# NOTICE

**All drawings located at the end of the document.**

100044

C.2

# 1989 Surface Water and Sediment Geochemical Characterization

# Appendix A

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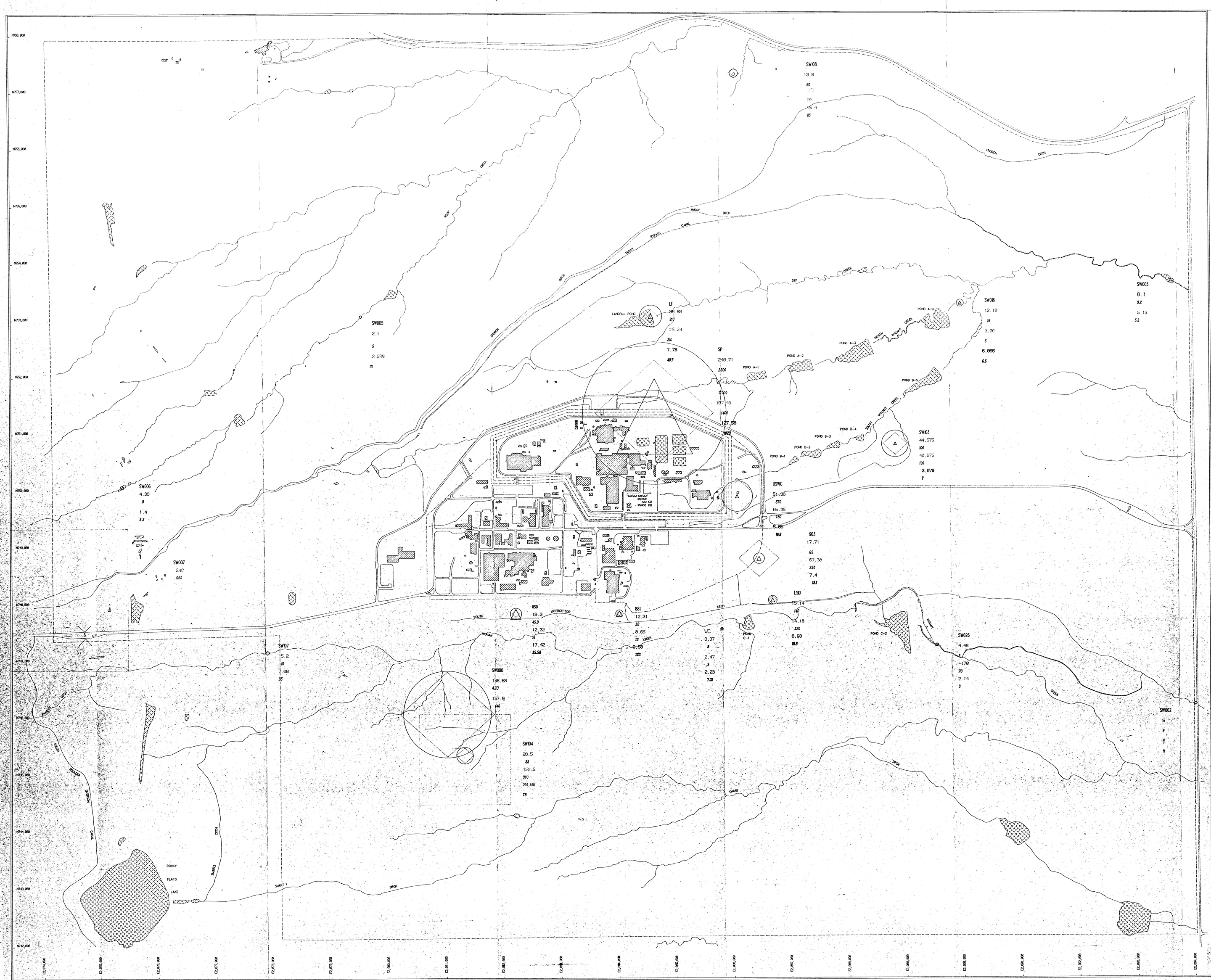
DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION

ADMIN RECORD

SW-A-004431




## MAP LEGEND

- STREAMS, DITCHES, DRAINAGE FEATURES
- PAVED ROADS
- FENCES
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS
- BETA
- TRITIUM
- ALPHA
- URANIUM

SYMBOL SIZE = 48.142 MICROGRAMS/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

WHERE SYMBOL SIZE ON MAP EQUALS SYMBOL SIZE IN LEGEND, MEAN CONCENTRATIONS ARE LESS THAN OR EQUAL TO 4.48 MICROGRAMS/LITER.

NUMBERS (202) = MEAN CONCENTRATION (MICROGRAMS/LITER) FOR EACH AREA.

ITALICIZED NUMBERS (200) = MAXIMUM CONCENTRATION (MICROGRAMS/LITER) FOR EACH AREA.

MEAN CONCENTRATION OF TRITIUM IN THE SOLAR PONDS AREA IS NOT REPRESENTED BY A SYMBOL, BECAUSE SYMBOL SIZE IS TOO LARGE FOR MAP EXTENT.

U.S. DEPARTMENT of ENERGY

ROCKY FLATS PLANT
Golden, Colorado

PLATE 4.7

1989 MEAN CONCENTRATIONS OF TOTAL GROSS ALPHA, GROSS BETA, URANIUM, AND TRITIUM, BY AREA

| NO. | DATE | REVISION |
|---|---|---|
| | | |

## MAP LEGEND

- PAVED ROADS
- DIRT ROADS
- 20 FOOT CONTOUR LINES
- 100 FOOT CONTOUR LINES
- STREAMS, DITCHES, DRAINAGE FEATURES
- SECURITY FENCE
- INDIVIDUAL HAZARDOUS SUBSTANCE SITE BOUNDARY
- 156.2 INDIVIDUAL HAZARDOUS SUBSTANCE SITE NUMBER
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

CONTOUR INTERVAL = 20 FEET

# U.S. DEPARTMENT of ENERGY

ROCKY FLATS PLANT
Golden, Colorado

PLATE 2.1

## INDIVIDUAL HAZARDOUS SUBSTANCE SITES

| NO. | DATE | REVISION |
|---|---|---|
| | | |

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## MAP LEGEND

- STREAMS / RIVERS
- DRAINAGE PIPELINES
- PAVED ROADS
- FENCES
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS
- AMERICIUM-241
- PLUTONIUM-239

SYMBOL SIZE = 1.000 MICROGRAMS/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

WHERE SYMBOL SIZE ON MAP EQUALS SYMBOL SIZE IN LEGEND, MEAN CONCENTRATIONS ARE LESS THAN OR EQUAL TO .0035 MICROGRAMS/LITER.

NUMBERS (5.46) = MEAN CONCENTRATION (MICROGRAMS/LITER) FOR EACH AREA.

ITALICIZED NUMBERS (*.88*) = MAXIMUM CONCENTRATION (MICROGRAMS/LITER) FOR EACH AREA.

MEAN CONCENTRATION OF PLUTONIUM-239 IN THE 903 AREA IS NOT REPRESENTED BY A SYMBOL BECAUSE SYMBOL SIZE IS TOO LARGE FOR MAP EXTENT.

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

# U.S. DEPARTMENT of ENERGY

ROCKY FLATS PLANT

Golden, Colorado

PLATE 4.8

1989 MEAN CONCENTRATIONS OF AMERICIUM-241 AND PLUTONIUM-239 BY AREA

| NO. | DATE | REVISION |
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## MAP LEGEND

- STREAMS, DITCHES, DRAINAGE FEATURES
- PAVED ROADS
- FENCES
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS
- ○ BICARBONATE
- ▽ SULFATE
- ◇ CHLORIDE
- △ NITRATE/NITRITE

BICARBONATE SYMBOL SIZE = 222.75 MICROGRAMS/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

SULFATE SYMBOL SIZE = 37.125 MICROGRAMS/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

CHLORIDE SYMBOL SIZE = 30.714 MICROGRAMS/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

NITRATE/NITRITE SYMBOL SIZE = 1.506 MICROGRAMS/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

WHERE SYMBOL SIZE ON MAP EQUALS SYMBOL SIZE IN LEGEND FOR NITRATE/NITRITE, MEAN CONCENTRATIONS ARE LESS THAN OR EQUAL TO .104 MICROGRAMS/LITER.

NUMBERS (126) = MEAN CONCENTRATION (MICROGRAMS/LITER) FOR EACH AREA.

ITALICIZED NUMBERS (200) = MAXIMUM CONCENTRATION (MICROGRAMS/LITER) FOR EACH AREA.

MEAN CONCENTRATION OF NITRATE/NITRITE IN THE SOLAR PONDS AND SW103 AREA IS NOT REPRESENTED BY A SYMBOL BECAUSE SYMBOL SIZE IS TOO LARGE FOR MAP EXTENT.

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

# U.S. DEPARTMENT of ENERGY
## ROCKY FLATS PLANT
Golden, Colorado

PLATE 4.6

1989
MAJOR ANIONS
BY AREA

| NO. | DATE | REVISION |
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## MAP LEGEND

- STREAMS, DITCHES, DRAINAGE FEATURES
- PAVED ROADS
- FENCES
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS
- SPECIFIC CONDUCTIVITY
- TOTAL DISSOLVED SOLIDS
- FIELD pH
- DISSOLVED OXYGEN

SPECIFIC CONDUCTIVITY SYMBOL SIZE = 900.8 MICROMHOS/CM PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

TOTAL DISSOLVED SOLIDS SYMBOL SIZE = 258.2 Mg/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

FIELD pH SYMBOL SIZE = 1.6 pH UNITS PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

DISSOLVED OXYGEN SYMBOL SIZE = 1.78 Mg/LITER PER INCH AND IS PROPORTIONAL TO MEAN CONCENTRATION FOR EACH AREA.

WHERE SYMBOL SIZE ON MAP EQUALS SYMBOL SIZE IN LEGEND FOR TOTAL DISSOLVED SOLIDS, MEAN CONCENTRATIONS ARE LESS THAN OR EQUAL TO .83 Mg/LITER.

NUMBERS (126) = MEAN VALUE FOR EACH AREA.

ITALICIZED NUMBERS ( ) = MAXIMUM VALUE FOR EACH AREA.

MEAN CONCENTRATION OF TOTAL DISSOLVED SOLIDS IN THE SOLAR PONDS AREA IS NOT REPRESENTED BY A SYMBOL, BECAUSE SYMBOL SIZE IS TOO LARGE FOR MAP EXTENT.

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

U.S. DEPARTMENT of ENERGY

ROCKY FLATS PLANT
Golden, Colorado

PLATE 4.5

1989 MEAN CONCENTRATIONS OF FIELD PARAMETERS AND TOTAL DISSOLVED SOLIDS, BY AREA

| NO. | DATE | REVISION |
|---|---|---|
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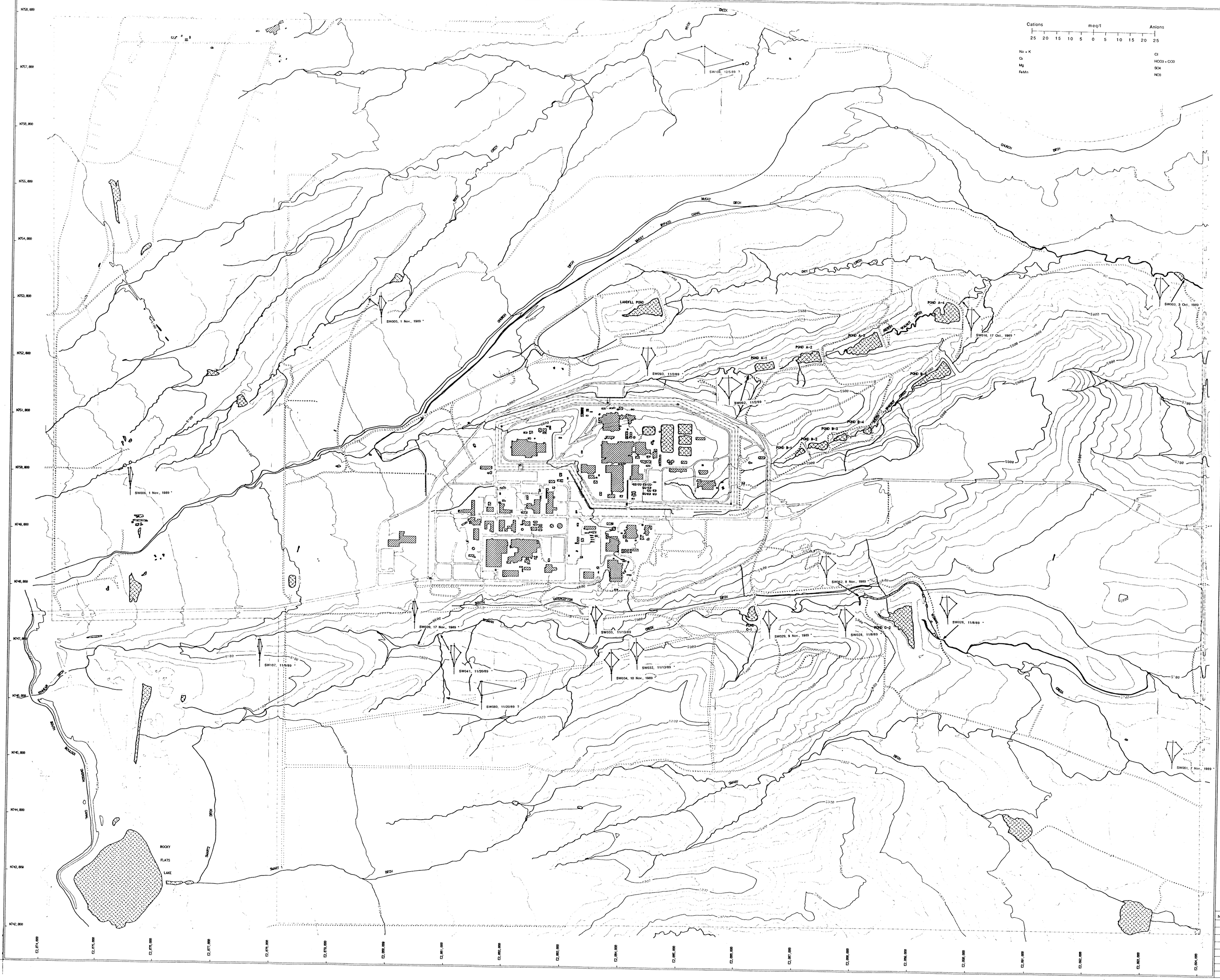



## MAP LEGEND

- PAVED ROADS
- DIRT ROADS
- 20 FOOT CONTOUR LINES
- 100 FOOT CONTOUR LINES
- STREAMS, DITCHES, DRAINAGE FEATURES
- SECURITY FENCE
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

CONTOUR INTERVAL = 20 FEET

U.S. DEPARTMENT of ENERGY

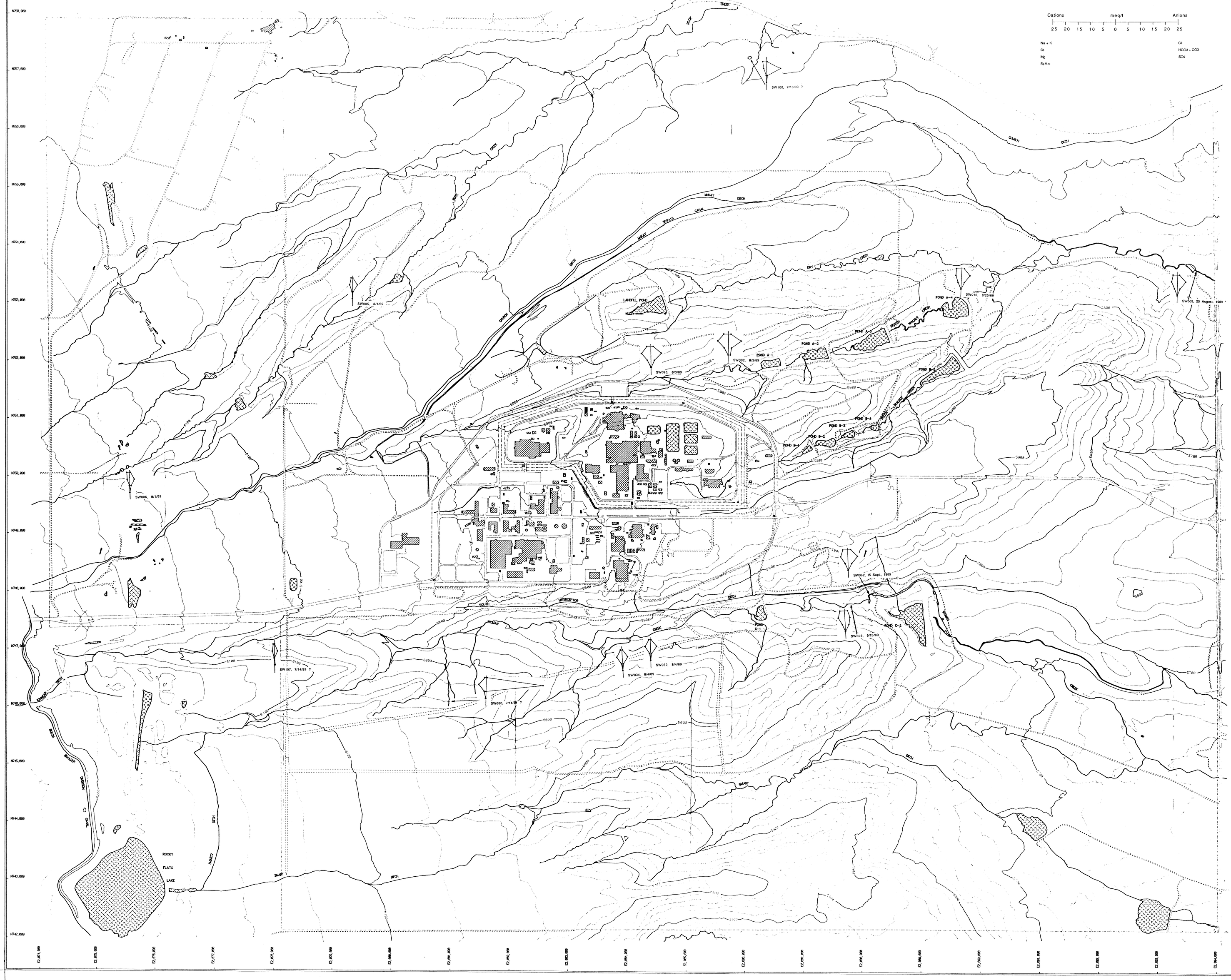
ROCKY FLATS PLANT

Golden, Colorado

PLATE 4.4

**1989 FOURTH QUARTER STIFF DIAGRAMS**

| NO. | DATE | REVISION |
|---|---|---|
| | | |


Cations
meq/l
Anions
25 20 15 10 5 0 5 10 15 20 25
Na + K
Ca
Mg
Fe/Mn
Cl
HCO3 + CO3
SO4
SW108, 7/13/89 ?
SW005, 8/1/89
SW006, 8/1/89
SW107, 7/14/89 ?
SW080, 7/14/89 ?
SW032, 8/4/89
SW034, 8/4/89
SW092, 8/2/89
SW093, 8/3/89
SW016, 8/25/89
SW062, 15 Sept. 1989
SW028, 8/15/89
SW003, 25 August, 1989
LANDFILL POND
POND A-1
POND A-2
POND A-3
POND A-4
POND B-1
POND B-2
POND B-3
POND B-4
POND C-1
POND C-2
ROCKY FLATS LAKE
MAIN
SOUTH INTERCEPTOR
WOMAN CREEK
WALNUT CREEK
DRY GULCH
WOMAN CREEK DITCH
MIKAY DITCH
MIKAY BYPASS CHAN
ROCK CREEK
ROCK CREEK DITCH
WALNUT CREEK DITCH
SMART DITCH
SMART
SMITH
BOULDER
DAVISON
N760,000
N757,000
N752,000
N750,000
N754,000
N753,000
N752,000
N751,000
N750,000
N749,000
N748,000
N747,000
N746,000
N745,000
N744,000
N743,000
N742,000
C1,670,000
C1,675,000
C1,675,000
C1,677,000
C1,679,000
C1,679,000
C1,683,000
C1,687,000
C1,691,000
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C1,699,000
C1,703,000
C1,707,000
C1,711,000
C1,715,000
C1,719,000
C1,723,000
C1,727,000
C1,731,000
C1,735,000
C1,739,000
C1,743,000
C1,747,000
C1,751,000
C1,755,000
C1,759,000
C1,763,000
C1,767,000
C1,771,000
C1,775,000
C1,779,000
C1,783,000
C1,787,000
C1,791,000
C1,795,000
C1,799,000
C1,803,000
C1,807,000
C1,811,000
C1,815,000
C1,819,000
C1,823,000
C1,827,000
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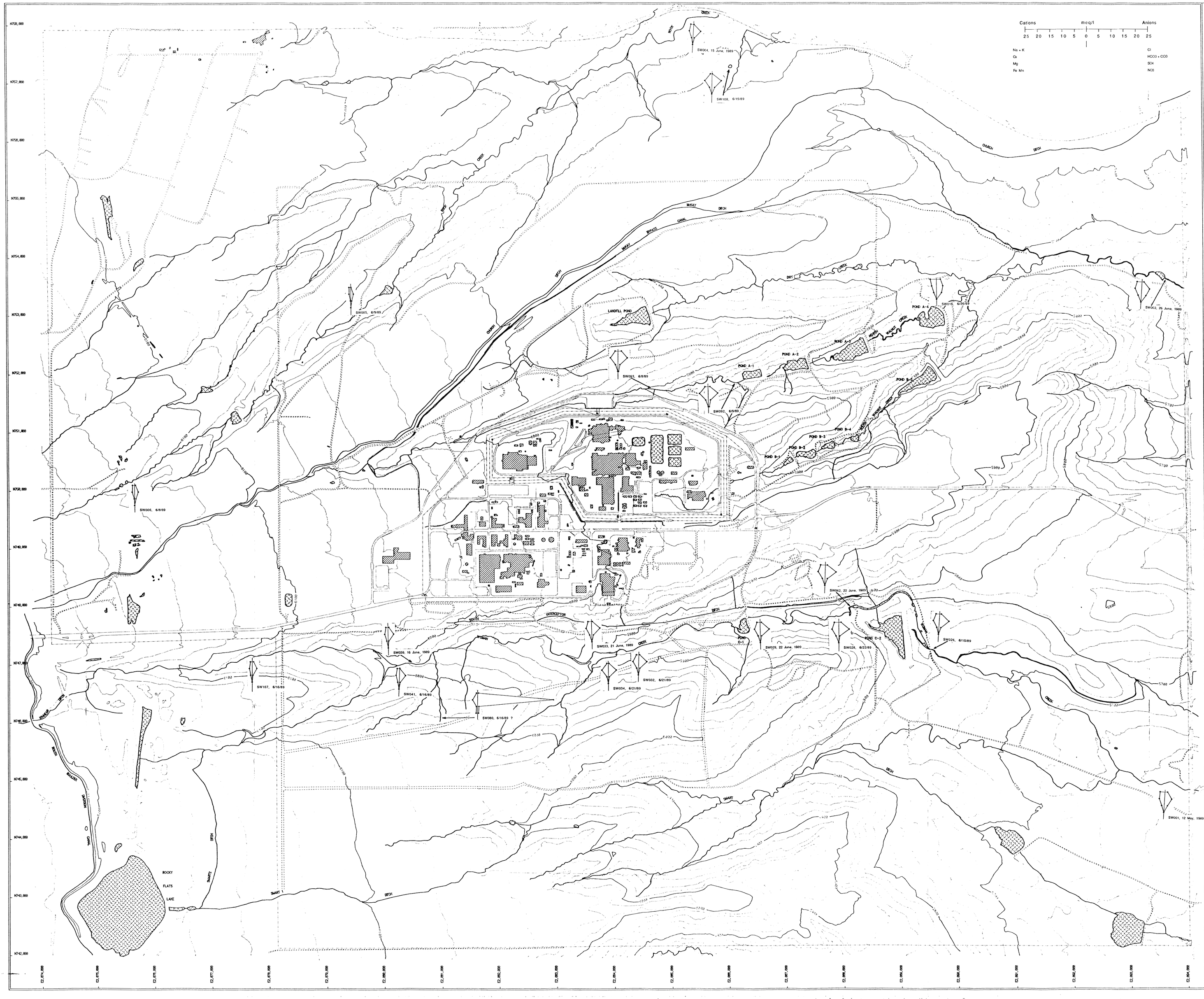
C1,851,000
C1,855,000




## MAP LEGEND

- PAVED ROADS
- DIRT ROADS
- 20 FOOT CONTOUR LINES
- 100 FOOT CONTOUR LINES
- STREAMS, DITCHES, DRAINAGE FEATURES
- SECURITY FENCE
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS

N

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

CONTOUR INTERVAL = 20 FEET

U.S. DEPARTMENT of ENERGY

ROCKY FLATS PLANT
Golden, Colorado

PLATE 4.2

**1989 SECOND QUARTER STIFF DIAGRAMS**

| NO. | DATE | REVISION |
|---|---|---|
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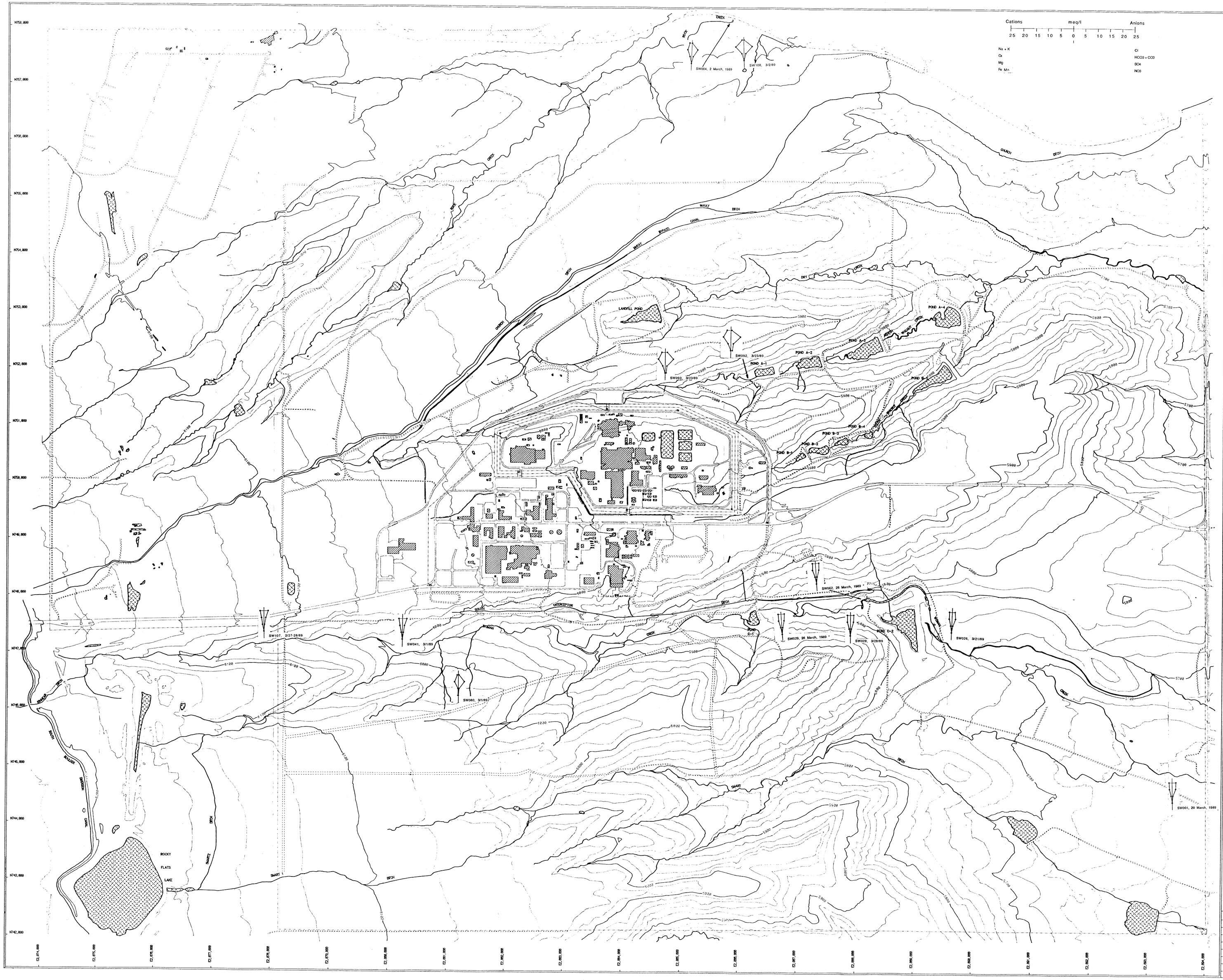


## MAP LEGEND

- PAVED ROADS
- DIRT ROADS
- 20 FOOT CONTOUR LINES
- 100 FOOT CONTOUR LINES
- STREAMS, DITCHES, DRAINAGE FEATURES
- SECURITY FENCE
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

CONTOUR INTERVAL = 20 FEET

U.S. DEPARTMENT of ENERGY

ROCKY FLATS PLANT

Golden, Colorado

PLATE 4.1

**1989 FIRST QUARTER STIFF DIAGRAMS**

| NO. | DATE | REVISION |
|---|---|---|
| | | |

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## MAP LEGEND

- PAVED ROADS
- DIRT ROADS
- 20 FOOT CONTOUR LINES
- 100 FOOT CONTOUR LINES
- STREAMS, DITCHES, DRAINAGE FEATURES
- SECURITY FENCE
- SURFACE WATER IMPOUNDMENTS
- BUILDINGS
- PERIODIC SURFACE WATER STATION (NON BACKGROUND)
- PERIODIC BACKGROUND SURFACE WATER STATION
- SEDIMENT STATION (NON BACKGROUND)
- BACKGROUND SEDIMENT STATION

0 feet 500 1000 1500

SCALE: 1 INCH = 500 FEET

CONTOUR INTERVAL = 20 FEET

# U.S. DEPARTMENT of ENERGY
## ROCKY FLATS PLANT
Golden, Colorado

PLATE 3.1

1989
SURFACE WATER
AND
SEDIMENT STATIONS

| NO. | DATE | REVISION |
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