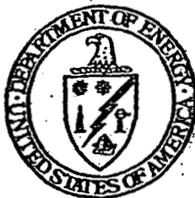


RES. CONTROL  
 GOING LTR. NO.  
 ORDER # 4700.1  
**2-RF-00139**  
 DIST. LTR ENC  
 T.  
 FORD, M.D.  
 R. G.  
 M.S.  
 N. J.C.  
 NEZ, L. A.  
 RS, K.  
 G.K.  
 ON, D.C.  
 S, M.S.  
 K.D.  
 N.R.



**Rocky Flats Environmental Technology Site**

02-RF-00139  
 02-DOE-00076

C.  
 R, J. L.  
 TON, M.  
 C, D X X  
 RLE, S.  
 K X X  
 ERA, D.  
 F.  
 RIE, V.  
 STON, T.  
 VINSKI, G.  
 S, K.  
 A, S. X X  
 P, S.

Mr. Joe Schieffelin  
 Permitting and Compliance Unit Leader  
 Federal Facilities Program  
 Hazardous Materials and Waste Management Division  
 Colorado Department of Public Health and the Environment  
 4300 Cherry Creek Drive South  
 Denver, Colorado 80246-1530

**CLOSURE DESCRIPTION DOCUMENT FOR PARTIAL CLOSURE OF INTERIM STATUS PORTION OF UNIT 40 IN BUILDING 444/447, ACID WASTE SYSTEM AND CYANIDE WASTE SYSTEM – SMN-003-002**

Dear Mr. Schieffelin:

Pursuant to the "Closure Plan for Interim Status Units at RFETS," Rev. 2/15/2000, which addresses closure of interim status units, in accordance with RCRA, Kaiser-Hill Company, L.L.C. and the United States Department of Energy, Rocky Flats Field Office (DOE, RFFO) are submitting this Closure Description Document for Partial Closure of the Interim Status Portion of Unit 40 in Building 444/447 (Acid Waste System and Cyanide Waste System), which will begin in 2002.

The Closure Description Document contains a description of the portion of the system to be closed, the selected method of closure, the types of contamination to be addressed, and the schedule for closure activities. We request approval of this Closure Description Document within 45 days of receipt.

If you have any questions, please contact Stephen Nesta of Kaiser-Hill Remediation, Industrial D&D, & Site Services (RISS) at 303-966-6386.

TH, K X X  
 ENMAN, A X X  
 I, C.  
 MPSON, J.  
 IN, D. X X  
 AL, L.  
 N, K X X  
 LAR, P. X X  
 BOTH, C.  
 RES. CONTROL X X  
 IN RECRD/080  
 FFIC  
 S/130

CLASSIFICATION:  
 II  
 CLASSIFIED  
 CONFIDENTIAL  
 RET  
 AUTHORIZED CLASSIFIER  
 SIGNATURE:

*SM Nesta 1/9/2002*  
 Stephen Nesta Date  
 Environmental Manager  
 Remediation, Industrial D&D, & Site Services  
 Kaiser-Hill Company, LLC

*Joseph A Legare 1-21-02*  
 Joseph A Legare Date  
 Assistant Manager  
 for Environment and Stewardship  
 U.S. Department of Energy

REPLY TO RFP CC NO.:

PGA:pvt

POSITION ITEM STATUS:  
 PARTIAL/OPEN  
 CLOSED  
 LTR APPROVALS:

Attachment:  
 As Stated

CC: & TYPIST INITIALS:  
 PGA:pvt

- J. Hindman - CDPHE
- D. Kruchek - CDPHE
- S. Tower - DOE, RFFO
- S. MacLeod - DOE, RFFO

ADMIN RECORD

B444-A-000136

**Closure Description Document**  
**For**  
**Partial Closure of Interim Status Portion of Unit 40**  
**Building 444/447 – Acid Waste System and Cyanide Waste System**

**U. S. Department of Energy**  
**Rocky Flats Environmental Technical Site**

**EPA ID No. CO7890010526**

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## 1.0 INTRODUCTION

### 1.1 Purpose and Scope

The Rocky Flats Environmental Technology Site's (Site) "Closure Plan of Interim Status Units at RFETS," Revision 1, February 2000, addresses closure of interim status units. Removal of the unit is subject to the Closure Plan and to a subsequent Closure Description Document that identifies the portions or sections of the Closure Plan that are applicable to the specific interim unit closure.

This Closure Description Document applies to the acid waste system and cyanide waste system in Building 444. The acid and cyanide tanks are located in the basement of Building 444, room number 9A. Closure of these portions of the system will be accomplished by clean closure decontamination.

### 1.2 Unit Closure Notification and Schedule

The Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division, is hereby notified of the Site's intent to conduct partial closure of the unit identified in Section 4.0. The submittal of this notification is a least 45 days prior to the beginning of closure activities. Closure activities for this unit will be scheduled for the second quarter of 2002. It is expected that the closure activities will be completed within 180 days.

Within 30 days after completion of partial closure activities, a summary report will be submitted to CDPHE containing details about the removal of the specified components of the unit.

### 1.3 Facility Contacts

The contacts for closure activities at RFETS in the Remediation, Industrial D&D, & Site Services projects are:

Assistant Manager For Environment and Stewardship, Rocky Flats Field Office, U.S. Department of Energy, 10808 Highway 93, Unit A, Golden, CO 80403-8200, (303) 966-5918	Environmental Manager Remediation, Industrial D&D, & Site Services, Kaiser-Hill Company, L.L.C. 10808 Highway 93, Unit B, Golden CO 80403-8200 (303) 966-6386
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## 2.0 METHOD OF CLOSURE AND PERFORMANCE STANDARD

The components of the interim status system described herein will be closed by the method described as "Clean Closure by Decontamination" in the Closure Plan, Section C. The performance standard is removing all waste present in the interim status unit; decontaminating all unit equipment and structures; removing any and all contamination present due to the operation of the unit; and achieving compliance with applicable closure

performance standards. An independent professional engineer will prepare clean closure documentation for certification.

### 3.0 SYSTEM DESCRIPTION AND WASTE CHARACTERIZATION

The acid and cyanide tanks are located in the basement of Building 444, room number 9A. The EPA codes attached to the acid and cyanide solutions these tanks collected are D001, D002, D004-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005, and F007-F009. Acid and cyanide wastes collected in these tanks came from the laboratories that operated on the second floor of Building 444 before being transferred to building 374 for final treatment.

Closure work did take place on these units when the laboratories that they serviced were closed. These actions including the remaining closure activities are described below.

#### 3.1 Acid Waste System

The acid waste system serviced the plating laboratories on the second floor of Building 444. Spent acidic solutions gravity drained from the laboratory to interim status units 40.02 and 40.03. The acid tanks were opened and inspected and they were found to be free of sediments. The acid drains that originated in the laboratories were washed with tri-sodium phosphate and flushed with water. These solutions were collected in the tanks and pumped to Building 374 for treatment. Following this, the tanks were tripled rinsed and the rinse waters were also sent to Building 374 for treatment. The process waste drains that were plumbed to these tanks were grouted shut and the tanks were blind flanged off. The acid waste system has been in this configuration since 1991.

The solution decontamination process was sufficient to meet the decontamination criteria; however, no final rinsate was collected to verify closure. To verify the successful closure of interim status units 40.02 and 40.03, less than 25 gallons of distilled water will be sprayed into each 500-gallon tank. A final rinsate sample will be collected from each tank and analyzed for total metals, volatile organics, and gross alpha beta. Additionally, a finger print analysis will also be done.

If the rinsate analysis for contaminants of concern satisfy the closure performance standards, the interim status unit will be certified as "clean closed," and will require no post-closure care or maintenance. Applicable closure performance standards are identified in RFCA Attachment 5, Table 2, Tier II - Groundwater Action Levels.

The secondary containment system for the acid waste systems has had no history of significant spills. Occasionally, when small leaks or drips were found, the spill was cleaned up and the appropriate maintenance performed on the equipment. There is no reason to believe that there are any hazardous materials residing in these structures. However, during the rinsing and sampling effort, the secondary containment will be washed with a tri-sodium phosphate solution and rinsed with distilled water. A final rinsate sample will be collected and analyzed for total metals, volatile organics, and gross alpha beta. The amount of distilled water used in the final rinse will be less than 5% of the capacity of the containment area. Clean closure by decontamination will be accomplished as described above for the tanks and applicable closure performance

standards identified in RFCA Attachment 5, Table 2, Tier II – Groundwater Action Levels.

Any portion of the system that cannot be rinsed or verified as “clean closed” (i.e., lines and pumps) will be managed as low level mixed waste. Wash and rinsate liquids will be containerized in accordance with the Site Waste Generator procedures and sampled in accordance with the Site Waste Characterization Program manual to characterize the liquid waste. The containerized liquids will be shipped to the Aqueous Waste Treatment System (AWTS) for final treatment based on the waste meeting the AWTS Waste Acceptance Criteria (WAC).

### 3.2 Cyanide Waste System

The cyanide waste system serviced the plating laboratories on the second floor of building 444. Spent cyanide solutions gravity drained from the laboratory to the interim status units 40.06 and 40.07. The cyanide drains that originated in the laboratories were washed with tri-sodium phosphate and flushed with water. Following this process the process waste drains were grouted shut and the tanks were flanged off. The cyanide waste system has been in this configuration since 1991.

This process was sufficient to meet the decontamination criteria; however, no final rinsate was collected to verify closure. To verify the successful closure of the interim status units 40.06 and 40.07, less than twenty-five gallons of distilled water will be sprayed into each 500-gallon tank. A final-rinsate sample will be collected from each tank and be sampled for total metals, volatile organics, and gross alpha beta. Additionally, a finger print analysis will be done.

If the rinsate analysis for contaminants of concern satisfy the closure performance standards, the interim status unit will be certified as “clean closed,” and will require no post-closure care or maintenance. Applicable closure performance standards are identified in RFCA Attachment 5, Table 2, Tier II – Groundwater Action levels.

As with the acid waste system, the secondary containment system for the cyanide waste systems has had no history of significant spills. However, during the rinsing and sampling effort, the secondary containment will be washed with a tri-sodium phosphate solution and rinsed with distilled water. A final rinsate sample will be collected and analyzed for total metals, volatile organics, and gross alpha beta. The amount of distilled water used in the final rinse will be less than 5% of the capacity of the containment area. Clean closure by decontamination will be accomplished as described above for the tanks and applicable closure performance standards identified in RFCA Attachment 5, Table 2, Tier II – Groundwater Action Levels.

Any portion of the system that cannot be rinsed or verified as “clean closed” (i.e., lines and pumps) will be managed as low level mixed waste. Wash and rinsate liquids will be containerized in accordance with the Site Waste Generator procedures and sampled in accordance with the Site Waste Characterization Program manual to characterize the liquid waste. The containerized liquids will be shipped to the Aqueous Waste Treatment System (AWTS) for final treatment based on the waste meeting the AWTS Waste Acceptance Criteria (WAC).

#### 4.0 SPECIFIC CLOSURE ACTIVITIES

Activities will be designed to achieve clean closure by decontamination performance standard, protect human health and the environment, and minimize waste. Specific work instructions, with engineering, health and safety, and waste management information, will be developed prior to start of closure activities. These instructions will be developed in accordance with applicable Site policies and procedures. Closure activities are summarized as follows:

##### 4.1 Establishment of System Boundaries and Scope of Removal

The acid waste and cyanide waste systems will be decontaminated and clean closed. Considerable closure work took place on these units when the laboratories that they serviced were closed. Final clean closure by decontamination will be accomplished by removing all waste present in the interim status unit; decontaminating all unit equipment and structures; removing any and all contamination present due to the operation of the unit; and achieving compliance with applicable closure performance standards. The location of the tanks is shown in drawing number 444-2.

The boundaries for the interim status unit that will be cleaned include the acid and cyanide tanks, process waste piping from the tanks to the nearest intake and discharge pipe flanges, and any other equipment specifically associated with the tanks (i.e., sampling and clean out ports). These define the extent of clean closure activities for this Closure Description Document. The endpoint boundaries for the interim status unit are the points that the tank intake pipe connects (flanged) to the laboratory drain pipe and where the tank discharge pipe connects (flanged) to the pump. Plumbing from the laboratories to the tanks and from the tanks to the canister type filter (Unit 39.01) including the acid and cyanide waste water pumps, will be characterized and managed as low-level mixed waste.

At all points where the interim units are severed and capped or blind flanged, signs will be posted. The signs will state these are portions of Unit 40, the date of removal of the upstream portions of the unit, and the continuing inspections, as required, for the remaining portions of the unit.

Because the tanks are attached to the building structure in this room, associated hardware may be removed as a housekeeping measure, but not as part of the interim status closure. In order to accomplish this, various other plant systems may also be disconnected and capped, blind flanged, foamed, grouted, or isolated by any other suitable means at the nearest point available so as not to pose a safety hazard to worker entering this room. These systems may include plant air, deionized water, distilled water, natural gas, argon, nitrogen, cooling water, electrical connections, and the plant vacuum system. These systems are not considered part of the Interim Status Unit, but may be removed to isolate the tanks so that tripping and obstruction hazardous are eliminated for workers.

## 4.2 Preparation of Engineering and IWCP Work Packages

A unit specific IWCP/engineering work package will be prepared for decontamination of the interim status units 40.02, 40.03, 40.06, and 40.07. The Site's Health and Safety Practices Manual defines general health and safety measures to be followed at the Site. Closure activities will be conducted in accordance with this manual, incorporating the results of job specific industrial and nuclear safety related evaluations and screens.

The IWCP/engineering work package and Radiological Work Permit will be used to control work, including specification of personal protective equipment for radiological and beryllium contamination, methods of pipe removal and size reduction, methods for containing any liquids or preventing releases to the environment, and waste packaging. As Low As Reasonably Achievable (ALARA) principles will be followed regarding personnel exposure to radiation. Radiological containment will be provided, if necessary, by using soft-sided structures such as glovebags, sleeves and/or portable housing.

Each room in Building 444/447 is maintained at a negative pressure relative to the outside atmosphere by the building exhaust system, which prevents the escape of potential radiological or hazardous substances to the environment. The exhausted air passes through a filtration system before being exhausted to the atmosphere.

## 5.0 DISPOSITION OF CLOSURE WASTES

It is anticipated that liquid, PPE, and combustible wastes will be generated during closure activities. The Site waste management systems will be available to receive wastes generated by these closure activities. The liquids generated during the closure activities, including any used during decontamination efforts, will be handled as addressed in Section 3.0.

The unit components (i.e., plumbing from the laboratory, pump system, and discharge piping) which are radioactively contaminated will be managed in accordance with the requirements of the RFETS Radiological Control Manual and Health and Safety Practices Manual, and will be packaged for disposal in accordance with applicable waste acceptance criteria. All waste from these systems are expected to be low-level mixed waste (see EPA codes listed in Section 3.0) and the waste will be characterized using this process knowledge and in accordance with applicable regulations. The only EPA codes that will not apply to the hazardous waste debris are D001 and D002, since the debris will not exhibit the characteristic of ignitability or corrosivity.

Wipes, other combustibles used to immobilize free liquids, and PPE will be managed as low-level mixed waste and will be characterized in accordance with applicable regulations. All waste containers will be stored in an appropriate onsite storage area prior to offsite disposal.

If during the decontamination process, the tanks and equipment fail to meet the closure performance standard, they will be removed and managed as low level hazardous waste.

Closure will then be accomplished by the method described as "Unit Removal" in the Closure Plan, Section E.

## 6.0 SOIL CONTAMINATION EVALUATION AND POST CLOSURE CARE

The operating record for these components of the unit addressed in this CDD (e.g., RCRA inspection logs and occurrence reports) indicates that there have been no spills or releases to the environment from these components as a result of waste management in this unit. Closure activities for these components are not expected to impact the soil surrounding Building 444/447. Soil contamination will be evaluated as part of decommissioning and cleanup activities for the Building 444/447 complex under RFCA, and post closure care activities are not necessary as part of the closure of this unit.

## 7.0 RECORD KEEPING

The following closure records will be maintained on Site during closure activities and at a federal repository for a minimum of 30 years following the report of closure:

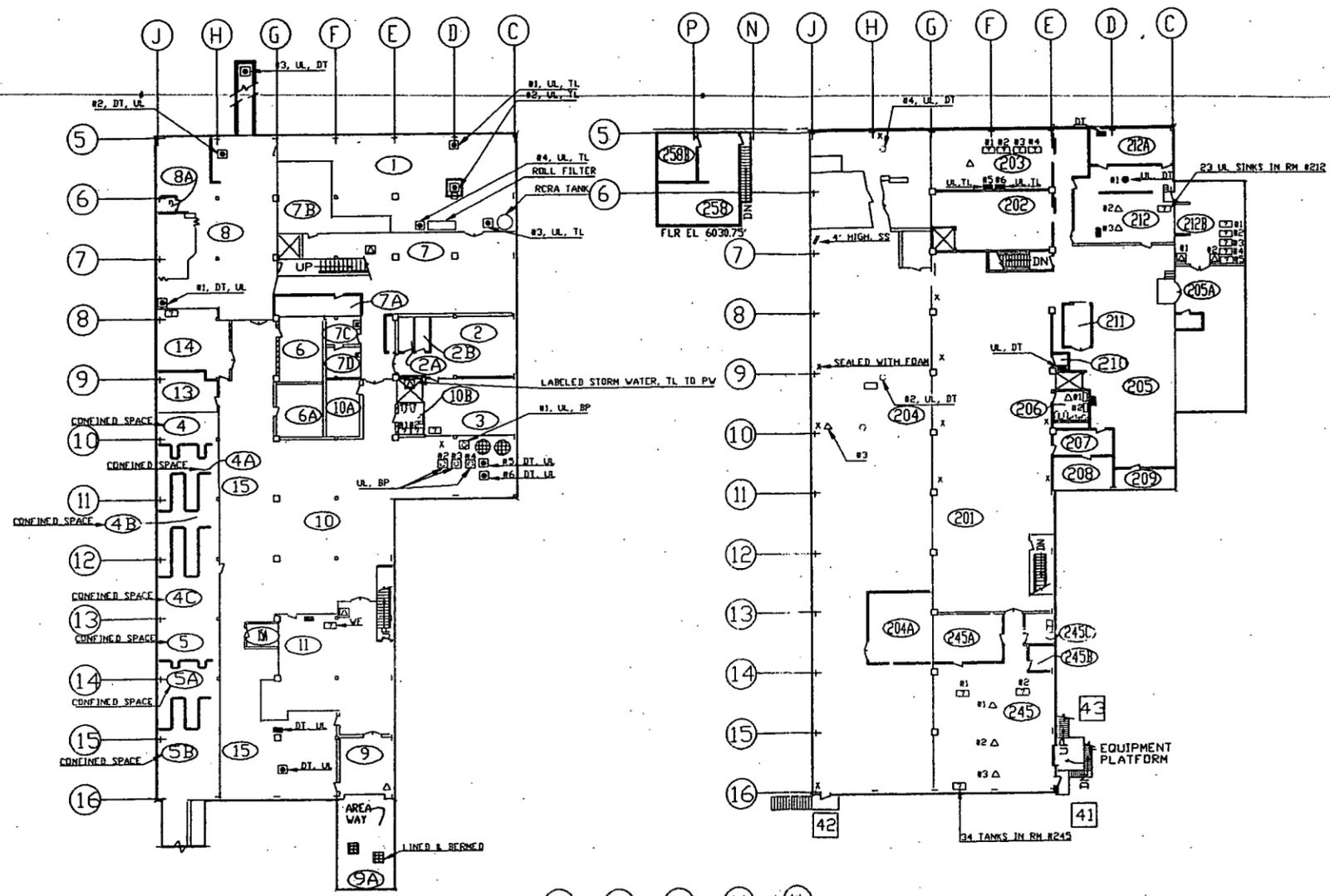
- Record of sampling activities including type, number and date of samples;
- Analytical results;
- Work instructions used to conduct closure activities and documentation verifying closure activities were conducted in accordance with the Closure Plan for Interim Status Units at RFETS and this Closure Description Document;
- Records of the volume of hazardous waste generated during closure.

## 8.0 AMENDMENT OF THE CLOSURE DESCRIPTION DOCUMENT

In conducting closure activities, unexpected events that are identified during implementation of closure activities may require an amendment to this Closure Description Document. Modifications to this Closure Description Document will be made in accordance with applicable regulations.

## 9.0 REFERENCES

1. Code of Colorado Regulations, Vol. 6, No. 1007-3.
2. Closure Plan for Interim Status Units at the Rocky Flats Environmental Technology Site, Revised February 15, 2000.



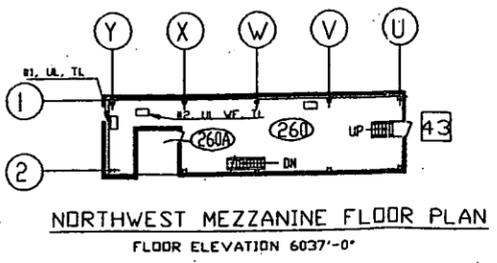
NOTES:

1. SYMBOL LOCATIONS ARE APPROXIMATE
2. SYMBOLS ARE NOT TO SCALE
3. DWG. MODIFICATIONS ARE IN RED
4. ROOMS NOT COMPLETED ARE IN GREEN
5. RCA IS OUTLINED IN MAGENTA
6. RISK AREAS ARE OUTLINED IN BLUE

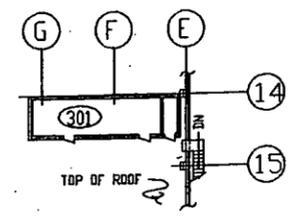
- |  |             |  |                       |
|--|-------------|--|-----------------------|
|  | TOILET      |  | SS SANITARY SEWER     |
|  | URINAL      |  | PW PROCESS WASTE      |
|  | SS SHOWER   |  | FD FLOOR DRAIN        |
|  | PW SHOWER   |  | SH SHOWER             |
|  | PW SUMP     |  | SU SUMP               |
|  | SS SUMP     |  | PSU PUMPED SUMP       |
|  | PW FL DR    |  | TR UTILITY TRENCH     |
|  | SS FL DR    |  | UL UNLABELED          |
|  | PIT/TRENCH  |  | WVA VET WORK AREA     |
|  | PW SINK     |  | WF WATER FOUNTAIN     |
|  | UL FL DR    |  | DR DRAIN              |
|  | BERM        |  | FL FLOOR              |
|  | CURBED AREA |  | P PATHWAY             |
|  | FUNNEL DR   |  | WRR WOMENS REST ROOM  |
|  | OPEN PIPE   |  | MRR MENS REST ROOM    |
|  | UL SHOWER   |  | U URINAL              |
|  | UL SUMP     |  | T TOILET              |
|  | UL SINK     |  | PEN PENETRATION       |
|  | FL PEN      |  | CS CONFINED SPACE     |
|  | MANHOLE     |  | SD STORM DRAIN        |
|  | XXX RM #    |  | EX EXPANSION JOINT    |
|  |             |  | BD BUILDING DESIGN    |
|  |             |  | BP BUILDING PERSONNEL |
|  |             |  | DVG DRAWINGS          |
|  |             |  | TL TRACEABLE LINES    |
|  |             |  | US USAGE              |
|  |             |  | MH MANHOLE            |
|  |             |  | DT DYE TESTED         |

BASEMENT FLOOR PLAN  
FLOOR ELEVATION 6031'-0"

MEZZANINE FLOOR PLAN  
FLOOR ELEVATION 6038'-0"



NORTHWEST MEZZANINE FLOOR PLAN  
FLOOR ELEVATION 6037'-0"



ROOF FLOOR PLAN  
FLOOR ELEVATION 6088'-0"

444 SECOND FLOOR & BASEMENT FLOOR PLAN  
DRAIN IDENTIFICATION STUDY

11-17-94			D. I. S.
DATE	RFP	CLASSIFICATION	JOB ID
U. S. DEPARTMENT OF ENERGY ROCKY FLATS OFFICE GOLDEN, COLORADO			
ROCKY FLATS PLANT GOLDEN, COLORADO			
SURFACE WATER DIVISION DEPT. DWG.			
<b>BASEMENT &amp; MEZZ FLOOR PLAN</b>			
SIZE	DRAWING NUMBER	ISSUE	SHEET
D	444-2	A	2 of 2

10/10