

03-RF-00057

DIST.	LTR	ENC
DIETER, T.		
FERRERA, D.W.		
FERRI, M.S.		
LINDSAY, D.		
LYLE, J.		
MARTINEZ, L. A.		
PARKER, A.		
POWERS, K.		
SHELTON, D.C.		
SPEARS, M.S.		
TRICE, K.D.		
TUOR, N. R.		



AGUILAR, P.	X	X
ALBIN, C.		
AUBLE, M.		
BEAN, C.		
BUTLER, J. L.		
CERCLA AR (T130G)	X	X
CLARK, D.		
DIETERLE, S.		
FRANCIS, M.		
FREIBOTH, C.	X	X
GIBBS, F.		
GUTHRIE, V.		
HUMISTON, T.		
KEHLER, K.		
MARSCHALL, J.R.		
MARTIN, D.		
MYERS, K.		
NESTA, S.	X	X
NORTH, K.		
OLIVER, R.		
OMAN, K.	X	X
PLAPPERT, R.		
PRIMROSE, A.		
ROSENMAN, A.	X	X
SNYDER, D.P.		
THOMPSON, J.		
VANDERPOEL, M.		
WIEMELT, K.		
WILLIAMS, L.		

January 14, 2003

03-RF-00057

Steve Tower  
D&D Program Lead  
DOE, RFFO

RSOP NOTIFICATION LETTER FOR COMPONENT REMOVAL, SIZE REDUCTION, AND  
DECONTAMINATION ACTIVITIES FOR RCRA UNIT 39 AND 40 FINAL CLOSURE IN  
BUILDING 444/447 – FEG-003-03

Attached is a draft transmittal letter to the Colorado Department of Public Health and  
Environment for the RSOP notification for RCRA Unit 39 and 40 final closure in Building  
444/447. The draft transmittal letter has been prepared from DOE RFCA coordinator to CDPHE  
RFCA coordinator.

Please contact Steve Nesta X6386 with questions or concerns.

*Frank E. Gibbs*  
Frank E. Gibbs  
Deputy Project Manager  
Remediation, Industrial D&D, and Site Services

CORRES.CONTROL	X	X
ADMIN RECRD/T130G	X	X
TRAFFIC		
PATS/130		

Attachment:  
As Stated

CLASSIFICATION:

UCNI		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

PAG:pvt

Orig. and 1 cc – Steve Tower

AUTHORIZED CLASSIFIER  
SIGNATURE:

cc:  
Joe Legare

Date:  
IN REPLY TO RFP CC NO.:

ACTION ITEM STATUS:  
 PARTIAL/OPEN  
 CLOSED  
LTR APPROVALS:

ORIG. & TYPIST INITIALS:  
PAG:pvt

DOCUMENT CLASSIFICATION  
REVIEW WAIVER PER  
CLASSIFICATION OFFICE



Kaiser Hill Company, L.L.C.

Rocky Flats Environmental Technology Site, 10808 Hwy. 93 Unit B, Golden CO 80403-8200 • 303-966-7000

ADMIN RECORD  
B444-A-000033

CEX-105-01

V19

David Kruchek  
Colorado Department of Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO 80222-1530

**RSOP FOR COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION  
ACTIVITIES NOTIFICATION LETTER FOR RCRA UNIT 39 AND 40 FINAL CLOSURE IN  
BUILDING 444/447**

Dear Mr. Kruchek:

In accordance with the Rocky Flats Cleanup Agreement Standard Operating Protocol (RSOP) for Component Removal, Size Reduction and Decontamination Activities, this letter and its attachments is notification for RSOP implementation. This notification is for all activities required to close RCRA Unit 39 and 40 in Building 444/447 as outlined in Section 5 of the RSOP. Activities will be designed to achieve the closure 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 Rocky Flats Environmental Technology Site (Site) policies and procedures.

Partial closure of Unit 40 will be completed pursuant to the previously approved/submitted Closure Description Documents:

- Closure Description Document for Partial Closure of Interim Status Portion of Unit 40 Building 444/447 – Process Waste Sinks (CDPHE approval - 25 Sept. 02)
- Closure Description Document for Partial Closure of Interim Status Portion of Unit 40 Building 444/447 – Acid Waste System and Cyanide Waste System (CDPHE approval – currently under review)

A brief description of the processes included in the CDDs identified above, and closure information for the remaining unit in Building 444 and 447, is included with this notification for completing the described full final closure.

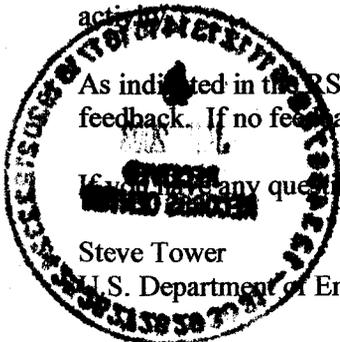
Decommissioning subcontractors may be used to conduct this work. If the subcontractor would like to use a method or process not included in the RSOP then they are required to notify Kaiser-Hill, and an additional notification may be made and, in consultation with the DOE and the LRA, the RFCA process for decision document modification will be used.

The appropriate checklists and information required by the RSOP are attached to this letter and should provide the necessary information. This work will be conducted in accordance with the work control documentation prepared by the subcontractor. The exact methods and process selected by the subcontractor and progress of the activities will be communicated to the DOE and the LRA through the consultative process, particularly the monthly RISS production meetings. The facility will not be breached during the act

As indicated in the RSOP, the LRA has 30 days to review the RSOP notification letter and provide feedback. If no feedback is received within 30 days, the project will proceed as planned.

If you have any questions regarding this, please contact me at (303) 966-2133.

Steve Tower  
U.S. Department of Energy



**RSOP For Component Removal, Size Reduction,  
and decontamination Activities Checklist**

<b>Project scope:</b> RCRA Closure of the remaining portions of Unit 40 in Buildings 444/447			
<b>Facility description:</b> Building 444/447, Manufacturing and General Support Building			
<b>Description of planned activity(ies):</b> The decontamination, size reduction, and component removal required to close the remainder of RCRA Unit 39 and 40			
<b>Facility/rooms/sets/areas involved:</b> Building 444/447, Rooms as listed			
<b>Is RCRA unit closure(s) part of the planned activity?</b>			<input checked="" type="checkbox"/> <b>Yes</b>
<b>If RCRA units are included, attach unit specific information sheets and drawings</b>			<input type="checkbox"/> <b>No</b>
<b>Attach checklists from Appendix A of the RSOP.</b> <i>Complete checklists by room/set/area/facility, as appropriate.</i> <b>Note:</b> No checklists are provided; the checklists submitted with the Building 444/447 notification for the component removal/size reduction/decontamination activities cover the associated RCRA closure.		<input checked="" type="checkbox"/>	<b>Component Removal/Size Reduction</b>
		<input checked="" type="checkbox"/>	<b>Decontamination</b>
<b>RLCR Status</b>	<input checked="" type="checkbox"/>	<b>RLCR complete and concurrence received: 11/21/02</b>	
		<b>RLCR initiated but incomplete; concurrence anticipated:</b>	
		<b>RLC has not been initiated<sup>1</sup> and is scheduled for initiation on:</b>	
<b>If RLCR is not complete or initiated, what data will be used to plan the work activities?</b>		Not applicable	
<b>Activity requires modification to the ARARs listed in the RSOP.</b>			<input type="checkbox"/> <b>Yes, attach to letter</b>
			<input checked="" type="checkbox"/> <b>No</b>
<b>Attach Administrative Record file requirements for the activity.</b> Not applicable			
<b>Point of contact for each facility/activity:</b> Cameron Freiboth, 303-966-2823			
<b>Duration of work activities:</b> 18 Months		<b>Anticipated work start:</b> First quarter 2003	
<b>Attach schedule for each facility or activity for information purposes.</b> Schedule submitted with the Building 444/447 notification included the RCRA unit closure activities.			
<b>Does the activity involve removing contaminated portions of the building shell? Include a description of the activity, contamination levels and controls</b>			<input type="checkbox"/> <b>Yes, LRA consultation and concurrence required</b>
			<input checked="" type="checkbox"/> <b>No</b>

<sup>1</sup> Evaluate using DPP, Sections 1.1.4 and 1.1.5 and the consultative process to implement activities

3

**RSOP For Component Removal, Size Reduction,  
and decontamination Activities Checklist**

Are there deviations/exceptions to the RSOP for the proposed activity(ies)?												Yes
											X	No
Provide an explanation of deviation/exception to the RSOP: Not applicable												
C. Check the appropriate resulting action box below												
Additional RFCA decision document required (PAM – IM/IRA)												
Major modification to RSOP						Field change to RSOP						
Minor modification to RSOP						LRA consultation						
Activity(ies) will result in the following waste types												Process waste
											X	Remediation waste
	TRU	X	LLW	X	LLMW	X	Haz.		Sanitary		Other:	
LRA Notification Review Time					14 days, no RCRA unit closure involved							
					X 30 days, RCRA unit closure involved							

**Administrative Record Requirements for this Activity**

- Final Rocky Flats Cleanup Agreement (RFCA)
- RFETS Decommissioning Program Plan (DPP)
- RFCA Standard Operating Protocol for Component Removal, Size Reduction, and Decontamination Activities
- Reconnaissance Level Characterization Report Area 3- Buildings 444/447
- Notification Letter and subsequent CDPHE correspondence, if appropriate

## RFCA Standard Operating Protocol (RSOP) for Facility Component Removal, Size Reduction, & Decontamination Activities

### Technical Scope Summary for RCRA Unit 39 and 40

#### 1.0 INTRODUCTION

Building 444 was used for the manufacture of uranium and beryllium parts. Operations included beryllium, uranium, and electric discharge machining, welding, heat treating, coating, plating, etching, and nondestructive testing. Building 447 was a multipurpose manufacturing and waste processing facility, which supported Building 444. Operations in Building 447 included electron beam welding, electrochemical operations, heat treating, vacuum arc melting, nondestructive testing, chip roasting, and chip cementing.

This technical scope summary provides RCRA unit specific closure information for portions of RCRA Unit 39 and 40, the process waste system in Building 444/447. The process waste system consists of three distinct units: the acid waste system, the cyanide waste system, and the process wastewater system. All three systems followed a common discharge pathway, from Building 444 through valve vaults 13, 14, 15, 16, 19, and 20 via the low-level line into Building 374 for treatment. The process waste system contains 11 Interim Status Units, consisting of tanks, floor sumps, floor drains, and sinks.

Interim status units to be closed under this RSOP notification are Units 39.01, 39.02, 40.04, 40.05, 40.35, 40.36, and 40.37. All of the interim status units are RCRA Stable. Five of the units that receive water from the building perimeter drains by way of the floor sumps, continue to be utilized for ground water management.

The closure of these RCRA regulated units shall be in accordance with the Rocky Flats Environmental Technology Site's (RFETS) "RFCA Standard Operating Protocol (RSOP) for Facility Component Removal, Size Reduction, and Decontamination Activities, Revision 2, November 4, 2002".

#### 2.0 SYSTEM DESCRIPTION AND WASTE CHARACTERIZATION

All the interim status units in Building 444/447 are currently in a RCRA Stable condition (i.e., they are operationally empty and have been isolated from the process waste system). Closure of these units will be accomplished by a combination of Clean Closure and Unit Removal without On-Site Treatment. Due to the nature and extent of contamination in some areas, it is anticipated that certain ancillary equipment will not be able to meet the decontamination standard and will require removal. Final closure of this equipment will be completed during D&D under RFCA.

As indicated above, the process waste system consists of three distinct units: the acid waste system, the cyanide waste system, and the process waste system. The acid waste system, cyanide waste system and a portion of the process waste system of Unit 40 will be completed pursuant to previously approved Closure Description Documents:

- Closure Description Document for Partial Closure of Interim status Portions of Unit 40 Building 444/447 – Acid Waste System and Cyanide Waste System (CDPHE approved: 25 Sept. 02)
- Closure Description Document for Partial Closure of Interim status Portions of Unit 40 Building 444/447 – Process Waste Sinks (CDPHE approved: currently under review by CDPHE)

The closure information for the remaining system tanks is included with this notification and are identified as follows: T-2 (Unit 40.04), T-3 (Unit 40.05), T-4 (Unit 40.35), ST-5 (40.36), Roll/Fabric Filter (39.01), Roll/Fabric Filter (39.02), and T-6 (Unit 40.37). The subject tanks and ancillary equipment located in Building 444 are part of the process waste system Unit 40. This system was used in the collection of aqueous process waste generated in Buildings 444/447. The EPA hazardous waste codes assigned to this permitted tank unit are D001, D002, D004 – D011, D018, D019, D028, D029, D035, D038, D040, D043, F001 – F003, F005, and F007 – F009. Attachment B, "Associated RCRA Waste Codes, Contaminants of Concern, & Action Levels", identified the RCRA Waste Codes, the contaminants of concern, and action levels associated with the remaining process waste system tanks. Rinseate from the tanks will be compared to action values in Attachment B to determine clean closure.

## 2.1 Process Waste System

Process wastes such as spent cleaning solutions, caustics, acids, water based coolants and cleaners, oils, and other materials generated in Building 444 from the laboratory sinks and process operations were pumped in overhead piping or gravity drained into the Building 444 process waste collection system. The wastes were collected in Unit 40.35 (holding tank T-4), then pumped through Unit 39.01 (rotary cloth filtration system), to Unit 40.36 (sump tank ST-5). Wastes collected in Unit 40.36 were pumped to Units 40.04 and 40.05 (process waste tanks T-2 and T-3) for transfer to Building 374 for treatment.

Process wastes generated in Building 447 were pumped in overhead piping or gravity drained into the process waste collection system. The wastes were filtered through Unit 39.02 (rotary cloth filtration system) and collected in Unit 40.37 (holding tank T-6). The wastes were then pumped to Unit 40.35 (holding tank T-4) in Building 444. Piping and Instrumentation diagrams for the process waste tanks are included in Attachment A. These RCRA units will be closed in compliance with the closure performance standards described in the following sections.

**2.1.1 Roll filters.** As discussed above, RCRA Units 39.01 and 39.02 were roll filter units. These units were an integral part of the process waste collection system in building 444/447. Each consisted of a roll filter table, an associated surge tank, a 55-gallon drum that contained the used filter fabric, and secondary containment for this equipment. The roll filters were designed to assure that all particulate materials were removed from the liquid waste streams generated in the building. The particulate materials, and the used filter cloth, were routinely packaged as low level mixed waste. The EPA hazardous waste codes assigned to this units are D001, D002, D004, D005, D007, D008, D018, D019, D028, D029, D035, D038, D040, D043, F001 – F003, F007, and F009.

Maintenance activities were conducted as a portion of the RCRA Stable effort in Building 444/447 in 1997. These activities indicated that the roll filters were in need of considerable repair. Consequently, both roll filters were removed. No attempt was made to decontaminate the roll filters and they were packaged as a mixed waste. Following the verification that no hazardous materials existed in the wastewater that was being managed in the building, a single canister-type filter was placed in the system at the former location of Unit 39.01. The canister-type filter is being managed as RCRA Stable.

To complete the closure of the roll filter units (Units 39.01 and 39.02), the open-top tanks will be inspected to determine if they contain any sludge. If sludge is discovered, it will be removed and handled as low level mixed waste. The tank and secondary containment will then be flushed with a solution of trisodium phosphate or other suitable detergent. The final rinse water will be sampled for total metals, VOCs, cyanide, and gross alpha beta. Fingerprint analysis (including pH and reactivity) will also be run. Comparisons of these data will be made to the RFCA, Attachment 5, Ground Water Action Levels, Tier II (see Attachment B), to assess clean closure by decontamination. If the sample cannot be verified "clean close", the closure process may be repeated. If the tanks cannot be rinsed or verified as "clean close", the tanks will be removed and managed as low level mixed waste.

In accordance with the Facility Component Removal, Size Reduction, and Decontamination Activities RSOP, the roll filter tanks of this unit will be closed under section 5.1.1, "Clean Closure Options #2, by chemical decontamination. Regulated solid waste generated in association with these removal actions will be managed in accordance with Section 7.3, "Waste Management" of the RSOP. The D001 and D002 codes will not be applicable to the solid waste upon generation because the waste will no longer exhibit the characteristic of ignitability or corrosivity.

To complete closure of the single canister-type filter, the canister will be opened and the filter socks removed and managed as low level mixed waste. The canister will be inspected to determine if it contains any sludge. If sludge is discovered, it will be removed and handled as low level mixed waste. The canister and secondary containment will then be flushed with a solution of trisodium phosphate or other suitable detergent. The final rinse water will be sampled for total metals, VOCs, cyanide, and gross alpha beta. Fingerprint analysis (including pH and reactivity) will also be run. Comparisons of these data will be made to the RFCA, Attachment 5, Ground Water Action Levels, Tier II (see Attachment B), to assess clean closure by decontamination. If the canister cannot be verified "clean close", the closure process may be repeated. If the canister cannot be rinsed or verified as "clean close", the canister will be removed and managed as low level mixed waste.

In accordance with the Facility Component Removal, Size Reduction, and Decontamination Activities RSOP, the filter canister will be closed under section 5.1.1, "Clean Closure Options #2, by chemical decontamination. Regulated solid waste generated in association with these removal actions will be managed in accordance with Section 7.3, "Waste Management" of the RSOP. The D001 and D002 codes will not be applicable to the solid waste upon generation because the waste will no longer exhibit the characteristic of ignitability or corrosivity.

**2.1.2 Ground Water Management Tanks.** RCRA Units 40.05 and 40.37 (process waste tanks T-2 and T-6) have been used primarily for the management of non-hazardous ground water since about 1993. Since 1996 samples of water have been collected from the tanks indicating that the water is non-hazardous. These data were submitted to the CDPHE and proved sufficient to declare the tanks RCRA Stable. Inspection frequency was modified from daily to quarterly (Ref: Joe Schieffelin memo to Joseph Legare, "RCRA Stable" Approval for Various Interim Status Units; EPA ID# CO7890010526, Dated August 23, 1999).

The ground water management and building cleanup are primarily responsible for the non-hazardous water that currently resides in the interim status units due to the large volume of non-hazardous water that has passed through these units. The combination of existing water quality data and newly-generated information will be used to show clean closure of these interim status units.

The final step in the closure process will be to rinse the tanks, sumps, and ancillary equipment discussed in the preceding paragraphs. The final rinse will not exceed 5% of the volume of the tank system. The water will be collected in Units 40.04, 40.05, and 40.37. A composite sample will be collected and analyzed for total metals, VOCs, cyanide, and gross alpha beta. Fingerprint analysis (including pH and reactivity) will also be run. Comparisons of these data will be made to the RFCA, Attachment 5, Ground Water Action Levels, Tier II (see Attachment B), to assess clean closure by decontamination. If the composite sample cannot be verified "clean close", the closure process may be repeated by rinsing individual components, analyzing the rinsate, and evaluating the results. Any portion of the system that cannot be rinsed or verified as "clean close", (i.e., lines and pumps) will be removed and managed as low level mixed waste.

In accordance with the Facility Component Removal, Size Reduction, and Decontamination Activities RSOP, the ground water management tanks will be closed under Section 5.1.1, "Clean Closure", Clean

Closure Option #2. Because these tanks have managed several thousand gallons of non-hazardous water, a chemical decontamination step will not be completed, as this water has served that purpose. Regulated solid waste generated in association with these removal actions will be managed in accordance with Section 7.3, "Waste Management", of the RSOP. The D001 and D002 codes will not be applicable to the solid waste upon generation because the waste will no longer exhibit the characteristic of ignitability or corrosivity.

### **3.0 SYSTEM BOUNDARIES**

The boundary for the RCRA tank units and ancillary equipment removal will be Valve Vault #19. A number of intermediate isolation points will be identified in the detailed work packages that will assure the selection of a point that can be capped or blind flanged in a manner that prevents tripping or obstruction hazards. These interim isolation points will be required in order to practically complete the waste removal (liquids and sludge) and to allow for a phased system closure. A portion of the piping from Building 444/447 to Valve Vault #19 may be removed under Closure Description Document for Partial Closure of RCRA Unit 374.3 – The 400 area Process Waste Transfer System at RFETS.

### **4.0 DISPOSITION OF WASTES GENERATED DURING CLOSURE**

It is anticipated that the Site's waste management and treatment systems will be available to receive the cleanup waste. The cleanup waste will include wastewaters to be treated in the AWTS or CWTF, equipment that is stripped out during the closure process, and other solid waste, such as used Personal Protective Equipment (PPE).

The Unit components 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. The waste that cannot be or does not meet clean closure, will be characterized using 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, because 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.

### **5.0 RECORDS**

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 RCRA Permit Part B Closure Plan and this RSOP Notification;
- Records of the volume of hazardous waste generated during closure, as documented in the Closure Summary Report

Closure Summary Report will be part of the Facility Closeout Report.

## ATTACHMENT A

### Piping and Instrumentation Diagrams Building 444/447

Drawing Numbers	RCRA Unit	System	Page(s)
<b>B39650-2050 through B39650-2052</b>	<b>40.04 40.05 40.35 40.36 39.01</b>	<b>Process Waste Tank T-2 Process Waste Tank T-3 Holding Tank T-4 Sump Tank ST-5 Roll/Fabric Filter (B444)</b>	<b>A-2 – A-4</b>
<b>B39650-2330</b>	<b>40.04 40.05</b>	<b>Secondary Containment for: Process Waste Tank T-2 Process Waste Tank T-3</b>	<b>A-5</b>
<b>B39650-2331</b>	<b>40.35</b>	<b>Secondary Containment for: Tank T-4</b>	<b>A-6</b>
<b>B39650-2332</b>	<b>40.36 39.01</b>	<b>Secondary containment for: Tank ST-5 Roll/Fabric filter (B444)</b>	<b>A-7</b>
<b>B39650-2055</b>	<b>40.37 39.02</b>	<b>Tank T-6 Roll/Fabric filter (B4470)</b>	<b>A-8</b>
<b>B39650-2336</b>	<b>40.37 39.02</b>	<b>Secondary Containment for: Tank T-6 Roll/Fabric Filter (B447)</b>	<b>A-9</b>

10

**ATTACHMENT B**

**Associated RCRA Waste Codes, Contaminants of Concern & Action Levels  
(RFCA, Attachment 5, Ground Water Action Levels)**

RCRA Waste Code	Associated Contaminants of Concern	Tier II Action Level (mg/L)
D001	Ignitable	No longer characteristic (RFCA, Ground Water Action Levels, Attachment 5)
D002	Corrosive	pH between 6 and 9
D004	Arsenic	5.00E-02
D005	Barium	2.00E+00
D006	Cadmium	5.00E-03
D007	Chromium	1.00E-01
D008	Lead	1.50E-02
D009	Mercury	2.00E-03
D010	Selenium	5.00E-02
D011	Silver	1.83E-01
D018	Benzene	5.00E-03
D019	Carbon Tetrachloride	5.00E-03
D028	1,2 Dichloroethane	5.00E-03
D029	1,1 Dichloroethylene	7.00E-03
D035	Methyl Ethyl Ketone	2.19E+01
D038	Pyridine	See Note
D040	Trichloroethylene	5.00E-03
D043	Vinyl Chloride	2.00E-03
F001	Listed spent halogenated solvents used in degreasing	Action level varies with solvent*
F002	Listed spent halogenated solvents	Action level varies with solvent*
F003	Listed spent non-halogenated solvents	Action level varies with solvent*
F005	Listed spent non-halogenated solvents	Action level varies with solvent*
F007	Spent cyanide plating bath solution from electroplating operations	Action level varies with constituent*
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process	Action level varies with constituent*
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process	Action level varies with constituent*

\* Analytical results will be evaluated for various constituents of each solvent associated with the RCRA waste codes.

Note: Tier II Action Level will be less than maximum concentration of contaminants for the toxicity characteristics.

**NOTES**

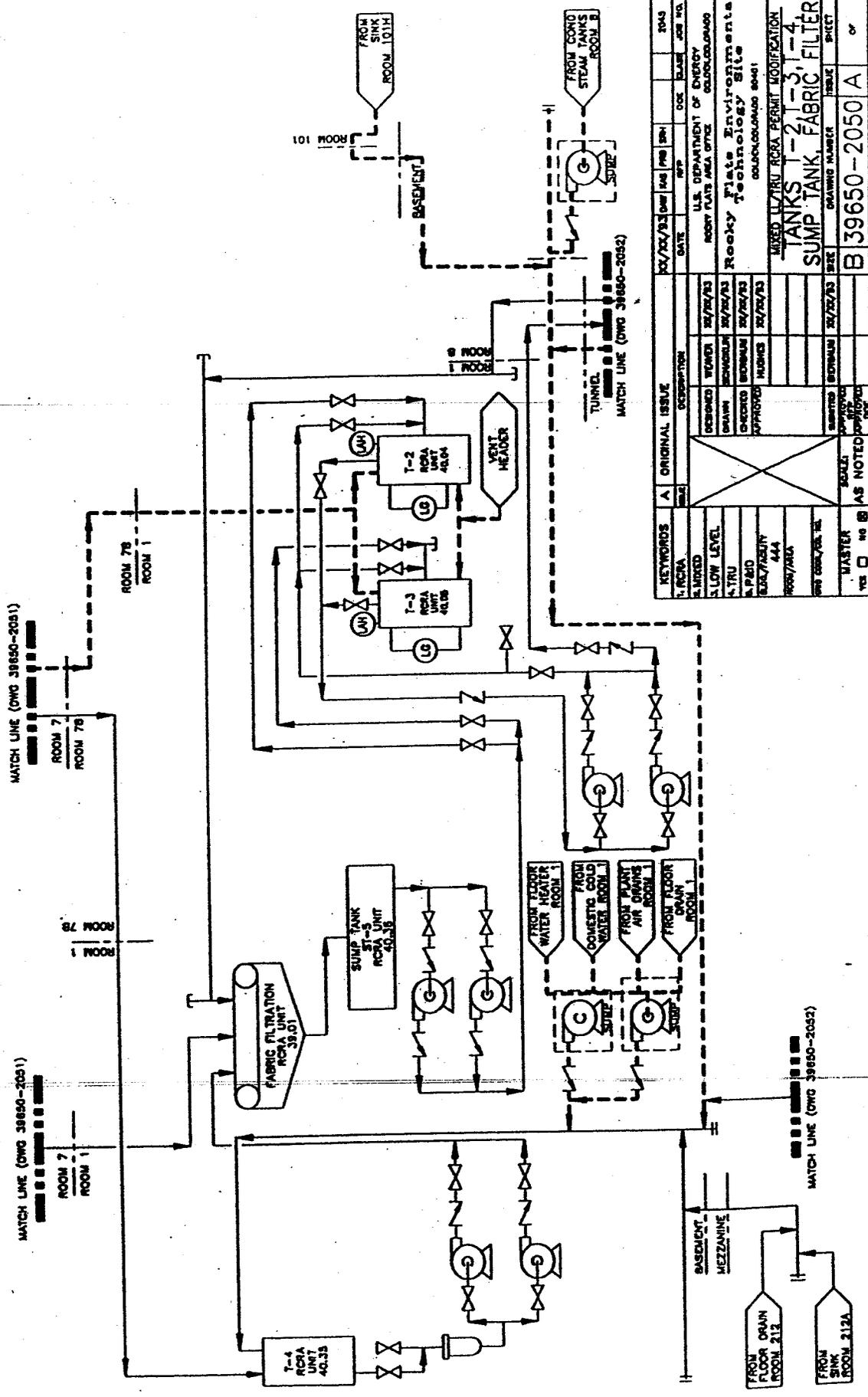
- 1) EQUIPMENT AND MATERIAL SHOWN IN ARROW BOXES ARE NOT CONSIDERED PART OF THE REGULATED UNIT.

--- NON RCMA

ST-5  
SUMP TANK

FABRIC FILTERS

I-2, I-3, I-4  
PROCESS WASTE TANKS



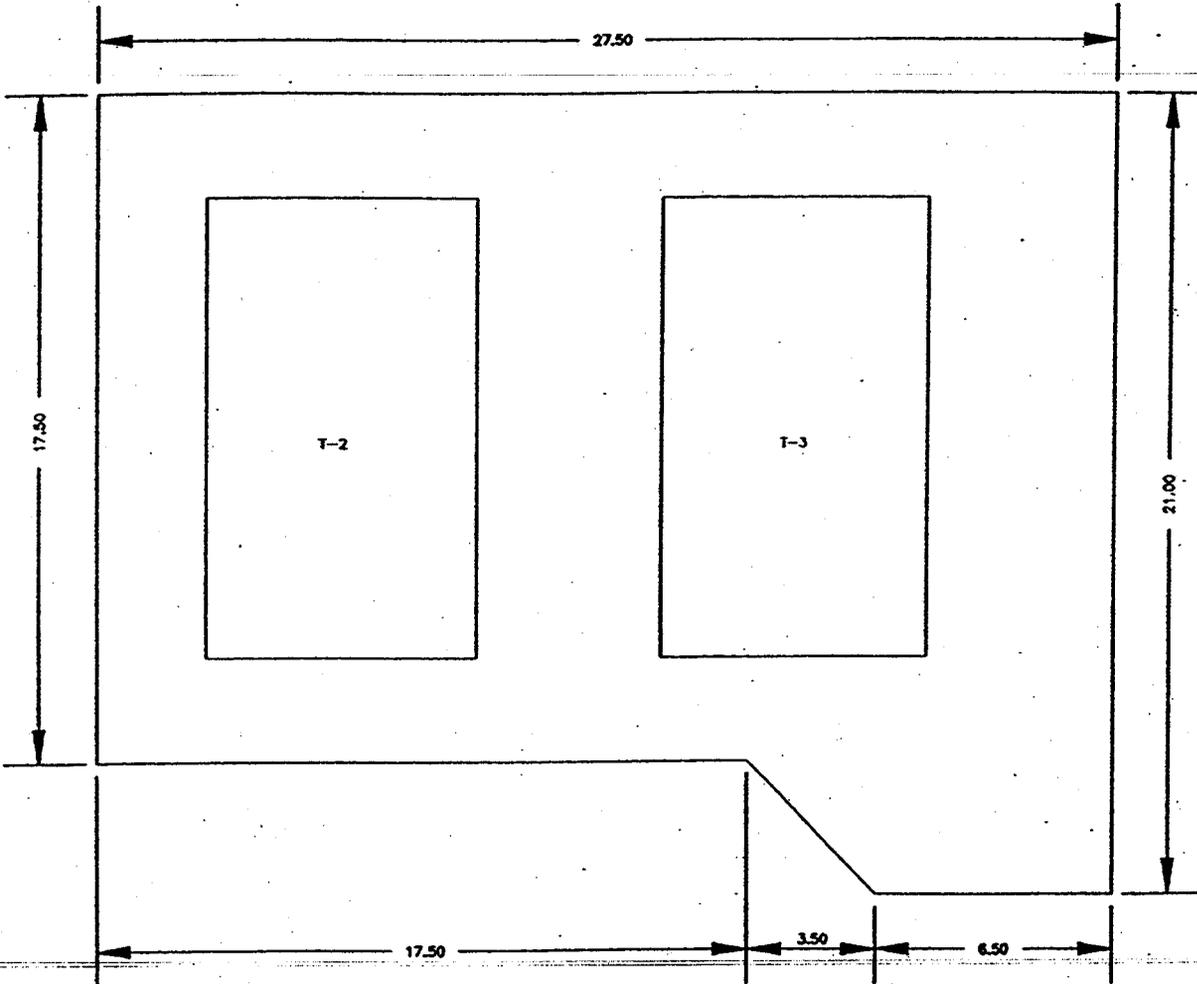
KEYWORDS	A	ORIGINAL	ISSUE	DATE	ISSUE NO.	ISSUE	DATE	ISSUE NO.
1. RCMA				03/22/83	001		03/22/83	001
2. MIXED								
3. SLOW LEVEL								
4. TRU								
5. P.M.D.								
6. S.A./S.A./T								
7. 444								
8. RCMA/RCMA								
9. RCMA/RCMA								
10. RCMA/RCMA								
11. RCMA/RCMA								
12. RCMA/RCMA								
13. RCMA/RCMA								
14. RCMA/RCMA								
15. RCMA/RCMA								
16. RCMA/RCMA								
17. RCMA/RCMA								
18. RCMA/RCMA								
19. RCMA/RCMA								
20. RCMA/RCMA								
21. RCMA/RCMA								
22. RCMA/RCMA								
23. RCMA/RCMA								
24. RCMA/RCMA								
25. RCMA/RCMA								
26. RCMA/RCMA								
27. RCMA/RCMA								
28. RCMA/RCMA								
29. RCMA/RCMA								
30. RCMA/RCMA								
31. RCMA/RCMA								
32. RCMA/RCMA								
33. RCMA/RCMA								
34. RCMA/RCMA								
35. RCMA/RCMA								
36. RCMA/RCMA								
37. RCMA/RCMA								
38. RCMA/RCMA								
39. RCMA/RCMA								
40. RCMA/RCMA								
41. RCMA/RCMA								
42. RCMA/RCMA								
43. RCMA/RCMA								
44. RCMA/RCMA								
45. RCMA/RCMA								
46. RCMA/RCMA								
47. RCMA/RCMA								
48. RCMA/RCMA								
49. RCMA/RCMA								
50. RCMA/RCMA								
51. RCMA/RCMA								
52. RCMA/RCMA								
53. RCMA/RCMA								
54. RCMA/RCMA								
55. RCMA/RCMA								
56. RCMA/RCMA								
57. RCMA/RCMA								
58. RCMA/RCMA								
59. RCMA/RCMA								
60. RCMA/RCMA								
61. RCMA/RCMA								
62. RCMA/RCMA								
63. RCMA/RCMA								
64. RCMA/RCMA								
65. RCMA/RCMA								
66. RCMA/RCMA								
67. RCMA/RCMA								
68. RCMA/RCMA								
69. RCMA/RCMA								
70. RCMA/RCMA								
71. RCMA/RCMA								
72. RCMA/RCMA								
73. RCMA/RCMA								
74. RCMA/RCMA								
75. RCMA/RCMA								
76. RCMA/RCMA								
77. RCMA/RCMA								
78. RCMA/RCMA								
79. RCMA/RCMA								
80. RCMA/RCMA								
81. RCMA/RCMA								
82. RCMA/RCMA								
83. RCMA/RCMA								
84. RCMA/RCMA								
85. RCMA/RCMA								
86. RCMA/RCMA								
87. RCMA/RCMA								
88. RCMA/RCMA								
89. RCMA/RCMA								
90. RCMA/RCMA								
91. RCMA/RCMA								
92. RCMA/RCMA								
93. RCMA/RCMA								
94. RCMA/RCMA								
95. RCMA/RCMA								
96. RCMA/RCMA								
97. RCMA/RCMA								
98. RCMA/RCMA								
99. RCMA/RCMA								
100. RCMA/RCMA								

12





NOTES



SECONDARY CONTAINMENT CALCULATIONS

- 1) VOLUME OF LARGEST TANK (Vt): 3814 gal
- 2) FLOOR AREA (Af): 510 sf
- 3) AREA OF OBSTRUCTIONS (Ao): 0 sf
- 4) NET AREA (An): (An)=(Af)-(Ao) 510 sf
- 5) MINIMUM BERM (Hb): 1.0 ft  
 $(Hb)=(Vt)/((An) \times 7.48 \text{ gal./cf})$

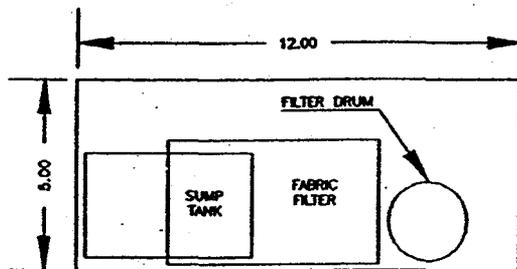
KEYWORDS	A	ORIGINAL ISSUE	XX/XX/83	DR	SR	PR	SP			
RCRA	REV	DESCRIPTION	DATE	APP	DOC	CLASS	JOB NO.			
MODIFIED		DESIGNED	WEAVER	XX/XX/83	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLD/COLORADO					
ALLOW LEVEL		DRAWN	EDRNE	XX/XX/83	Rocky Flats Plant					
TRU		CHECKED	BERNHAM	XX/XX/83	GOLD/COLORADO 00441					
SECOND CONTAIN		APPROVED	HUGHES	XX/XX/83	MODIFIED LL/TRU RCRA PERMIT MODIFICATION					
PLUG/FACILITY					ROOM 1					
ROOM/AREA										
NO. COUL./CUL. NO.										
MASTER		SCALE:	BERNHAM	XX/XX/83	SIZE	DRAWING NUMBER	ISSUE	SHEET		
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		NONE			B	39650-2330	A	OF		

444  
1

15



NOTES



SECONDARY CONTAINMENT CALCULATIONS

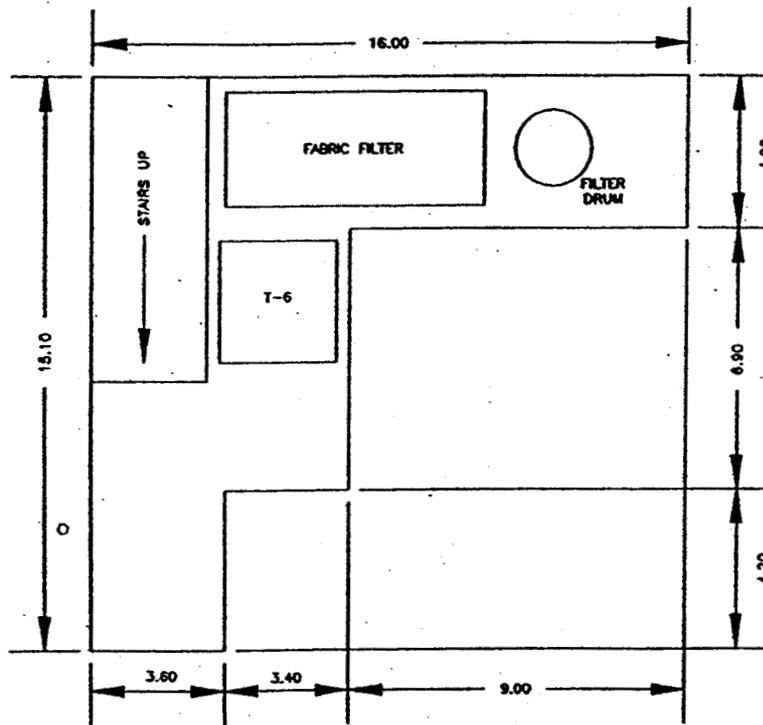
- 1) VOLUME OF LARGEST TANK (Vt): 100 gal
- 2) FLOOR AREA (Af): 60 sf
- 3) AREA OF OBSTRUCTIONS (Ao): 0 sf
- 4) NET AREA (An): (An)=(Af)-(Ao) 60 sf
- 5) MINIMUM BERM (Hb): 2.7 in  
 $(Hb)=((Vt)/((An) \times 7.48 \text{ gal./cf})) \times 12 \text{ in/ft}$

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/83	DATE	REV	BY	CHK	DATE	CLASS	JOB NO.
RCRA	ISSUE	DESCRIPTION								
DESIGNED	WEAVER	XX/XX/83	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE							
DRAWN	EDRHE	XX/XX/83	Rocky Flats Plant							
CHECKED	BERNHAM	XX/XX/83	GOLDEN/COLORADO 80401							
APPROVED	HUGHES	XX/XX/83	MODIFIED LL/TRU RCRA PERMIT MODIFICATION							
ROOM 1										
DESIGNED	BERNHAM	XX/XX/83	SIZE	ISSUING NUMBER	SCALE	SHEET				
APPROVED	BY									
APPROVED	BY									
MASTER	SCALE:	NONE				B 39650-2332		A	of	

17



NOTES



447  
31

SECONDARY CONTAINMENT CALCULATIONS

- 1) VOLUME OF LARGEST TANK (V<sub>l</sub>): 250 gal
- 2) FLOOR AREA (A<sub>f</sub>): 102 sf
- 3) AREA OF OBSTRUCTIONS (A<sub>o</sub>): 0 sf
- 4) NET AREA (A<sub>n</sub>): (A<sub>n</sub>)=(A<sub>f</sub>)-(A<sub>o</sub>) 102 sf
- 5) MINIMUM BERM (H<sub>b</sub>): 4.0 in  
 $(H_b) = ((V_l) / ((A_n) \times 7.48 \text{ gal./cf})) \times 12 \text{ in./ft}$

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	SW	SL	PI	SPW	DATE	RFP	BOX	SLAC	JOB NO.
RCRA		DESCRIPTION										
2. MIXED	X	DESIGNED	WEAVER	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
3. LOW LEVEL		DRAWN	LEWNE	XX/XX/93	Rocky Flats Plant							
4. TRU		CHECKED	ROBLEDO	XX/XX/93	GOLDEN, COLORADO 80401							
5. SCHED CONTAIN		APPROVED	MUGHES	XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION							
6. SCHED CONTAIN					ROOM 31							
7. SCHED CONTAIN												
8. SCHED CONTAIN												
9. SCHED CONTAIN												
10. SCHED CONTAIN												
11. SCHED CONTAIN												
12. SCHED CONTAIN												
13. SCHED CONTAIN												
14. SCHED CONTAIN												
15. SCHED CONTAIN												
16. SCHED CONTAIN												
17. SCHED CONTAIN												
18. SCHED CONTAIN												
19. SCHED CONTAIN												
20. SCHED CONTAIN												
21. SCHED CONTAIN												
22. SCHED CONTAIN												
23. SCHED CONTAIN												
24. SCHED CONTAIN												
25. SCHED CONTAIN												
26. SCHED CONTAIN												
27. SCHED CONTAIN												
28. SCHED CONTAIN												
29. SCHED CONTAIN												
30. SCHED CONTAIN												
31. SCHED CONTAIN												
32. SCHED CONTAIN												
33. SCHED CONTAIN												
34. SCHED CONTAIN												
35. SCHED CONTAIN												
36. SCHED CONTAIN												
37. SCHED CONTAIN												
38. SCHED CONTAIN												
39. SCHED CONTAIN												
40. SCHED CONTAIN												
41. SCHED CONTAIN												
42. SCHED CONTAIN												
43. SCHED CONTAIN												
44. SCHED CONTAIN												
45. SCHED CONTAIN												
46. SCHED CONTAIN												
47. SCHED CONTAIN												
48. SCHED CONTAIN												
49. SCHED CONTAIN												
50. SCHED CONTAIN												
51. SCHED CONTAIN												
52. SCHED CONTAIN												
53. SCHED CONTAIN												
54. SCHED CONTAIN												
55. SCHED CONTAIN												
56. SCHED CONTAIN												
57. SCHED CONTAIN												
58. SCHED CONTAIN												
59. SCHED CONTAIN												
60. SCHED CONTAIN												
61. SCHED CONTAIN												
62. SCHED CONTAIN												
63. SCHED CONTAIN												
64. SCHED CONTAIN												
65. SCHED CONTAIN												
66. SCHED CONTAIN												
67. SCHED CONTAIN												
68. SCHED CONTAIN												
69. SCHED CONTAIN												
70. SCHED CONTAIN												
71. SCHED CONTAIN												
72. SCHED CONTAIN												
73. SCHED CONTAIN												
74. SCHED CONTAIN												
75. SCHED CONTAIN												
76. SCHED CONTAIN												
77. SCHED CONTAIN												
78. SCHED CONTAIN												
79. SCHED CONTAIN												
80. SCHED CONTAIN												
81. SCHED CONTAIN												
82. SCHED CONTAIN												
83. SCHED CONTAIN												
84. SCHED CONTAIN												
85. SCHED CONTAIN												
86. SCHED CONTAIN												
87. SCHED CONTAIN												
88. SCHED CONTAIN												
89. SCHED CONTAIN												
90. SCHED CONTAIN												
91. SCHED CONTAIN												
92. SCHED CONTAIN												
93. SCHED CONTAIN												
94. SCHED CONTAIN												
95. SCHED CONTAIN												
96. SCHED CONTAIN												
97. SCHED CONTAIN												
98. SCHED CONTAIN												
99. SCHED CONTAIN												
100. SCHED CONTAIN												

19/19