

**SECTION D DETERMINATION  
CATEGORICAL EXCLUSION (CX) DETERMINATION - RFO/CX 000-92**

**Proposed Action:** Site Characterization Field Work at OUs 12, 14, and 15

**Location:** Rocky Flats Plant, Golden, CO

**Proposed by:** U.S. Department of Energy Rocky Flats Office (DOE, RFO)

**Description of the proposed action:**

Rocky Flats Office proposes to perform characterization field work in three Operable Units (OUs) in the next year. Operable Units 12 (400/800 Areas), 14 (Radioactive Sites) and 15 (Inside Building Closures) are scheduled in the InterAgency Agreement (IAG) to undergo site characterization field work starting in the late fall of 1992 (OUs 12 and 14) and early spring of 1993 (OU 15). All three OUs are located entirely within the Security Controlled Area of the Plant.

**OU 12**

OU 12 is the 400 and 800 Areas, shown in Figure 1 (figures are included as attachments). The OU is entirely in the Security Controlled Area, the developed portion of RFP that is occupied by buildings, paved areas, utilities and other features that have significantly disturbed the natural environment. The OU consists of 10 individual hazardous substance sites (IHSSs): 116.1, and 116.2 (multiple solvent spills at the west and south loading dock areas of Building 444), 120.1 and 120.2 (fiberglassing areas north and west of Building 664), 136.1 and 136.2 (backfilled cooling tower ponds southwest, east and northwest of Building 444), 147.2 (process waste leak site northeast of Building 881), 157.2 (an area of radioactive contamination around Building 444), 187 (acid leaks in an area north of Building 444) and 189 (a storage yard in which there were multiple acid spills, northeast of Building 444). Because of their varied histories, field work will be different in each IHSS.

Figures 2 through 11 show the types of field work planned for each IHSS and the locations of each field activity. The maps show that OU 12 field work will include:

- surficial soil or soil profile samples at 82 locations,
- soil gas surveys at 135 locations,
- soil borings at 20 locations,
- monitoring wells at 3 locations,
- sediment samples at 12 locations,
- hydraulic probes at 25 locations,
- radiological surveys at 43 locations.

Each of these types of activities is described in the "Field Sampling Methods" section below. In many instances, more than one type of field work will occur at a single location.

Site characterization activities at OU 12 are expected to start in the fourth quarter of 1992 and continue into the fourth quarter of 1993.

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Site Characterization Field Work at OUs 12, 14 and 15

OU 14

OU 14 consists of eight IHSSs (131, 156.1, 160, 161, 162, 164.1, 164.2 and 164.3) in the south and west areas of the plant site. Each of the IHSSs is shown in Figure 12. IHSS 131, which is difficult to see on the map, is located in the northwest corner of Building 776, just east of the north end of the long narrow IHSS. Of the eight IHSSs, two are parking lots containing 313,000 square feet, four are paved areas near building including 83,000 square feet, one is a storage pad of 25,000 square feet, and the eighth is a paved road covering 161,000 square feet. Like the OU 12 IHSSs, all of these IHSSs are within the Security Controlled Area.

Figures 13 through 20 show the types of field work planned for each IHSS and the locations of each field activity. The maps show that OU 14 field work will include:

- surficial soil samples at 355 locations,
- soil gas samples at 125 locations,
- boreholes at 171 locations and
- radiological surveys (including both FIDLER and HPGe surveys) at 530 locations.

Each of these types of activities is described in the "Field Sampling Methods" section below. In many instances, more than one type of field work will occur at a single location.

If these tasks identify areas that need further investigation, additional radiological surveys, surficial soil sampling, soil gas sampling or drilling of boreholes/monitoring wells may occur in the locations where contamination was found. The amount of such additional drilling is not expected to be large (*i.e.*, fewer than 20 wells).

Site characterization activities at OU 14 are expected to start in the fourth quarter of 1992 and continue into the first quarter of 1994.

OU 15

The locations of the six IHSSs (178, 179, 180, 204, 211 and 217) comprising OU 15, Inside Building Closures, are shown in Figure 21. IHSS 212, also shown in the Figure, is not scheduled for field work at this time. Each of the IHSSs is entirely within a building and all the field work for OU 15 will take place inside those buildings. IHSS 178 is in room 165 of Building 881, IHSS 179 is in room 145 of Building 865, IHSS 180 is in room 104 of Building 883, IHSS 204 is in room 502 of Building 447, IHSS 211 is in room 266E of Building 881 and IHSS 217 is in room 131C of Building 881. Because of their inside-building locations, no maps of the OU 15 field sampling activities are provided. The buildings provide primary, secondary and, in some cases, tertiary, containment for activities within them.

The OU 15 site characterization program is expected to be wholly non-invasive, consisting solely of visual inspections, surface radiological monitoring and collection of surface wipe and soot samples to be analyzed for radioactivity, VOCs and metals.

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Site Characterization Field Work at OUs 12, 14 and 15

In addition, any liquids in certain polyethylene bottles in IHSS 217 will be sampled and analyzed for cyanide. Samples of building materials on which drummed wastes were stored will not be obtained as some of the floors in these areas have been painted to both indicate areas with elevated levels of radionuclides and, since the epoxy paint used effectively seals the radiation, to protect workers. It is expected that all stored drums will have been removed from the OU 15 IHSSs before the site characterization program begins. If, however, drums remain in the IHSSs, their contents will be sampled and analyzed. Any drum sampling will be done in accordance with the appropriate procedure, depending on the type of drum and the nature of its contents.

OU 15 field work is expected to start in the second quarter of 1993 and continue through the first quarter of 1994.

### Field Sampling Methods

Field sampling activities will be conducted using the following methods:

Surficial soil sampling using a hand-held scoop to collect soil from a depth of two inches on a 50-foot grid.

Other soil sampling with a Kansas Soil Sampler. This device, which may be used if needed, uses a piston to drive the sampler into the soil to a depth of about one-foot. When the sampler is removed, it brings with it a soil core which will be analyzed for volatile organic compounds (VOCs).

Borehole and well drilling. Hollow-stem augers or, if necessary, rotary drills will be used to drill boreholes while wells will be drilled with conventional augers. Boreholes, typically not more than eight-inches in diameter, will be drilled to determine the geotechnical characteristics of the soil, to further investigate trends identified in earlier tasks, to collect samples for analysis, and to install monitoring wells. Some boreholes drilled to determine geotechnical characteristics of the soil will be drilled to a depth of two-feet and will use a split-spoon sampler to obtain either discrete or composite soil samples. Other boreholes will be drilled to the water table or three-feet into weathered bedrock, whichever is encountered first. All borings not completed as monitoring wells will be grouted and abandoned immediately after drilling to prevent vertical migration of possible contaminants. All drill cuttings and soil samples will be surveyed for radionuclides, VOCs, metals and other contaminants. All such material will be handled in accordance with applicable procedures.

Soil gas surveys using a one-inch diameter stainless steel probe rod driven into the ground by a hydraulic rig mounted on a vehicle. Probes will be driven to a depth of about five feet to collect samples that will be analyzed immediately for VOCs in a mobile lab. Soil gas sampling will generally be done on a 50-foot grid.

Radiological surveys: FIDLER, sodium iodide or HPGe (high purity germanium) system to identify and quantify all gamma-emitting radionuclides. These devices operate non-invasively (no drilling or other physical penetration of the ground) by being moved across the surface of the ground while taking remote readings. The devices may be between an inch and 25-feet above the ground on a tripod or vehicle. Most of the radiological surveying will be done on a 25-foot grid, though the size of the grid will be reduced where elevated radiation levels are encountered. Surface wipe samples will be

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**Site Characterization Field Work at OUs 12, 14 and 15**

obtained by rubbing a moistened filter paper over a specified area of the surface being sampled. The filter paper is then sent to a laboratory for analysis.

Hydraulic probes are small-diameter (typically 2-inches) vehicle-mounted rods that are forced into the ground under hydraulic pressure, similar to the probes used in soil gas surveys. Various measuring devices can be mounted on the probes to measure subsurface conditions. Probe-mounted, vertically-nested tensiometers will be used to measure soil water pressure.

Sediment sampling is done by using a small, hand-held container to remove sediment from the bed of drainages.

**Appropriateness as an Interim Action**

The Site Wide Treatability Study meets the requirements of 40 CFR 1506.1(c) for an interim action under NEPA because it:

- a. is justified independently of the program being considered in the SWEIS;
- b. is categorically excluded from NEPA documentation requirements; and
- c. will not prejudice the ultimate decision on the program that is the subject of the SWEIS.

**General Eligibility for a Categorical Exclusion**

The proposed action meets the underlying requirements for an Appendix B categorical exclusion because it would not:

1. threaten a violation of applicable statutory, regulatory, or permit requirements;
2. require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities;
3. disturb hazardous substances, pollutants, contaminants or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; or
4. adversely affect environmentally-sensitive resources.

**Applicable Categorical Exclusion**

(B3.1) "Site characterization and environmental monitoring, including siting, construction, operation and dismantlement or closing (abandonment) of characterization and monitoring devices . . .".

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I have determined that the proposed action meets the requirements in Subpart D of 10 CFR 1021 for the CX. Therefore, I approve the categorical exclusion of the proposed action from further NEPA review and documentation.

Date \_\_\_\_\_

Signature \_\_\_\_\_

Terry A. Vaeth  
Manager, Rocky Flats Office

Title:

Program Sponsor

Date \_\_\_\_\_

Signature \_\_\_\_\_

James K. Hartman  
Manager, Environmental Management

I have reviewed this action and find that the CX is the appropriate level of NEPA Documentation.

Date \_\_\_\_\_

Signature \_\_\_\_\_

Patricia M. Powell  
NEPA Compliance Officer

Title:

Funding: EM  
END Reviewer: WAM  
EC 8992  
ADS #: 1007 A (OU 12), 1010A (OU 14), 1018 (OU 15)



REVISION NO. 0

FILE NAME 40103\F01-601.DWG

DATE 5/1/92

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CHECKED BY



460

IHSS 116.1

SHED

457

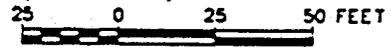
447

451

**EXPLANATION**

-  BUILDING
-  PAVEMENT
-  CONCRETE
-  SOIL OR GRAVEL
-  IHSS BOUNDARY
-  OVERHEAD PIPING

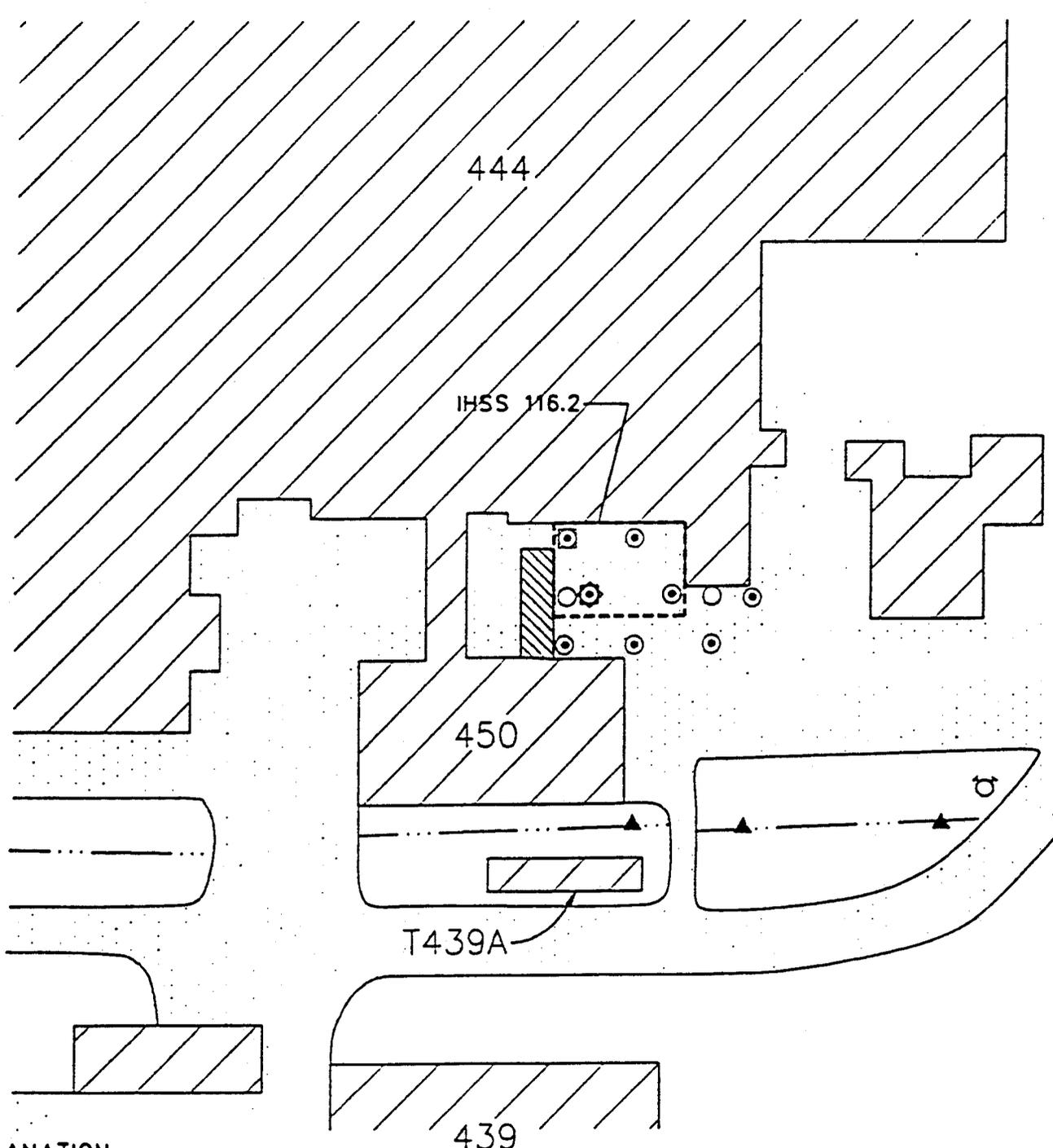
-  DRAIN
-  DRAINAGE
-  SURFICIAL SOIL SAMPLING LOCATION
-  SOIL GAS SURVEY LOCATION
-  SOIL BORING LOCATION (TENTATIVE)
-  MONITORING WELL LOCATION (TENTATIVE)



NOTE: LOCATION OF PHYSICAL SITE FEATURES ARE APPROXIMATE

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 ROCKY FLATS PLANT  
 GOLDEN, COLORADO

Figure 2  
 FIELD SAMPLING PLAN FOR  
 IHSS 116.1 - WEST  
 LOADING DOCK BUILDING 447



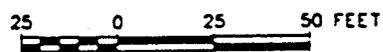
**EXPLANATION**

-  BUILDING
-  IHSS BOUNDARY
-  DRAINAGE
-  PAVEMENT
-  CONCRETE
-  SOIL OR GRAVEL
-  WATER HYDRANT
-  SURFICIAL SOIL SAMPLING LOCATION
-  SOIL GAS SURVEY LOCATION
-  SOIL BORING LOCATION (TENTATIVE)
-  MONITORING WELL LOCATION (TENTATIVE)
-  SEDIMENT SAMPLE LOCATION

NOTE: LOCATION OF PHYSICAL SITE FEATURES ARE APPROXIMATE

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Figure 3  
 FIELD SAMPLING PLAN FOR  
 IHSS 116.2 - SOUTH  
 LOADING DOCK BUILDING 444





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444

457

447

451

IHSS 136.1

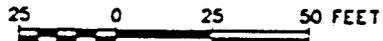
**EXPLANATION**

-  BUILDING
-  PAVEMENT
-  CONCRETE
-  SOIL OR GRAVEL
-  IHSS BOUNDARY
-  OVERHEAD PIPING
-  DRAIN
-  DRAINAGE
-  SURFICIAL SOIL SAMPLING LOCATION
-  HYDRAULIC PROBE LOCATION
-  SOIL BORING LOCATION (TENTATIVE)

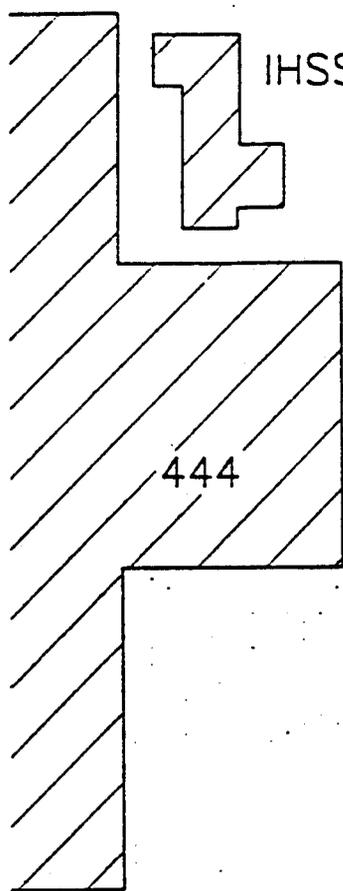
NOTE: LOCATION OF PHYSICAL SITE FEATURES ARE APPROXIMATE

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GOLDEN, COLORADO

Figure 4  
FIELD SAMPLING PLAN FOR  
IHSS 136.1 - COOLING TOWER  
POND WEST OF BUILDING 444

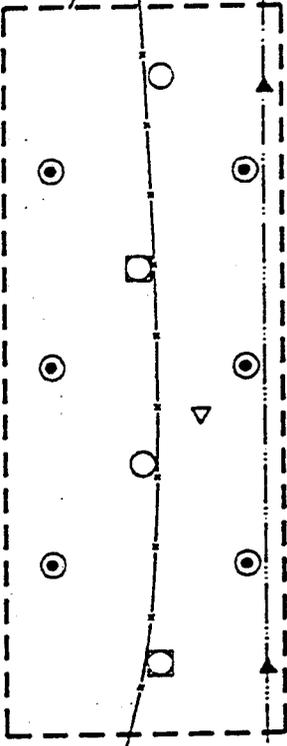


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 FILE NAME 410103\F01-604.DWG  
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IHSS 136.2

444



SECURED AREA

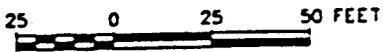
NITRIC ACID TANKS

WOODEN CRATES AND EMPTY BARREL STORAGE

EXPLANATION

-  BUILDING
-  IHSS BOUNDARY
-  DRAINAGE
-  PAVEMENT
-  SOIL OR GRAVEL
-  RAILROAD
-  FENCE
-  NESTED TENSIOMETER LOCATION (TENTATIVE)
-  SEDIMENT SAMPLE LOCATION
-  SURFICIAL SOIL SAMPLING LOCATION
-  HYDRAULIC PROBE LOCATION
-  SOIL BORING LOCATION (TENTATIVE)

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Figure 5  
 FIELD SAMPLING PLAN FOR  
 IHSS 136.2-COOLING TOWER  
 POND EAST OF BUILDING 444

EXPLANATION

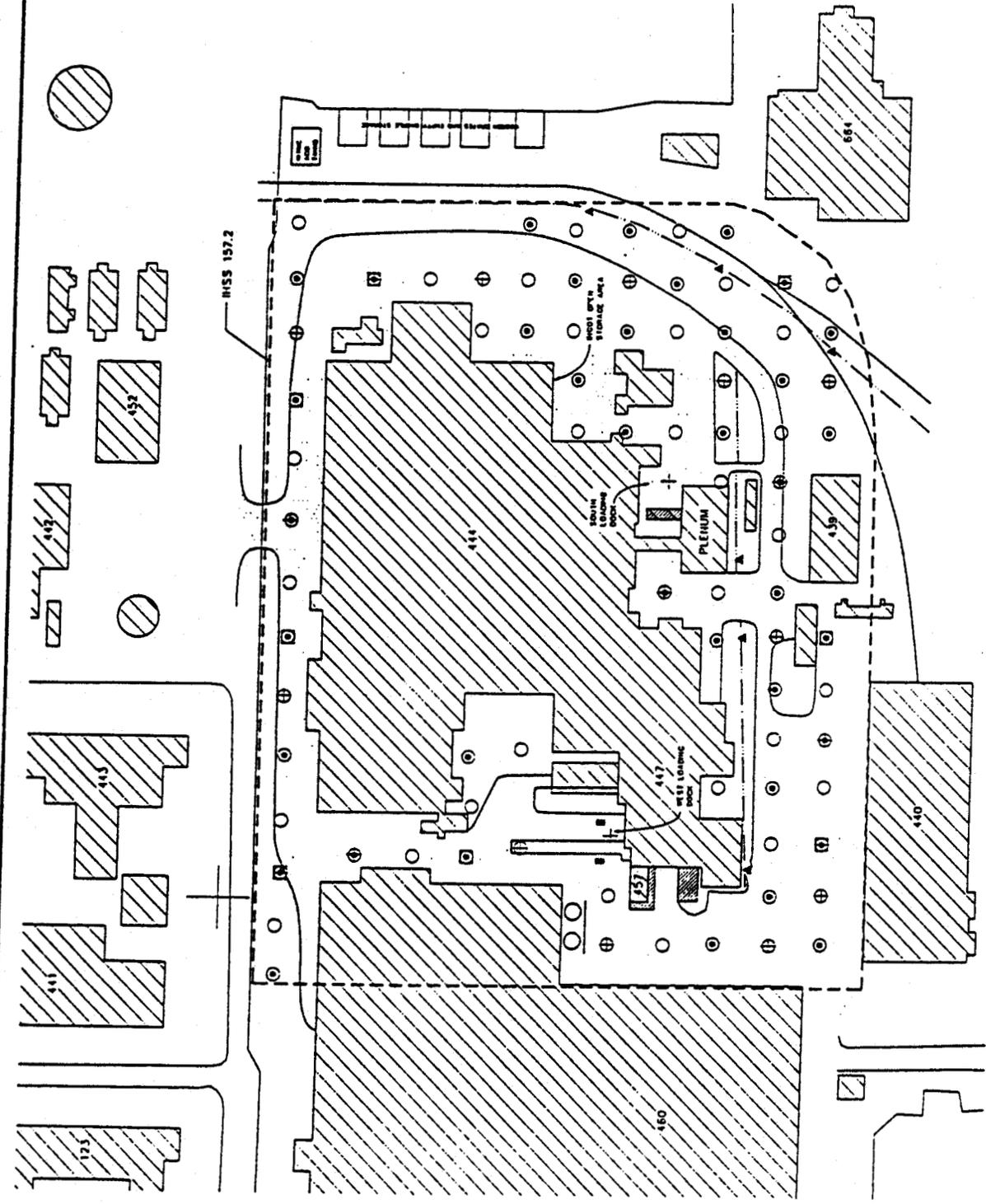
-  BUILDING
-  IHSS BOUNDARY
-  DRAINAGE
-  PAVEMENT
-  CONCRETE
-  SOIL OR GRAVEL
-  RAILROAD
-  FENCE
-  SEDIMENT SAMPLE LOCATION
-  SURFICIAL SOIL SAMPLING LOCATION
-  SOIL GAS SURVEY LOCATION
-  SOIL BORING LOCATION (INITIATIVE)
-  RADIOLOGICAL SURVEY LOCATION

NOTE: LOCATION OF PHYSICAL SITE FEATURES ARE APPROXIMATE



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Figure 6  
 FIELD SAMPLING PLAN FOR  
 IHSS 157.2-RADIOACTIVE  
 SITE SOUTH AREA





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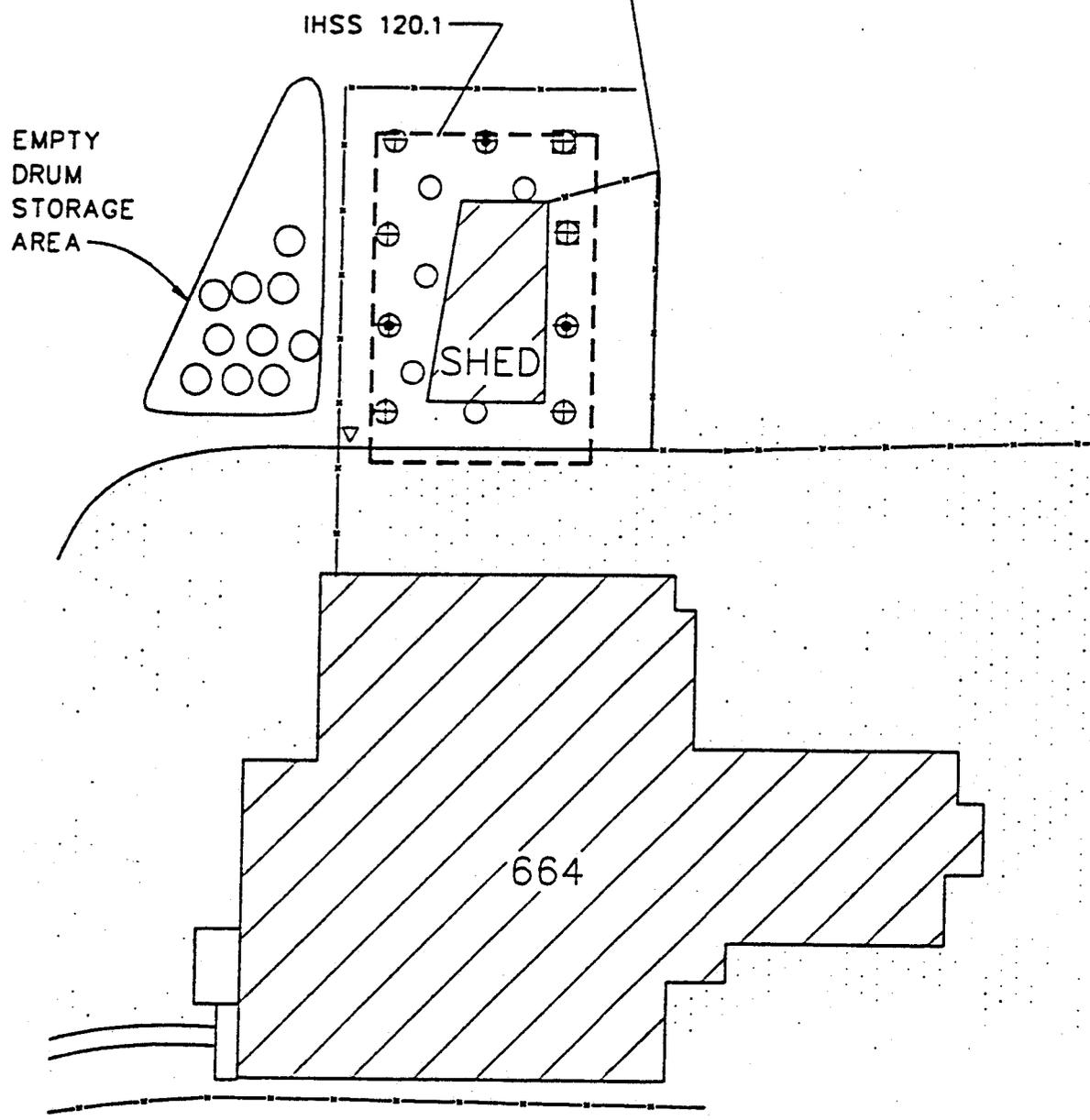
DATE 5/1/92

JAA

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APPROVED BY

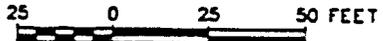
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**EXPLANATION**

-  BUILDING
-  IHSS BOUNDARY
-  PAVEMENT
-  SOIL OR GRAVEL
-  RAILROAD
-  FENCE

-  NESTED TENSIO METER LOCATION(TENTATIVE)
-  SURFICIAL SOIL/DEPTH PROFILE SAMPLING LOCATION
-  SOIL GAS SURVEY LOCATION
-  SOIL BORING LOCATION (TENTATIVE)
-  RADIOLOGICAL SURVEY LOCATION



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Figure 8  
 FIELD SAMPLING PLAN FOR  
 IHSS 120.1-FIBERGLASSING  
 AREA NORTH OF BUILDING 664

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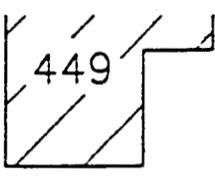
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DATE 5/4/92

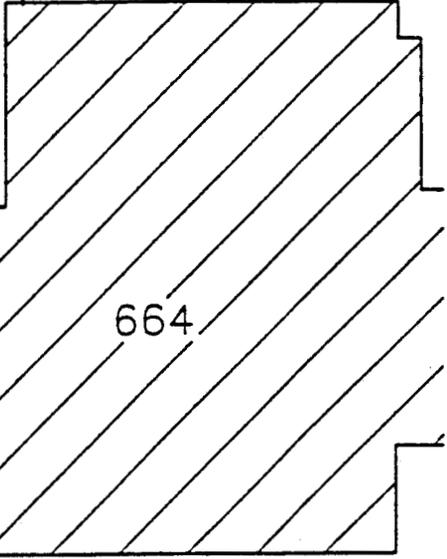
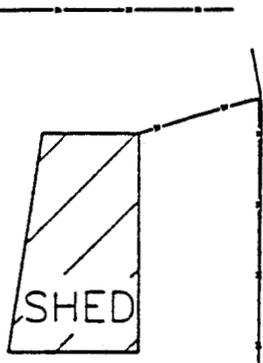
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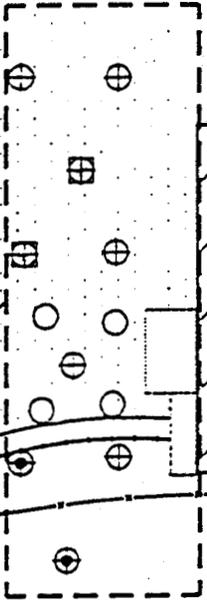
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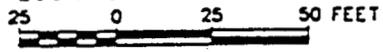
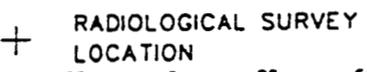
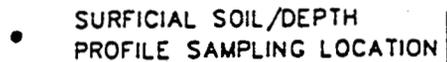
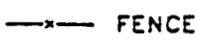
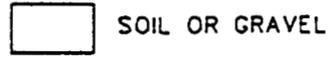
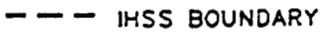
SECURED AREA



IHSS 120.2



EXPLANATION



NOTE: LOCATION OF PHYSICAL SITE FEATURES ARE APPROXIMATE

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ROCKY FLATS PLANT  
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Figure 9  
FIELD SAMPLING PLAN FOR  
IHSS 120.2-FIBERGLASSING  
AREA WEST OF BUILDING 664

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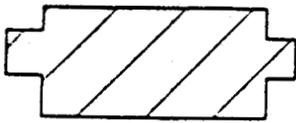
FILE NAME 40103\F01-609.DWG

DATE 5/1/92

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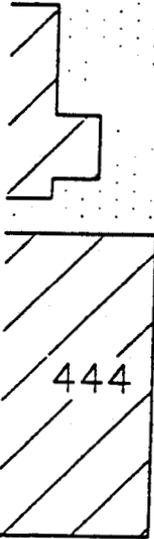
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COTTONWOOD STREET

IHSS 189

NITRIC ACID TANKS



SECURED AREA

WOODEN CRATES AND EMPTY BARREL STORAGE

EXPLANATION

 BUILDING

 IHSS BOUNDARY

 DRAINAGE

 PAVEMENT

 SOIL OR GRAVEL

 RAILROAD

 FENCE

 CONCRETE

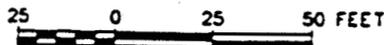
● SURFICIAL SOIL SAMPLING LOCATION

○ HYDRAULIC PROBE LOCATION

NOTE: LOCATION OF PHYSICAL SITE FEATURES ARE APPROXIMATE

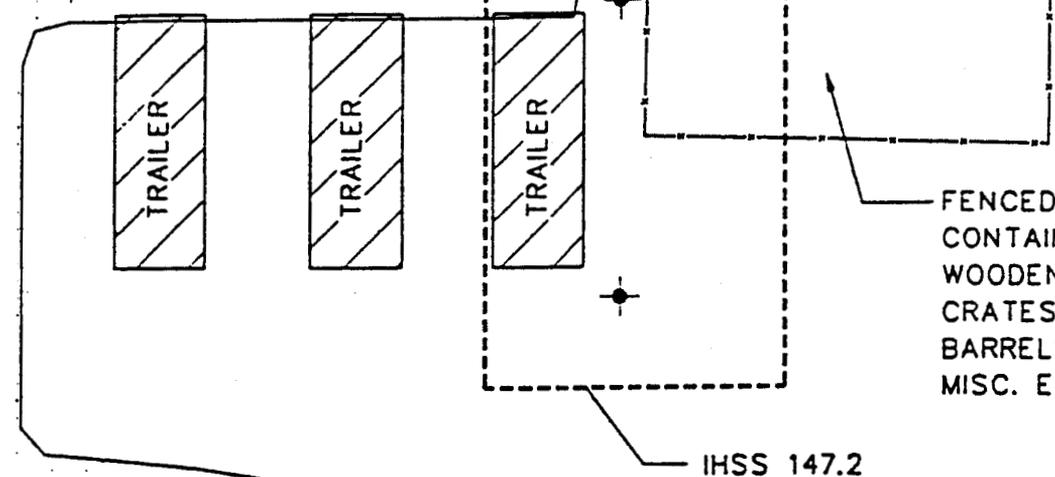
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ROCKY FLATS PLANT  
GOLDEN, COLORADO

Figure 10  
FIELD SAMPLING PLAN FOR  
IHSS 189-NITRIC  
ACID TANKS



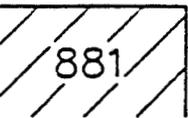
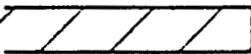


AREA CONTAINING  
STEEL BOXES HOLDING  
DEPLETED URANIUM



FENCED AREA  
CONTAINING  
WOODEN PACKING  
CRATES, EMPTY  
BARRELS, AND  
MISC. EQUIPMENT

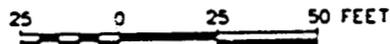
IHSS 147.2



EXPLANATION

-  BUILDING
-  IHSS BOUNDARY
-  PAVEMENT
-  SOIL OR GRAVEL
-  FENCE

-  SURFICIAL SOIL/DEPTH  
PROFILE SAMPLING LOCATION
-  RADIOLOGICAL SURVEY



NOTE: LOCATION OF PHYSICAL SITE  
FEATURES ARE APPROXIMATE

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GOLDEN, COLORADO

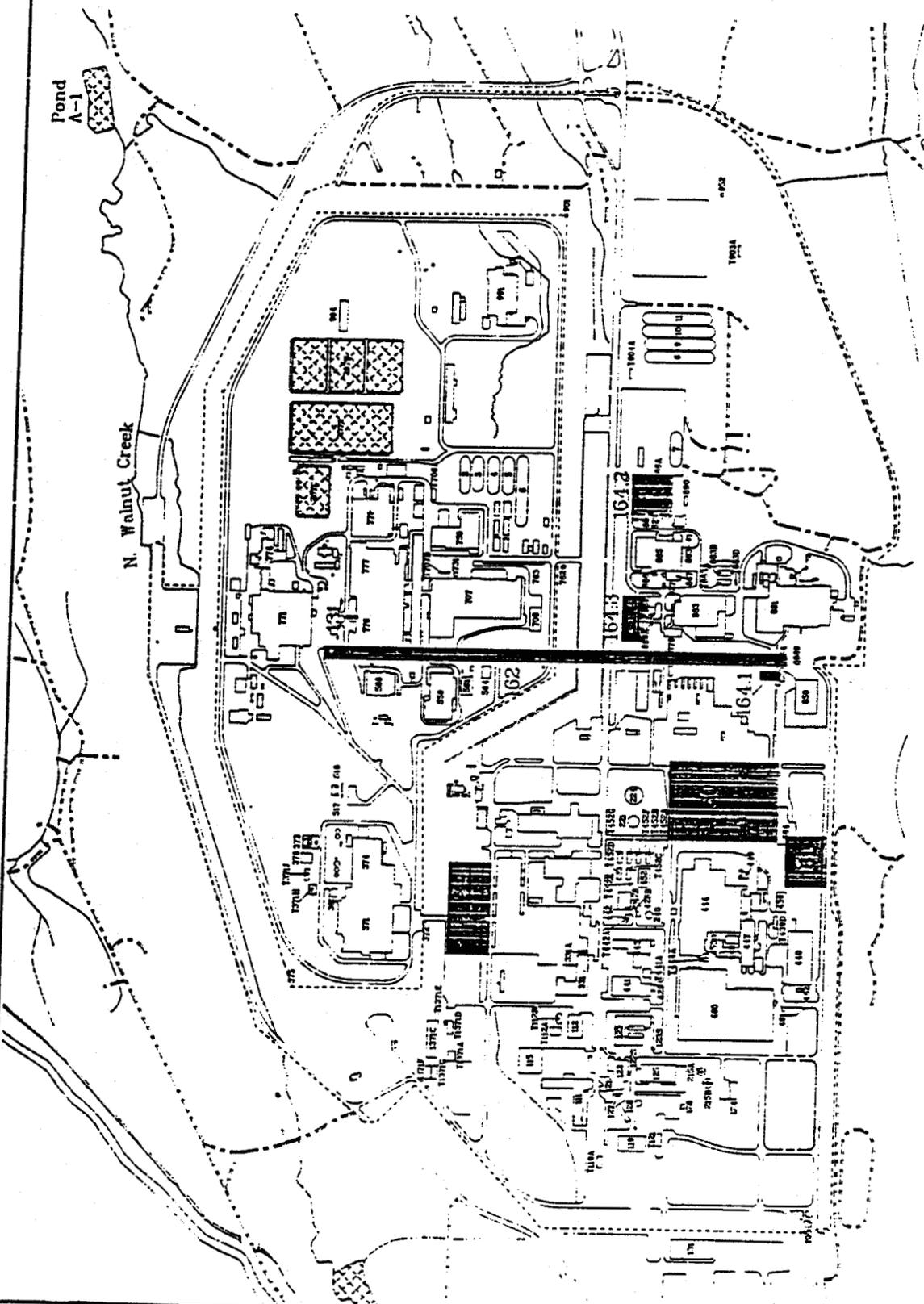
Figure 11  
FIELD SAMPLING PLAN FOR  
IHSS 147.2-BUILDING 881  
CONVERSION ACTIVITY

- Pond roads
- Unimproved dirt roads
- Streams, ditches, and other drainage features
- Security fence
- Ponds/lakes
- Buildings or structures
- Individual hazardous substance sites (HSS)



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GOLDEN, COLORADO

Figure 12  
COMPREHENSIVE OVERVIEW  
OF THE OU14 SITE



Survey Sample Location  
 - 2" surface scrapes at 25 ft. centers  
 - 2' soil borings at 25 ft. centers

Ground water wells

Paved roads

Unimproved dirt roads

Individual hazardous substance sites (IHSS)

Buildings or structures

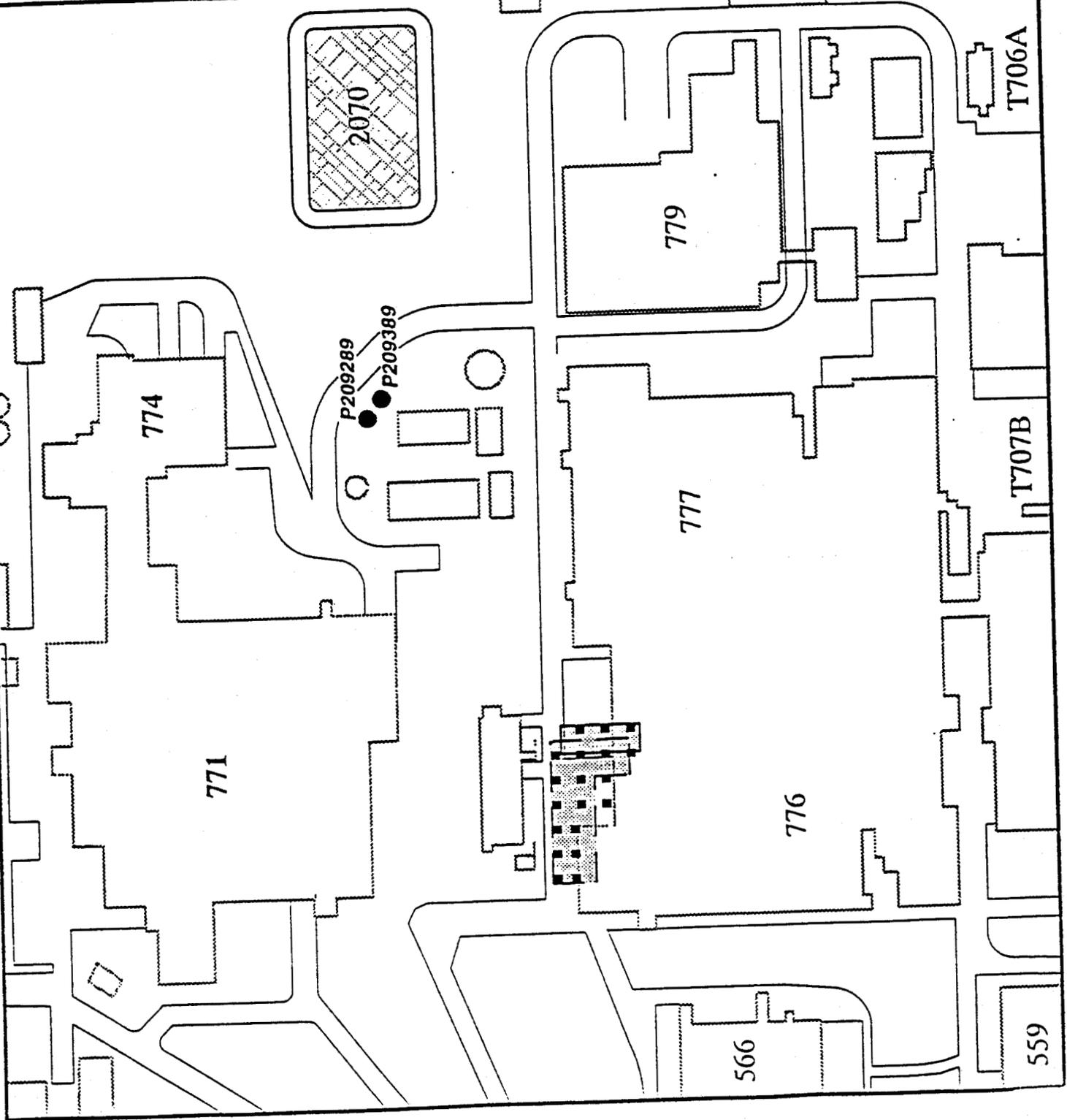
Ponds/lakes



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 ROCKY FLATS PLANT  
 GOLDEN, COLORADO

Figure 13

SOIL BORING LOCATIONS  
 IHSS 131



□ Survey Sample Location  
- 2" surface scrapes at  
50 ft. centers

■ Survey Sample Location  
- FIDLER at 25 ft. centers  
- 2" surface scrapes at  
50 ft. centers

● Ground water wells



Paved roads



Individual hazardous  
substance sites (IHSS)



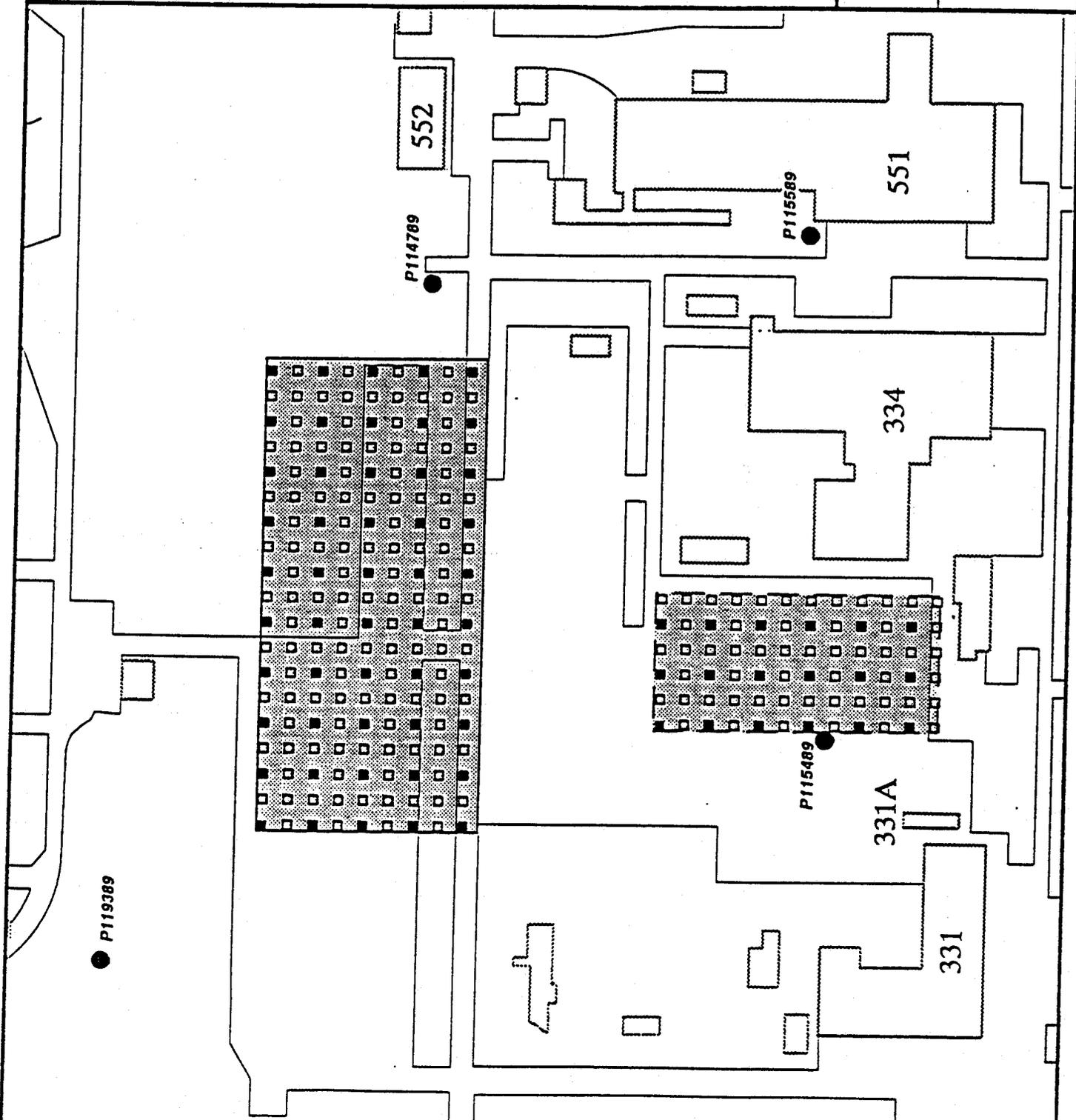
Buildings or structures

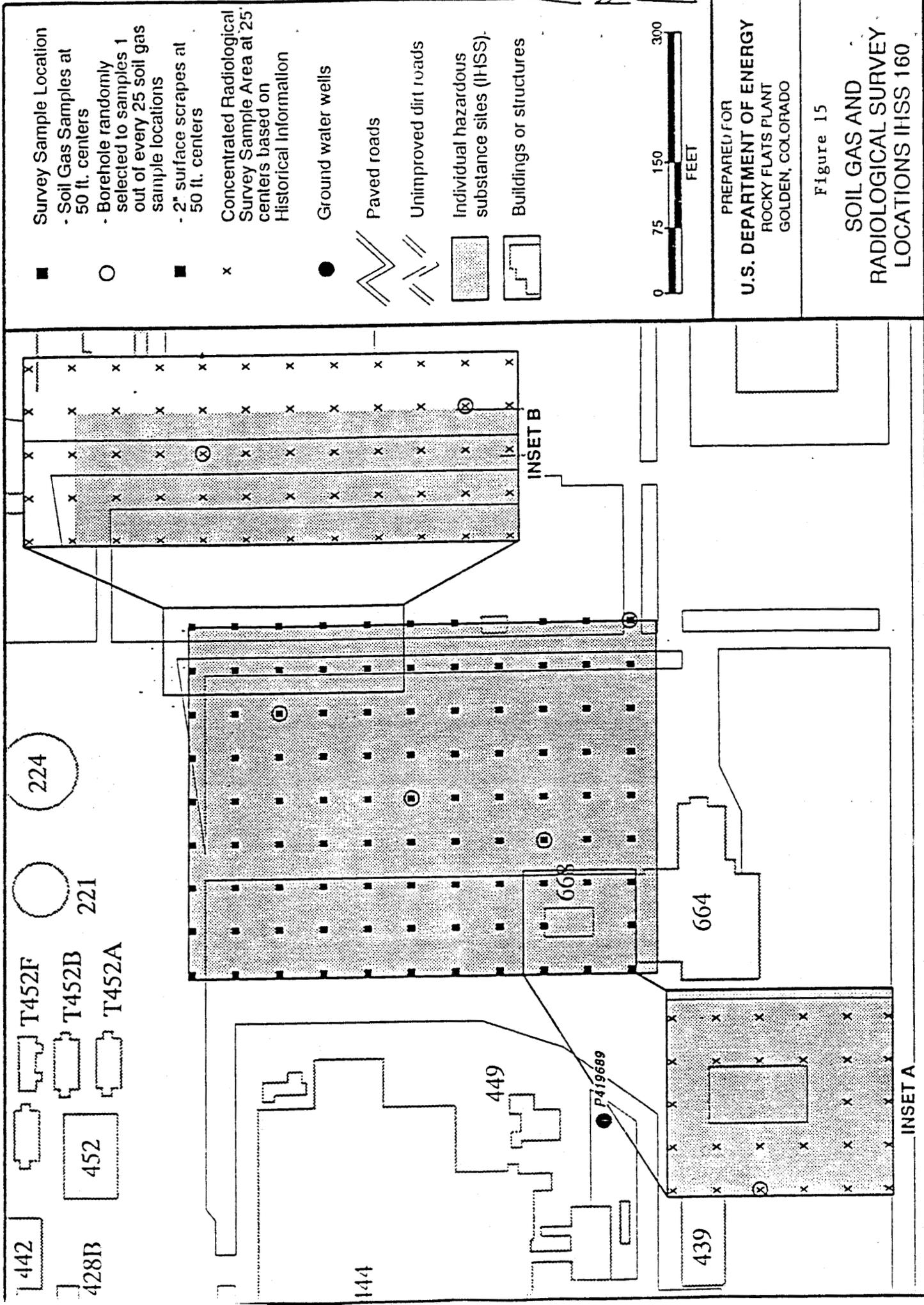


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Figure 14

SOIL BORING LOCATIONS  
IHSS 156.1





- Survey Sample Location**
- Soil Gas Samples at 50 ft. centers
  - Borehole randomly selected to samples 1 out of every 25 soil gas sample locations
  - 2" surface scrapes at 50 ft. centers

x Concentrated Radiological Survey Sample Area at 25' centers based on Historical Information

● Ground water wells

══ Paved roads

══ Unimproved dirt roads

▨ Individual hazardous substance sites (IHSS)

▭ Buildings or structures



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Figure 15

**SOIL GAS AND  
 RADIOLOGICAL SURVEY  
 LOCATIONS IHSS 160**

224

221

T452F  
 T452B  
 T452A

452

442

428B

444

449

P419689

439

668

664

INSET B

INSET A

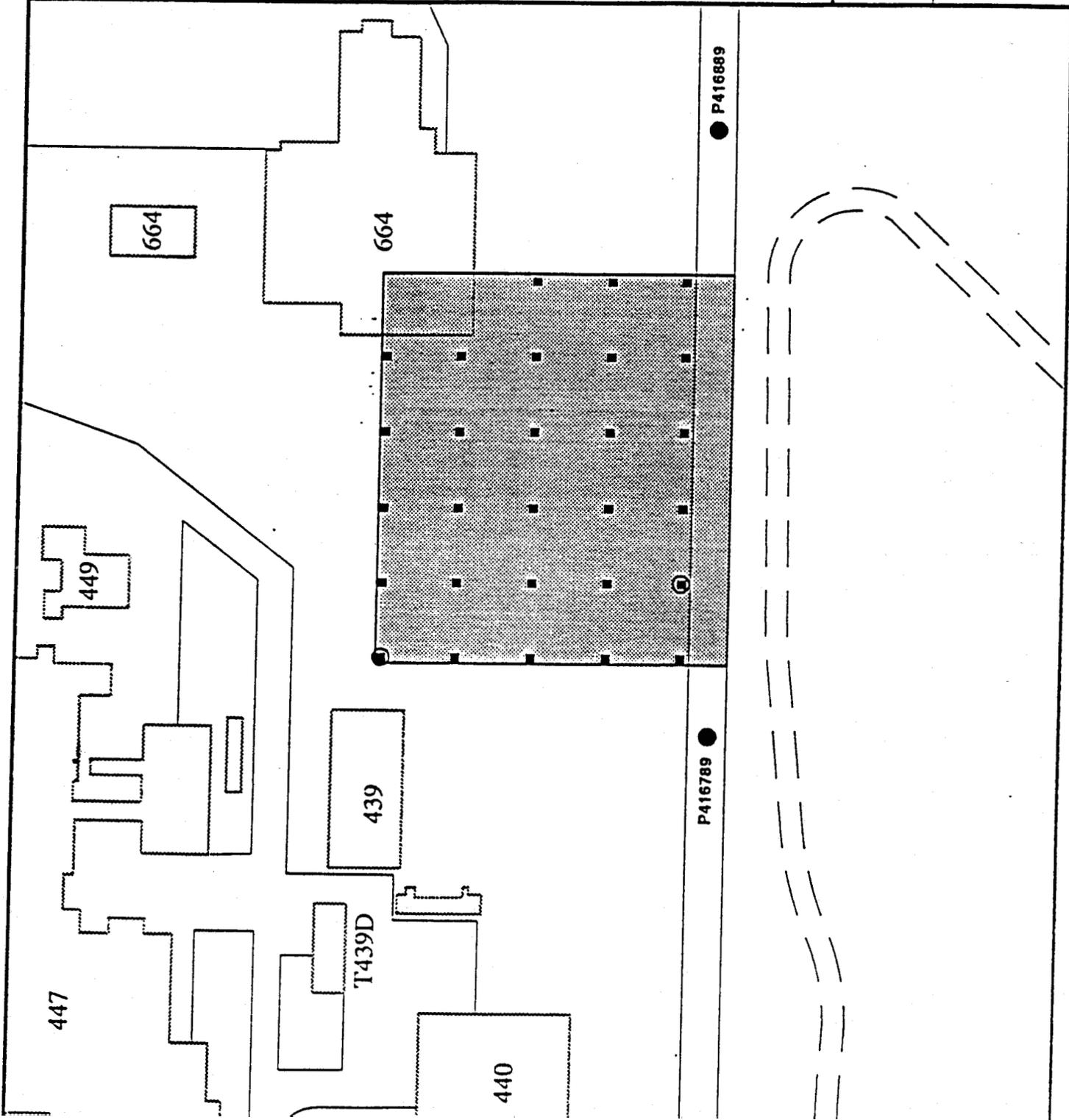
- Survey Sample Location**
- Soil Gas Samples at 50 ft. centers
  - Borehole randomly selected to samples 1 out of every 25 soil gas sample locations
  - 2" surface scrapes at 50 ft. centers
- Ground water wells**
- Paved roads**
- Unimproved dirt roads**
- Individual hazardous substance sites (IHSS)**
- Buildings or structures**



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Figure 16

**SOIL GAS AND  
 RADIOLOGICAL SURVEY  
 LOCATIONS IHSS 161**



Survey Sample Location  
 - 2' surface scrapes at 100 ft. centers  
 - 2' soil borings at 100 ft. centers

Concentrated Survey Sample Area at 25' centers based on Historical Information

Ground water wells

Paved roads

Unimproved dirt roads

Individual hazardous substance sites (IHSS)

Buildings or structures

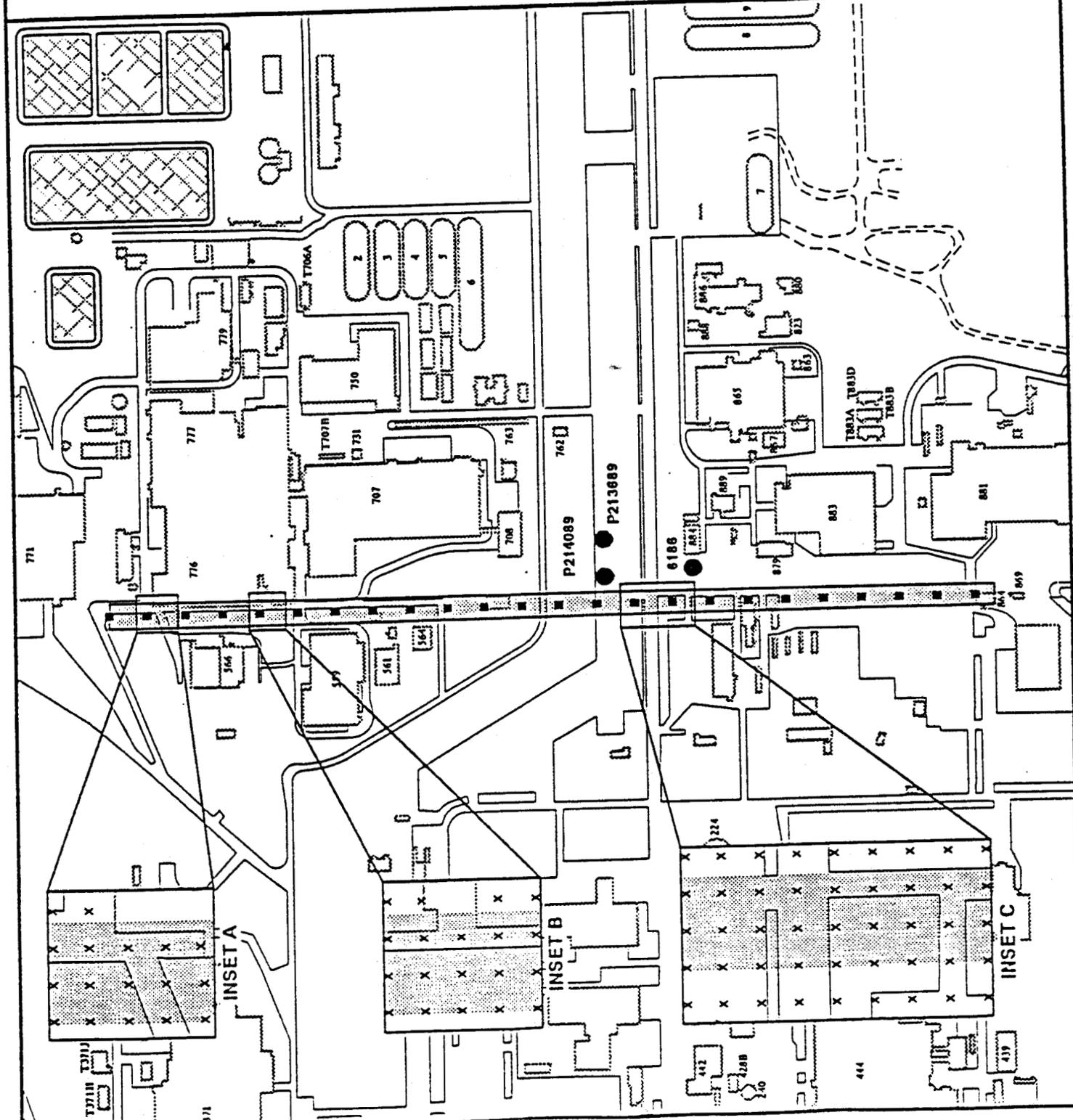
Ponds/lakes



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Figure 17

RADIOLOGICAL SURVEY  
 LOCATIONS IHSS 162



**Survey Sample Location**

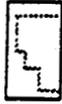
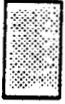
- FIDLER at 25 ft. centers
- 6' borehole at 25 ft. centers
- 2" surface scrapes at 25 ft. centers

Ground water wells

Paved roads

Individual hazardous substance sites (IHSS)

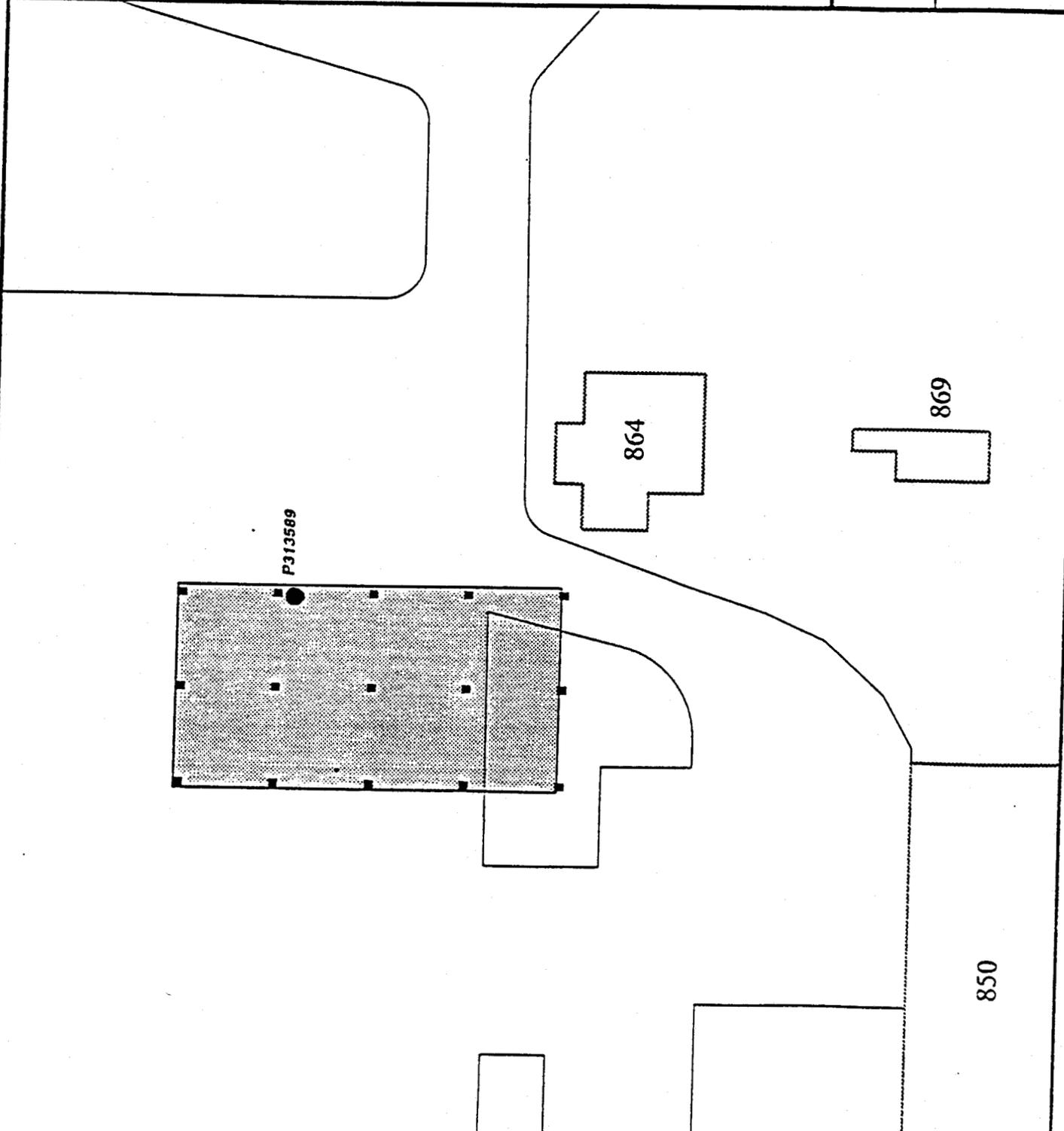
Buildings or structures



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Figure 18

**RADIOLOGICAL  
SURVEY LOCATIONS  
IHSS 164.1**



- Survey Sample Location
  - 2" surface scrapes at 25 ft. centers
  - 6" borehole at 25' centers
- FIDLER survey at 25' centers

x Concentrated Survey Sample Area at 5' centers. Boreholes drilled to weathered bedrock

● Ground water wells

══ Paved roads

══ Unimproved dirt roads

■ Individual hazardous substance sites (IHSS)

□ Buildings or structures

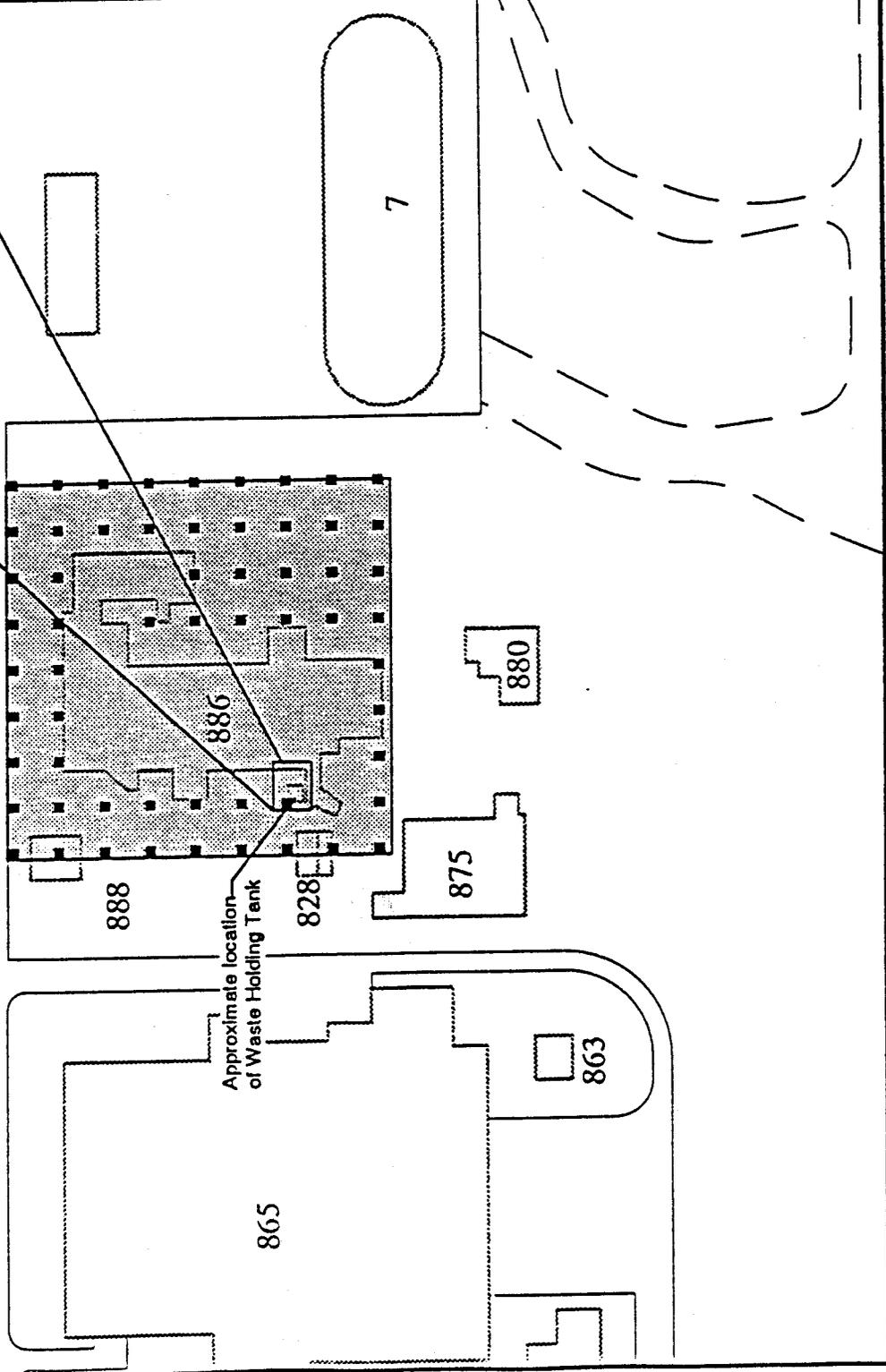
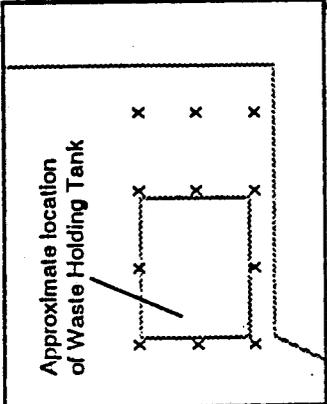


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Figure 19

RADIOLOGICAL  
SURVEY LOCATIONS  
IHSS 164.2

INSET A



- Survey Sample Location
  - 2" surface scrapes at 25 ft. centers
  - 6" borehole at 25' centers
  - FIDLER survey at 25' centers

● Ground water wells



Paved roads



Unimproved dirt roads



Individual hazardous substance sites (IHSS)



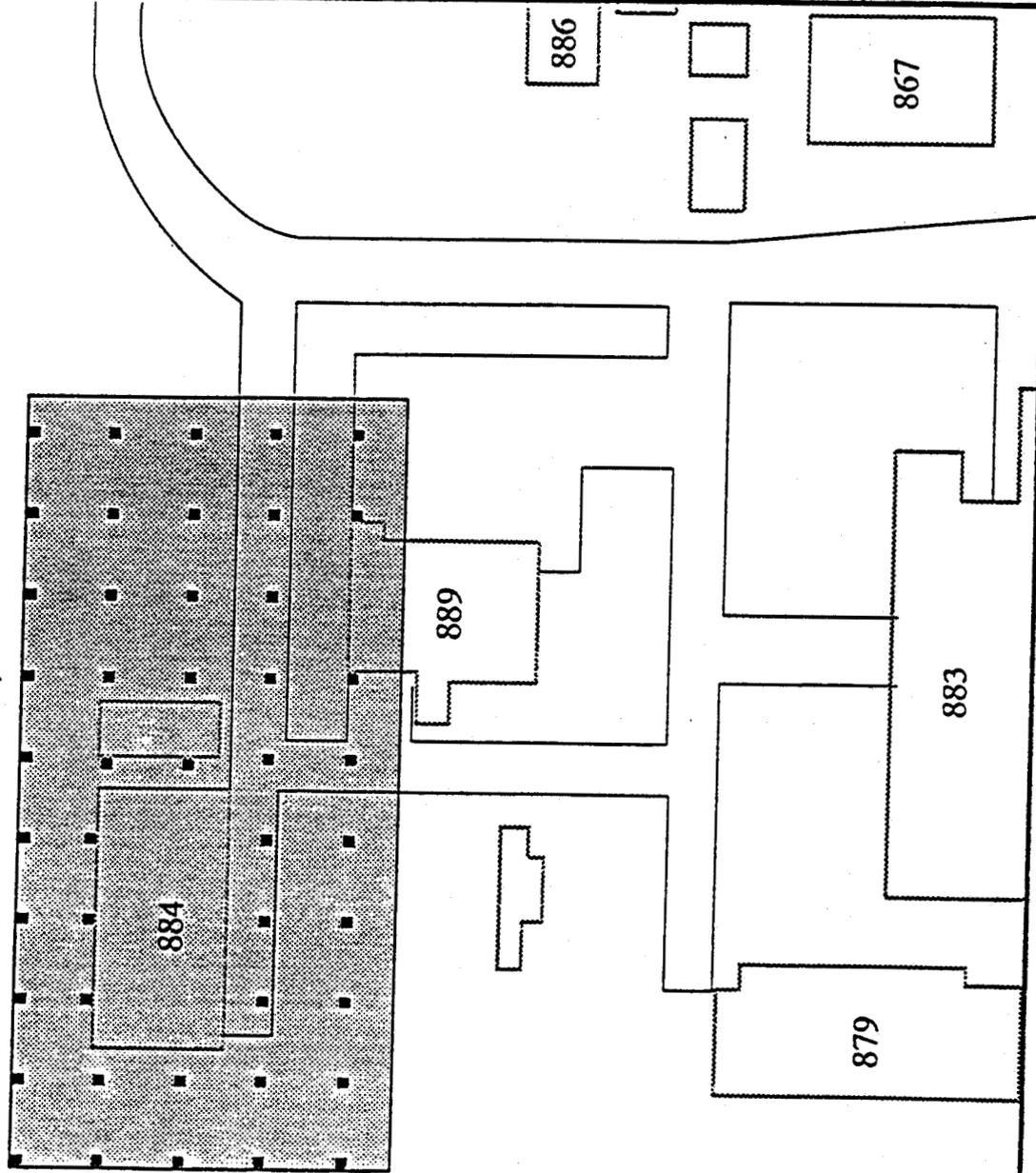
Buildings or structures



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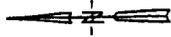
Figure 20

RADIOLOGICAL  
 SURVEY LOCATIONS  
 IHSS 164.3



U.S. Department of Energy  
Rocky Flats Plant

-  Paved roads
-  Streams, ditches, and other drainage features
-  Security fence
-  Individual hazardous substance sites (IHSS)
-  Ponds/lakes
-  Buildings or structures



Environment of Restoration  
Technical Support Document  
Operable Unit 15  
Inside Building Cleanups

Figure 21 Date: 4-30-92

