-Dinitrophenol	244	0	0.00	15000	U	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2,4-Dinitrotoluene	262	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2,6-Dinitrotoluene	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	No
SVOC	2-Chloronaphthalene	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	No

Table 5
Sediment AOI Screening

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2			Screen 3		Screen 4	Is Constituent an AOI ?
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG		Is the Maximum Result Above the WRW PRG ?	Is Constituent Eliminated or Retained By Process Knowledge ?
SVOC	2-Chlorophenol	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	2-Methylnaphthalene	261	9	3.45	2000		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	2-Methylphenol	262	1	0.38	200	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	2-Nitroaniline	261	0	0.00	15000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	3,3-Dichlorobenzidine	253	0	0.00	6000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	4,6-Dinitro-2-methylphenol	250	1	0.40	1100	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	4-Chloroaniline	254	0	0.00	6000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	4-Methylphenol	263	9	3.42	1500	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	4-Nitroaniline	253	0	0.00	15000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Acenaphthene	261	36	13.79	620		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Anthracene	261	64	24.52	970		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Benzo(a)anthracene	261	105	40.23	1400		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Benzo(b)fluoranthene	260	94	36.15	1500		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Benzo(k)fluoranthene	260	76	29.23	1200	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Benzoic Acid	207	30	14.49	2700	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Benzyl Alcohol	211	1	0.47	41	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	bis(2-Chloroethyl) ether	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	bis(2-Chloroisopropyl) ether	258	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	bis(2-ethylhexyl)phthalate	261	138	52.87	8800		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Butylbenzylphthalate	261	16	6.13	1700		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Carbazole	50	19	38.00	300	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Chrysene	262	120	45.80	1500		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Dibenz(a,h)anthracene	259	18	6.95	360		ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Dibenzofuran	261	11	4.21	300	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Diethylphthalate	262	3	1.15	79	J	ug/kg	Yes	---	---	---	---	---	---	---	No
SVOC	Dimethylphthalate	261	4	1.53	490	J	ug/kg	Yes	---	---	---	---	---	---	---	No

**Table 5
Sediment AOI Screening**

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2			Screen 3		Screen 4	Is Constituent an AOI ?			
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG		Is the Maximum Result Above the WRW PRG ?	Is Constituent Eliminated or Retained By Process Knowledge ?	
SVOC	Di-n-butylphthalate	262	68	25.95	390	J	ug/kg	Yes	---	---	---	---	---	8014354	0	0.00	No	---	No
SVOC	Di-n-octylphthalate	261	23	8.81	9800		ug/kg	Yes	---	---	---	---	---	3205741	0	0.00	No	---	No
SVOC	Fluoranthene	262	138	52.67	3100		ug/kg	Yes	---	---	---	---	---	2958512	0	0.00	No	---	No
SVOC	Fluorene	261	27	10.34	650		ug/kg	Yes	---	---	---	---	---	3205741	0	0.00	No	---	No
SVOC	Hexachlorobenzene	262	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	1870	0	0.00	Yes	---	No
SVOC	Hexachlorobutadiene	283	1	0.35	2	J	ug/kg	Yes	---	---	---	---	---	22217	0	0.00	No	---	No
SVOC	Indeno(1,2,3-cd)pyrene	258	64	24.81	910		ug/kg	Yes	---	---	---	---	---	3793	0	0.00	No	---	No
SVOC	Isophorone	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	3157922	0	0.00	No	---	No
SVOC	Naphthalene	283	20	7.07	320	J	ug/kg	Yes	---	---	---	---	---	1403301	0	0.00	No	---	No
SVOC	Nitrobenzene	262	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	43246	0	0.00	No	---	No
SVOC	N-Nitroso-di-n-propylamine	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	429	0	0.00	Yes	---	No
SVOC	n-Nitrosodiphenylamine	261	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	612250	0	0.00	No	---	No
SVOC	Pentachlorophenol	262	5	1.91	1500	J	ug/kg	Yes	---	---	---	---	---	17633	0	0.00	No	---	No
SVOC	Phenol	261	5	1.92	150	J	ug/kg	Yes	---	---	---	---	---	24043061	0	0.00	No	---	No
SVOC	Pyrene	262	130	49.62	3900		ug/kg	Yes	---	---	---	---	---	2218884	0	0.00	No	---	No
VOC	1,1,1,2-Tetrachloroethane	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	91018	0	0.00	No	---	No
VOC	1,1,1-Trichloroethane	248	1	0.40	9	J	ug/kg	Yes	---	---	---	---	---	9178628	0	0.00	No	---	No
VOC	1,1,2,2-Tetrachloroethane	247	1	0.40	2	J	ug/kg	Yes	---	---	---	---	---	10483	0	0.00	No	---	No
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	2383408104	0	0.00	No	---	No
VOC	1,1,2-Trichloroethane	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	28022	0	0.00	No	---	No
VOC	1,1-Dichloroethane	249	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	2715777	0	0.00	No	---	No
VOC	1,1-Dichloroethane	248	1	0.40	2	J	ug/kg	Yes	---	---	---	---	---	17366	0	0.00	No	---	No
VOC	1,2,3-Trichloropropane	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	2079	0	0.00	No	---	No
VOC	1,2,4-Trimethylbenzene	49	6	12.24	4.6	J	ug/kg	Yes	---	---	---	---	---	133	0	0.00	No	---	No
VOC	1,2-Dibromoethane	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	35	0	0.00	No	---	No
VOC	1,2-Dichlorobenzene	264	0	0.00	2700	U	ug/kg	Yes	---	---	---	---	---	2891221	0	0.00	No	---	No

**Table 5
Sediment AOI Screening**

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2			Screen 3			Screen 4	Is Constituent an AOI ?
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG	Is the Maximum Result Above the WRW PRG ?		Is Constituent Eliminated or Retained By Process Knowledge ?
VOC	1,2-Dichloroethane	245	1	0.41	5	J	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	1,2-Dichloroethane	200	1	0.50	3	J	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	1,2-Dichloropropane	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	1,3,5-Trimethylbenzene	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	1,3-Dichlorobenzene	283	0	0.00	2700	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	1,4-Dichlorobenzene	264	0	0.00	2700	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	1,4-Dioxane	1	0	0.00	500	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	2-Butanone	246	37	15.04	380	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	2-Methyl-1-propanol	1	0	0.00	100	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	4-Methyl-2-pentanone	247	2	0.81	6	J	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Acetone	250	51	20.40	890	B	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Benzene	247	1	0.40	3	J	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Bromodichloromethane	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Bromoform	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Bromomethane	248	6	2.42	5	JB	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Carbon Disulfide	249	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Carbon Tetrachloride	248	2	0.81	440	JB	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Chlorobenzene	246	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Chloroethane	248	0	0.00	3100	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Chloroform	249	5	2.01	2	BJ	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Chloromethane	244	0	0.00	3100	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	cis-1,3-Dichloropropene	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Dibromochloromethane	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Dichlorodifluoromethane	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	Ether	1	0	0.00	10	U	ug/kg	Yes	---	---	---	---	---	---	---	No	
VOC	ethyl acetate	1	0	0.00	10	U	ug/kg	Yes	---	---	---	---	---	---	---	No	

15

**Table 5
Sediment AOI Screening**

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2				Screen 3				Screen 4		
								Is There a WRW Human Health Preliminary Remediation Goal (PRG)?	Background Mean + 2 Standard Deviations	Number of Detects Above the MZSD	Frequency of Detection (%) Above the MZSD	Is the Maximum Concentration Above the MZSD?	WRW PRG	Number of Detects Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG	Is the Maximum Result Above the WRW PRG?	Is Constituent Eliminated or Retained By Process Knowledge?	Is Constituent an AOI?		
VOC	Ethylbenzene	247	2	0.81	9		ug/kg	Yes	---	---	---	---	---	---	5385973	0	0.00	No	---	No
VOC	Hexachloroethane	262	0	0.00	3000	U	ug/kg	Yes	---	---	---	---	---	---	111087	0	0.00	No	---	No
VOC	Isopropylbenzene	49	0	0.00	23	U	ug/kg	Yes	---	---	---	---	---	---	32680	0	0.00	No	---	No
VOC	Methylene Chloride	255	55	21.57	420	J	ug/kg	Yes	---	---	---	---	---	---	271792	0	0.00	No	---	No
VOC	Styrene	247	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	13789257	0	0.00	No	---	No
VOC	Tetrachloroethene	247	7	2.83	38		ug/kg	Yes	---	---	---	---	---	---	6705	0	0.00	No	---	No
VOC	Toluene	250	60	24.00	860	J	ug/kg	Yes	---	---	---	---	---	---	3094217	0	0.00	No	---	No
VOC	trans-1,3-Dichloropropene	248	0	0.00	1600	U	ug/kg	Yes	---	---	---	---	---	---	20820	0	0.00	No	---	No
VOC	Trichloroethene	248	6	2.42	48		ug/kg	Yes	---	---	---	---	---	---	1770	0	0.00	No	---	No
VOC	Trichlorofluoromethane	49	13	26.53	5	J	ug/kg	Yes	---	---	---	---	---	---	1511019	0	0.00	No	---	No
VOC	Vinyl acetate	148	0	0.00	38	U	ug/kg	Yes	---	---	---	---	---	---	2647023	0	0.00	No	---	No
VOC	Vinyl Chloride	249	1	0.40	16.8		ug/kg	Yes	---	---	---	---	---	---	2169	0	0.00	No	---	No
VOC	Xylene, total	247	5	2.02	68		ug/kg	Yes	---	---	---	---	---	---	1059049	0	0.00	No	---	No
WQP	Cyanide	7	1	14.29	230	B	ug/kg	Yes	---	---	---	---	---	---	2221739	0	0.00	No	---	No
WQP	Fluoride	42	22	52.38	20300		ug/kg	Yes	---	---	---	---	---	---	6665217	0	0.00	No	---	No
WQP	Nitrate	69	25	36.23	89310	H	ug/kg	Yes	38445	1	1.45	Yes	---	---	177739130	0	0.00	No	---	No
WQP	Nitrate / Nitrite	124	81	65.32	76000		ug/kg	Yes	---	---	---	---	---	---	177739130	0	0.00	No	---	No
WQP	Nitrite	36	1	2.78	5610	H	ug/kg	Yes	403	1	2.78	Yes	---	---	11108696	0	0.00	No	---	No
RAD	Uranium-238	361	361	100.00	59		pCi/g	Yes	3	19	5.26	Yes	---	---	29	1	0.28	Yes	---	Yes
MET	Antimony	294	46	15.65	51300		ug/kg	Yes	10057	17	5.78	Yes	---	---	44435	1	0.34	Yes	---	Yes
PCB	PCB-1254	286	63	22.03	1700		ug/kg	Yes	---	---	---	---	---	---	1349	1	0.35	Yes	Eliminated	No ¹
PCB	PCB-1260	280	7	2.50	2000	P	ug/kg	Yes	---	---	---	---	---	---	1349	1	0.36	Yes	Eliminated	No ¹
RAD	Americium-241	399	294	73.68	13.23		pCi/g	Yes	0.04	193	48.37	Yes	---	---	8	3	0.75	Yes	---	Yes
MET	Iron	325	325	100.00	39000000		ug/kg	Yes	28217259	17	5.23	Yes	---	---	33326087	6	1.85	Yes	Eliminated	No ²
RAD	Plutonium-239/240	419	348	83.05	36.2		pCi/g	Yes	0.05	256	61.10	Yes	---	---	10	11	2.63	Yes	---	Yes
RAD	Radium-226	113	112	99.12	3.08		pCi/g	Yes	2	13	11.50	Yes	---	---	3	3	2.65	Yes	Eliminated	No ⁵

Table 5
Sediment AOI Screening

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1	Screen 2			Screen 3			Screen 4	Is Constituent an AOI ?		
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG		Is the Maximum Result Above the WRW PRG ?	Is Constituent Eliminated or Retained By Process Knowledge ?
MET	Chromium	325	311	95.69	70100		ug/kg	Yes	24518	20	6.15	Yes	28418	10	3.08	Yes	—	Yes
MET	Aluminum	325	325	100.00	49000000		ug/kg	Yes	17996187	34	10.46	Yes	24774076	11	3.38	Yes	Eliminated	No ³
SVOC	Benzo(a)pyrene	260	88	33.85	1300		ug/kg	Yes	—	—	—	—	379	25	9.62	Yes	—	Yes
MET	Manganese	325	325	100.00	2500000		ug/kg	Yes	669130	12	3.69	Yes	419000	38	11.69	Yes	Eliminated	No ⁴
RAD	Cesium-134	137	75	54.74	0.26		pCi/g	Yes	0.25	1	0.73	Yes	0.08	25	18.25	Yes	Eliminated	No ⁷
RAD	Cesium-137	226	172	76.11	1.498		pCi/g	Yes	1	3	1.33	Yes	0.22	62	27.43	Yes	—	Yes
MET	Arsenic	324	313	96.60	27900		ug/kg	Yes	6263	71	21.91	Yes	2409	253	78.09	Yes	—	Yes
RAD	Radium-228	95	94	98.95	4.1		pCi/g	Yes	4	1	1.05	Yes	0.11	93	97.89	Yes	Eliminated	No ⁶

Notes:

—	Not Applicable
	The frequency of detection of the analyte concentration above the PRG is greater than (>) 0 % and less than (<) 1 %.
	The frequency of detection of the analyte concentration above the PRG is greater than (>) or equal to 1 % and less than (<) 5 %.
	The frequency of detection of the analyte concentration above the PRG is greater than (>) 5 %.
1	Only one occurrence of PCB-1254 and PCB-1260 were found above the PRG and occurs at the outfall of the drainage pipe from Building 991. This area has been remediated and the sediments removed, thus eliminating the only occurrence of PCBs above the PRG.
2	Iron was not retained as a sediment AOI because it is a ubiquitous, naturally-occurring constituent of the particulates that comprise the sediments. Iron commonly occurs as a chemical component of the particulate, suspended ferric oxyhydroxides, and as coatings on particulates. Based on results of different exposure scenarios, iron was not carried forward as a material of concern for the ChemRisk process (DOE 2005).
3	Aluminum was not retained as a sediment AOI because it is a ubiquitous, naturally-occurring constituent of the particulates that comprise the sediments. Aluminum and aluminum chemicals were used at the site in various metallurgical operations, however, aluminum was not carried forward as a material of concern for the ChemRisk process (DOE 2005).
4	Manganese was not retained as a sediment AOI because it is a ubiquitous, naturally-occurring constituent of the particulates that comprise the sediments. Manganese was not identified or discussed in building process information (CDH, 1992; DOE, 2004d). Manganese has not been found associated with UBC sites (DOE 2004d). Only small quantities were identified to be in inventory with the exception of manganese sulfate which had an inventory in 1974 of 2560 kilograms and then later in 1988 of 0.06 kilograms (the specific use was not clear in the ChemRisk reports). Based on results of different exposure scenarios, manganese was not carried forward as a material of concern for the ChemRisk process (DOE 2005).
5	Radium-226 was not retained as a sediment AOI because of the limited use of radium at Rocky Flats and the limited areal extent of total radium at the site. Information presented in the ChemRisk Task 1 Report (CDH 1991) concerning radium indicates that Ra-226, a daughter of uranium-238 decay, was used in small quantities for research, analysis, and calibration (e.g., sealed and plated sources). In addition, the only Ra-226 waste generated at RFETS, based on WEMS and WSRIC, was as sealed sources. However, Ra-226 could be potentially derived from both natural uranium present in the region and uranium metal fabrication and processing conducted at the site. Because of the limited quantity of Ra-226 used and its waste form, it was not carried forward through the ChemRisk process (CDH 1991).

**Table 5
Sediment AOI Screening**

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2			Screen 3			Screen 4	
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG	Is the Maximum Result Above the WRW PRG ?	Is Constituent Eliminated or Retained By Process Knowledge ?	Is Constituent an AOI ?
6	Radium-228 was not retained as a sediment AOI because of the limited use of thorium at Rocky Flats and the limited areal extent of total radium at the site. Ra-228 was not identified in the ChemRisk Task 1 Report as a radionuclide used at Rocky Flats (CDH 1991). Furthermore, no Ra-228 waste was reported to have been generated based on WENS and WSRIC. However, thorium-232, the parent radionuclide for Ra-228, was used at RFETS to fabricate metal parts from thorium and thorium alloys in Building 881. Thorium and its compounds were also used in analytical procedures and other research and development programs in Building 771. It was concluded during the development of the ChemRisk reports that Th-232 was most likely released as airborne particulates and was not a significant component of airborne effluent (CDH 1991). Furthermore, Th-232 was not used in significant quantities relative to other production radionuclides, thus, a source term was not developed for Th-232 during the ChemRisk evaluation.																
7	Cs-134 eliminated because none of the recent results exceed the WRW PRG (see Appendix B, Figure B-177).																

**Table 6
Sediment AOIs**

Group	Analyte	Number of Samples	Number of Detects	Percent Detects	Maximum Result	Maximum Result Qualifier	Reporting Units	Screen 1		Screen 2			Screen 3			Screen 4	Is Constituent an AOI ?
								Is There a WRW Human Health Preliminary Remediation Goal (PRG) ?	Background Mean + 2 Standard Deviations	Number of Detections Above the M2SD	Frequency of Detection (%) Above the M2SD	Is the Maximum Concentration Above the M2SD ?	WRW PRG	Number of Detections Above the WRW PRG	Frequency of Detection (%) Above the WRW PRG	Is the Maximum Result Above the WRW PRG ?		Is Constituent Eliminated or Retained By Process Knowledge ?
RAD	Uranium-238	361	361	100.00	59		pCi/g	Yes	3	19	5.26	Yes	29	1	0.28	Yes	Yes
MET	Antimony	294	46	15.65	51300		ug/kg	Yes	10057	17	5.78	Yes	44435	1	0.34	Yes	Yes
RAD	Americium-241	399	294	73.68	13.23		pCi/g	Yes	0.04	193	48.37	Yes	8	3	0.75	Yes	Yes
RAD	Plutonium-239/240	419	348	83.05	36.2		pCi/g	Yes	0.05	256	61.10	Yes	10	11	2.63	Yes	Yes
MET	Chromium	325	311	95.69	70100		ug/kg	Yes	24518	20	6.15	Yes	28418	10	3.08	Yes	Yes
SVOC	Benz(a)pyrene	260	88	33.85	1300		ug/kg	Yes	-----	-----	-----	-----	379	25	9.62	Yes	Yes
RAD	Cesium-137	226	172	76.11	1,498		pCi/g	Yes	1	3	1.33	Yes	0.22	62	27.43	Yes	Yes
MET	Arsenic	324	313	96.60	27900		ug/kg	Yes	6263	71	21.91	Yes	2409	253	78.09	Yes	Yes

Notes:

- Not Applicable
- The frequency of detection of the analyte concentration above the PRG is greater than (>) 0 % and less than (<) 1 %.
- The frequency of detection of the analyte concentration above the PRG is greater than (>) or equal to 1 % and less than (<) 5 %.
- The frequency of detection of the analyte concentration above the PRG is greater than (>) 5 %.

Table 7 Summary of the Sediment AOIs by Drainage Basin.

Drainage Basin	Sediment AOIs
Walnut Creek, Woman Creek	Benzo(a)pyrene
Woman Creek	Total Antimony
Walnut Creek, Woman Creek, Rock Creek, Lower Smart Ditch	Total Arsenic
Walnut Creek, Woman Creek	Total Chromium
Walnut Creek	Total Americium-241
Rock Creek, Walnut Creek	Total Cesium-137
Walnut Creek, Woman Creek	Total Plutonium-239/240
Walnut Creek	Total Uranium-238

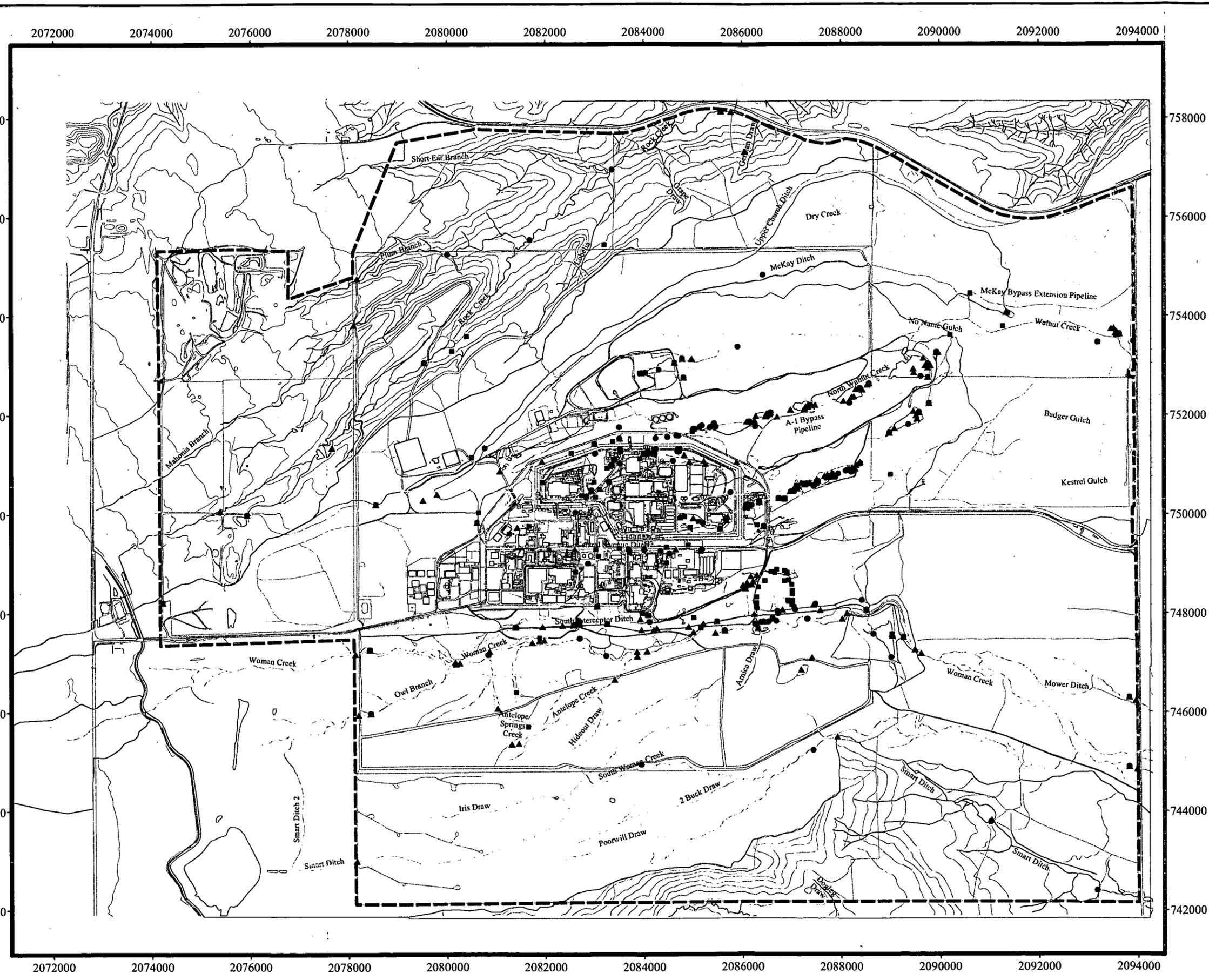
Figure 1
Surface Water Sampling
Locations

Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- ▲ Sample collected between June 28, 1991 and December 31, 1994
- ▭ Rock Creek drainage basin
- ▭ Walnut Creek drainage basin
- ▭ Woman Creek drainage basin
- ▭ Lower Smart Ditch drainage basin

Standard Map Features

- ▭ Existing or demolished building or structure
- ▭ Lake or pond
- Stream, ditch, or other drainage feature
- Paved road
- Dirt road
- Trail
- Fence
- Site boundary
- Topographic contour (20-foot)



DRAFT

N
W — O — E
S

1000 0 1000 2000 3000
Scale in Feet
Scale = 1 : 24,000
1 inch represents 2,000 feet
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: URS Date: July 20, 2005



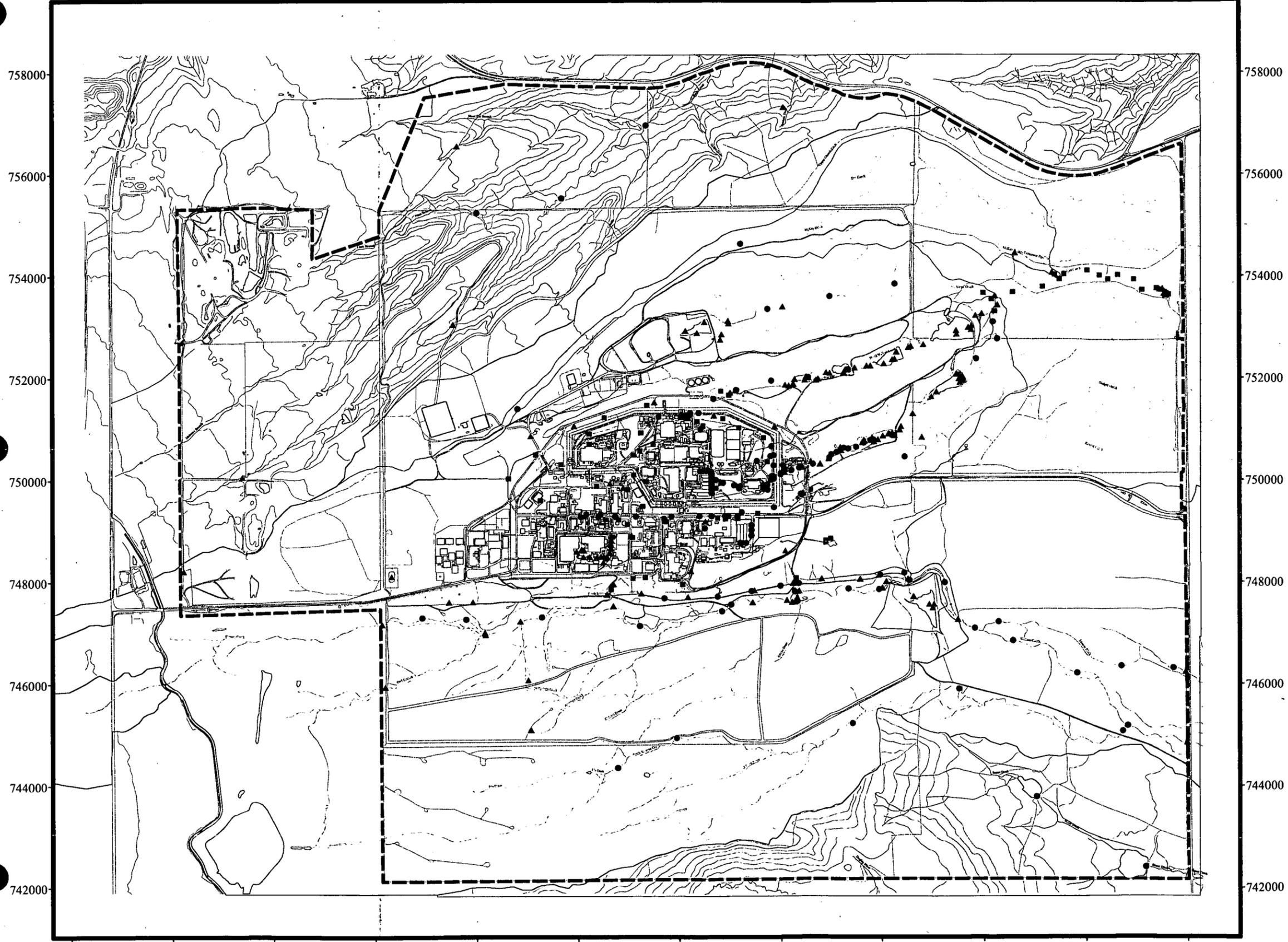
Prepared for:

KAISER-HILL

NT_Svr W:\Project\FY2005\05-0008\SW Nature Extent\SW sample locations RLH.mxd

62

2072000 2074000 2076000 2078000 2080000 2082000 2084000 2086000 2088000 2090000 2092000 2094000



2072000 2074000 2076000 2078000 2080000 2082000 2084000 2086000 2088000 2090000 2092000 2094000

Figure 2
Sediment Sampling
Locations

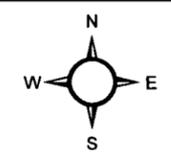
Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- ▲ Sample collected between June 28, 1991 and December 31, 1994
- Rock Creek drainage basin
- Walnut Creek drainage basin
- Woman Creek drainage basin
- Lower Smart Ditch drainage basin

Standard Map Features

- Existing or demolished building or structure
- Lake or pond
- Stream, ditch, or other drainage feature
- Paved road
- Dirt road
- Trail
- Fence
- Site boundary
- Topographic contour (20-foot)

DRAFT



Scale = 1 : 24,000
1 inch represents 2,000 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: **URS** Date: June 14, 2005

Prepared for:

KAISER HILL

NT_Srv W:\Projects\FY2005\05-0008\SW Nature Extent\SED sample locations RLH.mxd

Figure 3
Surface Water Analyte of Interest (AOI) Screening Process

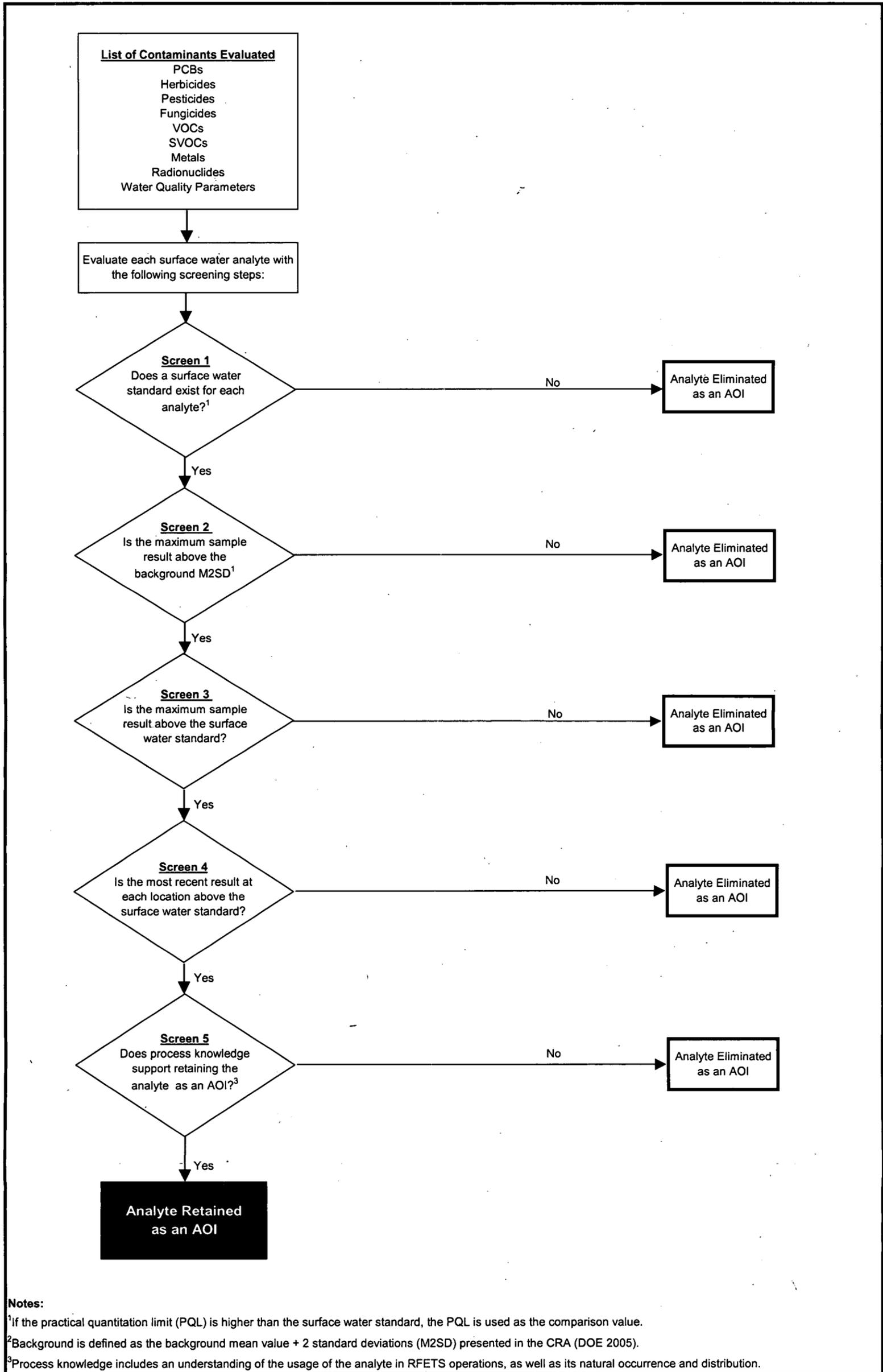


Figure 4
Post-1999 Results for
Benzene
in Surface Water

Legend

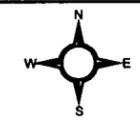
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SWPPost-1999.apr

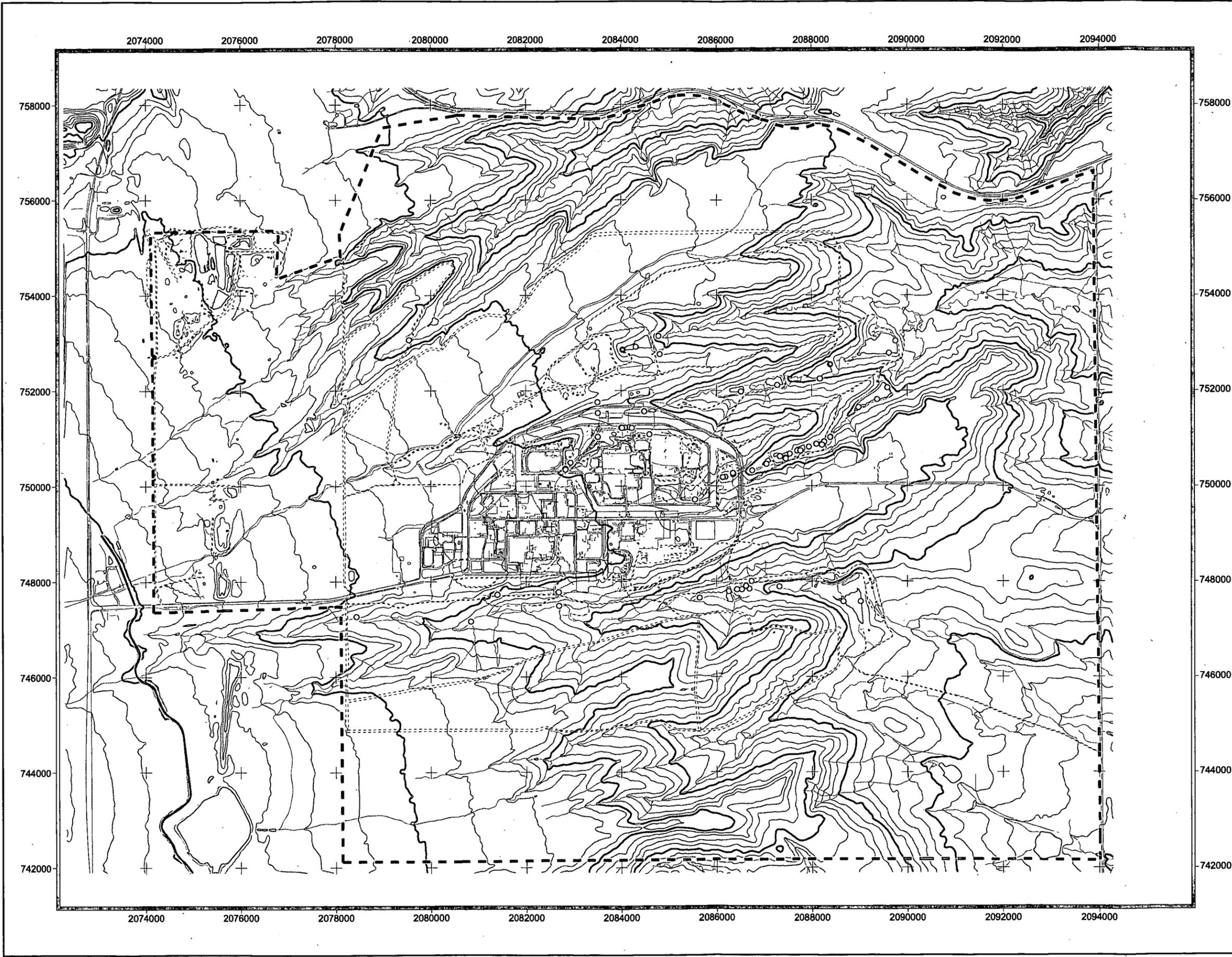


Figure 5
Post-1999 Results for
Carbon Tetrachloride
in Surface Water

Legend

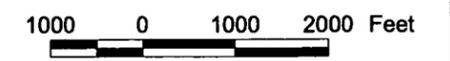
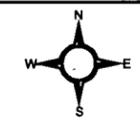
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\ Post-1999-SWPost-1999.apr

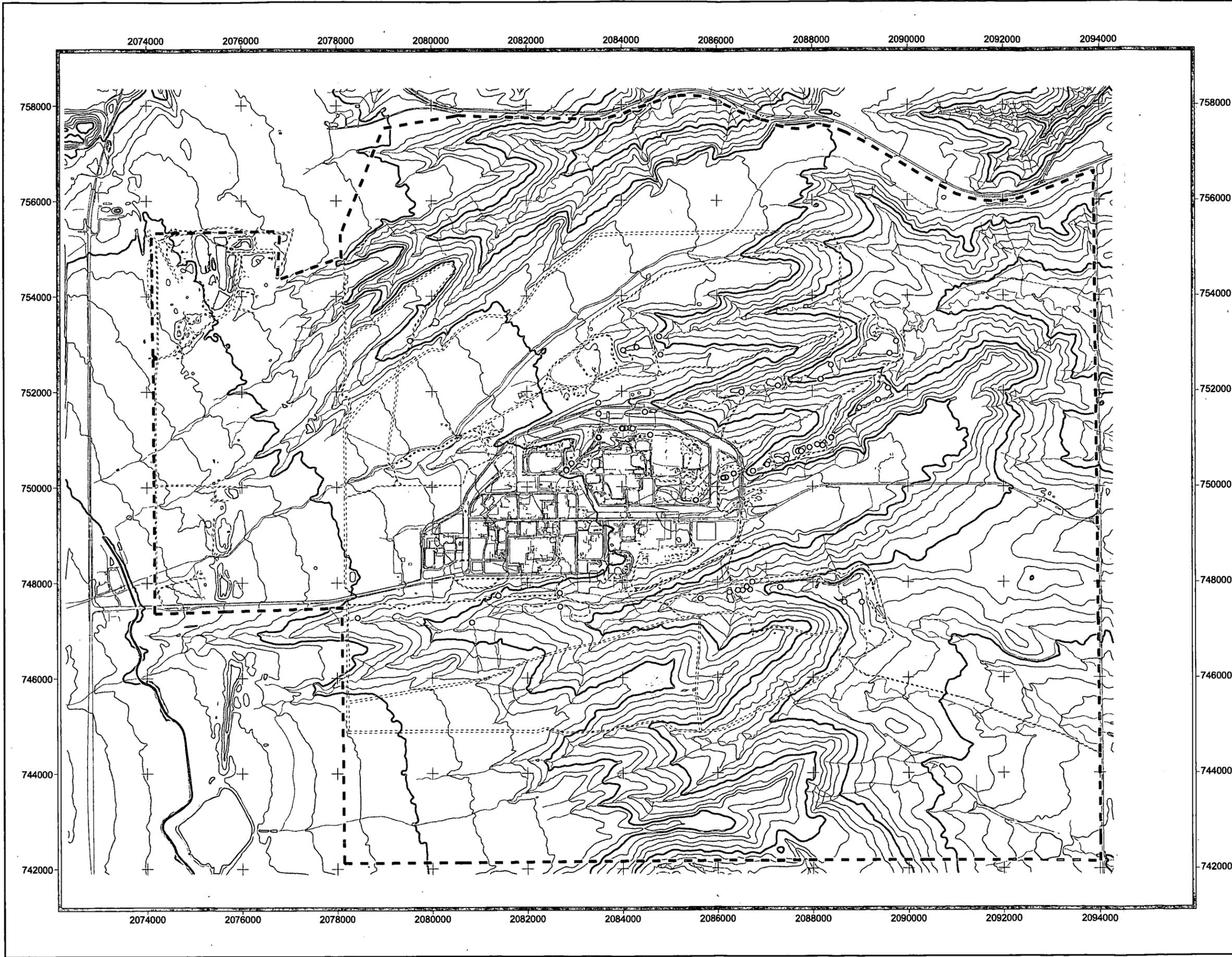


Figure 6
Post-1999 Results for
Chloroform
in Surface Water

Legend

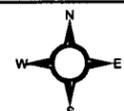
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\Post-1999-SW\Post-1999.apr

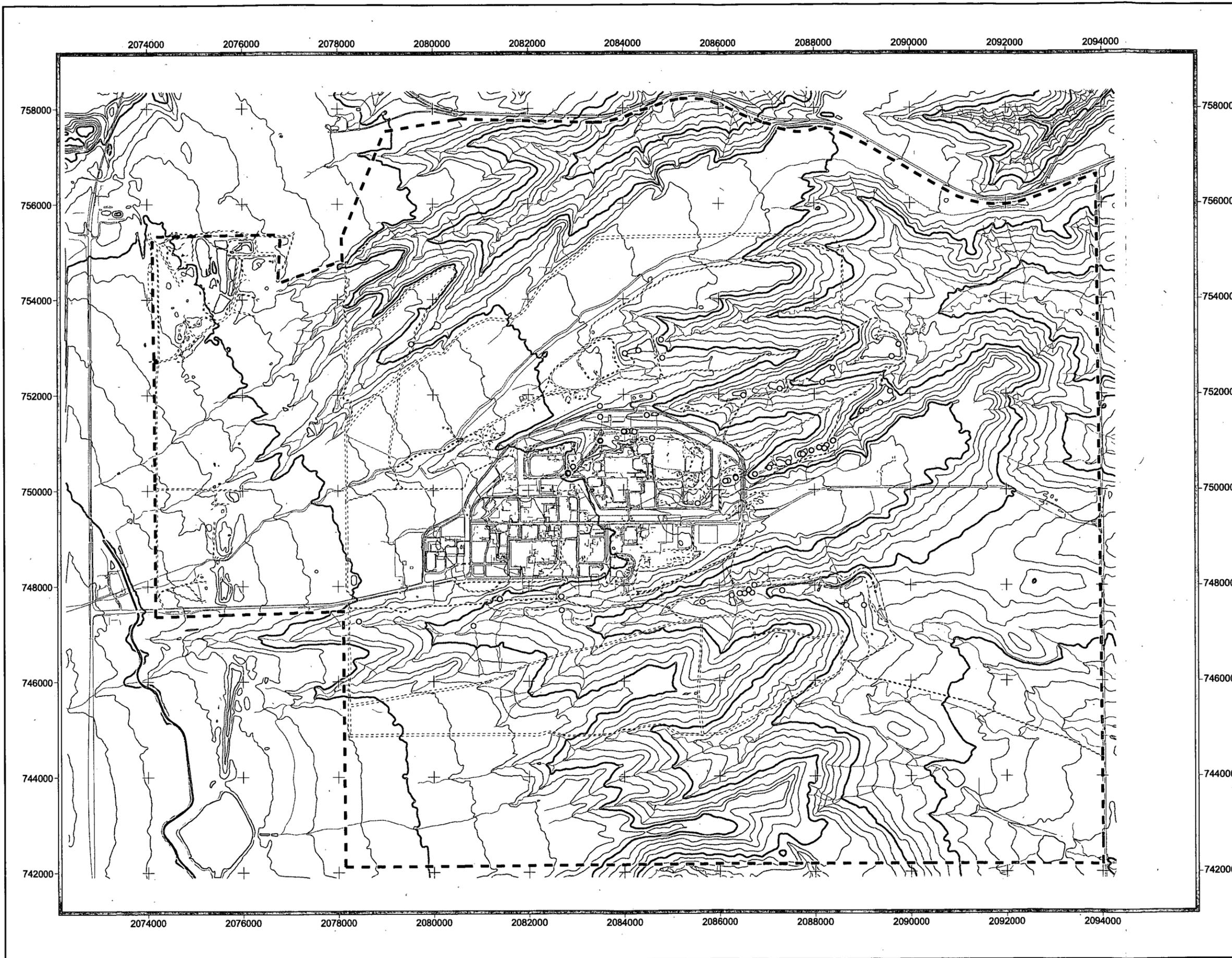


Figure 7
Post-1999 Results for
cis-1,2-Dichloroethene
in Surface Water

Legend

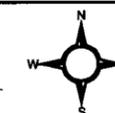
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SW\Post-1999.apr

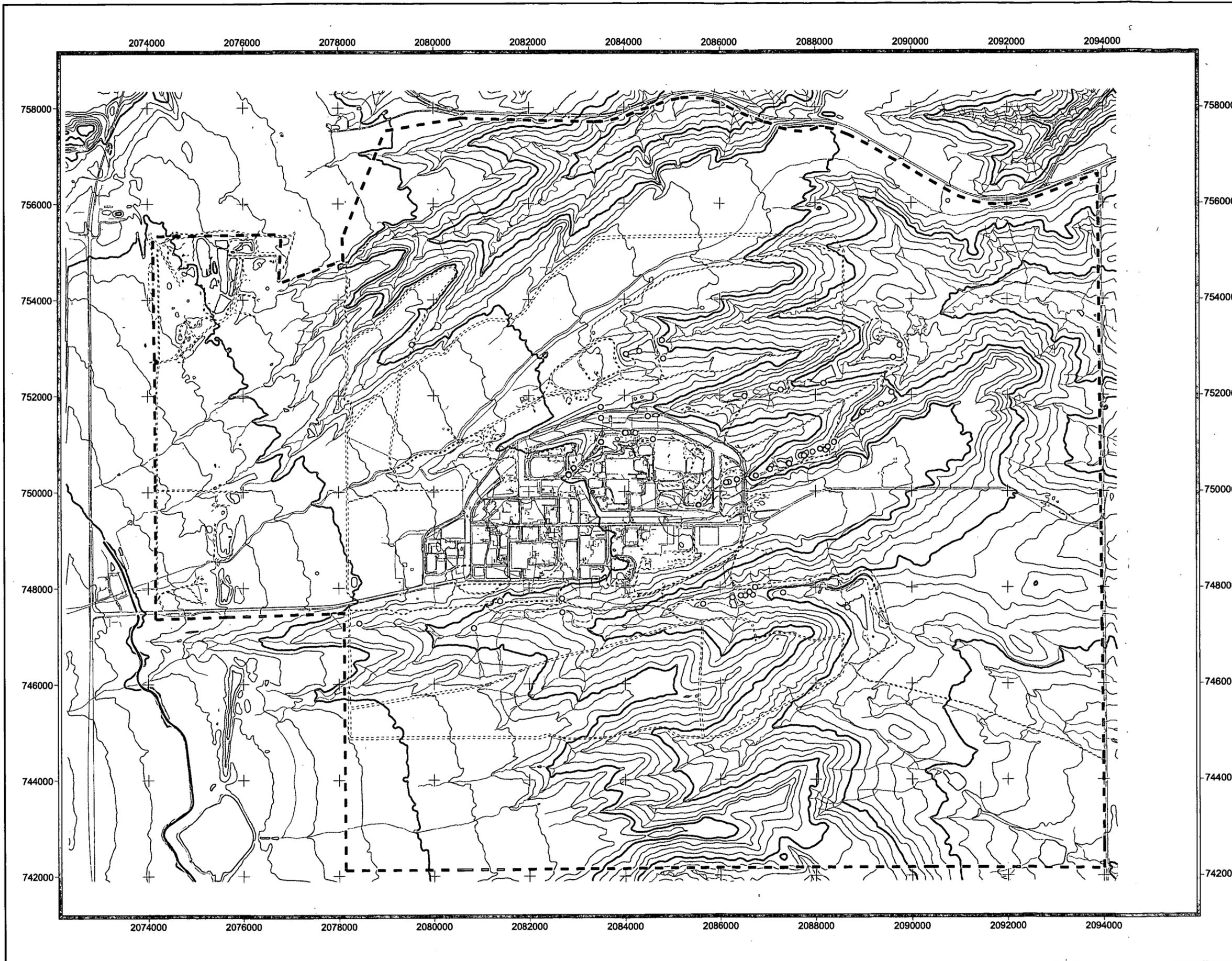


Figure 8
Post-1999 Results for
Tetrachloroethene
in Surface Water

Legend

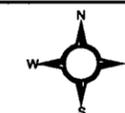
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and <= Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SWPost-1999.apr

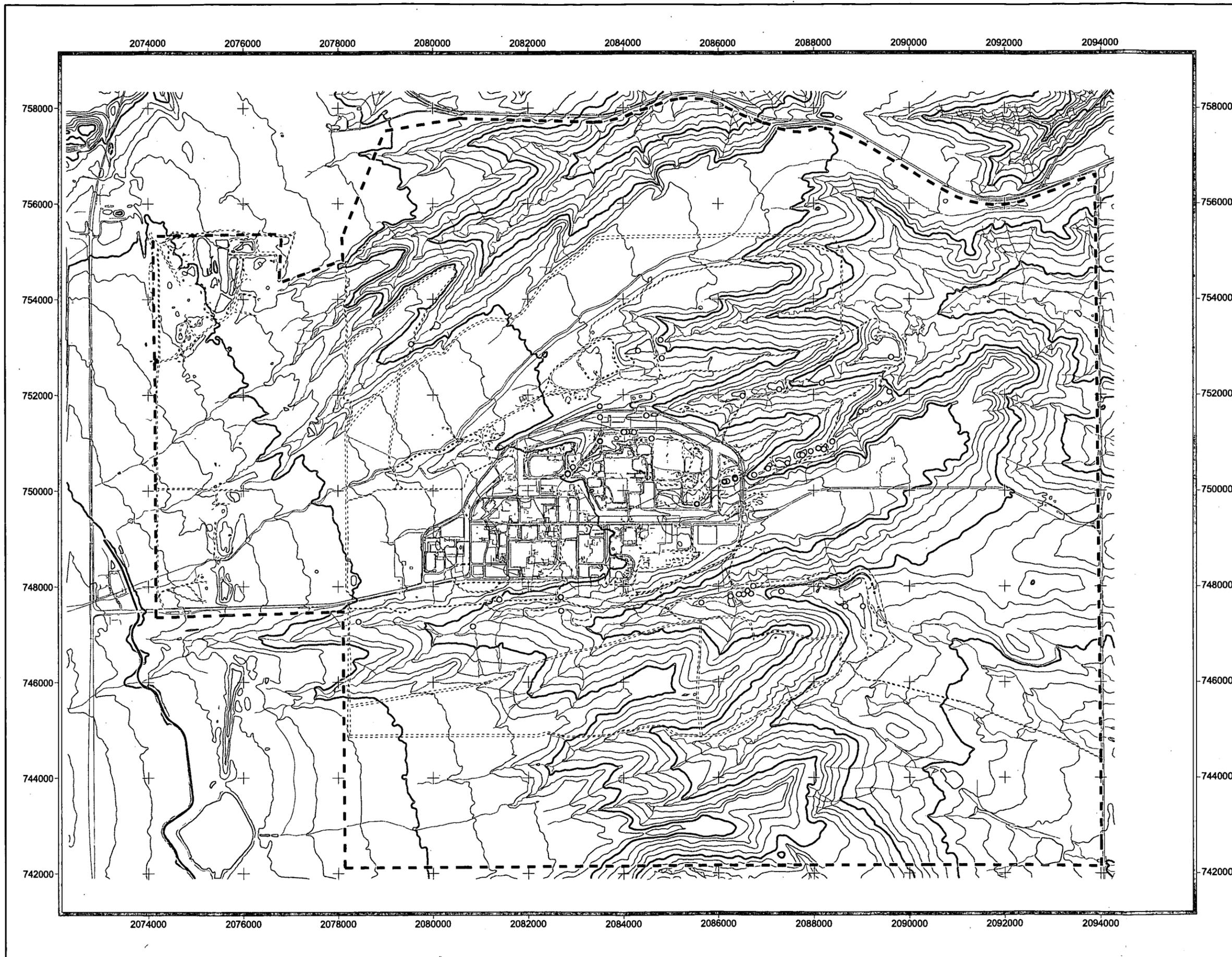


Figure 9
Post-1999 Results for
Trichloroethene
in Surface Water

Legend

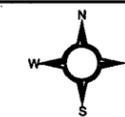
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\ Post-1999-SW\Post-1999.apr

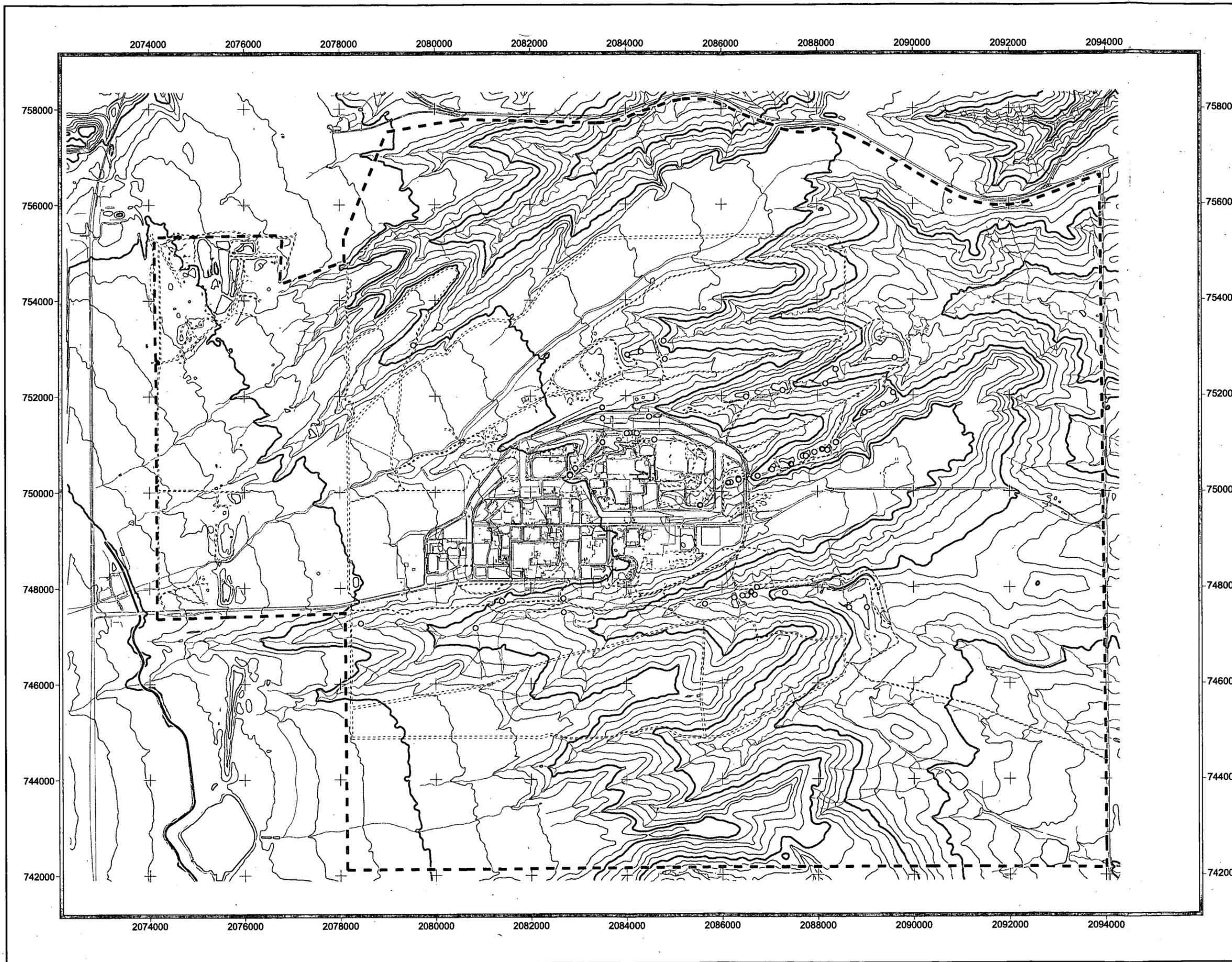


Figure 10
Post-1999 Results for
Dissolved Aluminum
in Surface Water

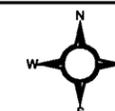
Legend

- Sample collected since January 1, 2000
- ◻ Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994
- > M2SD
- > Surface Water Standard and <= M2SD
- Detected and <= Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SW\Post-1999.apr

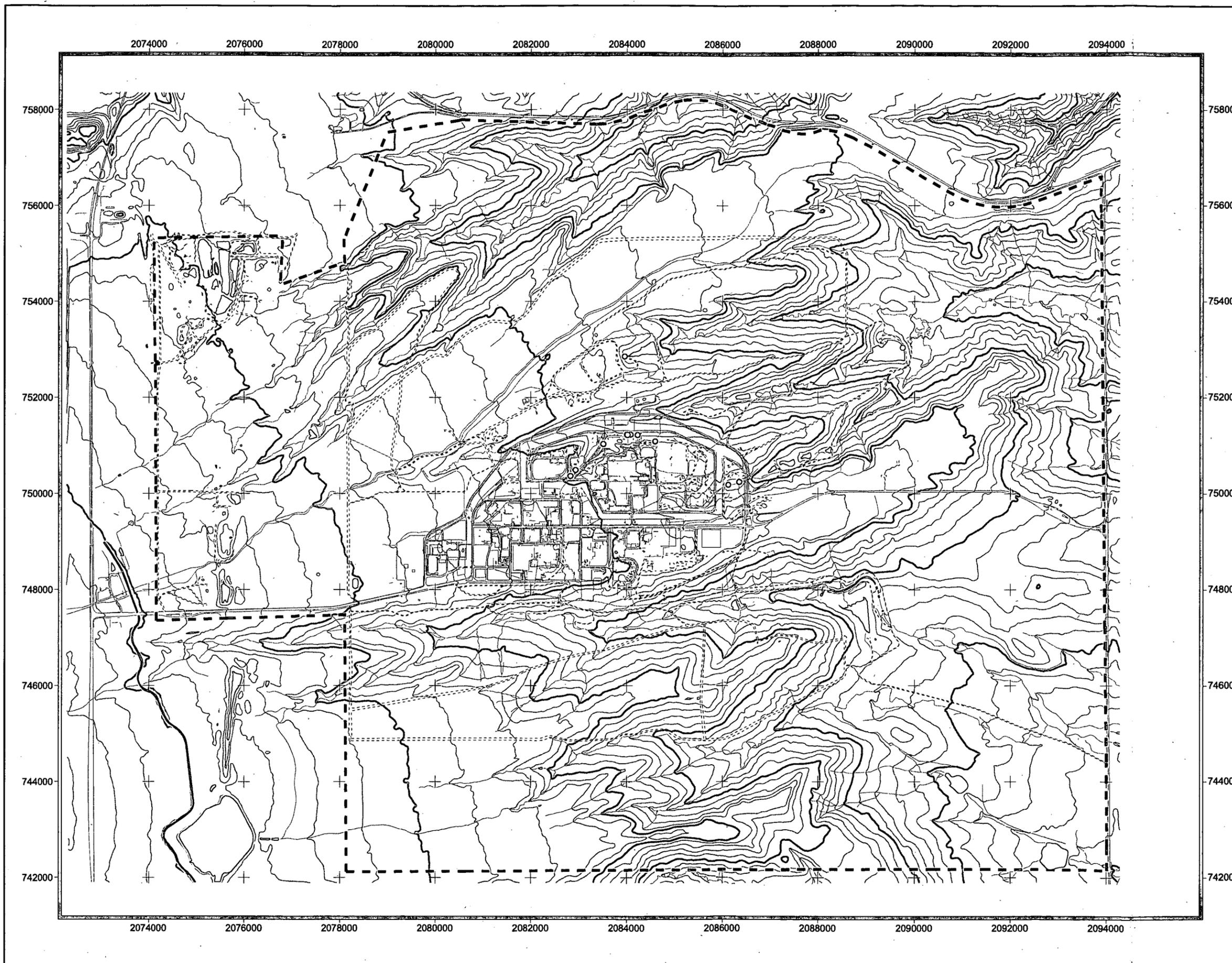


Figure 11
Post-1999 Results for
Total Antimony
in Surface Water

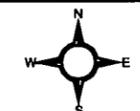
Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994
- > M2SD
- > Surface Water Standard and <= M2SD
- Detected and <= Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

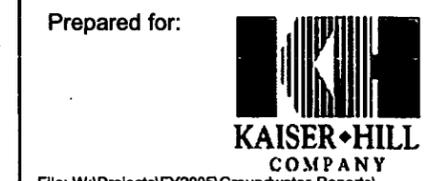
DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\ Post-1999-SWPost-1999.apr

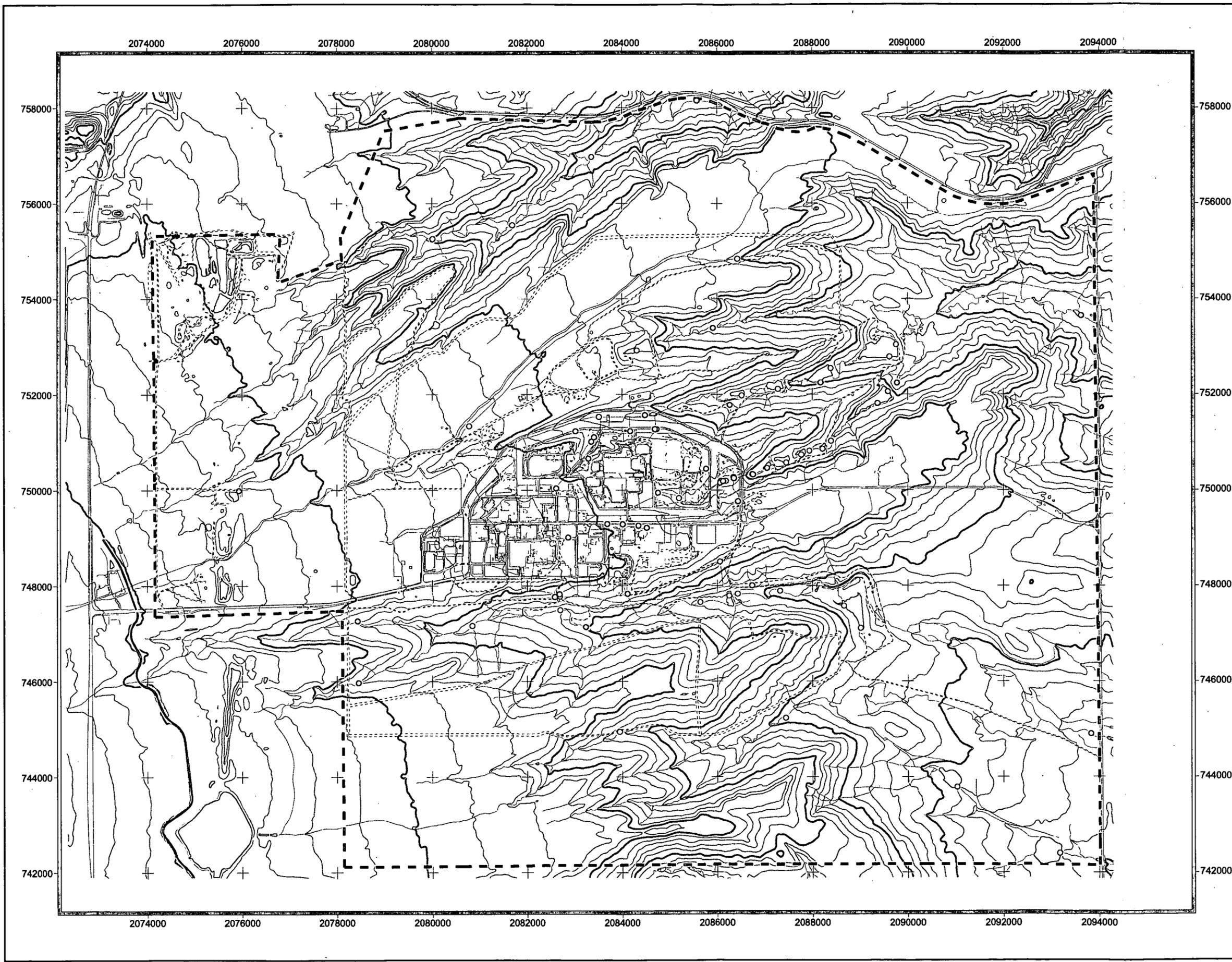


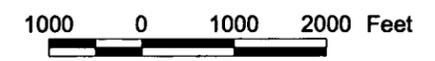
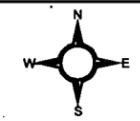
Figure 12
Post-1999 Results for
Total Arsenic
in Surface Water

Legend

- Sample collected since January 1, 2000
- ◻ Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994
- > M2SD
- > Surface Water Standard and ≤ M2SD
- Detected and ≤ Surface Water Standard
- Not detected

- Standard Map Features**
- ◻ Existing or demolished building or structure
 - Stream
 - ◻ Pond
 - Paved road
 - - - Unpaved road
 - - - Site boundary
 - Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SWPost-1999.apr

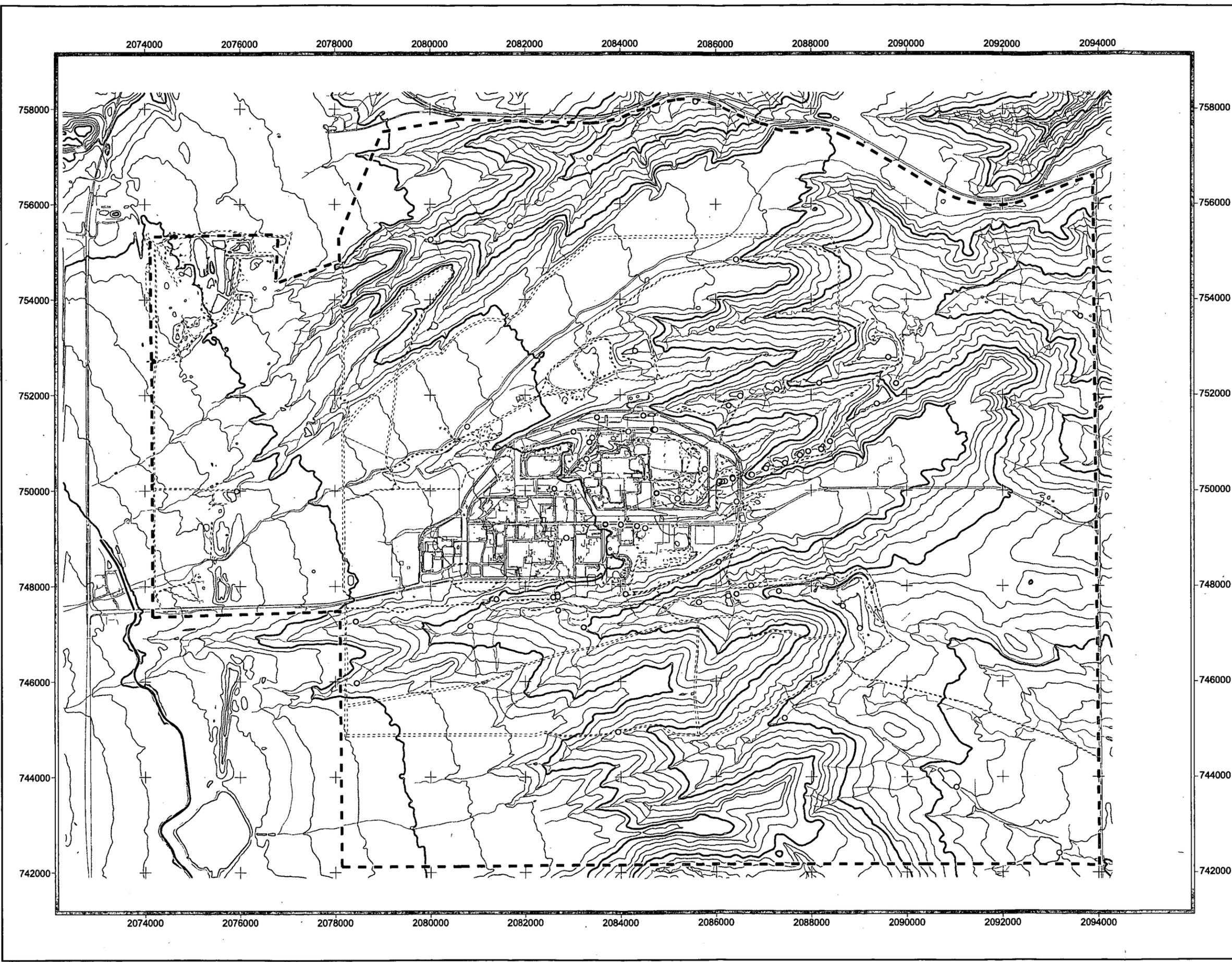


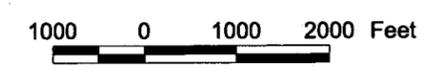
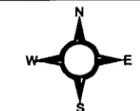
Figure 13
Post-1999 Results for
Total Chromium
in Surface Water

Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994
- > M2SD
- > Surface Water Standard and ≤ M2SD
- Detected and ≤ Surface Water Standard
- Not detected

- Standard Map Features**
- ▭ Existing or demolished building or structure
 - Stream
 - ▭ Pond
 - Paved road
 - - - Unpaved road
 - - - Site boundary
 - Topographic Contour (20-foot)

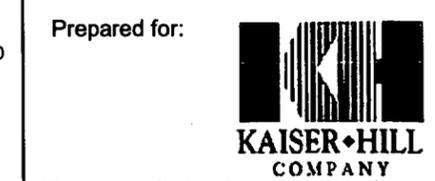
DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SW\Post-1999.apr

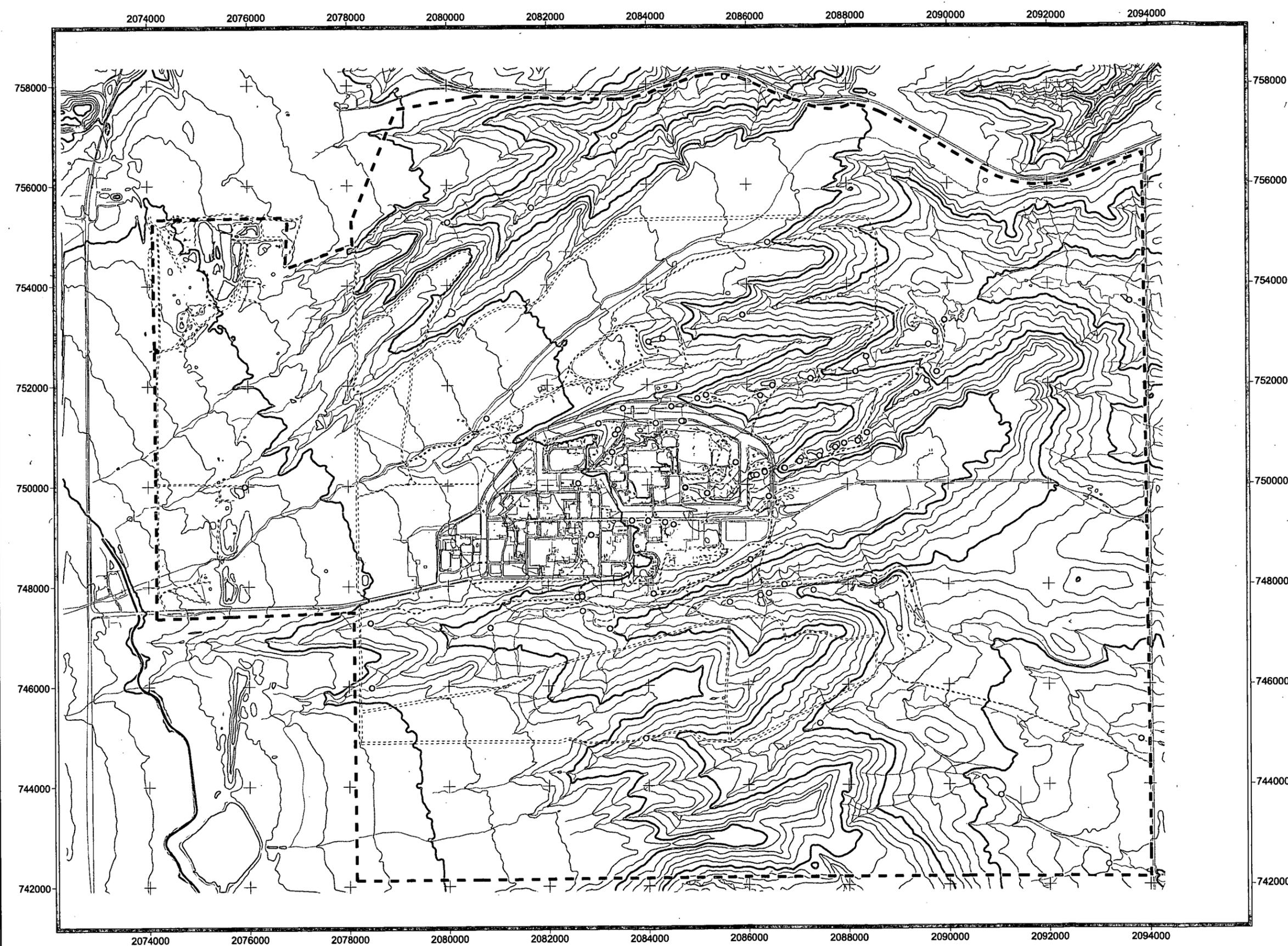


Figure 14
Post-1999 Results for
Total Lead
in Surface Water

Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

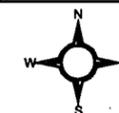
- > Surface Water Standard
- > M2SD and ≤ Surface Water Standard
- Detected and ≤ M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT

Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SWPost-1999.apr

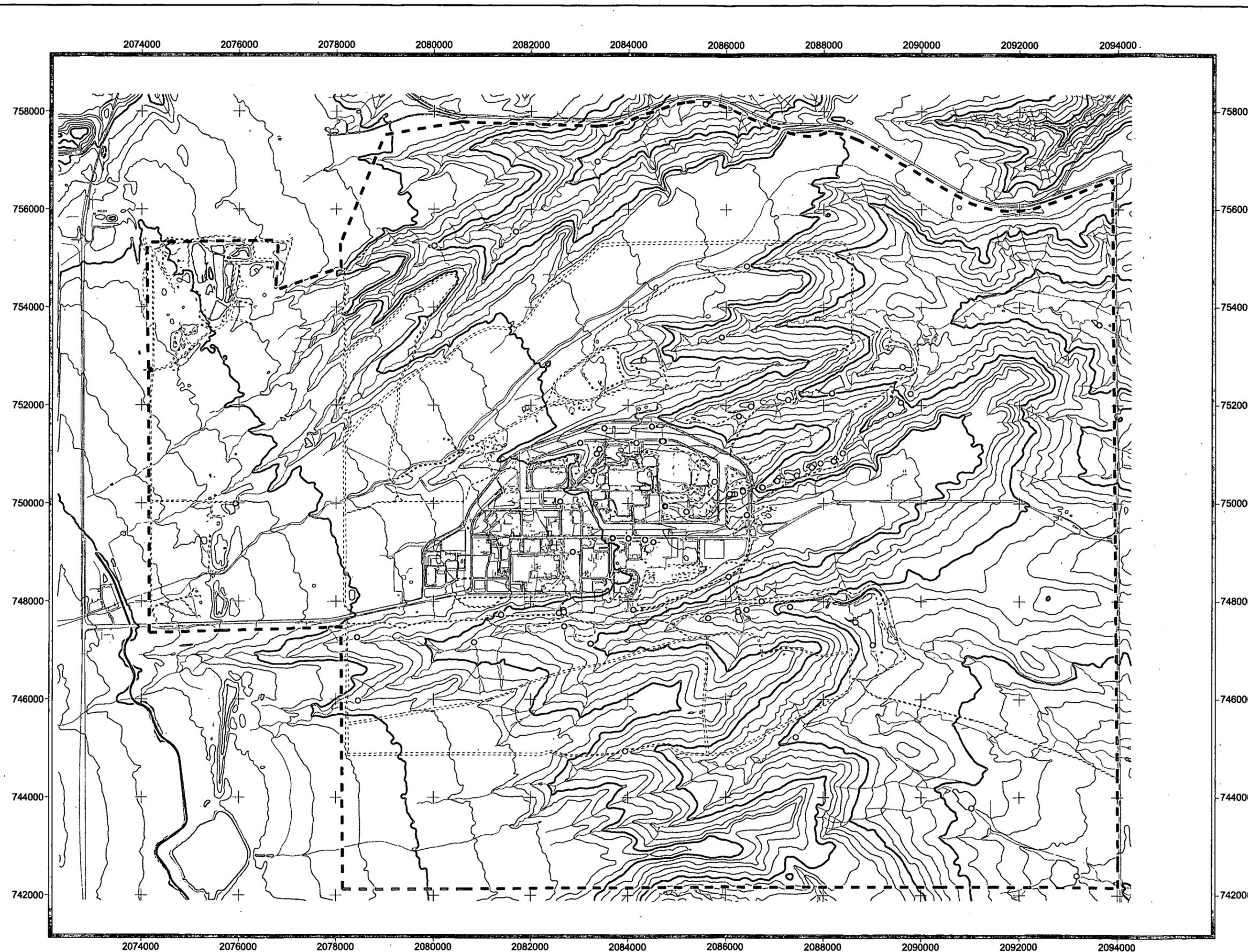


Figure 15
Post-1999 Results for
Total Zinc
in Surface Water

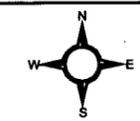
Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- > M2SD and ≤ Surface Water Standard
- Detected and ≤ M2SD
- Not detected

- Standard Map Features**
- ▭ Existing or demolished building or structure
 - Stream
 - ▭ Pond
 - Paved road
 - - - Unpaved road
 - - - Site boundary
 - Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\Post-1999-SWI\Post-1999.apr

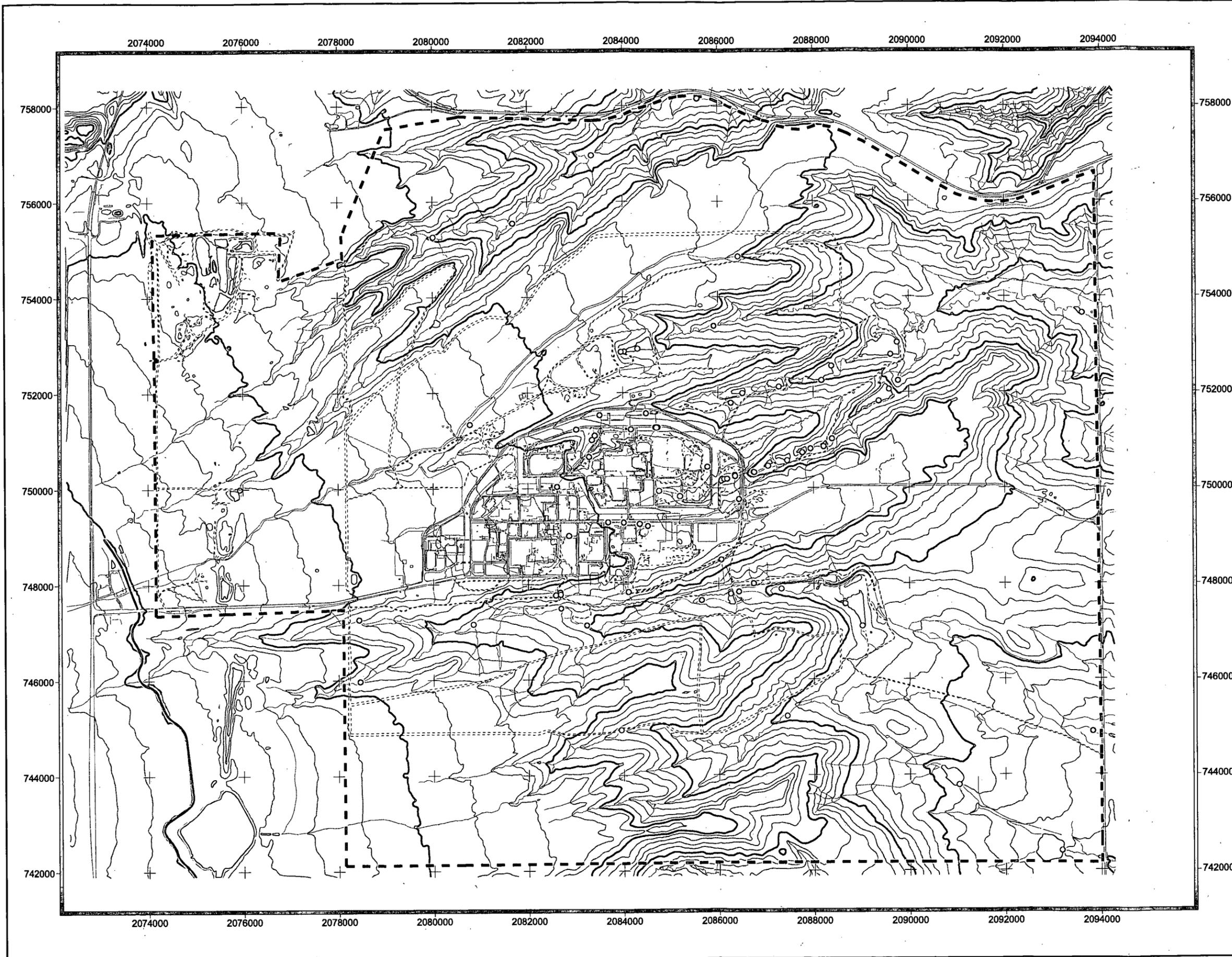


Figure 16
Post-1999 Results for
Total Americium-241
in Surface Water

Legend

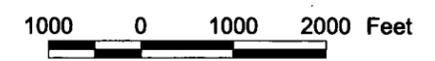
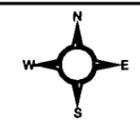
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- > M2SD and ≤ Surface Water Standard
- Detected and ≤ M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



File: W:\Projects\FY2005\Groundwater-Reports\Post-1999-SVA\Post-1999.apr

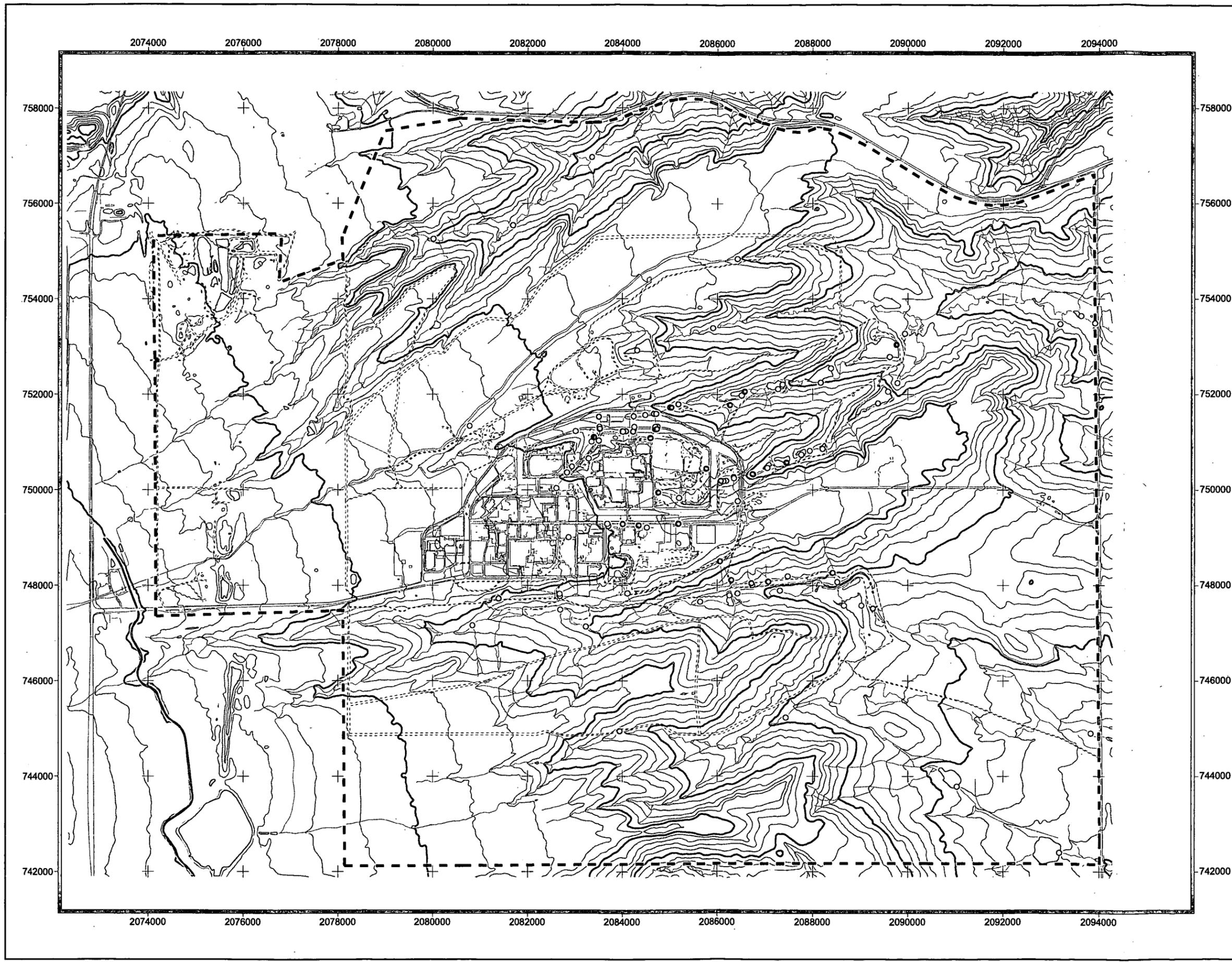


Figure 17
Post-1999 Results for
Total Gross Alpha
in Surface Water

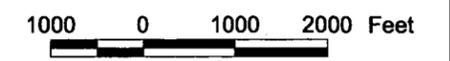
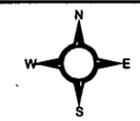
Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994
- > M2SD
- > Surface Water Standard and ≤ M2SD
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

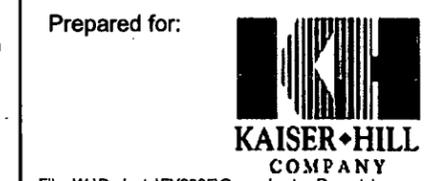
DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\ Post-1999-SW\Post-1999.apr

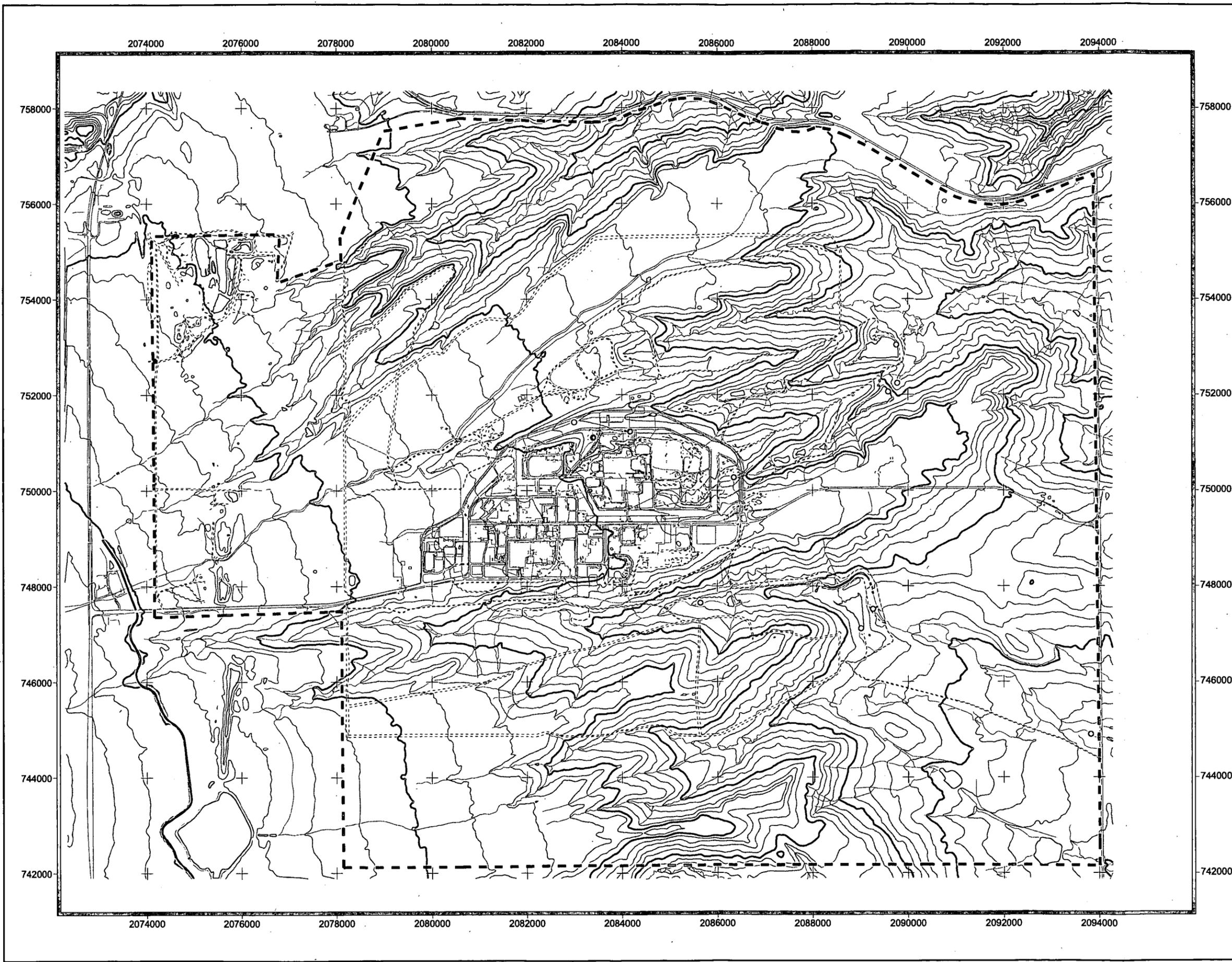


Figure 18
Post-1999 Results for
Total Gross Beta
in Surface Water

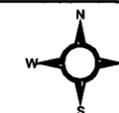
Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994
- > M2SD
- > Surface Water Standard and ≤ M2SD
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SW\Post-1999.apr

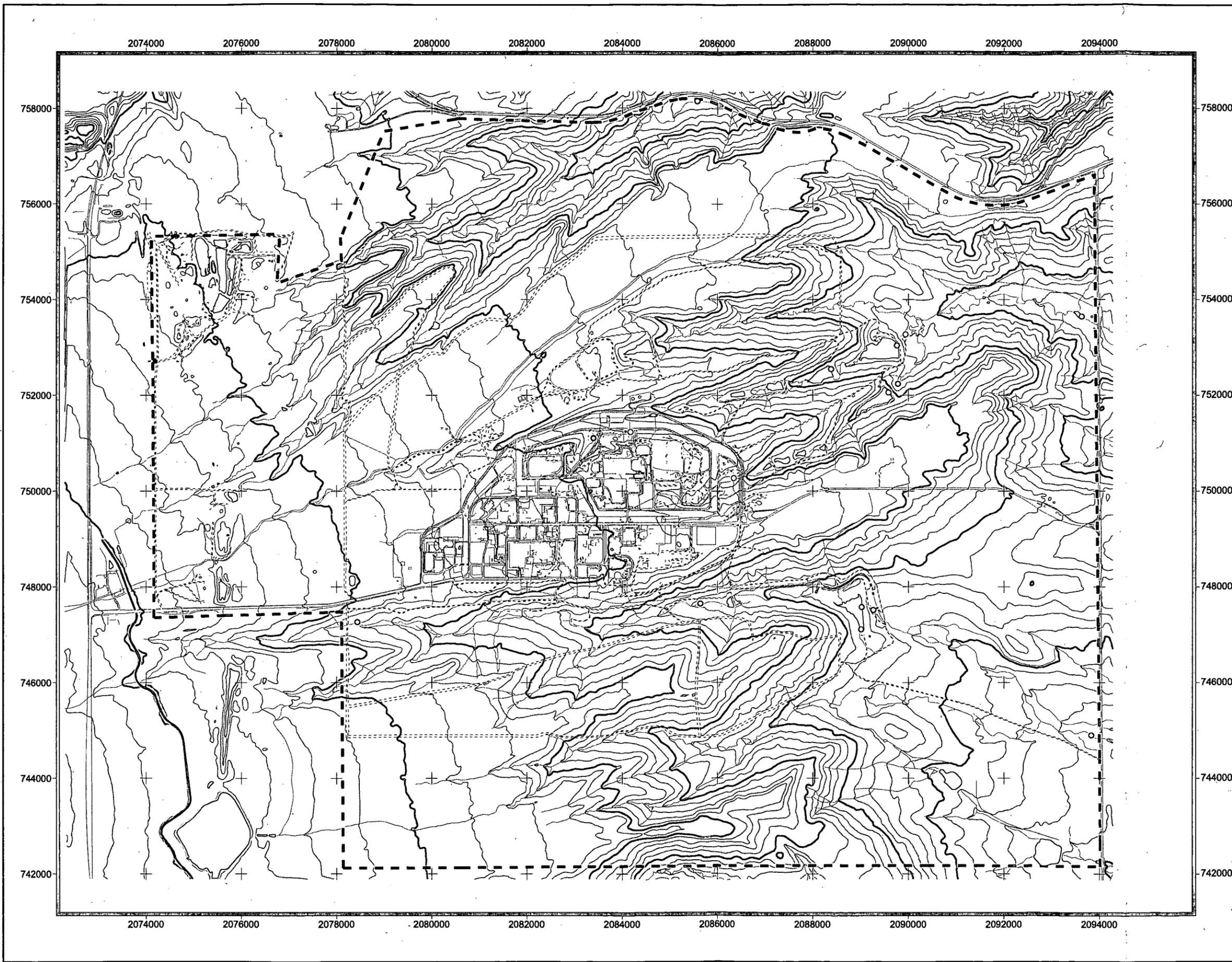


Figure 19
Post-1999 Results for
Total Plutonium-239/240
in Surface Water

Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- > M2SD and ≤ Surface Water Standard
- Detected and ≤ M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

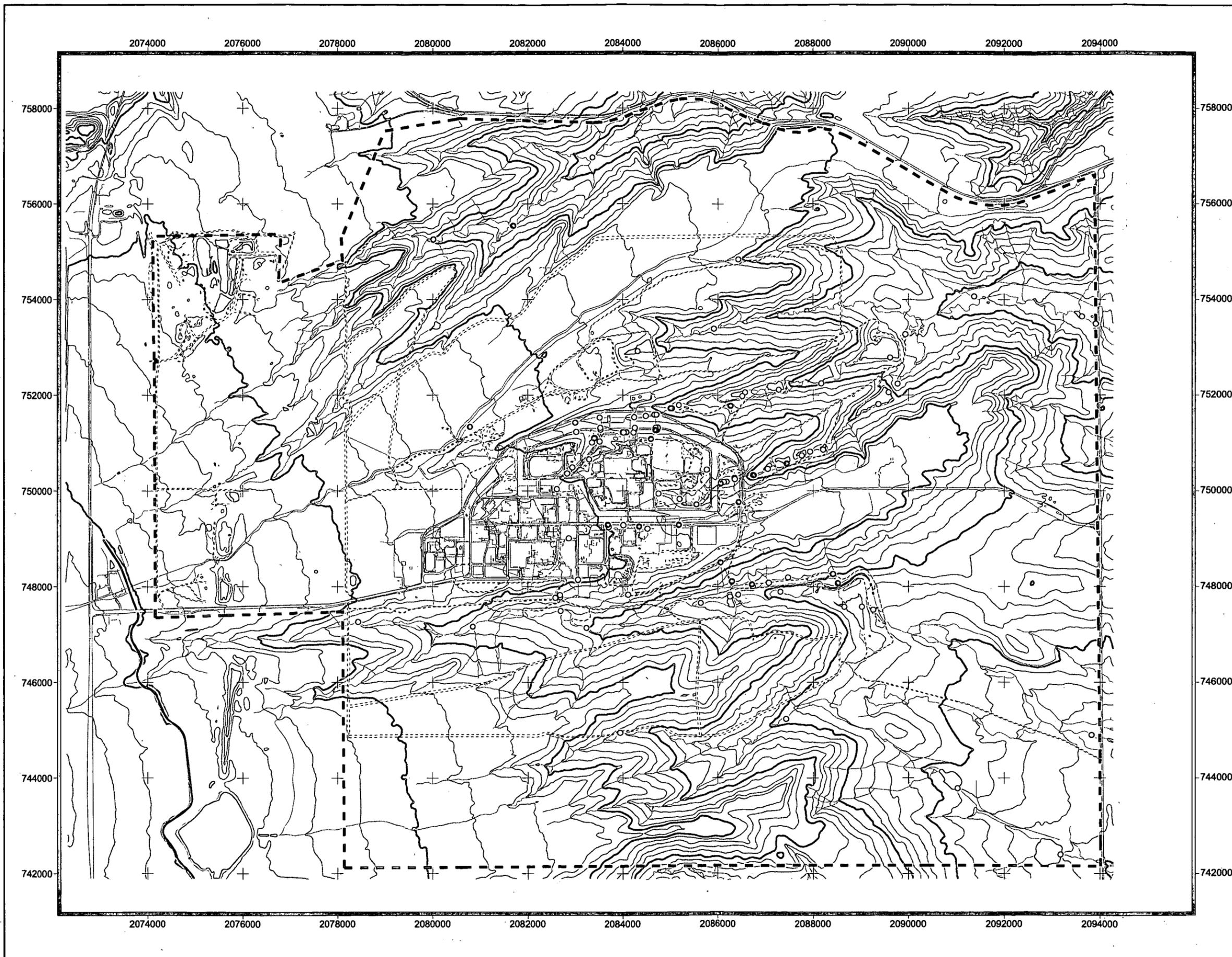
Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SW\Post-1999.apr



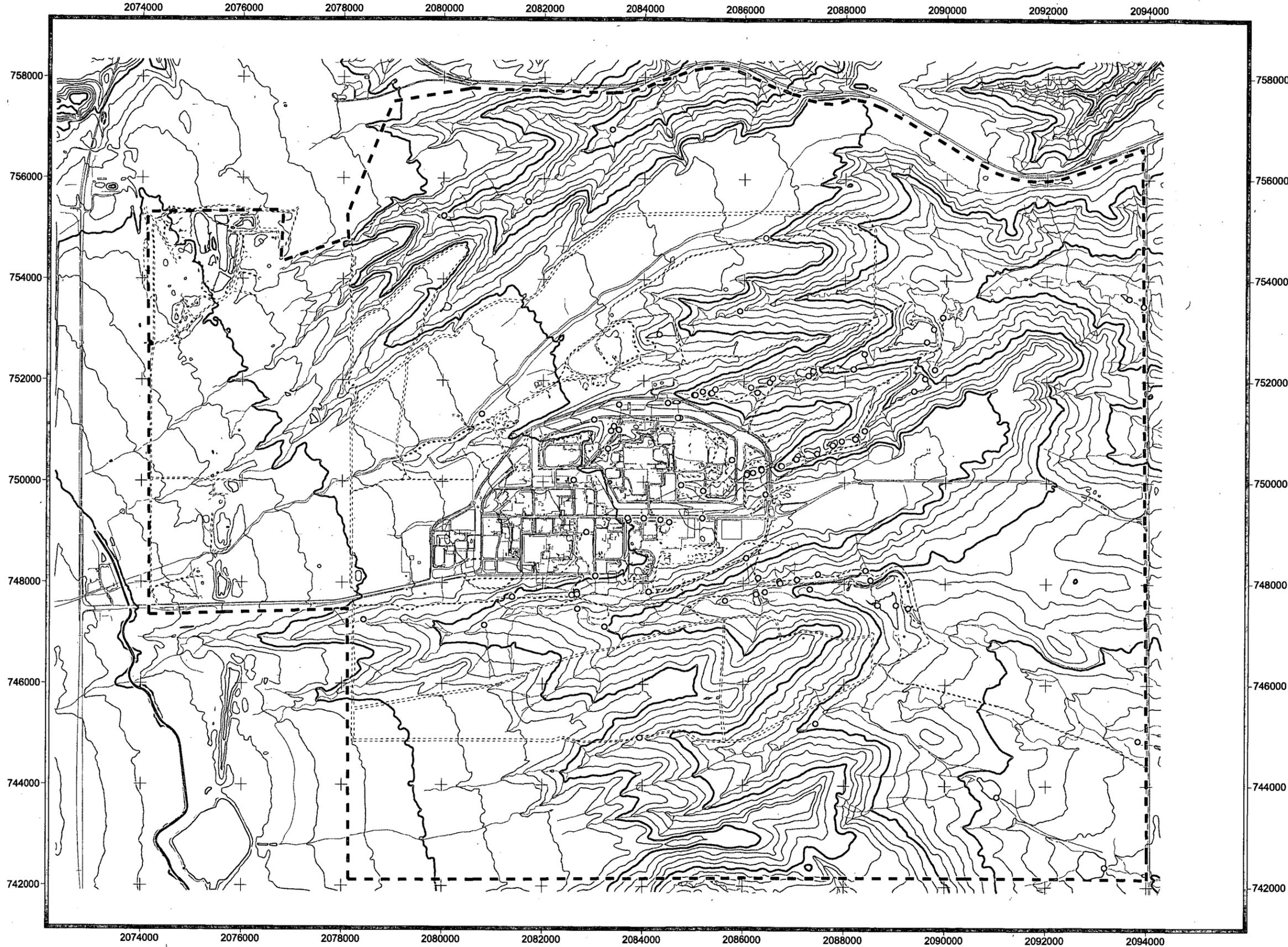


Figure 20
Post-1999 Results for
Total Uranium Isotopes
in Surface Water

Legend

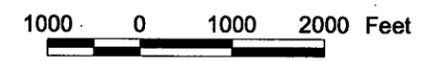
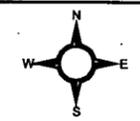
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- > M2SD and ≤ Surface Water Standard
- Detected and ≤ M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



KAISER-HILL
 COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\
 Post-1999-SW\Post-1999.apr

Figure 21
Post-1999 Results for
Ammonia (as N)
in Surface Water

Legend

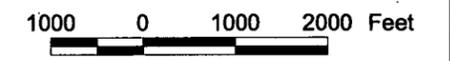
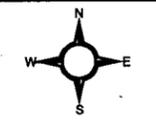
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- Not applicable
- Detected and ≤ Surface Water Standard
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

DRAFT Data set: 4/27/2005



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\ Post-1999-SWPost-1999.apr

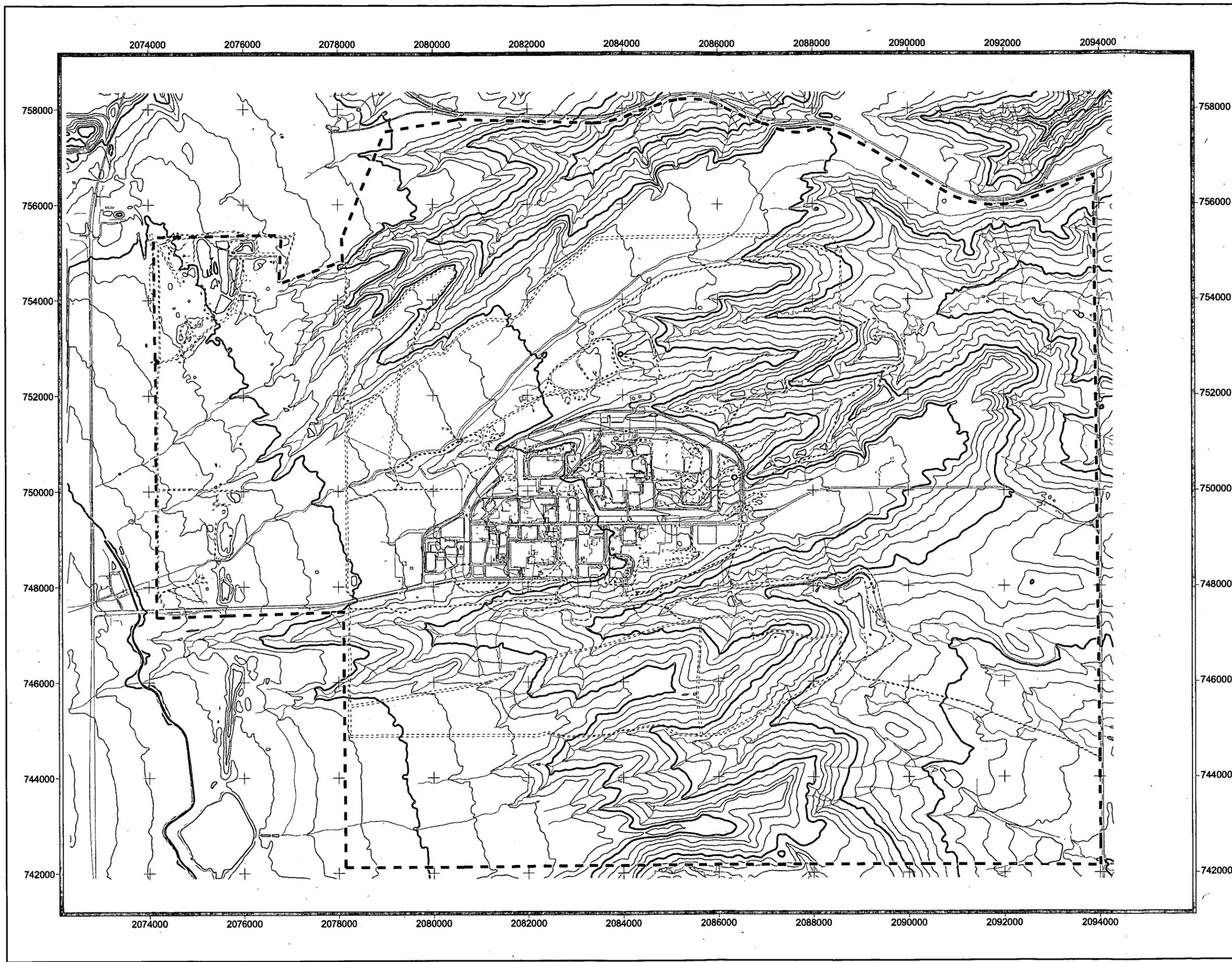


Figure 22
Post-1999 Results for
Nitrate/Nitrite (as N)
in Surface Water

Legend

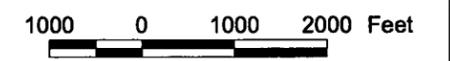
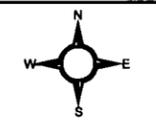
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > Surface Water Standard
- > M2SD and <= Surface Water Standard
- Detected and <= M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic Contour (20-foot)

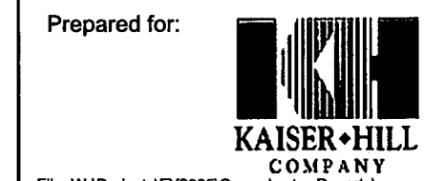
DRAFT Data set: 4/27/2005



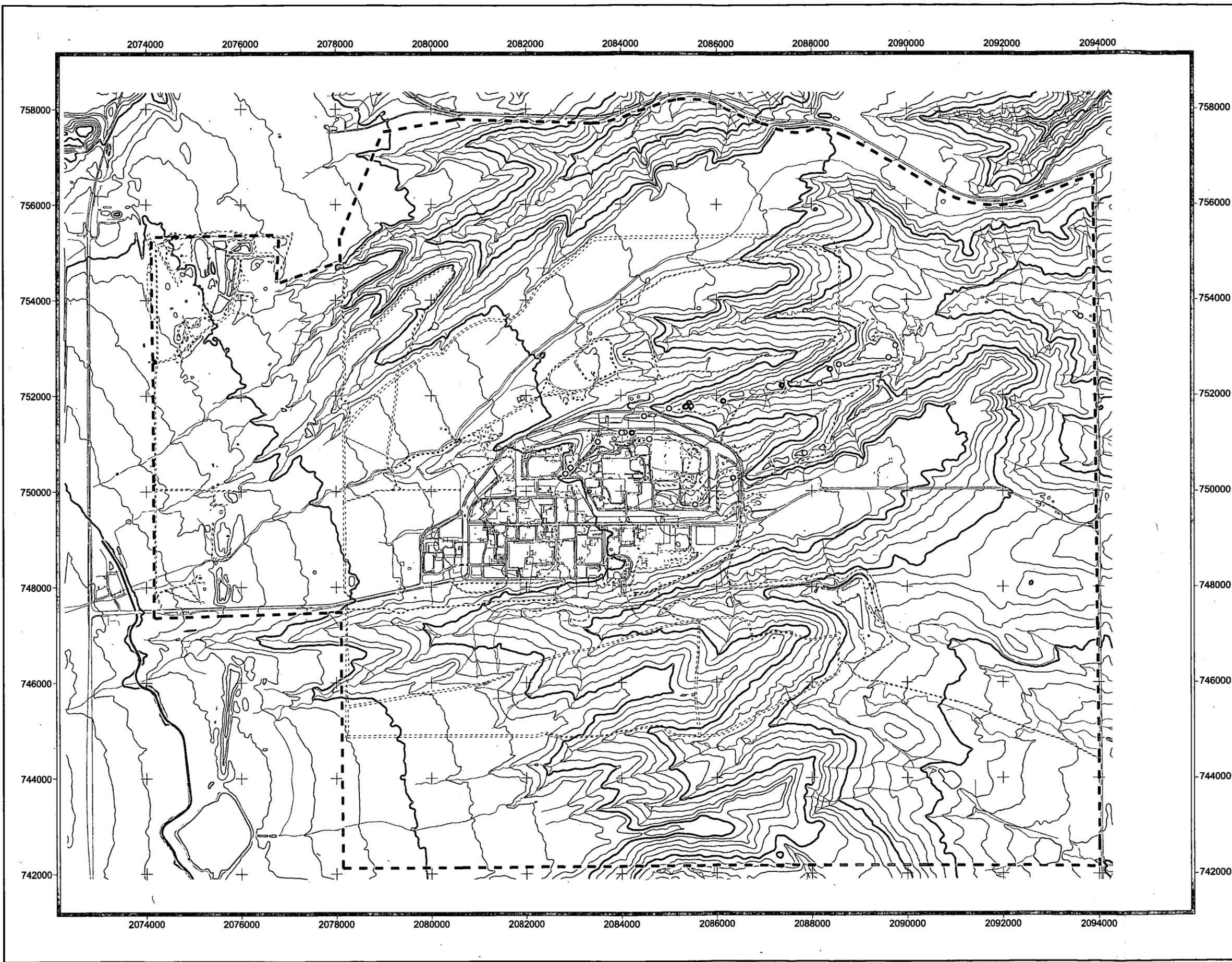
Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\ Post-1999-SW\Post-1999.apr



188

Figure 23
Sediment Analyte of Interest (AOI) Screening Process

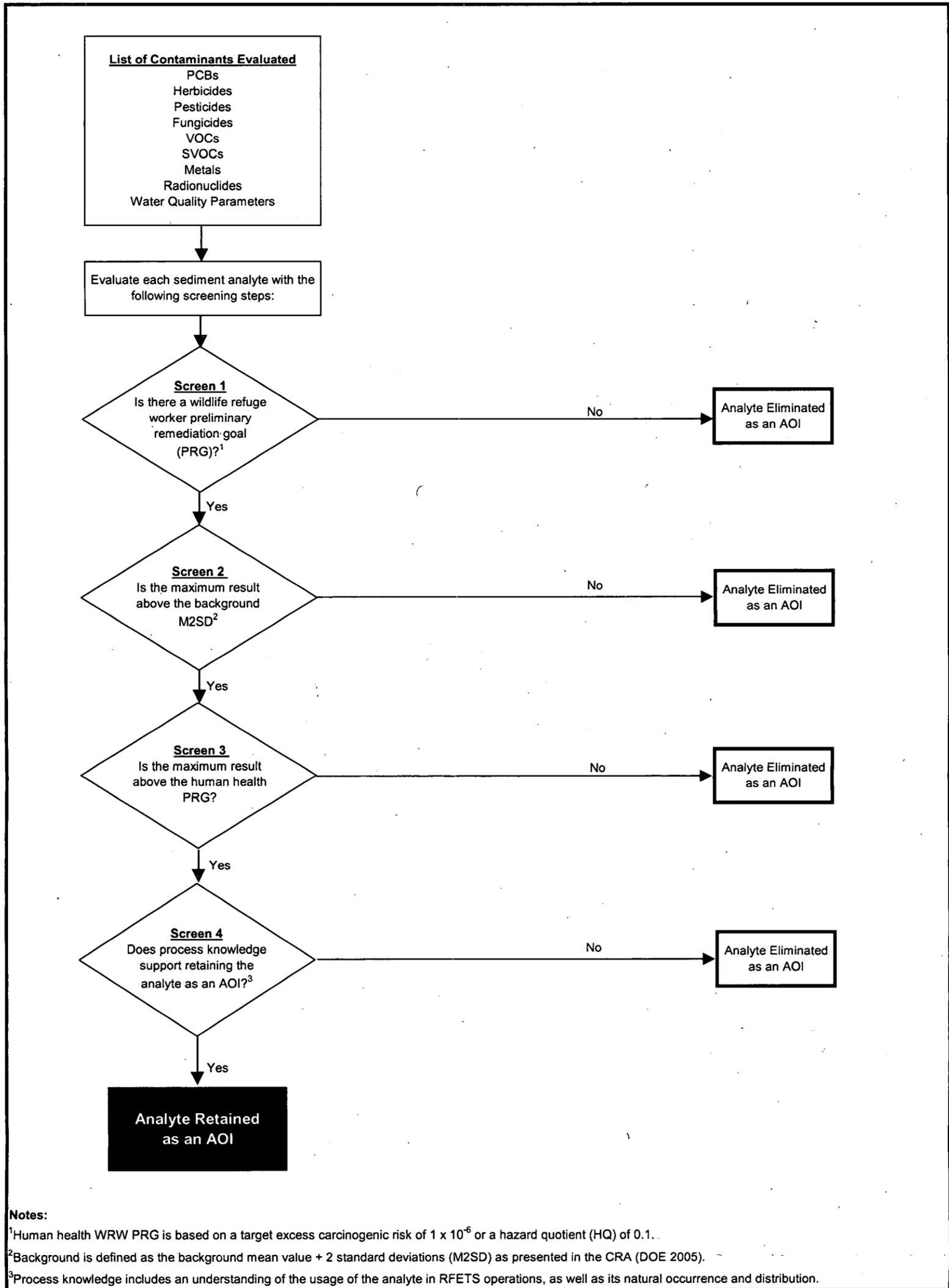


Figure 24

**Benzo(a)pyrene
in Sediment**

Legend

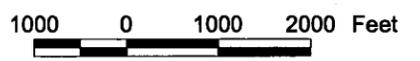
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > 10x PRG
- > PRG and <= 10X PRG
- Not applicable
- Detected and <= PRG
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

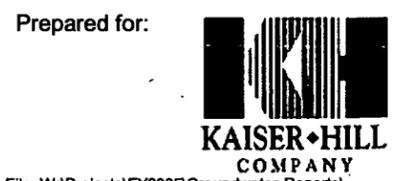
DRAFT Data set: 6/23/2005 A1



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\Sediment-Maps\Sediment_7-19-2005.apr

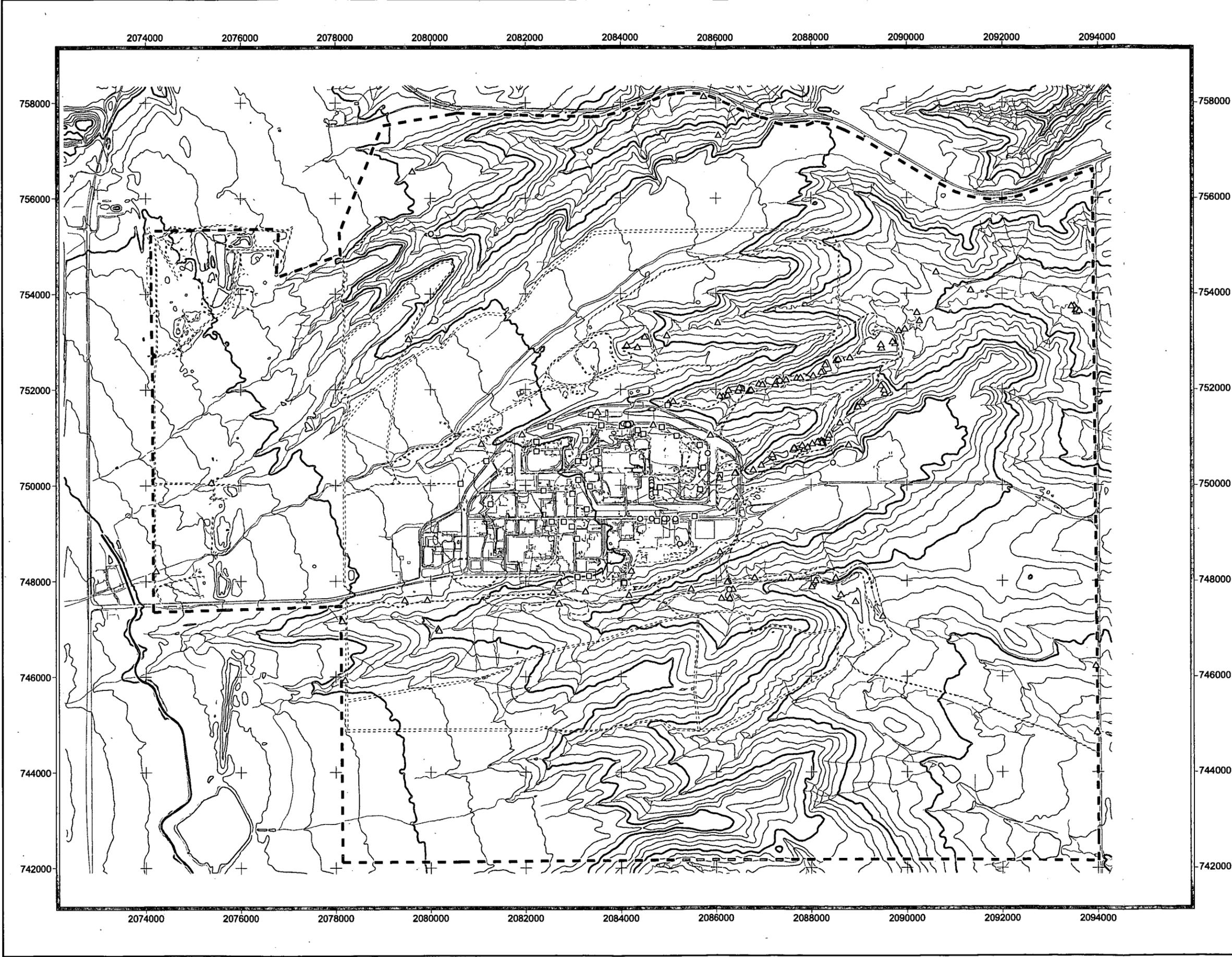


Figure 25

Antimony in Sediment

Legend

- Sample collected since January 1, 2000
 - Sample collected between January 1, 1995 and December 31, 1999
 - △ Sample collected between June 28, 1991 and December 31, 1994
-
- > 10x PRG
 - > PRG and ≤ 10X PRG
 - > M2SD and ≤ PRG
 - Detected and ≤ M2SD
 - Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



1000 0 1000 2000 Feet

Scale = 1 : 24,000
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\Sediment-Maps\Sediment_7-19-2005.apr

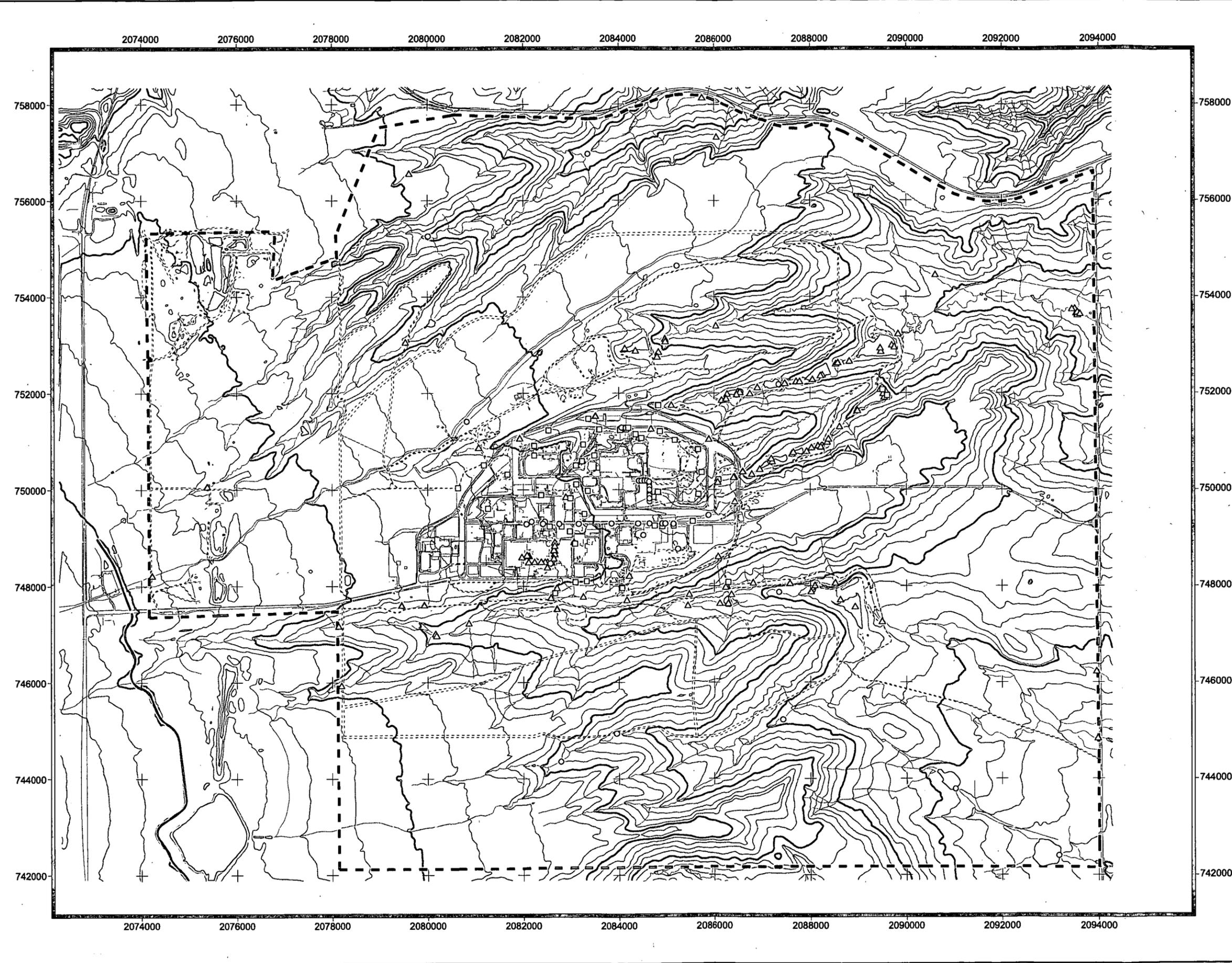


Figure 26

**Arsenic
in Sediment**

Legend

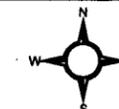
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > 10x PRG
- > M2SD and ≤ 10X PRG
- > PRG and ≤ M2SD
- Detected and ≤ PRG
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



1000 0 1000 2000 Feet

Scale = 1 : 24,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005

Prepared for:



**KAISER-HILL
COMPANY**

File: W:\Projects\FY2005\Groundwater-Reports\
Sediment-Maps\Sediment_7-19-2005.apr

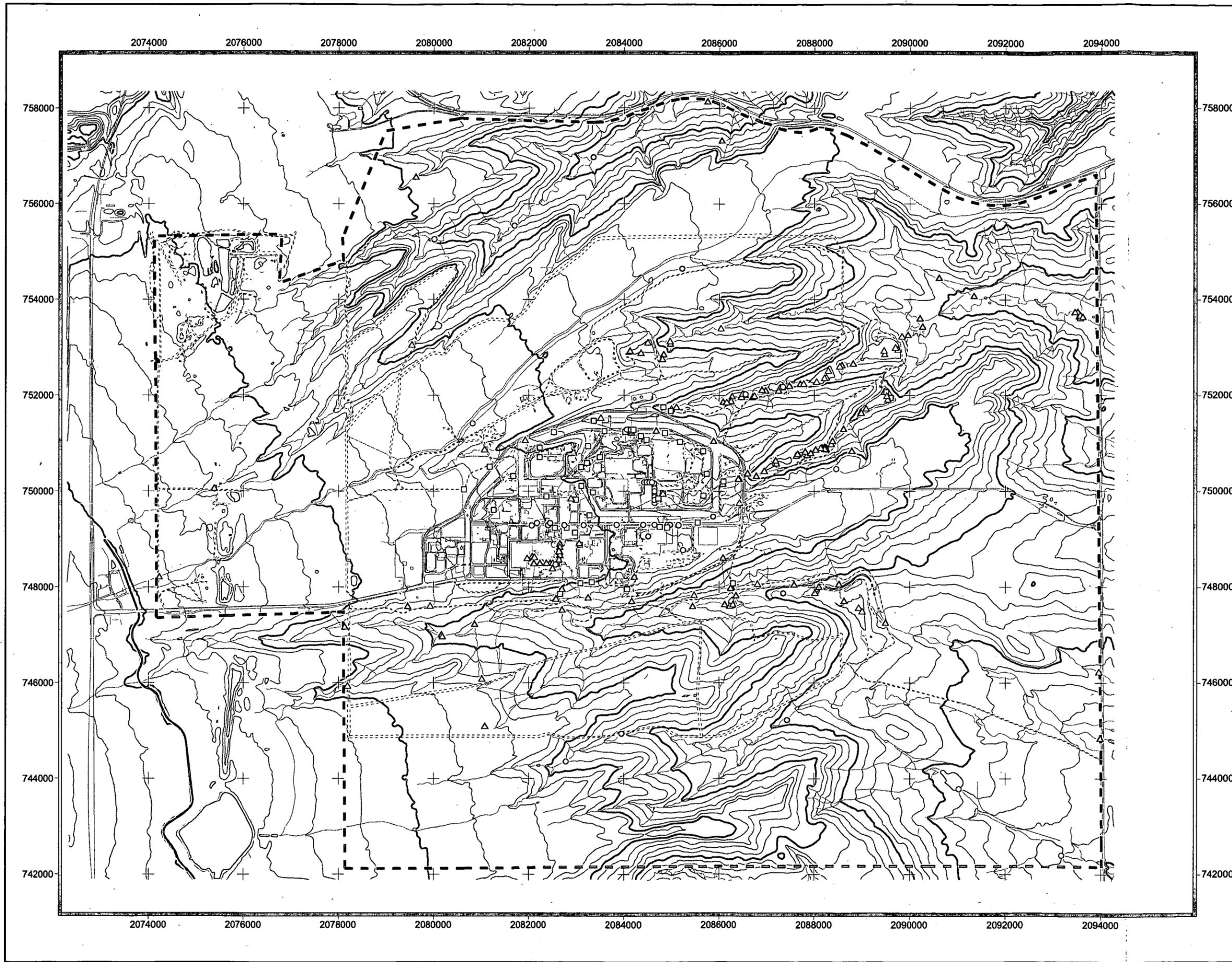


Figure 27

Chromium in Sediment

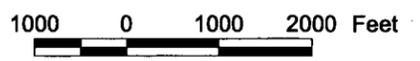
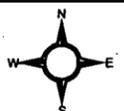
Legend

- Sample collected since January 1, 2000
 - Sample collected between January 1, 1995 and December 31, 1999
 - △ Sample collected between June 28, 1991 and December 31, 1994
-
- > 10x PRG
 - > PRG and ≤ 10X PRG
 - > M2SD and ≤ PRG
 - Detected and ≤ M2SD
 - Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: _____ Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\Sediment-Maps\Sediment_7-19-2005.apr

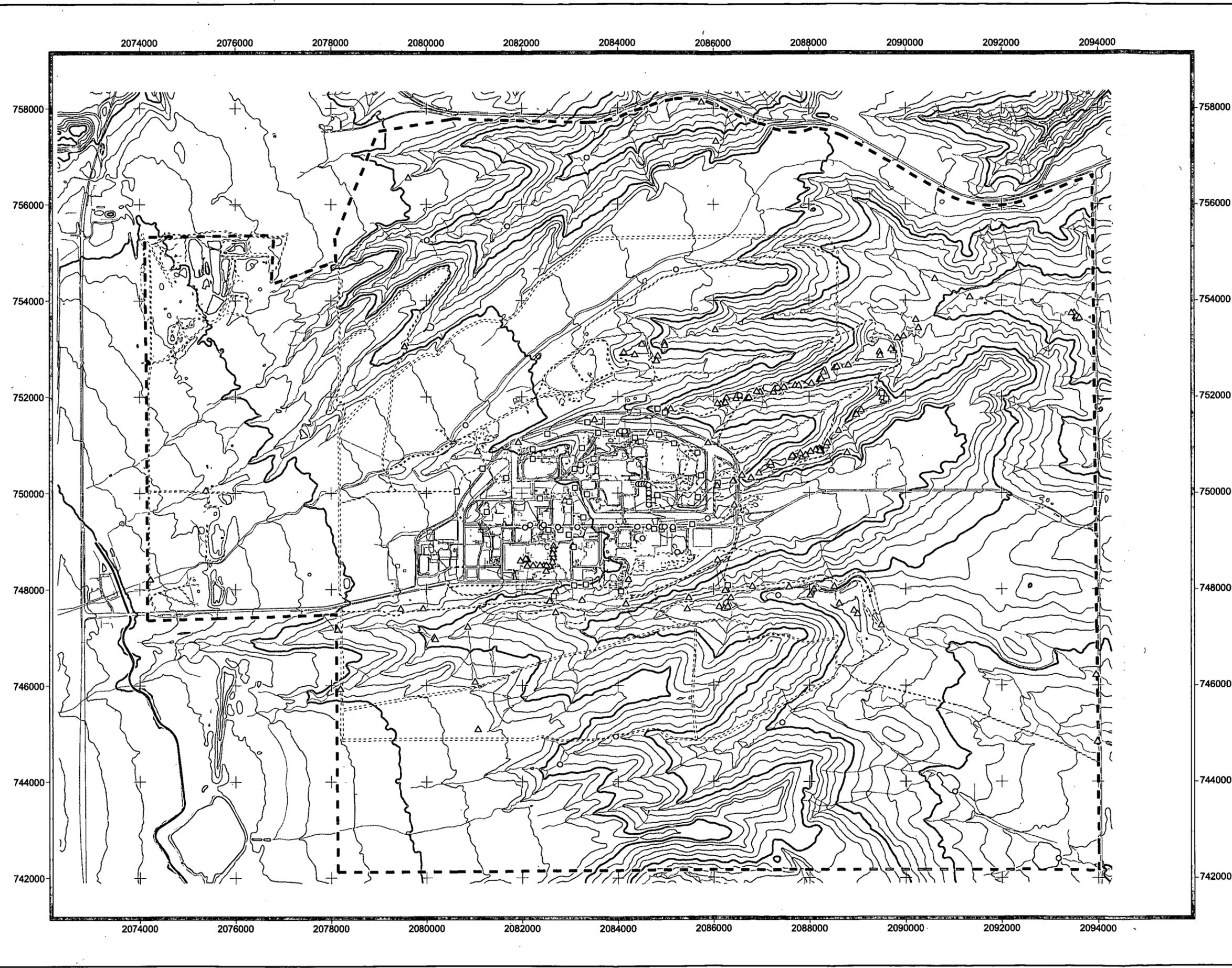


Figure 28

**Americium-241
in Sediment**

Legend

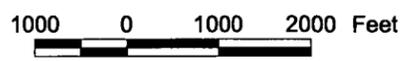
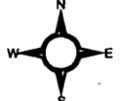
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > 10x PRG
- > PRG and ≤ 10X PRG
- > M2SD and ≤ PRG
- Detected and ≤ M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\Sediment-Maps\Sediment_7-19-2005.apr

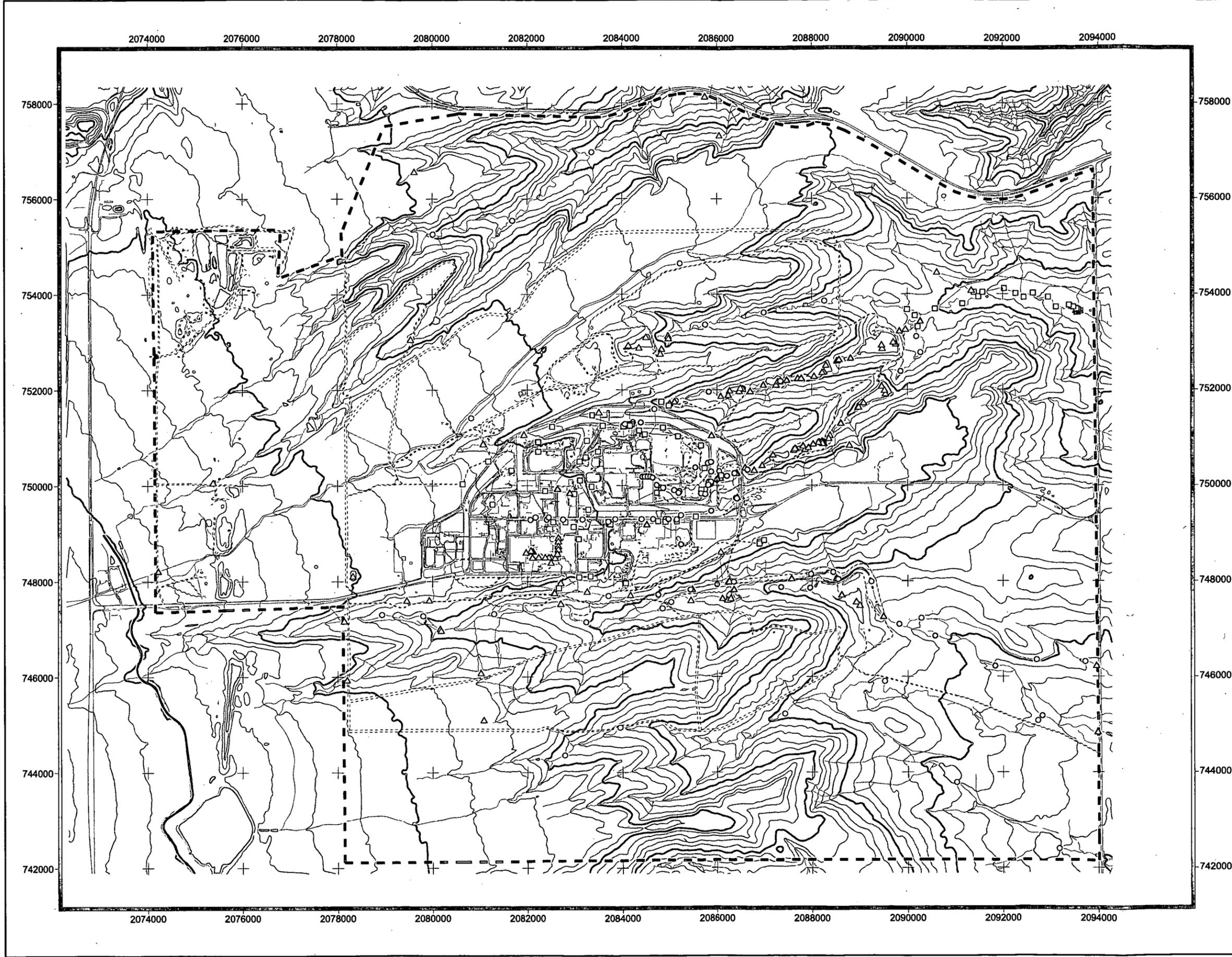


Figure 29

Cesium-137 in Sediment

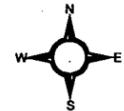
Legend

- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > 10x PRG
- > M2SD and ≤ 10X PRG
- > PRG and ≤ M2SD
- Detected and ≤ PRG
- Not detected

- Standard Map Features**
- ▭ Existing or demolished building or structure
 - Stream
 - ▭ Pond
 - Paved road
 - - - Unpaved road
 - - - Site boundary
 - Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



1000 0 1000 2000 Feet

Scale = 1 : 24,000
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\Sediment-Maps\Sediment_7-19-2005.apr

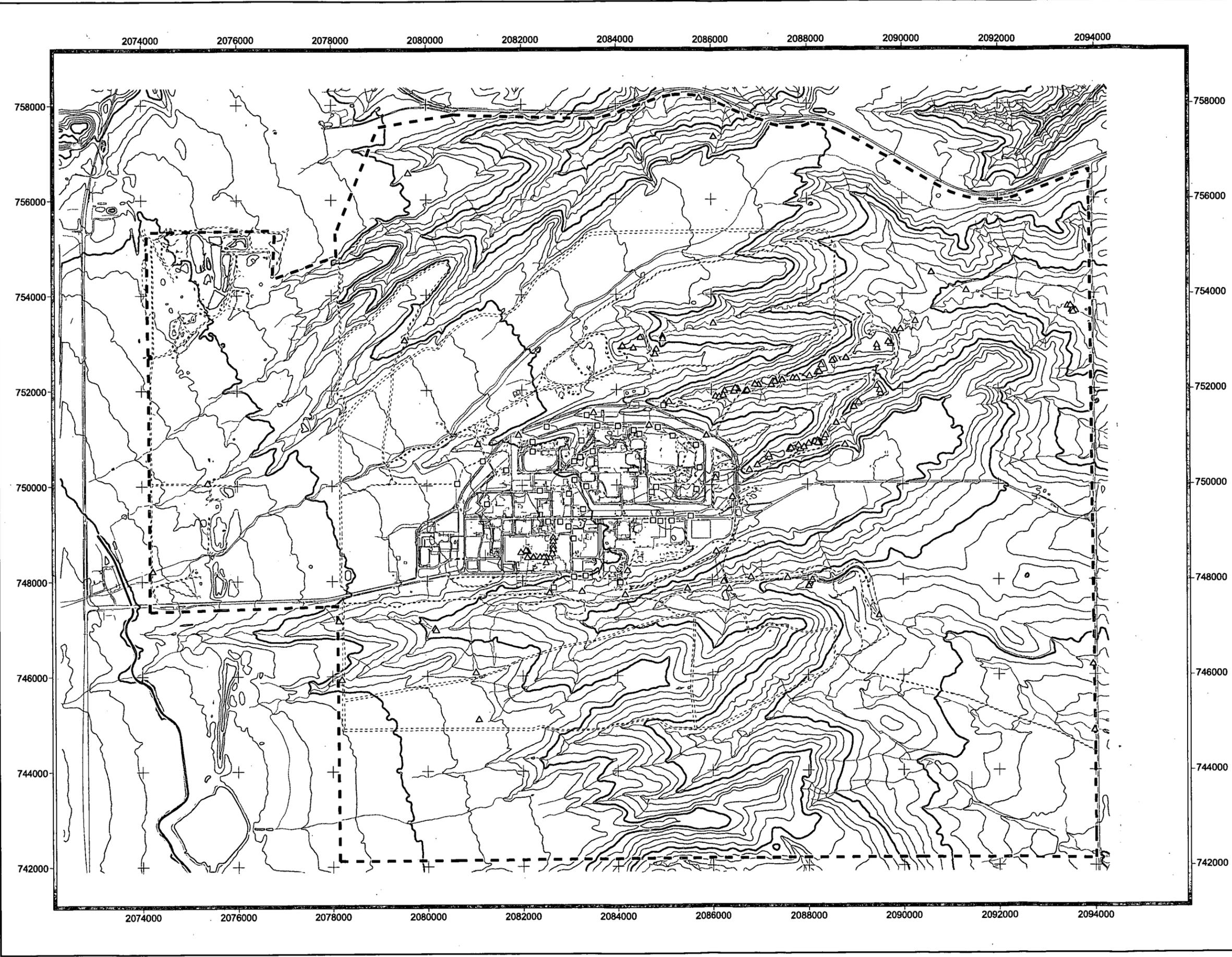


Figure 30

Plutonium-239/240
in Sediment

Legend

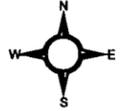
- Sample collected since January 1, 2000
- Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > 10x PRG
- > PRG and ≤ 10X PRG
- > M2SD and ≤ PRG
- Detected and ≤ M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



1000 0 1000 2000 Feet

Scale = 1 : 24,000
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: July 25, 2005



File: W:\Projects\FY2005\Groundwater-Reports\Sediment-Maps\Sediment_7-19-2005.apr

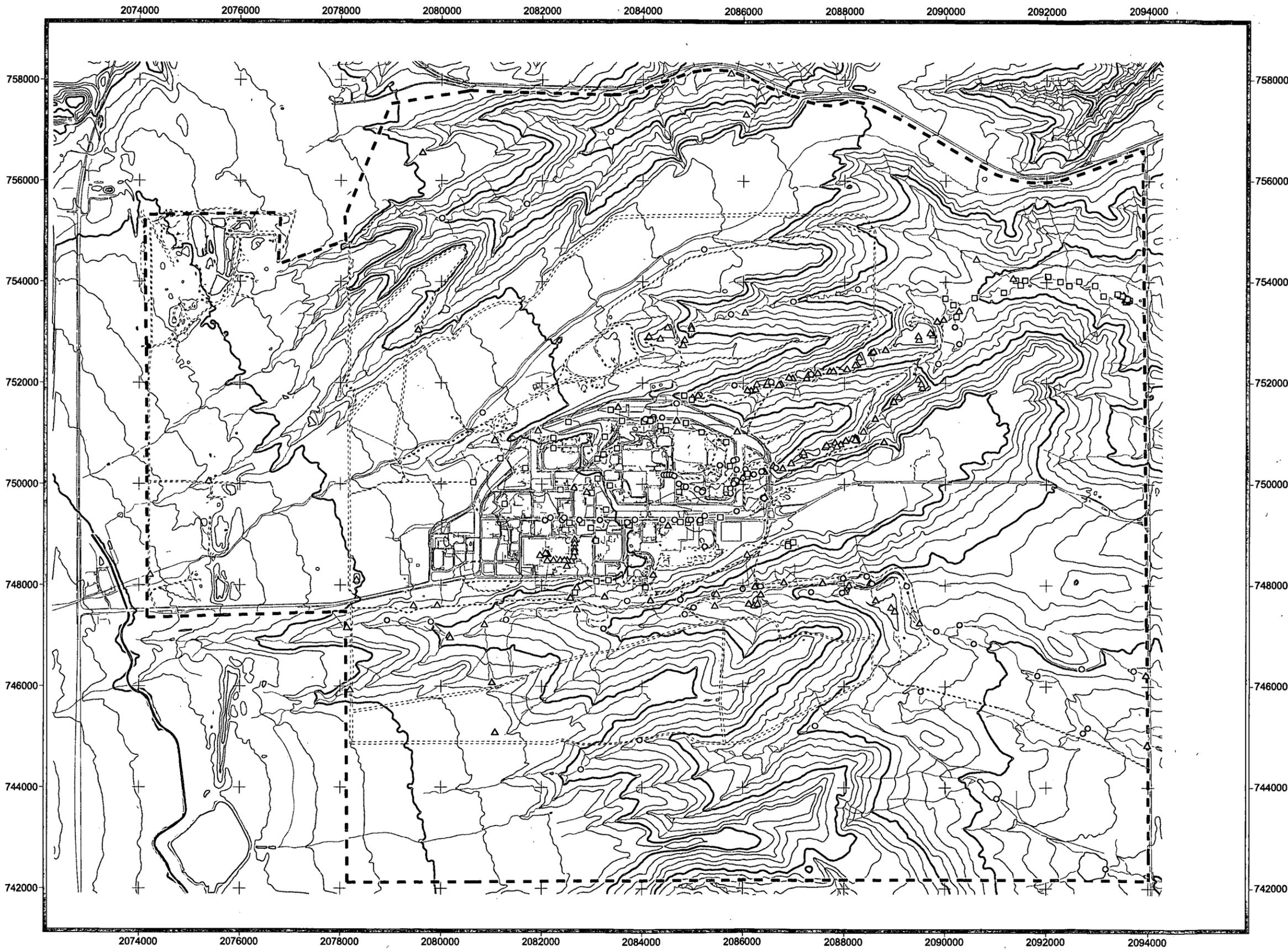


Figure 31

Uranium-238
in Sediment

Legend

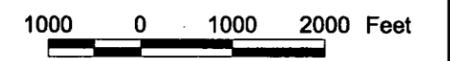
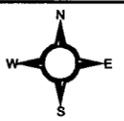
- Sample collected since January 1, 2000
- ◻ Sample collected between January 1, 1995 and December 31, 1999
- △ Sample collected between June 28, 1991 and December 31, 1994

- > 10x PRG
- > PRG and <= 10X PRG
- > M2SD and <= PRG
- Detected and <= M2SD
- Not detected

Standard Map Features

- ▭ Existing or demolished building or structure
- Stream
- ▭ Pond
- Paved road
- - - Unpaved road
- - - Site boundary
- Topographic contour (20-foot)

DRAFT Data set: 6/23/2005 A1



Scale = 1 : 24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

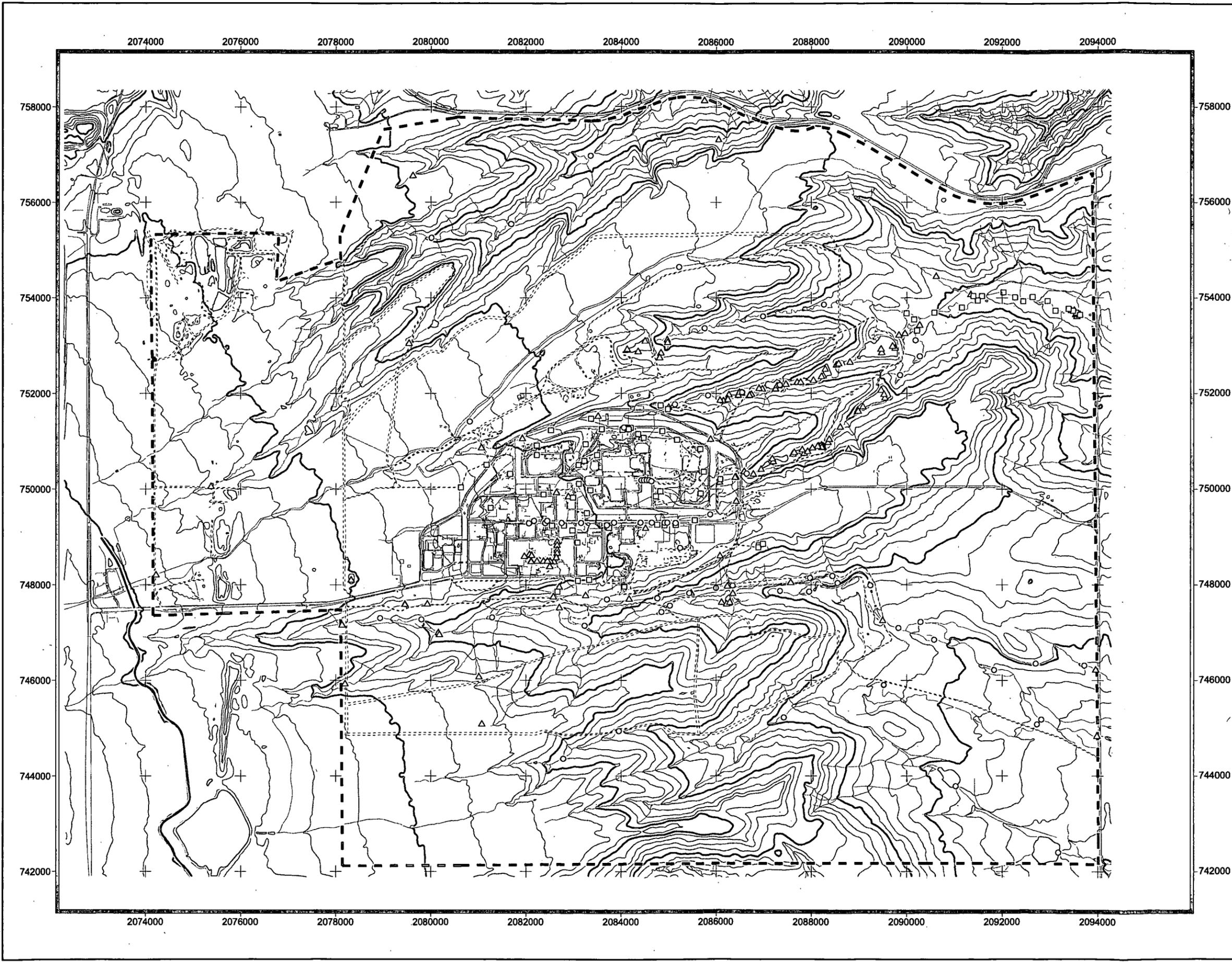
Prepared by: Date: July 25, 2005

Prepared for:



KAISER HILL
COMPANY

File: W:\Projects\FY2005\Groundwater-Reports\
 Sediment-Maps\Sediment_7-19-2005.apr



92/92