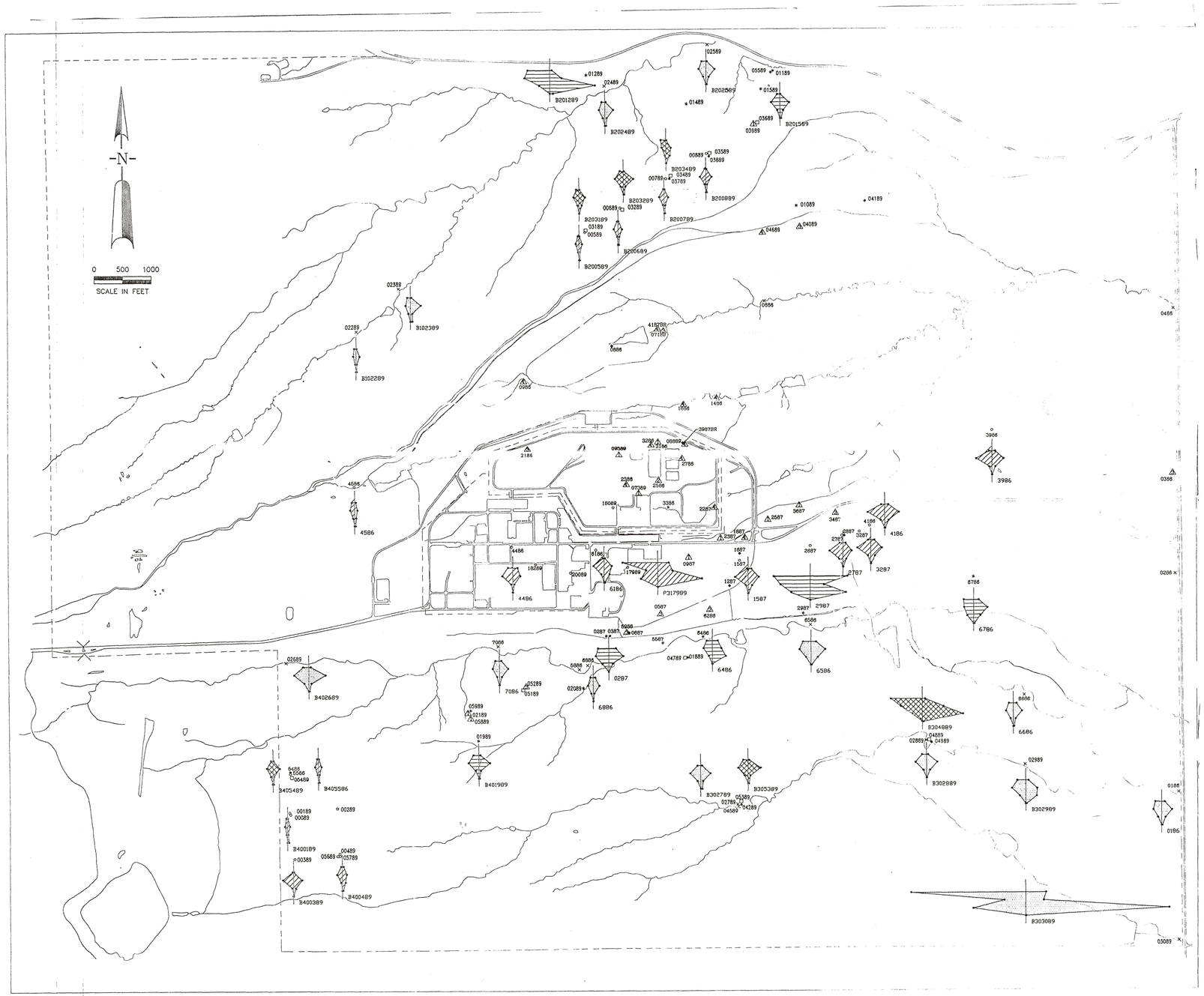
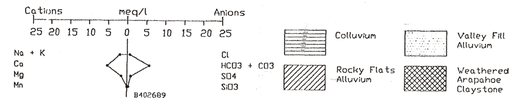
OU02-A-001580



EXPLANATION

- ○ ROCKY FLATS ALLUVIUM WELLS
- X VALLEY FILL ALLUVIUM WELLS
- ✳ COLLUVIUM WELLS
- ● ARAPAHOE FORMATION SILTY SAND WELLS
- □ WEATHERED CLAYSTONE
- △1 ARAPAHOE FORMATION SANDSTONE #1 WELLS
- △2–△5 LARAMIE FORMATION SANDSTONE WELLS (PREVIOUSLY REFFERED TO AS ARAPAHOE FORMATION SANDSTONE #2 – #5)



SOURCE:
BACKGROUND GEOCHEMICAL CHARACTERIZATION REPORT
USDOE, ROCKY FLATS PLANT – GOLDEN, COLORADO 9/15/92

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

STIFF DIAGRAMS FOR BACKGROUND GROUNDWATER IN THE ROCKY FLATS ALLUVIUM, VALLEY FILL ALLUVIUM, COLLUVIUM, AND ARAPAHOE CLAYSTONE

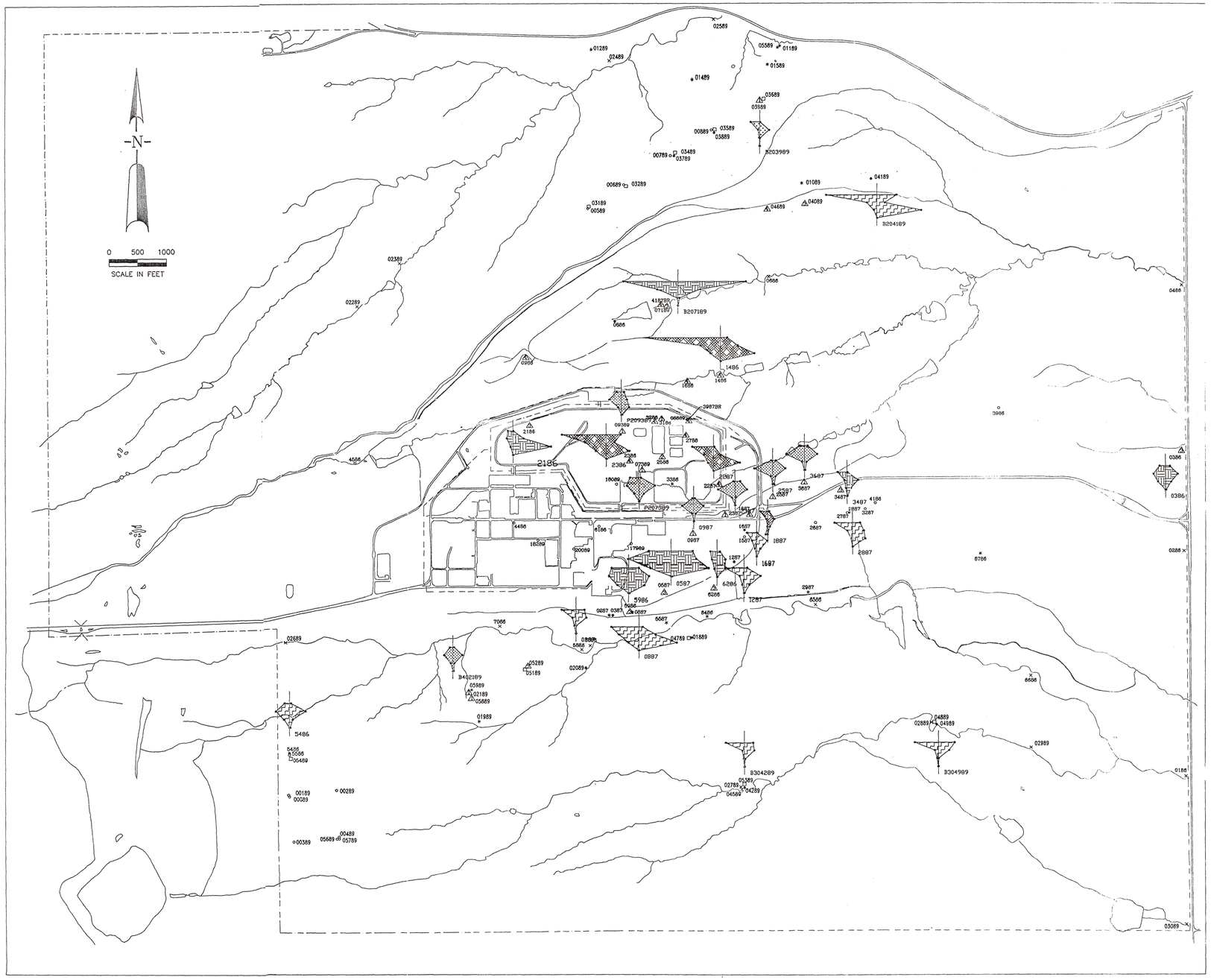
PLATE 4.1–1

ADMIN RECORD
OCTOBER 1993

OU2RI307 1=1000

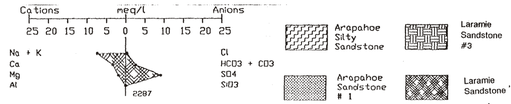
OU02-A-001580

OU02-A-001580



EXPLANATION

- ○ ROCKY FLATS ALLUVIUM WELLS
- X VALLEY FILL ALLUVIUM WELLS
- * COLLUVIUM WELLS
- ● ARAPAHOE FORMATION SILTY SAND WELLS
- □ WEATHERED CLAYSTONE
- △1 ARAPAHOE FORMATION SANDSTONE #1 WELLS
- △2-△5 LARAMIE FORMATION SANDSTONE WELLS (PREVIOUSLY REFFERED TO AS ARAPAHOE FORMATION SANDSTONE #2 – #5)



SOURCE:
BACKGROUND GEOCHEMICAL CHARACTERIZATION REPORT
USDOE, ROCKY FLATS PLANT – GOLDEN, COLORADO 9/15/92

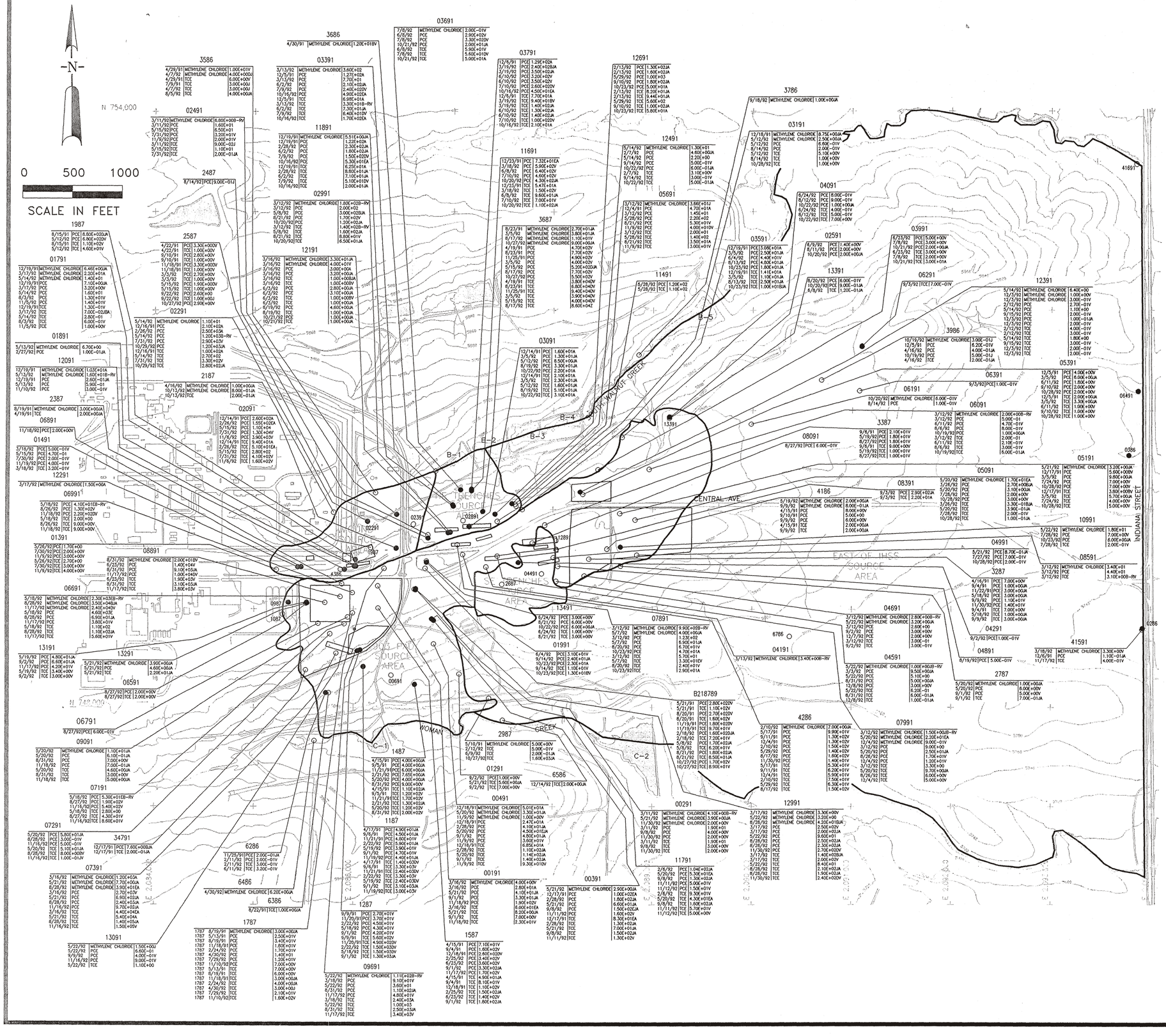
U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

STIFF DIAGRAMS FOR BACKGROUND GROUNDWATER IN THE ARAPAHOE AND LARAMIE FORMATIONS

PLATE 4.1-2 OCTOBER 1993

0U2RI308 1=1000



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

76292 ← LOCATION

2/26/92 — SAMPLE DATE; ANALYTE; ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

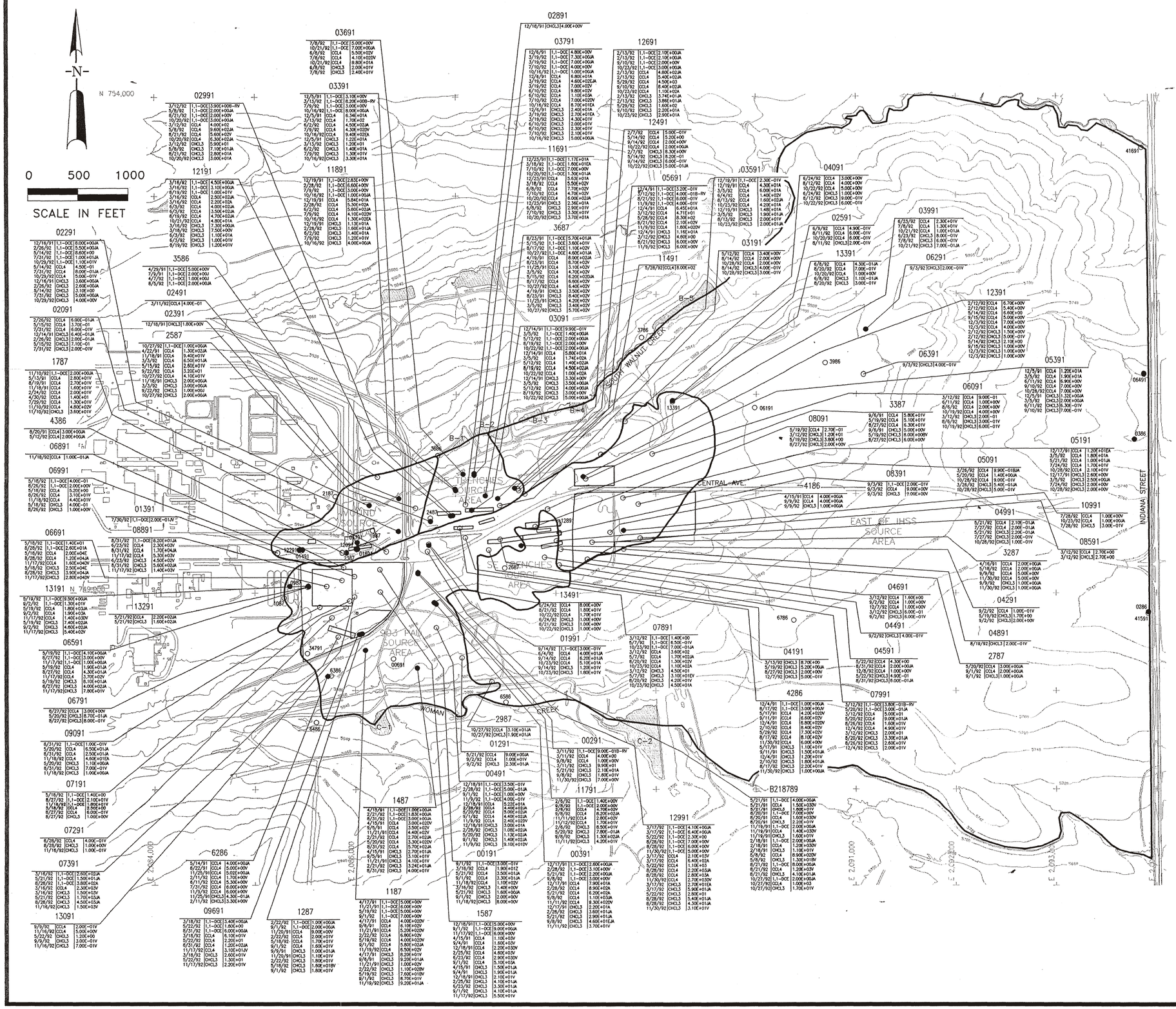
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

VOLATILE ORGANIC COMPOUNDS
COCs (METHYLENE CHLORIDE - TRICHLOROETHENE)
UHSU GROUNDWATER
(SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-2 APRIL 1995

0402-A-001580



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

76292 ← LOCATION
2/26/92 ← SAMPLE DATE
ANALYTE ← ANALYTE
ANALYTE CONCENTRATION (ug/l) LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

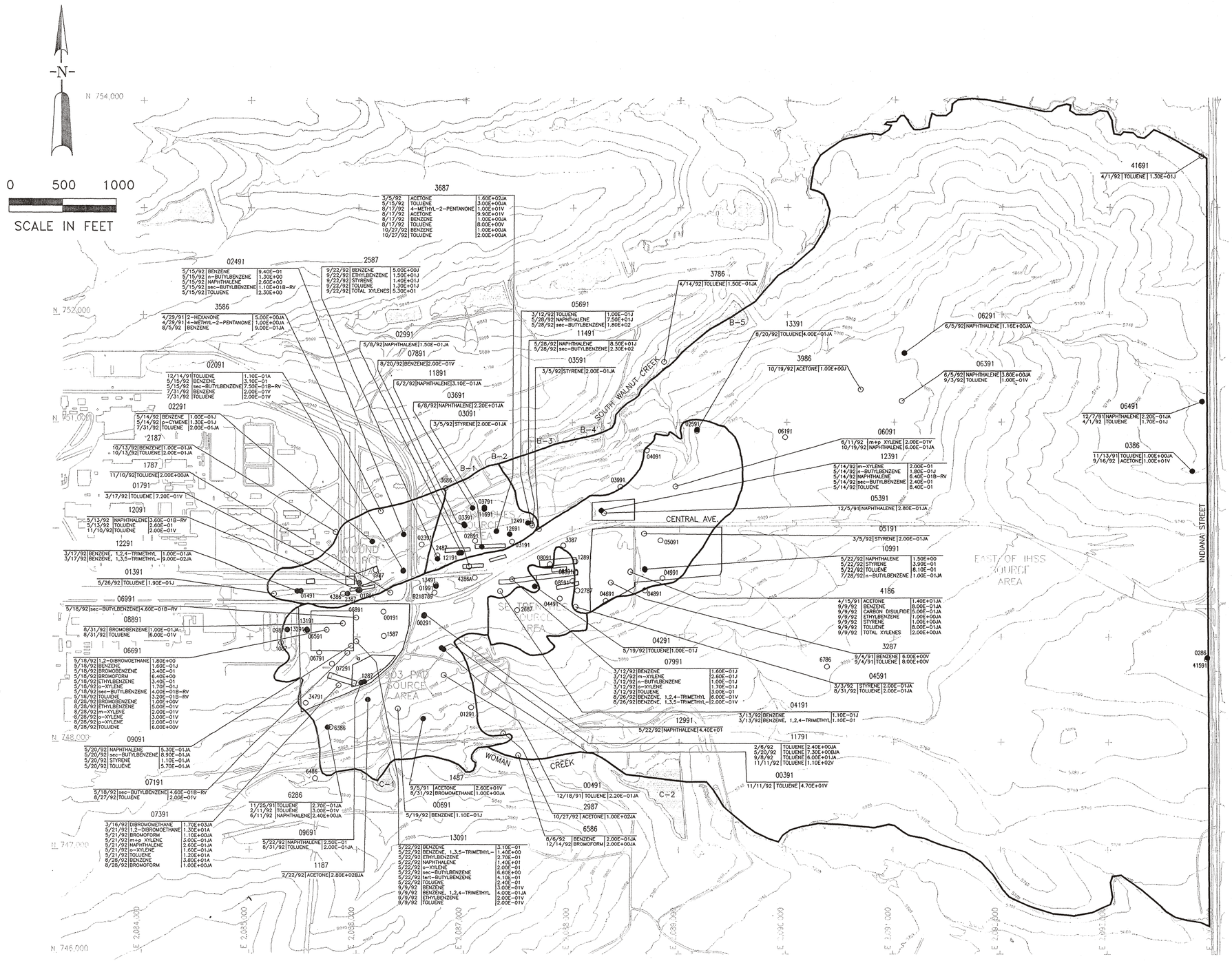
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

VOLATILE ORGANIC COMPOUNDS
COCs (1,1-DCE - CHCl3)
UHSU GROUNDWATER
SECOND QUARTER 1991 - FOURTH QUARTER 1992

PLATE 4.4-1 APRIL 1995

OU2RI622 1=500



EXPLANATION

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

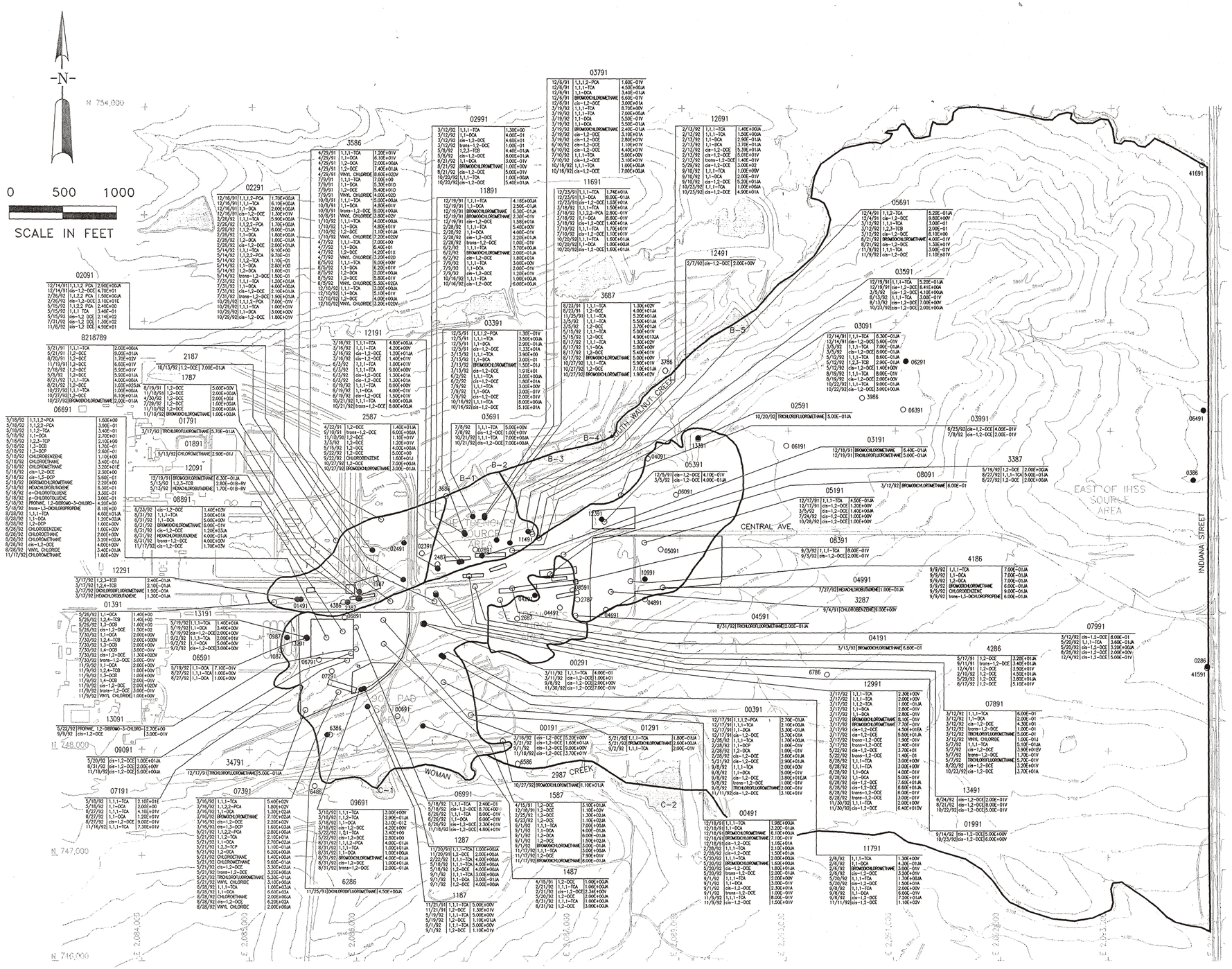
OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

VOLATILE ORGANIC COMPOUNDS (NON-CHCs AND NON-COCs) UHSU GROUNDWATER (SECOND QUARTER 1991-FOURTH QUARTER 1992)

PLATE 4.4-4 APRIL 1995

OU2RI621 1=500

OU2-A-00/580



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

76292 ← LOCATION

2/26/92 ← SAMPLE DATE

ANALYTE

ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:

ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2–1.

NOTE:

ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

VOLATILE ORGANIC COMPOUNDS CHLORINATED HYDROCARBONS (NON – COCs) UHSU GROUNDWATER (SECOND QUARTER 1991–FOURTH QUARTER 1992)

PLATE 4.4–3 APRIL 1995

OU2RI612 1=500

EXPLANATION

SS200193 — BIASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

SS200093 — GRID-BASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

OU-2 BOUNDARY

SOURCE AREA BOUNDARIES

NOTE:
ALL ANALYTE ACTIVITIES ARE REPORTED IN ug/kg (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PESTICIDES/PCBs IN SURFACE SOILS

PLATE 4.2-2 APRIL 1995

OU2RI604 1=500

0402-A-001580

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

46692 ← LOCATION
2/26/92
SAMPLE DATE
ANALYTE
ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

(V) – VOLATILE ORGANIC COMPOUND
(SV) – SEMIVOLATILE ORGANIC COMPOUND

NOTES:

1. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL.
2. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.
3. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

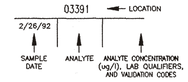
ORGANIC COMPOUNDS IN LHSU GROUNDWATER (SECOND QUARTER 1991 – THIRD QUARTER 1993)

PLATE 4.5-1 APRIL 1995

OU2RI528 1=500

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA



NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

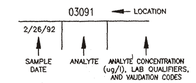
PESTICIDES/PCBs UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-6 APRIL 1995

OU2RI527 1=500

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA



NOTE:

ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

SEMIVOLATILE ORGANIC COMPOUNDS UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-5 APRIL 1995

OU2RI526 1=500

0402-A-001580

-N-

0 500 1000

SCALE IN FEET

N 754,000

N 752,000

N 750,000

N 749,000

N 748,000

N 747,000

N 746,000

E 2,083,000

E 2,084,000

E 2,085,000

E 2,086,000

E 2,087,000

E 2,088,000

E 2,089,000

E 2,090,000

E 2,091,000

E 2,092,000

E 2,093,000

E 2,094,000

SOUTH WALNUT CREEK

WOMAN CREEK

CENTRAL AVE

INDIANA STREET

B-1

B-2

B-3

B-4

B-5

C-1

C-2

NE TRENCHES SOURCE AREA

MOUND SOURCE AREA

SE TRENCHES SOURCE AREA

903 PAD SOURCE AREA

EAST OF IHSS SOURCE AREA

3486

10/7/91	U	2.26E+02V
1/10/92	U	2.19E+02V
4/7/92	U	2.34E+02V
8/5/92	U	2.34E+02JA
12/1/92	U	2.51E+02V
10/7/91	Sr	2.80E+03V
1/10/92	Sr	2.64E+03V
4/7/92	Sr	2.71E+03V
8/5/92	Sr	3.11E+03EJA
12/1/92	Sr	2.80E+03V

2287

8/6/91	As	1.30E+01
10/16/91	As	1.30E+01WJA
1/29/92	As	1.14E+01SV
4/16/92	As	1.03E+01WJA
7/24/92	As	9.40E+00BNJA
10/13/92	As	1.05E+01V
2/4/93	As	1.03E+01V
10/19/91	Sr	1.06E+03V
1/29/92	Sr	1.20E+03V
4/16/92	Sr	1.23E+03V
7/24/92	Sr	1.24E+03V
10/13/92	Sr	1.35E+03V
2/4/93	Sr	1.27E+03V

46692

9/24/92	Al	2.51E+04JA
12/17/92	Al	2.95E+04+JA
9/24/92	Be	8.20E+00JA
12/17/92	Be	8.20E+00BV
9/24/92	Fe	2.57E+04V
12/17/92	Fe	3.18E+04V
9/24/92	Mn	3.44E+02V
12/17/92	Mn	3.58E+02V
9/24/92	Pb	1.93E+01V
12/17/92	Pb	2.41E+01V
9/24/92	Sr	5.30E+00JA
12/17/92	Sr	4.00E+00BV

23293

46892

22593

23193

8/17/93 Pb 2.55E+01*

3487

9/5/91	Al	1.66E+04V
11/20/91	Al	9.77E+03V
9/5/91	Fe	1.16E+04V
11/20/91	Fe	1.15E+04V
9/5/91	Pb	1.50E+01V
11/20/91	Pb	1.86E+01V

3187

1687

22093

8/17/93	U	2.00E+02V
8/17/93	Mn	8.45E+02Y
8/17/93	Sr	1.76E+02NV

22193

6/2/93	Al	19.37E+03Y
6/2/93	Al	1.30E+04V
8/16/93	Al	7.62E+03Y
6/2/93	Fe	1.20E+04V
6/2/93	Fe	1.48E+04V
8/16/93	Fe	1.15E+04Y
8/16/93	Mn	3.54E+02Y
6/2/93	Pb	1.44E+01V

4587

8/16/91	As	9.00E+00BV
12/11/91	As	8.00E+00BV
6/23/92	As	9.30E+00BV
10/29/92	As	1.12E+01V
8/16/91	Mn	4.28E+02V
8/16/92	Mn	3.13E+02DV

22193

8/14/93	Al	1.38E+04
8/17/93	Al	5.84E+04V
8/14/93	Fe	3.07E+04
8/17/93	Fe	6.50E+04V
8/14/93	U	1.28E+02
8/17/93	U	1.54E+02V
8/14/93	Mn	9.12E+02
8/17/93	Mn	1.83E+03V
8/14/93	Pb	2.65E+01
8/17/93	Pb	5.79E+01V
8/14/93	Sr	1.14E+03
8/17/93	Sr	1.35E+03V

3087

B217289

EXPLANATION

3786 ○ ALLUVIAL MONITORING WELL

3087 ● BEDROCK MONITORING WELL

4286A ○ ABANDONED MONITORING WELL

INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

22293 ← LOCATION

2/26/92 ← SAMPLE DATE

ANALYTE

ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE

3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL. ANALYTES REPORTED ABOVE UHSU BSLs ARE SHOWN

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC- UNFILTERED METALS (ALUMINUM - ZINC) LHSU GROUNDWATER (SECOND QUARTER 1991 - THIRD QUARTER 1993)

PLATE 4.5-5 APRIL 1995

OU2RI525 1-500

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

22293 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE CONCENTRATION (ug/l). LAB QUALIFIERS, AND VALIDATION CODES

NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.
2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE
3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL.

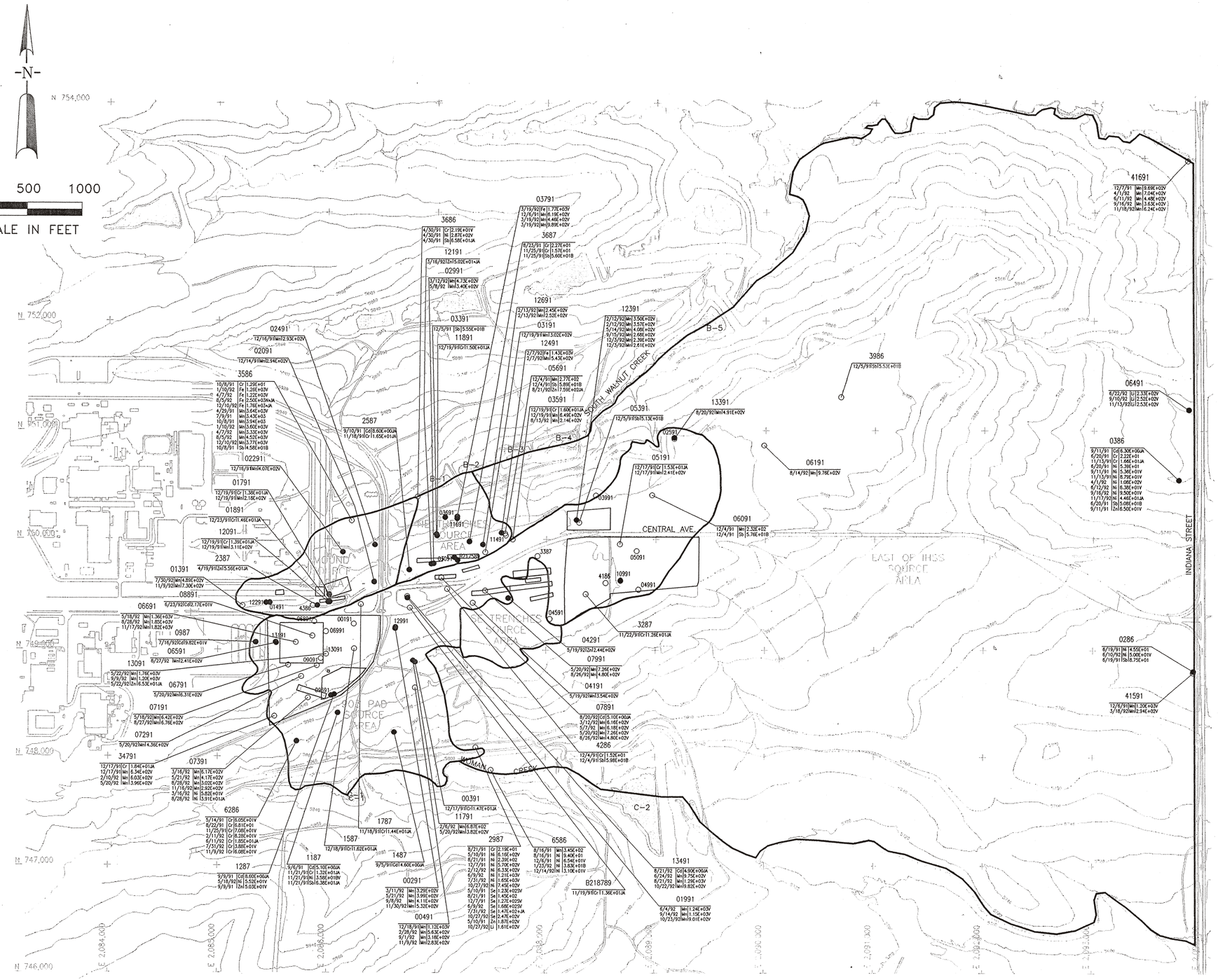
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED METALS (NUTRIENTS AND COMMON ROCK FORMING ELEMENTS) LHSU GROUNDWATER (SECOND QUARTER 1991 - THIRD QUARTER 1993)

PLATE 4.5-6 APRIL 1995

OU2RI524 1=500



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

76292 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED METALS (ALUMINUM - ZINC) UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-7 APRIL 1995

OU2RI523 1=500

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

13091 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED METALS (NUTRIENTS AND COMMON ROCK FORMING ELEMENTS) UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-9 APRIL 1995

EXPLANATION

3786 ○ ALLUVIAL MONITORING WELL

3087 ● BEDROCK MONITORING WELL

4286A ○ ABANDONED MONITORING WELL

INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

SOURCE AREA

76292 ← LOCATION

2/26/92 — SAMPLE DATE; ANALYTE; ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

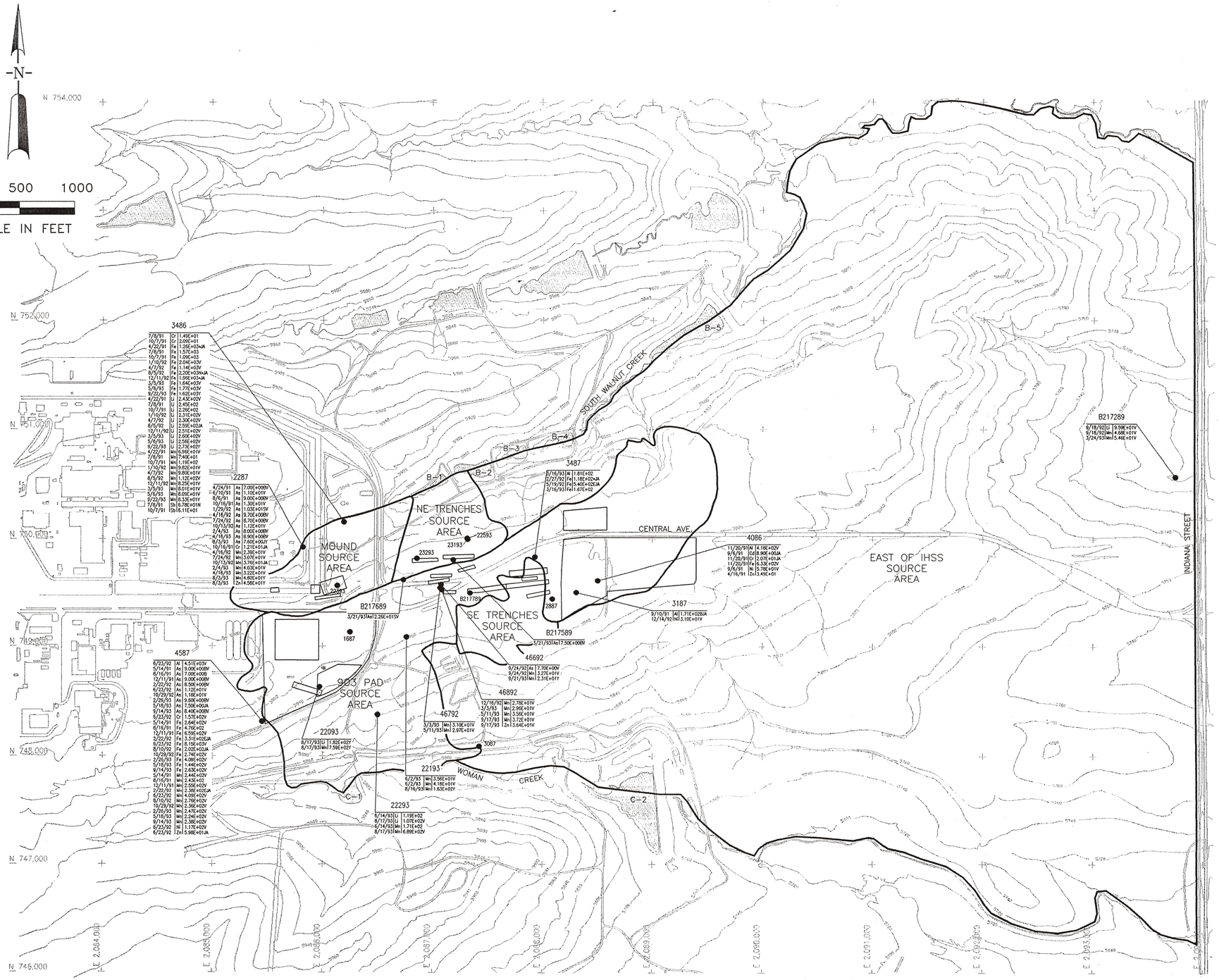
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED METALS (Ba, Ca, Sr) UHSU GROUNDWATER (SECOND QUARTER 1991 – FOURTH QUARTER 1992)

PLATE 4.4-8 APRIL 1995

OU2RI521 1=500



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

76292 ← LOCATION

2/26/92 | Mn | 3.59E+01V

SAMPLE DATE | ANALYTE | ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.
2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE
3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED METALS (ALUMINUM - ZINC) LHSU GROUNDWATER (SECOND QUATER 1991 - THIRD QUARTER 1993)

PLATE 4.5-2 APRIL 1995

OU2RI520 1=500

EXPLANATION

3786 ○ ALLUVIAL MONITORING WELL

3087 ● BEDROCK MONITORING WELL

4286A ○ ABANDONED MONITORING WELL

INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

22293 ← LOCATION

2/26/92

SAMPLE DATE | ANALYTE | ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.
2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.
3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

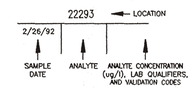
PCOC FILTERED METALS
(NUTRIENTS AND COMMON ROCK FORMING ELEMENTS)
LHSU GROUNDWATER
(SECOND QUARTER 1991 - THIRD QUARTER 1993)

PLATE 4.5-4 APRIL 1995

OU2RI519 1=500

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION



NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.
2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.
3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED METALS (Ba, Ca, AND Sr) LHSU GROUNDWATER (SECOND QUARTER 1991 - THIRD QUARTER 1993)

PLATE 4.5-3 APRIL 1995

OU2RI518 1=500

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

05391 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE ACTIVITY (pCi/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE ACTIVITIES ARE REPORTED IN pCi/l. ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

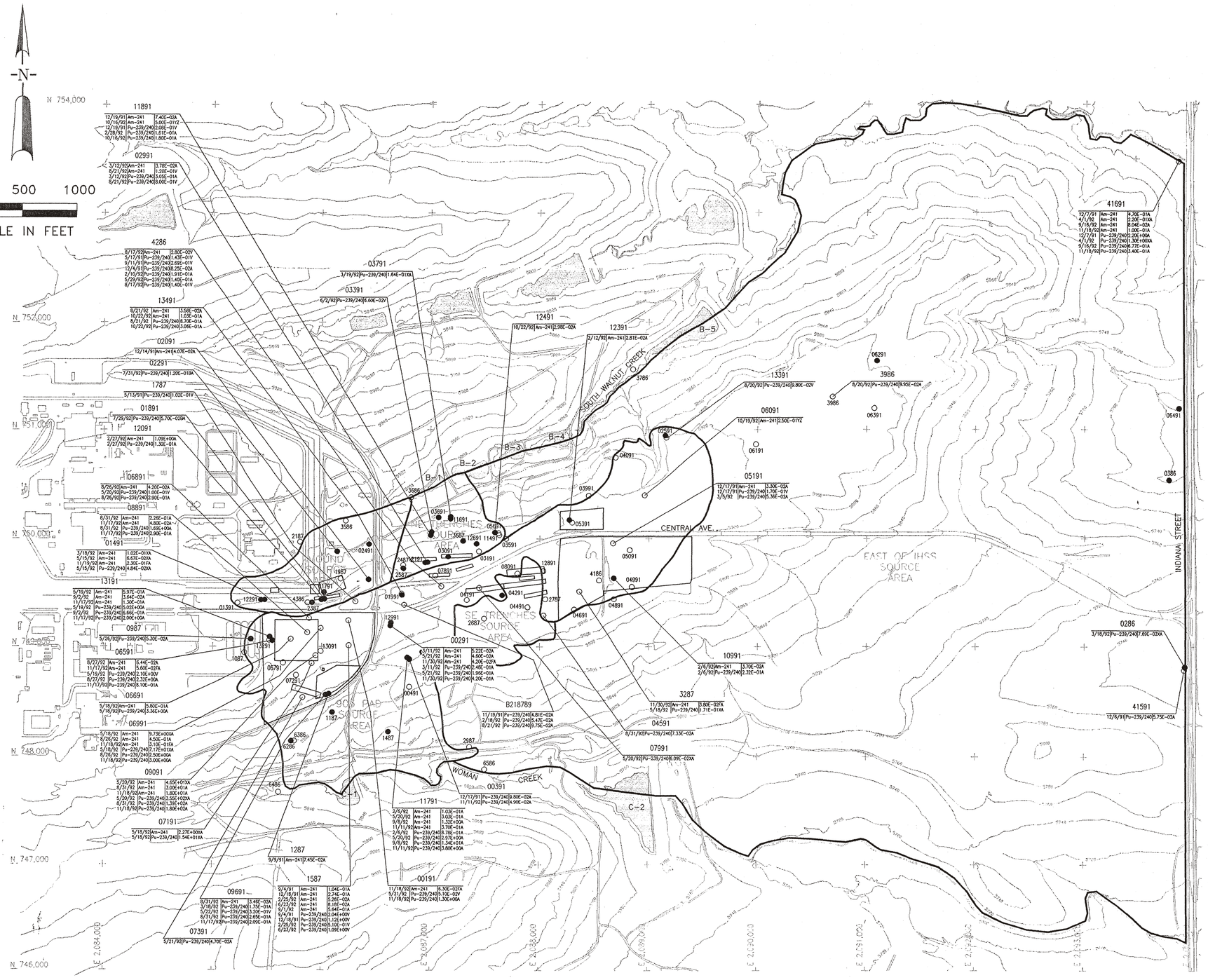
NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED RADIONUCLIDES (NON-ACTINIDES) UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-18 APRIL 1995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N 754,000
0 500 1000
SCALE IN FEET
N 752,000
N 751,000
N 750,000
N 749,000
N 748,000
N 747,000
N 746,000
E 2,034,000
E 2,037,000
E 2,038,000
E 2,039,000
E 2,040,000
E 2,041,000
E 2,042,000
E 2,043,000
B-1
B-2
B-3
B-4
B-5
C-2
SOUTH WALNUT CREEK
WOMAN CREEK
CENTRAL AVE.
INDIANA STREET
EAST OF IHSS SOURCE AREA
SE TRENCHES SOURCE AREA
903 PAD SOURCE AREA
POND B-5 SOURCE AREA
11891
12/19/91|Am-241|7.40E-02A
10/16/92|Am-241|5.00E-01YZ
12/19/91|Pu-239/240|2.08E-01V
2/28/92|Pu-239/240|1.61E-01A
10/16/92|Pu-239/240|1.80E-01A
02991
3/12/92|Am-241|3.78E-02A
8/21/92|Am-241|1.20E-01V
3/12/92|Pu-239/240|3.05E-01A
8/21/92|Pu-239/240|8.00E-01V
4286
8/17/92|Am-241|2.80E-02V
5/17/91|Pu-239/240|1.43E-01V
9/11/91|Pu-239/240|2.69E-01V
12/4/91|Pu-239/240|8.25E-02A
2/10/92|Pu-239/240|1.31E-01A
5/29/92|Pu-239/240|1.40E-01A
8/17/92|Pu-239/240|1.40E-01V
03791
3/19/92|Pu-239/240|1.64E-01XA
03391
6/2/92|Pu-239/240|6.60E-02V
13491
8/21/92 Am-241|3.58E-02A
10/22/92|Am-241|1.03E-01A
8/21/92 Pu-239/240|8.70E-01A
10/22/92|Pu-239/240|3.06E-01A
02091
12/14/91|Am-241|4.07E-02A
02291
7/31/92|Pu-239/240|1.20E-01BA
1787
5/13/91|Pu-239/240|1.02E-01V
01891
7/29/92|Pu-239/240|5.70E-02BA
12091
2/27/92|Am-241|1.09E+00A
2/27/92|Pu-239/240|1.30E-01A
06891
8/26/92|Am-241|4.20E-02A
5/20/92|Pu-239/240|1.00E-01V
8/26/92|Pu-239/240|2.90E-01A
08891
8/31/92 Am-241|2.26E-01A
11/17/92|Am-241|4.80E-02A
8/31/92 Pu-239/240|1.69E+00A
11/17/92|Pu-239/240|3.96E-01A
01491
3/18/92 Am-241|1.02E-01XA
5/15/92 Am-241|6.47E-02XA
11/19/92|Am-241|2.50E-01A
5/15/92 Pu-239/240|4.84E-02XA
13191
5/19/92 Am-241|5.97E-01A
9/2/92 Am-241|1.64E-01A
11/17/92|Am-241|1.30E-01A
5/19/92 Pu-239/240|5.02E+00A
9/2/92 Pu-239/240|6.66E-01A
11/17/92|Pu-239/240|2.00E+00A
0987
5/26/92|Pu-239/240|5.30E-02A
06591
8/27/92 Am-241|6.44E-02A
11/17/92|Am-241|5.60E-02FA
5/19/92 Pu-239/240|2.10E+00V
8/27/92 Pu-239/240|2.32E+00A
11/17/92|Pu-239/240|8.10E-01A
06691
5/18/92|Am-241|5.80E-01A
5/18/92|Pu-239/240|3.35E+00A
06991
5/18/92 Am-241|9.75E+000A
8/26/92 Am-241|4.50E-01A
11/5/92|Am-241|3.10E-01FA
5/18/92 Pu-239/240|1.17E+01XA
8/26/92 Pu-239/240|2.50E+00A
11/18/92|Pu-239/240|3.00E+00A
09091
5/20/92 Am-241|4.65E+01XA
8/31/92 Am-241|3.00E+01A
11/18/92|Am-241|1.80E+01A
5/20/92 Pu-239/240|3.55E+02XA
8/31/92 Pu-239/240|1.35E+02A
11/18/92|Pu-239/240|1.90E+00A
07191
5/18/92|Am-241|8.27E+000A
5/18/92|Pu-239/240|1.54E+01XA
1287
9/9/91|Am-241|7.45E-02A
09691
5/31/92 Am-241|3.45E-02A
3/18/92 Pu-239/240|1.75E-01A
5/20/92 Pu-239/240|3.20E-01V
8/31/92 Pu-239/240|2.85E-01A
11/17/92|Pu-239/240|2.09E-01A
07391
5/21/92|Pu-239/240|4.70E-02A
1587
9/4/91 Am-241|1.04E-01A
12/19/91|Am-241|2.74E-01A
2/25/92 Am-241|5.28E-02A
6/23/92 Am-241|8.18E-02A
9/3/92 Am-241|5.64E-01A
9/4/91 Pu-239/240|2.04E+00V
12/19/91|Pu-239/240|1.12E+00V
2/25/92 Pu-239/240|5.10E-01V
6/23/92 Pu-239/240|1.09E+00V
12491
10/22/92|Am-241|2.98E-02A
12391
12/12/92|Am-241|2.81E-02A
3986
3786
3586
3686
3891
1691
11491
12691
2187
2487
2587
2687
2787
2887
2987
3087
3187
3287
3387
3487
3587
3687
3787
3887
3987
4087
4187
4286
4386
4486
4586
4686
4786
4886
4986
5086
5186
5286
5386
5486
5586
5686
5786
5886
5986
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6686
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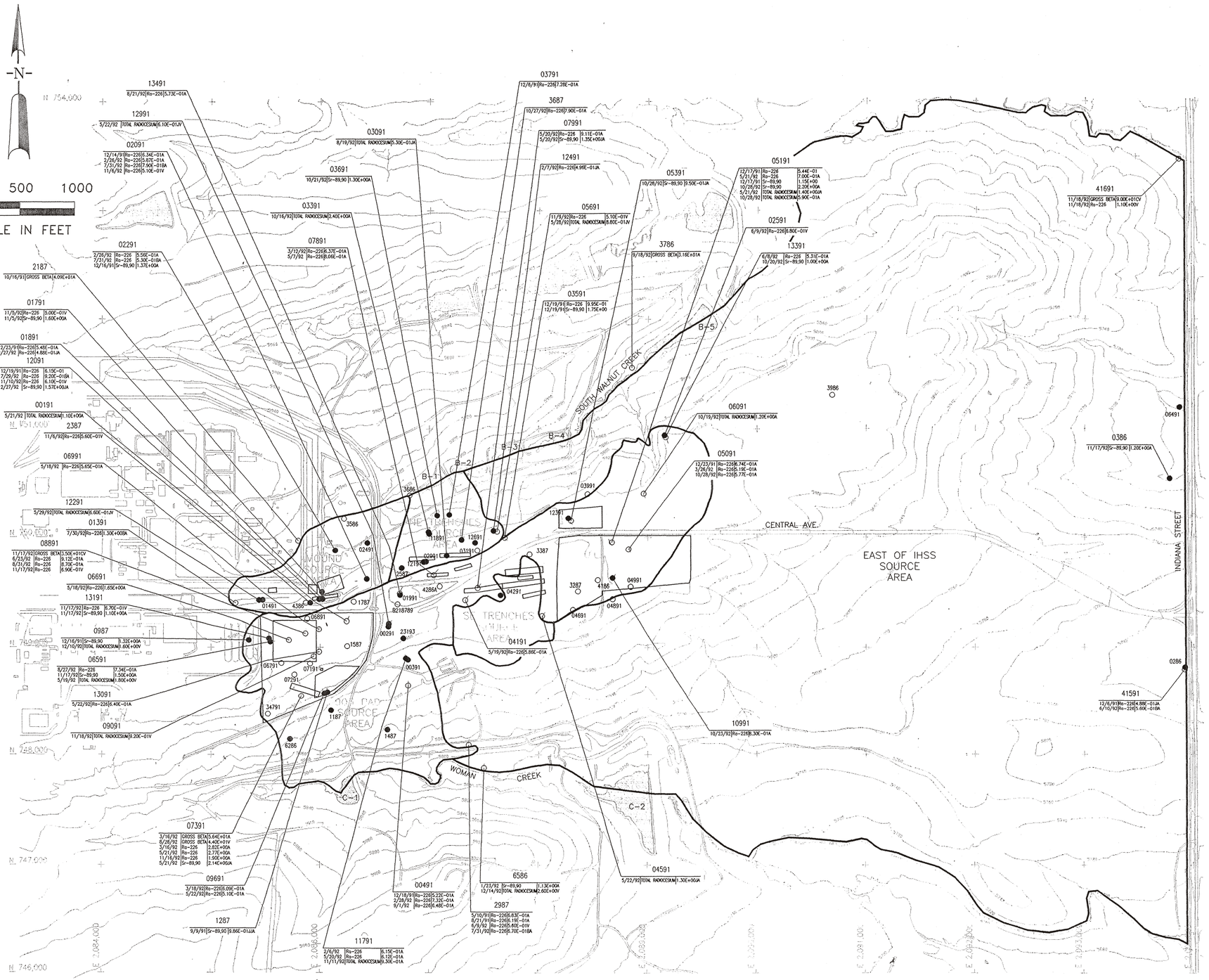


EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

01791 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE ACTIVITY (pCi/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE ACTIVITIES ARE REPORTED IN pCi/l. ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED RADIONUCLIDES (NON-ACTINIDES) UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-16 APRIL 1995

OU2RI515 1=500

0002-A-001580

-N-

0 500 1000

SCALE IN FEET

N 754,000

N 752,000

N 750,000

N 748,000

N 747,000

N 746,000

E 2,084,000

E 2,085,000

E 2,086,000

E 2,087,000

E 2,088,000

E 2,089,000

E 2,090,000

E 2,091,000

E 2,092,000

B-1

B-2

B-3

B-4

B-5

C-1

C-2

SOUTH WALNUT CREEK

WOMAN CREEK

CENTRAL AVE.

INDIANA STREET

NE TRENCHES SOURCE AREA

POND SOURCE AREA

903 PAD SOURCE AREA

SE TRENCHES SOURCE AREA

EAST OF MCSS SOURCE AREA

06991
5/18/92|Am-241 2.64E-01A
5/18/92|Pu-239/240 1.17E-01A

01491
3/18/92|Am-241 4.24E-02A
3/16/92|Pu-239/240 8.53E-04UA

09091
5/20/92|Am-241 2.13E+01A
5/20/92|Pu-239/240 8.13E-01A

07191
5/18/92|Am-241 1.48E-01A
5/18/92|Pu-239/240 9.29E-02A

07391
8/28/92|U-235 1.50E+00V
3/16/92|U-238 7.57E+01A

1787
4/30/92|Pu-239/240 8.40E-03UA

03791
5/19/92|Pu-239/240 2.12E-03JA
3/19/92|Pu-239/240 6.74E-03JA

12391
5/14/92|Pu-239/240 6.31E-04JA

3287
5/18/92|Pu-239/240 5.65E-02A

41691
4/1/92|Am-241 3.45E-03A
4/1/92|Pu-239/240 3.45E-03JA

0286
3/18/92|Pu-239/240 2.77E-04JA

3786
3986
06491
0386
41591
3686
03691
03391
11691
12491
5691
5591
3591
3191
3387
05191
05091
10991
4186
4991
07891
4286A
04291
04591
04191
B218789
12991
00291
13491
01991
2587
12191
02991
02891
02291
02491
02091
2187
3586
1791
4386
01391
2387
11891
5687
12691
06891
00191
13091
1587
0987
13191
06591
08891
06791
07291
08291
1287
34791
1187
8286
1487
11791
00391
00491
2987
6586
05591
03991
06091
02591
13391

03791 ← LOCATION
2/26/92
SAMPLE DATE
ANALYTE
ANALYTE ACTIVITY (pCi/l), LAB QUALIFIERS, AND VALIDATION CODES

EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

NOTE:
ALL ANALYTE ACTIVITIES ARE REPORTED IN pCi/l. ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

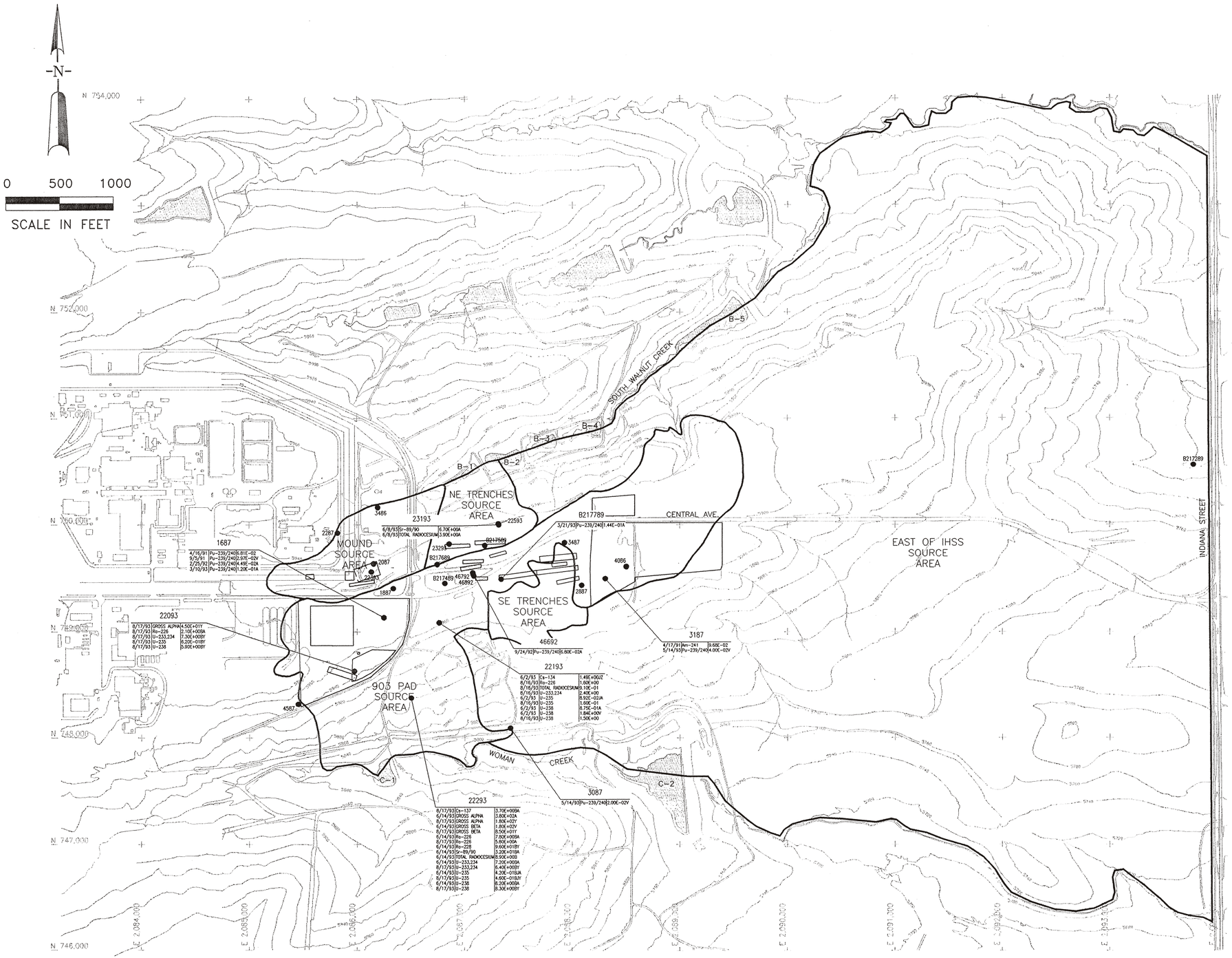
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC FILTERED RADIONUCLIDES (ACTINIDES) UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-15 APRIL 1995

OU2RI514 1=500



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

22093 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE ACTIVITY (pCi/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE

3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL. ANALYTES REPORTED ABOVE UHSU BSLs ARE SHOWN

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED RADIONUCLIDES LHSU GROUNDWATER (SECOND QUARTER 1991 – THIRD QUARTER 1993)

PLATE 4.5-8 APRIL 1995

0U2RI513 1=500

EXPLANATION

SS200193 — BIASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

SS200093 — GRID-BASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

OU-2 BOUNDARY

SOURCE AREA BOUNDARIES

120 ← LOCATION

3/18/93 ← SAMPLE DATE

ANALYTE

ANALYTE ACTIVITY (pCi/g), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE ACTIVITIES ARE REPORTED IN pCi/g. ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BSL OF THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

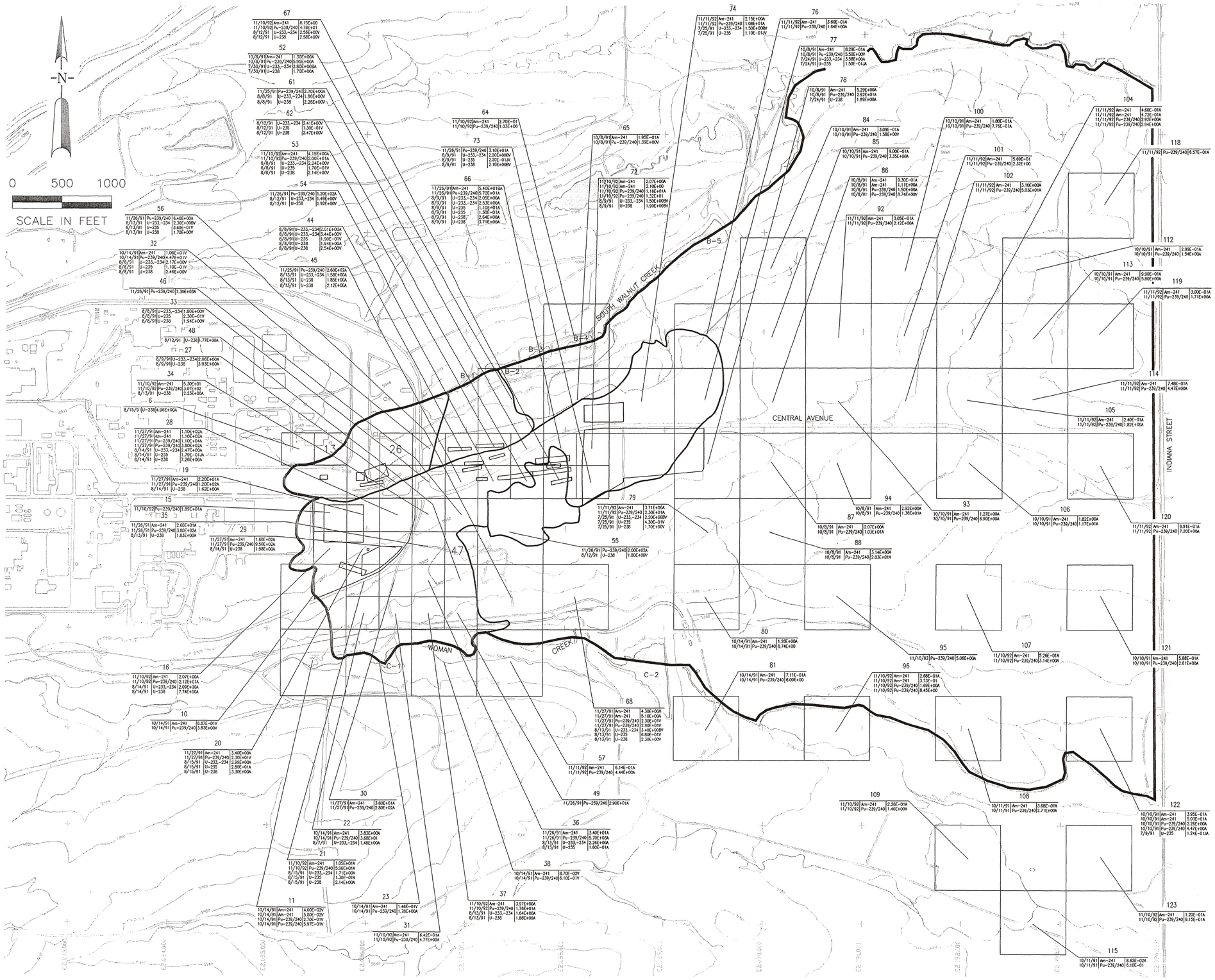
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC RADIONUCLIDES
(NON-ACTINIDES)
IN SURFACE SOILS

PLATE 4.2-5 APRIL 1995

OU2RI512 1=500



EXPLANATION

108 — 10 ACRE SURFACE SOIL SAMPLING PLOT LOCATIONS (1991 CDH AND RFP SAMPLING METHOD)

9 — 2.5 ACRE SURFACE SOIL SAMPLING PLOT LOCATIONS (1991 CDH AND RFP SAMPLING METHOD)

OU-2 BOUNDARY

SOURCE AREA BOUNDARIES

100 ← LOCATION

3/15/91 — SAMPLE DATE

ANALYTE

ANALYTE ACTIVITY (pCi/g), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:

ALL ANALYTE ACTIVITIES ARE REPORTED IN pCi/g. ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:

ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BSL OF THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

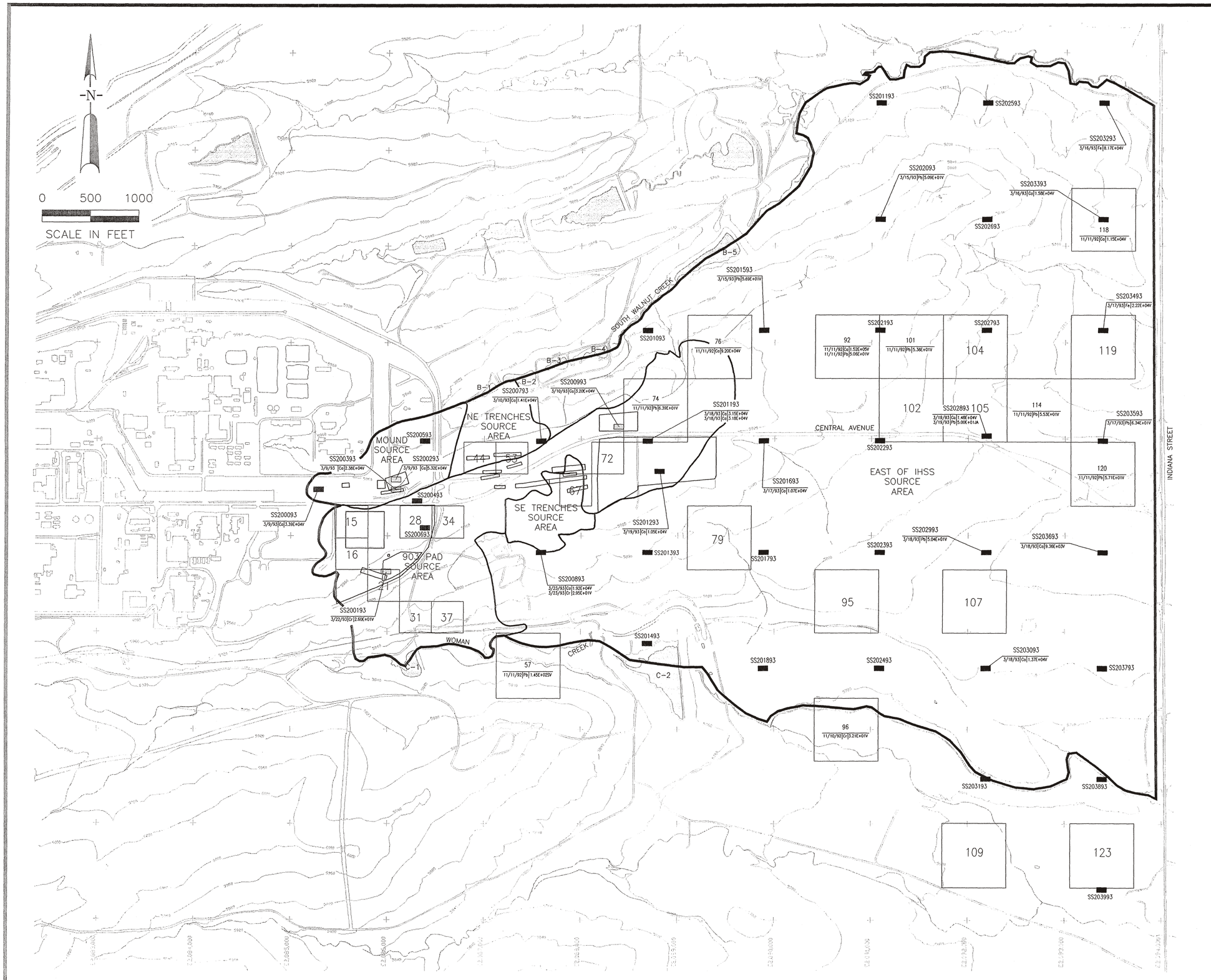
PCOC ACTINIDES
IN SURFACE SOILS

PLATE 4.2-4

APRIL 1995

OU2RI511 1=500

0402-A-001580



EXPLANATION

SS200193 — BIASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

SS200093 — GRID-BASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

OU-2 BOUNDARY

SOURCE AREA BOUNDARIES

108 — 10 ACRE SURFACE SOIL SAMPLING PLOT LOCATIONS (1992 RFP SAMPLING)

9 — 2.5 ACRE SURFACE SOIL SAMPLING PLOT LOCATIONS (1992 RFP SAMPLING)

120 ← LOCATION
3/18/93
SAMPLE DATE
ANALYTE
ANALYTE CONCENTRATION (mg/kg), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN mg/kg (parts per million). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BSL OF THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC METALS
IN SURFACE SOILS

PLATE 4.2-3

APRIL 1995

OU2RI510 1=500

0402-A-00580

-N-

0 500 1000

SCALE IN FEET

N 754,000

N 752,000

N 750,000

N 748,000

N 746,000

E 2,084,000 E 2,085,000 E 2,086,000 E 2,087,000 E 2,088,000 E 2,089,000 E 2,090,000 E 2,091,000 E 2,092,000 E 2,093,000 E 2,094,000

B-1 B-2 B-3 B-4 B-5

SOUTH WALNUT CREEK

WOMAN CREEK

CENTRAL AVE.

INDIANA STREET

NE TRENCHES SOURCE AREA

MOUND SOURCE AREA

SE TRENCHES SOURCE AREA

903 PAD SOURCE AREA

EAST OF IHSS SOURCE AREA

C-1 C-2

3486
4/22/91 GROSS BETA 2.47E+01A
10/7/91 GROSS BETA 1.29E+01A
5/6/93 TOTAL RADIOCESIUM 1.70E+00A
5/6/93 GROSS BETA 1.29E+01A
5/6/93 TOTAL RADIOCESIUM 1.70E+00B
9/22/93 GROSS BETA 1.10E+01Y

2287
4/24/91 SR-89,90 5.53E+00
4/24/91 SR89-90 5.53E+00
6/10/91 GROSS BETA 9.62E+00A
10/13/91 GROSS BETA 9.30E+00A
10/16/91 U-235 6.97E-01A

1687
5/21/93 U-235 2.80E-01A

23193
6/8/93 TOTAL RADIOCESIUM 1.00E+00A

22593

23293

B217588

3487
5/18/93 U-235 2.06E-01A

B217789
3/21/93 TOTAL RADIOCESIUM 3.60E+01

4086

46792
12/16/92 U-233, 234 9.10E+00A
3/3/93 U-233, 234 8.65E+00A
3/3/93 U-235 3.81E-01A

2887
11/22/91 GROSS BETA 1.16E+01A
6/17/91 U-233, 234 9.25E+00
6/17/91 U-235 4.26E-01J

46692
9/24/92 U-235 3.90E-01A

4587
2/22/92 GROSS BETA 1.47E+01A

22193
6/2/93 Am-241 3.64E-03V
6/2/93 Am-241 4.62E-03V
6/2/93 Cs-134 2.37E-01JZ
6/2/93 Pu-239/240 2.25E-03JA
6/2/93 Pu-239/240 3.34E-03JA
8/16/93 TOTAL RADIOCESIUM 8.80E-01

22093
8/17/93 GROSS BETA 1.30E+01Y

3087
5/14/93 Cs-134 1.80E-01V
3/22/93 GROSS BETA 2.29E+00
3/22/93 Ra-228 2.10E-01

B217289
3/24/93 Ra-228 1.40E+00A
12/15/92 U-235 2.20E-01A
3/21/93 U-235 1.80E-01JA
3/21/93 TOTAL RADIOCESIUM 1.60E-01

EXPLANATION

3786 ○ ALLUVIAL MONITORING WELL

3087 ● BEDROCK MONITORING WELL

4286A ○ ABANDONED MONITORING WELL

INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

4587 ← LOCATION
2/26/92
SAMPLE DATE | ANALYTE | ANALYTE ACTIVITY (pCi/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTES:

1. ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

2. ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED EXCEPT 22393 AND 23293, WHICH WERE NOT DEVELOPED DUE TO INSUFFICIENT WATER. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE

3. * WELL 23193 WAS INSTALLED DURING THE RBWP FIELD INVESTIGATION. IT WAS SUBSEQUENTLY IDENTIFIED AS AN UHSU WELL. ANALYTES REPORTED ABOVE UHSU BSLs ARE SHOWN

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Golden, Colorado

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PHASE II RFI/RI REPORT

PCOC FILTERED RADIONUCLIDES LHSU GROUNDWATER (SECOND QUARTER 1991 - THIRD QUARTER 1993)

PLATE 4.5-7 APRIL 1995

OU2RI509 1=500

EXPLANATION

3786 ○ ALLUVIAL MONITORING WELL

3087 ● BEDROCK MONITORING WELL

4286A ○ ABANDONED MONITORING WELL

INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION

SOURCE AREA

76292 ← LOCATION

2/26/92

SAMPLE DATE — ANALYTE — ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:

ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:

ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

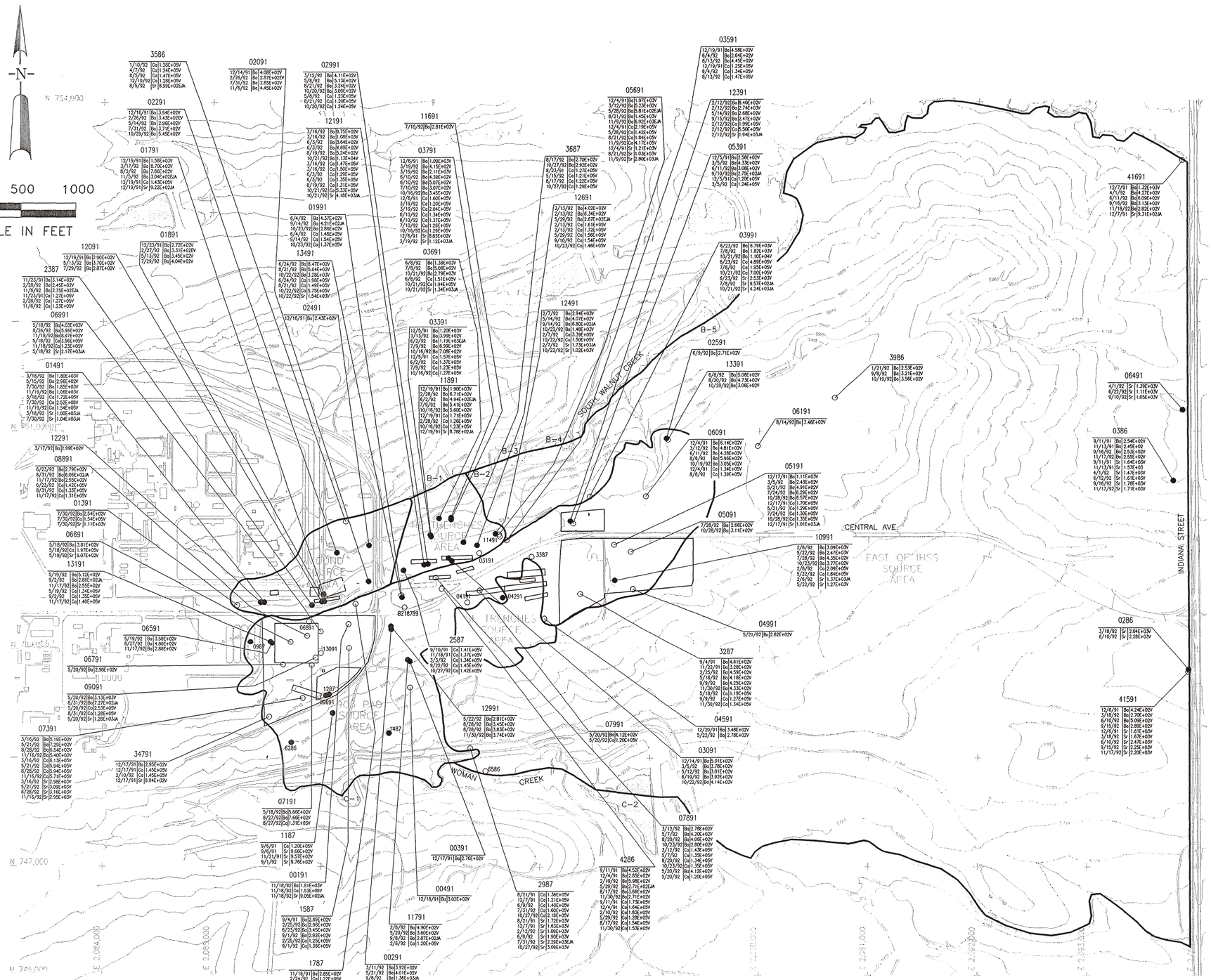
PCOC UNFILTERED METALS NUTRIENT AND COMMON ROCK FORMING ELEMENTS UHSU GROUNDWATER SECOND QUARTER 1991 - FOURTH QUARTER 1992

PLATE 4.4-14 APRIL 1995

OU2RI504 1=500

01602-A-001580

0U02-A-001550



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

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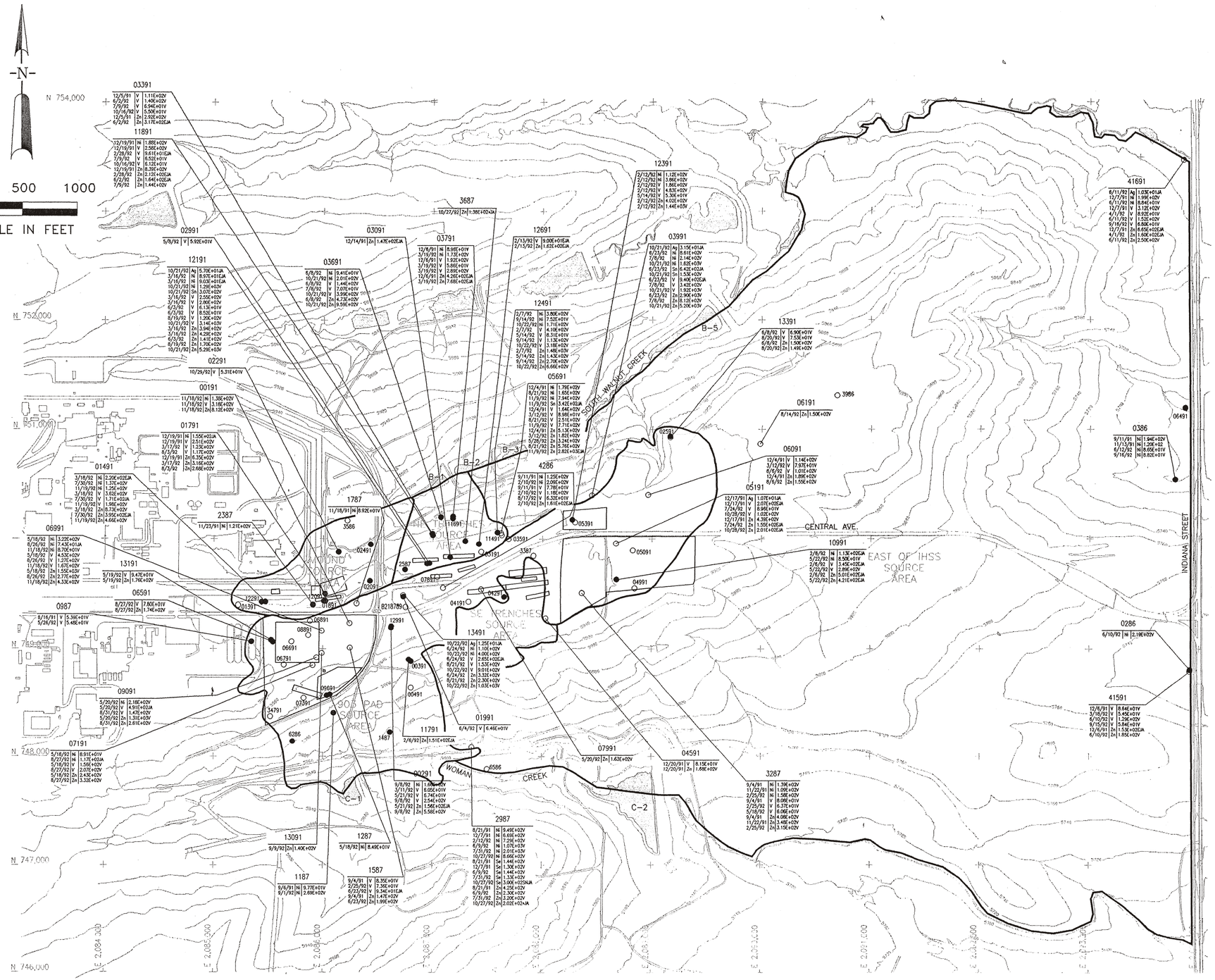
OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED METALS Ba, Ca & Sr UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-13 APRIL 1995

0U2RI503 1=500



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

00191 ← LOCATION
2/28/92
SAMPLE DATE | ANALYTE | ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

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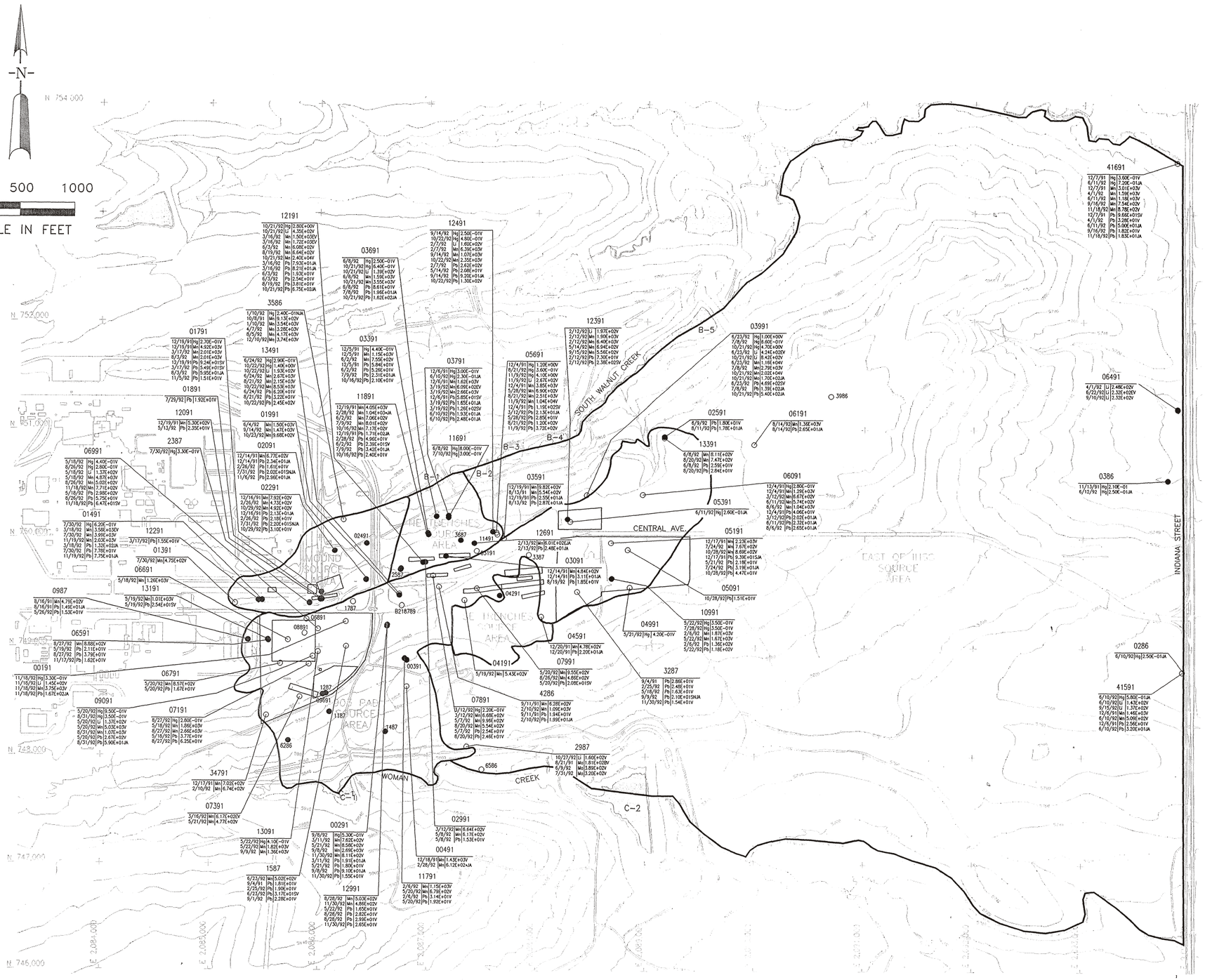
OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED METALS (NICKEL – ZINC) UHSU GROUNDWATER SECOND QUARTER 1991 – FOURTH QUARTER 1992

PLATE 4.4-12 APRIL 1995

OU2RI502 1=500



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

76292 ← LOCATION
2/26/92 ↑ SAMPLE DATE; ↑ ANALYTE; ↑ ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

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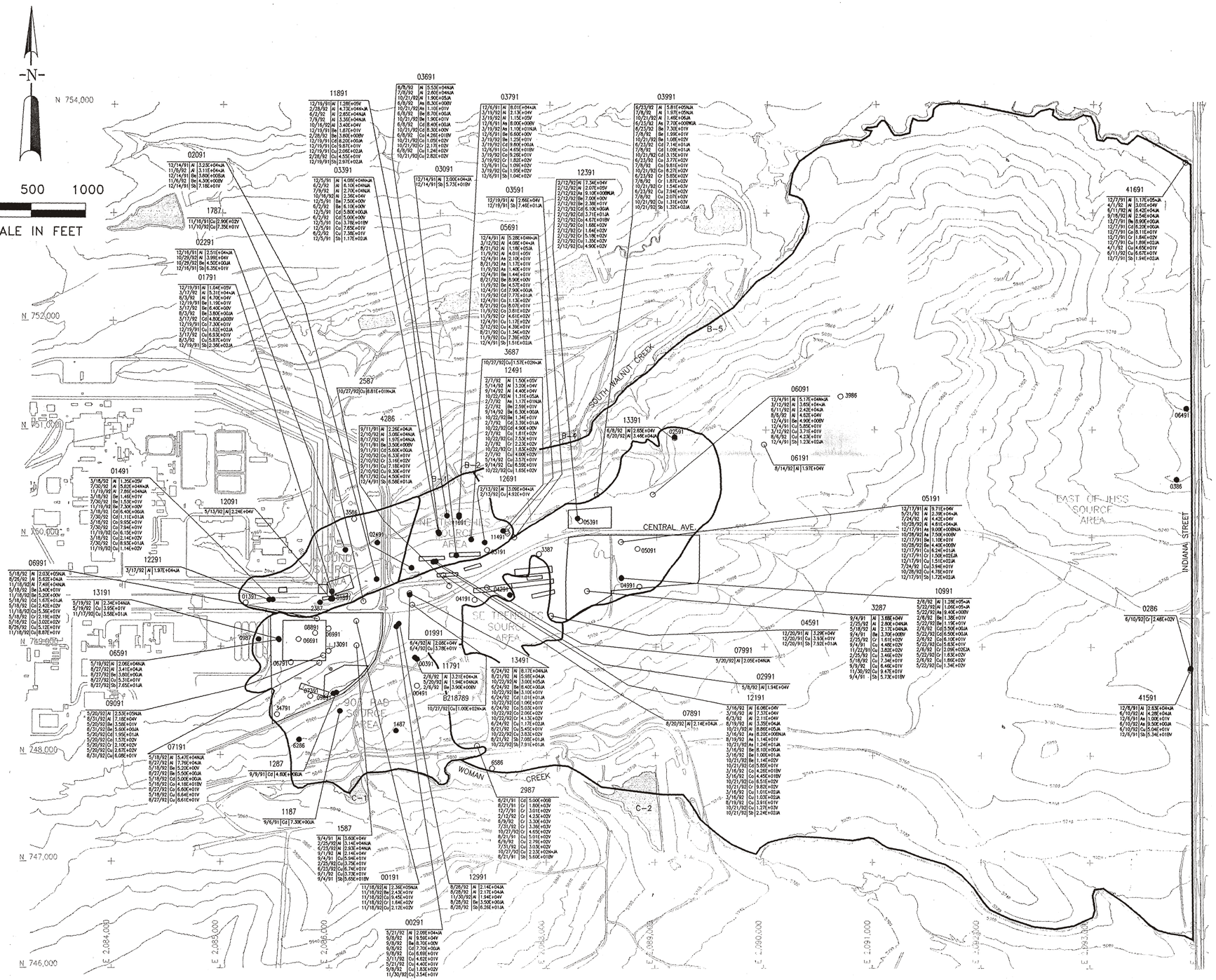
OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED METALS LEAD - MOLYBDENUM UHSU GROUNDWATER (SECOND QUARTER 1991 - FOURTH QUARTER 1992)

PLATE 4.4-11 APRIL 1995

OU2RI501 1=500



EXPLANATION

- 3786 ○ ALLUVIAL MONITORING WELL
- 3087 ● BEDROCK MONITORING WELL
- 4286A ○ ABANDONED MONITORING WELL
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATION
- SOURCE AREA

00191 ← LOCATION

2/26/92 ↑ SAMPLE DATE | ↑ ANALYTE | ↑ ANALYTE CONCENTRATION (ug/l), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE CONCENTRATIONS ARE REPORTED IN ug/l (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED ABOVE THE BACKGROUND MEAN PLUS 2 STANDARD DEVIATIONS.

U.S. DEPARTMENT OF ENERGY
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Golden, Colorado

OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

PCOC UNFILTERED METALS (ALUMINUM – COPPER) UHSU GROUNDWATER SECOND QUARTER 1991 – FOURTH QUARTER 1992

PLATE 4.4-10 APRIL 1995

OU2RI500 1=500

-N-

0 500 1000

SCALE IN FEET

SOUTH WALNUT CREEK

WOMAN CREEK

B-1 B-2 B-3 B-4 B-5

C-1 C-2

NE TRENCHES SOURCE AREA

SE TRENCHES SOURCE AREA

903 PAD SOURCE AREA

MOUND SOURCE AREA

EAST OF IHSS SOURCE AREA

CENTRAL AVENUE

INDIANA STREET

SS200593
3/9/93 BENZO(a)ANTHRACENE 6.60E+01JA
3/9/93 BENZO(a)PYRENE 6.80E+01JA
3/9/93 BENZO(b)FLUORANTHENE 6.30E+01JA
3/9/93 BENZOIC ACID 2.40E+02JA
3/9/93 BENZOIC ACID 2.50E+02JA
3/9/93 CHRYSENE 7.90E+01JA
3/9/93 FLUORANTHENE 2.00E+02JA
3/9/93 FLUORANTHENE 1.30E+02JA
3/9/93 PHENANTHRENE 1.20E+02JA
3/9/93 PYRENE 1.80E+02JA
3/9/93 PYRENE 1.30E+02JA

SS200293
3/9/93 BENZO(a)ANTHRACENE 8.60E+01JA
3/9/93 BENZO(a)PYRENE 8.60E+01JA
3/9/93 BENZO(b)FLUORANTHENE 1.20E+02JA
3/9/93 BENZO(g,h,i)PERYLENE 4.50E+01JA
3/9/93 BENZOIC ACID 8.50E+01JA
3/9/93 BIS(2-ETHYLHEXYL)PHTHALATE 5.20E+01JA
3/9/93 CHRYSENE 1.00E+02JA
3/9/93 FLUORANTHENE 2.00E+02JA
3/9/93 INDENO(1,2,3-cd)PYRENE 4.50E+01JA
3/9/93 PYRENE 1.80E+02JA

SS200493
3/22/93 BENZO(b)FLUORANTHENE 1.10E+02JA
3/22/93 BENZOIC ACID 1.10E+02JA
3/22/93 CHRYSENE 9.30E+01JA
3/22/93 FLUORANTHENE 2.00E+02JA
3/22/93 PHENANTHRENE 1.10E+02JA
3/22/93 PYRENE 1.60E+02JA

SS200093
3/9/93 BENZO(a)ANTHRACENE 7.70E+01JA
3/9/93 BENZO(b)FLUORANTHENE 1.50E+02JA
3/9/93 BENZOIC ACID 5.10E+01JA
3/9/93 BIS(2-ETHYLHEXYL)PHTHALATE 9.70E+01JA
3/9/93 CHRYSENE 1.10E+02JA
3/9/93 FLUORANTHENE 2.10E+02JA
3/9/93 PHENANTHRENE 1.10E+02JA
3/9/93 PYRENE 2.00E+02JA

SS200393
3/9/93 BENZO(a)ANTHRACENE 5.10E+01JA
3/9/93 BENZO(a)PYRENE 6.80E+01JA
3/9/93 BENZO(b)FLUORANTHENE 5.80E+01JA
3/9/93 BENZOIC ACID 6.60E+01JA
3/9/93 CHRYSENE 1.00E+02JA
3/9/93 FLUORANTHENE 1.70E+02JA
3/9/93 PHENANTHRENE 8.30E+01JA
3/9/93 PYRENE 1.70E+02JA

SS200693
3/23/93 BENZOIC ACID 1.90E+02JA
3/23/93 FLUORANTHENE 9.40E+01JA
3/23/93 PYRENE 9.40E+01JA

SS200193
3/22/93 BENZO(a)ANTHRACENE 1.60E+02JA
3/22/93 BENZO(a)PYRENE 1.60E+02JA
3/22/93 BENZO(b)FLUORANTHENE 2.40E+02JA
3/22/93 BENZO(k)FLUORANTHENE 6.90E+01JA
3/22/93 BENZOIC ACID 1.70E+02JA
3/22/93 BIS(2-ETHYLHEXYL)PHTHALATE 5.10E+02Y
3/22/93 CHRYSENE 2.00E+02JA
3/22/93 DI-n-BUTYL PHTHALATE 1.00E+03Y
3/22/93 FLUORANTHENE 3.90E+02JA
3/22/93 PHENANTHRENE 2.30E+02JA
3/22/93 PYRENE 3.50E+02JA

SS201993
3/15/93 BENZOIC ACID 2.20E+02JA

SS202593
3/16/93 BENZOIC ACID 3.30E+02JA

SS203293
3/16/93 BENZOIC ACID 2.30E+02JA

SS202093
3/15/93 BENZOIC ACID 2.90E+02JA
3/15/93 BIS(2-ETHYLHEXYL)PHTHALATE 4.90E+01JA

SS203393
3/16/93 BENZOIC ACID 2.70E+02JA

SS202693
3/16/93 BENZOIC ACID 2.20E+02JA

SS201593
3/15/93 BENZOIC ACID 1.90E+02JA

SS202193
3/15/93 BENZOIC ACID 3.30E+02JA
3/15/93 BIS(2-ETHYLHEXYL)PHTHALATE 5.60E+01JA

SS203493
3/17/93 BENZOIC ACID 2.70E+02JA

SS201293
3/19/93 BENZO(a)ANTHRACENE 6.20E+01JA
3/19/93 BENZO(a)PYRENE 7.20E+01JA
3/19/93 BENZO(b)FLUORANTHENE 9.40E+01JA
3/19/93 BENZOIC ACID 1.90E+02JA
3/19/93 BIS(2-ETHYLHEXYL)PHTHALATE 7.80E+01JA
3/19/93 CHRYSENE 7.10E+01JA
3/19/93 FLUORANTHENE 1.70E+02JA
3/19/93 PHENANTHRENE 9.10E+01JA
3/19/93 PYRENE 1.50E+02JA

SS201093
3/15/93 BENZOIC ACID 2.00E+02JA

SS200993
3/10/93 PYRENE 9.80E+01JA

SS201693
3/17/93 BENZOIC ACID 1.80E+03JA
3/17/93 CHRYSENE 4.30E+01JA
3/17/93 FLUORANTHENE 4.10E+01JA
3/17/93 PHENANTHRENE 4.90E+01JA
3/17/93 PYRENE 8.50E+01JA

SS202793
3/17/93 BENZOIC ACID 2.10E+02JA

SS200793
3/10/93 BENZO(k)FLUORANTHENE 1.60E+02JA
3/10/93 CHRYSENE 1.10E+02JA
3/10/93 FLUORANTHENE 2.50E+02JA
2.60E+02JA

SS201193
3/18/93 BENZO(a)PYRENE 4.80E+01JA
3/18/93 BENZOIC ACID 2.00E+02JA
3/18/93 BENZOIC ACID 7.70E+01JA
3/18/93 PYRENE 1.00E+02JA
3/18/93 PYRENE 5.10E+01JA

SS202293
3/17/93 BENZOIC ACID 1.40E+02JA

SS202893
3/18/93 BENZO(a)ANTHRACENE 1.30E+02JA
3/19/93 BENZO(a)PYRENE 1.40E+02JA
3/19/93 BENZO(b)FLUORANTHENE 2.00E+02JA
3/19/93 BENZO(k)FLUORANTHENE 7.60E+01JA
3/19/93 BENZOIC ACID 1.60E+02JA
3/19/93 BIS(2-ETHYLHEXYL)PHTHALATE 1.10E+02JA
3/19/93 CHRYSENE 1.40E+02JA
3/19/93 FLUORANTHENE 2.30E+02JA
3/19/93 INDENO(1,2,3-cd)PYRENE 8.30E+01JA
3/18/93 PHENANTHRENE 7.10E+01JA
3/19/93 PYRENE 1.90E+02JA

SS203593
3/17/93 BENZOIC ACID 1.20E+02JA
3/17/93 FLUORANTHENE 8.20E+01JA
3/17/93 PHENANTHRENE 5.90E+01JA
3/17/93 PYRENE 7.70E+01JA

SS200893
3/23/93 BENZO(a)ANTHRACENE 6.10E+01JA
3/23/93 BENZO(b)FLUORANTHENE 9.00E+01JA
3/23/93 BENZOIC ACID 2.60E+02JA
3/23/93 CHRYSENE 7.60E+01JA
3/23/93 FLUORANTHENE 1.50E+02JA
3/23/93 PHENANTHRENE 8.30E+01JA
3/23/93 PYRENE 1.60E+02JA

SS201393
3/22/93 BENZO(a)ANTHRACENE 6.10E+01JA
3/22/93 BENZO(b)FLUORANTHENE 9.00E+01JA
3/22/93 BENZOIC ACID 2.60E+02JA
3/22/93 CHRYSENE 7.60E+01JA
3/22/93 FLUORANTHENE 1.50E+02JA
3/22/93 PHENANTHRENE 8.30E+01JA
3/22/93 PYRENE 1.60E+02JA

SS201793
3/22/93 BENZOIC ACID 2.30E+02JA
3/22/93 FLUORANTHENE 1.00E+03JA
3/22/93 PHENANTHRENE 5.60E+01JA
3/22/93 PYRENE 8.70E+01JA

SS202393
3/19/93 FLUORANTHENE 4.50E+02JA
3/19/93 PYRENE 1.00E+02JA
1.00E+02JA

SS202993
3/18/93 BENZOIC ACID 2.60E+02JA
3/18/93 FLUORANTHENE 7.90E+01JA
3/18/93 PHENANTHRENE 4.40E+01JA
3/18/93 PYRENE 8.20E+01JA

SS203693
3/18/93 BENZOIC ACID 3.70E+02JA

SS201893
3/22/93 BENZOIC ACID 7.00E+02JA
3/22/93 CHRYSENE 4.20E+01JA
3/22/93 FLUORANTHENE 7.30E+01JA
3/22/93 PHENANTHRENE 4.60E+01JA
3/22/93 PYRENE 7.00E+01JA

SS201493
3/22/93 BENZOIC ACID 3.00E+02JA
3/22/93 FLUORANTHENE 7.80E+01JA
3/22/93 PYRENE 9.40E+01JA

SS202493
3/18/93 BENZOIC ACID 6.20E+02JA
3/18/93 FLUORANTHENE 5.20E+01JA
3/18/93 PYRENE 4.70E+01JA

SS203093
3/18/93 BENZOIC ACID 1.30E+02JA
3/18/93 BIS(2-ETHYLHEXYL)PHTHALATE 6.60E+01JA
3/18/93 PYRENE 5.40E+01JA

SS203793
3/18/93 BENZOIC ACID 2.90E+02JA

SS203193
3/18/93 BENZOIC ACID 1.80E+02JA
3/18/93 BIS(2-ETHYLHEXYL)PHTHALATE 7.00E+01JA

SS203893
3/19/93 BENZOIC ACID 4.10E+02JA

SS203993
3/19/93 BENZOIC ACID 3.10E+02JA

EXPLANATION

SS200193 — BIASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

SS200093 — GRID-BASED SURFACE SOIL SAMPLING PLOT LOCATION 50'x100' PLOT (1993 RFP SAMPLING)

OU-2 BOUNDARY

SOURCE AREA BOUNDARIES

120 ← LOCATION

3/18/93 — SAMPLE DATE; ANALYTE; ANALYTE ACTIVITY (ug/kg), LAB QUALIFIERS, AND VALIDATION CODES

NOTE:
ALL ANALYTE ACTIVITIES ARE REPORTED IN ug/kg (parts per billion). ANALYTE ABBREVIATIONS AND LAB AND VALIDATION QUALIFIERS ARE PRESENTED ON FIGURE 4.2-1.

NOTE:
ALL LOCATIONS SHOWN ON THIS MAP WERE SAMPLED. RESULTS ARE SHOWN ONLY WHERE THE CHEMICALS WERE DETECTED.

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
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OPERABLE UNIT NO.2
PHASE II RFI/RI REPORT

SEMIVOLATILE ORGANIC COMPOUNDS IN SURFACE SOILS

PLATE 4.2-1 APRIL 1995

0U2RI625 1=500