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RMRS Rocky Mountain Remediation Services, L.L.C.
. . . protecting the environment

Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464
Phone:(303) 966-2729
Fax: (303) 966-8244

DATE: February 28, 1997

TO: Distribution

FROM: Gary R. Konwinski, Environmental Manager, T130F, X2729

SUBJECT: DRAFT RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PARTS A AND B PERMIT - GRK-090-97

Action: Review the Attached Permit

The Site has been involved in a cooperative effort to produce a RCRA Permit Reapplication that meets the changing needs of the Site. Numerous individuals from all of the Site contractors as well as the Department of Energy have combined their talents to produce an innovative and streamlined RCRA Permit.

On February 27, the Colorado Department of Public Health and Environment (CDPHE) issued a Draft Permit for the Rocky Flats Environmental Technology Site. This action marks the beginning of a 45-day public comment period that officially starts on March 3, 1997 and ends on April 18, 1997. Although this is not consistent with the CDPHE cover letter, these dates are correct.

The Site has an opportunity to respond during the public comment period. Due to this, it is essential that you review the draft permit to determine if the draft permit accurately represents your facilities. Please begin your review of this document and compile your comments. Round table sessions will be scheduled at a later date to assure that the Site comments are appropriately complied and transmitted to the CDPHE. In the interim, please familiarize yourself with the draft permit. An initial strategy meeting will be held on Thursday, March 6, 1997, in the T130 B conference room at 9:00 am. Please send a company representative that will be responsible for the comment effort.

RMRS is pleased to manage this effort. Your participation is essential to the success of the re-application process. If you have questions, please contact me at extension 2729, or Natalie Van Tyne at extension 5893.

Gary R. Konwinski
RMRS, Environmental Manager

MAR 1997
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ADMIN RECORD

1/371

Attachment:
Draft Permit

Distribution:

Ted Benton (1)
Flo Phillips (1)
Randy Lietner (5)
Bill Wierzbicki (5)
Rod Sgrignoli (5)
Rick Dunn (2)
Gary Guinn (1)
Fred Hughes (1)
Gary Konwinski (1)
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File

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COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT

HAZARDOUS MATERIALS AND
WASTE MANAGEMENT DIVISION

DRAFT STATE-RCRA PERMIT

FACILITY: ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

ADDRESS: P.O. Box 928
Golden, CO 80402-0928

EPA I.D. NO. CO7890010526

PUBLIC COMMENT PERIOD: February 28, 1997 through April 18, 1997

PERMIT NO. CO-XX-XX-XX-XX

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STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION

4300 Cherry Creek Dr. S.
Denver, Colorado 80222-1530
Phone (303) 692-3300
Fax (303) 759-5355

222 S. 6th Street, Room 232
Grand Junction, Colorado 81501-2768
Phone (303) 248-7164
Fax (303) 248-7198

Colorado Department of Public Health and Environment

February 28, 1997

Ms. Gail S. Hill
Environmental Liaison Group Lead
U.S. Department of Energy
P.O. Box 928
Golden, CO 80402-0928

RE: Draft State RCRA Permit

Dear Ms. Hill:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division), has determined that the permit renewal application submitted by the U.S. Department of Energy for the Rocky Flats Environmental Technology Site (the Site) is complete. The Division has prepared a draft State RCRA Permit for the Site, and is opening a public comment period in accordance with 6 CCR 1007-3, Section 100.506. The public comment period begins on March 3, 1997 and ends on April 18, 1997. All interested parties, including the Site, may submit written comments on the draft permit during this period. No public hearing has been scheduled at this time. If a public hearing is requested, it will be scheduled in accordance with 6 CCR 1007-3, Section 100.508, if the criteria of that section are met.

A copy of the draft permit is attached to this letter, along with the public notice and a fact sheet prepared in accordance with 6 CCR 1007-3, Section 100.503. If you have any questions, please contact Chris Gilbreath at (303) 692-3371.

Sincerely,

Joe Schieffelin
Permitting and Compliance Unit Leader
Federal Facilities Program

Enclosure

cc w/out Enclosure:
L. Perrault, AGO
T. Rehder, EPA, Region VIII
K. North, Kaiser-Hill
G. Konwinski, RMRS

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STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Executive Director

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HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION

4300 Cherry Creek Dr. S.
Denver, Colorado 80222-1530
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222 S. 6th Street, Room 232
Grand Junction, Colorado 81501-2768
Phone (303) 248-7164
Fax (303) 248-7198

Colorado Department of Public Health and Environment

FACT SHEET

Facility: Rocky Flats Environmental Technology Site
P.O. Box 928
Golden, CO 80402-0928

EPA ID. No. CO7890010526

INTRODUCTION

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division), has prepared a draft State hazardous waste permit for the Rocky Flats Environmental Technology Site (the Site) operated by the U.S. Department of Energy (DOE), and its integrating management contractor Kaiser-Hill, L.L.C., Dycorp of Colorado, Rocky Mountain Remediation Services, and Safe Sites of Colorado. The Site is currently approved to operate on-site storage and treatment activities under its current hazardous waste permit, which has expired. This draft Permit proposes to renew the expired permit. The draft Permit is being issued by the Division in accordance with its authority under the Colorado Hazardous Waste Act, C.R.S. 25-15-301-313 (1992), and the regulations thereunder.

The following information is provided to aid interested parties in reviewing the draft permit:

DESCRIPTION OF FACILITY

RFETS is a government-owned and contractor-operated facility. The site was once involved in fabricating components from plutonium, uranium, beryllium, and stainless steel. RFETS production activities included metal fabrication and assembly, chemical recovery, and purification of process-produced transuranic (TRU) radionuclides. During the production activities, hazardous wastes were generated as classified under the Colorado Hazardous Waste Regulations (CHWR).

The Site's existing hazardous waste Part B permit expired on October 30, 1996. The conditions of the expired permit, however, continue to be in force until the effective date of a new permit. The draft permit includes all previously permitted storage and treatment units, with the majority of these units having been renumbered. The draft permit for the Site consists of the following hazardous and radioactive mixed waste units: twenty-four container storage units; six tanks systems; and nine treatment units.

TYPE AND QUANTITIES OF WASTES TO BE MANAGED

As identified in the permit, there are three categories of waste generated at RFETS: (1) hazardous waste, (2) radioactive mixed waste (low-level and transuranic), and (3) mixed residues. Hazardous wastes are those wastes which meet one of the four general hazardous characteristics (ignitability, reactivity, toxicity, and corrosivity) or which contain material listed in 6 CCR 1007-3, Part 261 of the CHWR. Radioactive mixed wastes are both hazardous and radioactive, and can be low-level, TRU, or residues.

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The draft permit allows the storage of solid and liquid hazardous wastes in containers of approximately 8,940,000 gallons. Storage capacities in permitted tank systems total approximately 861,000 gallons.

HISTORY OF PERMIT APPLICATION

RFETS submitted the original Part A and Part B hazardous waste permit application on November 28, 1986 which was modified by subsequent revisions dated December 15, 1987, and April 13, 1988. Supplemental information clarifying previous submittals has also been received periodically. A final permit was issued October 30, 1991 and expired on October 30, 1996. RFETS submitted an updated Part A and Part B hazardous waste reapplication on October 30, 1996. The conditions of the expired permit remain in force until the effective date of the new permit is established.

STRUCTURE OF THE DRAFT PERMIT

The draft permit for RFETS is comprised of ten parts as follows: Part I - Standard Conditions; Part II - General Facility Conditions; Part III - Container Storage Units; Part IV - Tank Systems; Part V - Treatment Units; Part VI - Waste Analysis Plan; Part VII - Procedures to Prevent Hazards; Part VIII - Contingency Plan; Part IX - Personnel Training; and Part X - Closure.

BASIS FOR PERMIT CONDITIONS

The basis for the permit conditions include: the Colorado Hazardous Waste Regulations (6 CCR 1007-3, Parts 2, 99, 100, 260 through 268); the Site's existing RCRA Permit; DOE's reapplication submitted on October 30, 1996; additional information requested by the Division; and the Division's previous permitting and compliance inspections at the Site.

VARIANCES FROM STANDARDS

None were applied for, and none are proposed in the draft permit modification.

PROCEDURES FOR REACHING A FINAL DECISION

The public is obligated to raise issues and provide information during the public comment period and hearing in accordance with 6 CCR 1007-3, Section 100.509. **FAILURE TO RAISE AN ISSUE OR PROVIDE INFORMATION DURING THE PUBLIC COMMENT PERIOD MAY PREVENT YOU FROM RAISING THAT ISSUE OR SUBMITTING SUCH INFORMATION IN AN APPEAL OF THE DEPARTMENT'S FINAL DECISION (6 CCR 1007-3, Section 100.506 (d)(vi)).**

The Division will consider all comments prior to making a final decision. Following the public comment period, the Division will issue a final decision and a response to comments in accordance with 6 CCR 1007-3, Sections 100.511 and 100.512.

PUBLIC COMMENT PERIOD

March 3, 1997 through April 18, 1997.

PUBLIC HEARING

During the public comment period any interested person may request a public hearing. A request for a public hearing must be in writing and must state the nature of the issues proposed to be raised in the hearing.

CONTACT PERSON

The draft permit modification, fact sheet, and administrative record are available for review by appointment from 8:00 a.m. to 5:00 p.m. at the Colorado Department of Public Health and Environment office specified below. Comments and/or questions should be directed to:

Mr. Chris Gilbreath
Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
Mail Code HMWMD-HWC-B2
4300 Cherry Creek Drive South
Denver, CO 80222-1530
Telephone: (303) 692-3371

The draft permit and fact sheet are also available for review by appointment during normal business hours at the following locations:

U.S. Environmental Protection Agency
Superfund Reading Room
999 18th Street, 5th Floor
Denver, CO 80202-2405

Standley Lake Library
8485 Kipling Street
Arvada, CO 80005

DOE Rocky Flats Reading Room
Front Range Community College Library
3645 West 112th Avenue
Westminster, CO 80030

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STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Executive Director

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HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION

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Denver, Colorado 80222-1530
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Fax (303) 759-5355

222 S. 6th Street, Room 232
Grand Junction, Colorado 81501-2768
Phone (303) 248-7164
Fax (303) 248-7198

Colorado Department of Public Health and Environment

PUBLIC NOTICE

NOTICE OF AVAILABILITY AND OPPORTUNITY TO COMMENT ON THE DRAFT STATE RCRA PERMIT UNDER THE COLORADO HAZARDOUS WASTE REGULATIONS

Name of Facility: Rocky Flats Environmental Technology Site
P.O. Box 928
Golden, CO 80402-0928

EPA I.D. # CO7890010526

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division), has prepared a draft State hazardous waste Permit for the Rocky Flats Environmental Technology Site (the Site) operated by the U.S. Department of Energy (DOE), its integrating management contractor Kaiser-Hill, L.L.C., Dyncorp of Colorado, Rocky Mountain Remediation Services, and Safe Sites of Colorado. The Site is currently approved to operate on-site storage and treatment activities under its current hazardous waste permit, which has expired. This draft Permit proposes to renew the expired permit.

The Rocky Flats Environmental Technology Site is a government-owned and contractor-operated facility. The Site was once involved in fabricating components from plutonium, uranium, beryllium, and stainless steel. RFETS production activities included metal fabrication and assembly, chemical recovery, and purification of process-produced transuranic (TRU) radionuclides. During the production activities, hazardous wastes were generated as classified under the Colorado Hazardous Waste Regulations (CHWR).

The Site's existing hazardous waste Part B permit expired on October 30, 1996. The conditions of the expired permit, however, continue to be in force until the effective date of a new permit. The draft Permit includes all previously permitted storage and treatment units, with the majority of these units having been renumbered. In addition, the new permit includes Unit 440.1 and 993.1 for container storage, tank systems Unit 774.2, 776.2, and 887.2, and treatment in Unit 707.3A - Mixed Residue Salt Stabilization, and Unit 374.3A and Unit 774.3B - Aqueous Waste Treatment System. The draft Permit proposes a RCRA stable condition prior to closure in Part X. The new permit also includes compliance schedules for removal of mixed wastes from the 750 Pad, the 904 Pad, and Building 776.

This notice invites any interested person to submit written comments on the draft Permit from March 3, 1997 through April 18, 1997. The Division will consider all comments prior to making a final decision. Following the public comment period, the Division will issue a final decision and a response to comments.

The public is obligated to raise issues and provide information during the public comment period. **FAILURE TO RAISE AN ISSUE OR PROVIDE INFORMATION DURING THE PUBLIC COMMENT PERIOD MAY PREVENT YOU FROM RAISING THAT ISSUE OR SUBMITTING SUCH INFORMATION IN AN APPEAL OF THE DEPARTMENT'S FINAL DECISION.**

The draft Permit for the Rocky Flats Environmental Technology Site is available for review by appointment from 8:00 a.m. to 5:00 p.m. at the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, located at 4300 Cherry Creek Drive South, Building B-2, Denver, CO 80222.

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Comments and/or questions should be directed to:

Mr. Chris Gilbreath
Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
Mail Code HMWMD-HWC-B2
4300 Cherry Creek Drive South
Denver, CO 80222-1530
Telephone: (303) 692-3371

The draft Permit and fact sheet are also available for review by appointment during normal business hours at the following locations:

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999 18th Street, 5th Floor
Denver, CO 80202-2405

DOE Rocky Flats Reading Room
Front Range Community College Library
3645 West 112th Avenue
Westminster, CO 80030

Standley Lake Library
8485 Kipling Street
Arvada, CO 80005

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COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT

HAZARDOUS MATERIALS AND
WASTE MANAGEMENT DIVISION

DRAFT STATE-RCRA PERMIT

FACILITY: ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

ADDRESS: P.O. Box 928
Golden, CO 80402-0928

EPA I.D. NO. CO7890010526

PUBLIC COMMENT PERIOD: February 28, 1997 through April 18, 1997

PERMIT NO. CO-XX-XX-XX-XX

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FACILITY: ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
EPA I.D. NO.: CO7890010526

Permit No. XX-XX-XX-XX

Pursuant to the Colorado Hazardous Waste Act (Title 25 Article 15, Section 101 et seq.) hereafter called the Act and regulations promulgated thereunder by the Colorado Board of Health (Codified and to be codified in Title 6 of the Code of Colorado Regulations (CCR)), a State RCRA Permit is issued to the United States Department of Energy, its integrating management contractor Kaiser-Hill, L.L.C., who along with its prime operating contractors, Dyncorp of Colorado (site operations), Rocky Mountain Remediation Services (environmental restoration and waste management), and Safe Sites of Colorado (residue management) (jointly, "the Permittee") to operate a hazardous and radioactive mixed waste facility located in Jefferson County, Colorado, centered at Latitude 39° 53' 30" North and Longitude 105° 11' 30" West. The Permittee must comply with all the terms and conditions of this permit.

This permit consists of the conditions contained herein (including those in any attachments) and the applicable regulations contained in 6 CCR 1007-3, Parts 260 through 268, 2, 99, and 100 as specified in the permit. Applicable regulations are those which are in effect on the date of issuance of this permit. This permit is based on the assumption that the information submitted to the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health & Environment (CDPHE) in the Permittee's Part A and Part B permit application dated October 30, 1996 (hereafter referred to as the application), and additional information submitted to clarify previously submitted material, is accurate.

Any inaccuracies found in this information may be grounds for the termination or modification of this permit (see 6 CCR 1007-3, Section 100.6) and potential enforcement action. The Permittee must inform the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health & Environment of any deviation or changes in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

This permit is effective as of _____, (30 days after issuance) and shall remain in effect until _____ (5 year duration) unless revoked and reissued, or terminated under 6 CCR 1007-3, Section 100.61.

Signed:_____

Joe Schieffelin, Unit Leader **Date**
Permitting and Compliance Unit
Federal Facilities Program
Hazardous Materials and Waste Management Division

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INTRODUCTION

The Department of Energy (DOE) owns and operates the Rocky Flats Environmental Technology Site (the Site) which manufactured metal components for nuclear weapons. The Site was involved in fabricating components from plutonium, uranium, beryllium, and stainless steel. At the current time, the facility mission includes environmental restoration, waste management, and eventual decontamination and decommissioning. The integrating management contractor for the facility is Kaiser-Hill, L.L.C., who along with its primary operating contractors, Dyncorp of Colorado (site operations), Rocky Mountain Remediation Services (environmental restoration and waste management), and Safe Sites of Colorado (residue management), to the extent of their contractual duties, will perform activities regulated through this permit.

Nature of Business

The Site is a government-owned and contractor-operated facility. It is part of a nationwide nuclear weapons research, development, and production complex administered by the U.S. Department of Energy.

Description of Processes Involved in Generation of Wastes

At the Site, major plant structures, including all production buildings, are located within a security-fenced area of 384 acres. The Site is divided into several areas constituting separate operational complexes. Each building within an area is identified by a three-digit number; the first digit signifies the area in which the specific building is located. There is no 200 area as such. Numbers in the 200 series are applied to the miscellaneous facilities that are distributed throughout the Plant site. Examples are utility structures and parking lots. The major production and associated complexes are in the 300, 400, 600, 700, 800, and 900 areas.

The Site's production activities included metal fabrication and assembly, chemical recovery and purification of process-produced transuranic radionuclides, and related quality control functions. Research and engineering programs supporting these activities involved chemistry, physics, materials technology, ecology, nuclear safety, and mechanical engineering. During these production activities, some hazardous wastes (as defined by RCRA and the Colorado Hazardous Waste Act) were generated. As an integral part of production, some of these hazardous wastes become commingled with low-level radioactive materials and are referred to as low level radioactive mixed wastes.

There are six categories of waste generated at the Site: (1) radioactive waste, (2) radioactive mixed waste (low level and transuranic), (3) hazardous waste, (4) sanitary waste, (5) refuse, and (6) mixed residues. Solely radioactive waste, sanitary waste and refuse are not regulated under the hazardous and mixed waste regulations.

A general summary of the waste generation activities at the plant follows.

Radioactive Waste Generation

The Rocky Flats Plant processed large quantities of plutonium (Pu239), significant amounts of depleted uranium (U238), small amounts of enriched uranium (U235 and U233), and trace amounts of americium (Am241) and neptunium radioactive-contaminated wastes. These radioactive-contaminated wastes are categorized as; (1) low level radioactive waste, (2) transuranic wastes, (3) residues, or (4) special category PCB wastes.

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Low Level Waste (LLW)
Low level wastes (LLW) contain naturally-occurring radioactive elements such as uranium and thorium. They may also contain transuranic substances at concentrations of less than 100 nCi/g (nano Curies per gram) of waste material. Examples of low level wastes which were routinely generated at the Site are plutonium contaminated solids and liquids and depleted uranium-contaminated solid and liquid waste.

Transuranic Waste
Transuranic (TRU) waste contains plutonium or americium in concentrations equal to or above 100 Nci/g of materials. Transuranic wastes comprise a wide variety of materials, including but not necessarily limited to, sludges, plastics, rubber and metal equipment, filters, insulation and combustible materials. All the Site's transuranic waste is segregated and classified into separate item description codes or content codes.

Residues
Residues are one of the by-products of plutonium production which were specifically defined as containing concentrations of radionuclides above the Economic Discard Limit (EDL) established by DOE or are otherwise economically feasible for recovery. Residues are typically stored in container storage areas or tank systems within the protected area prior to processing in residue recovery systems.

Special Category PCB Waste
Radioactive PCB wastes are occasionally generated at Rocky Flats. These solid and liquid radioactive PCB wastes are a result of the cleaning and retrofilling of PCB transformers, decommissioning PCB capacitors, and the clean-up of PCB-contaminated debris within plutonium handling buildings. These wastes are stored inside buildings or cargo containers and will be disposed per requirements of applicable Toxic Substances Control Act (TSCA) regulations.

Radioactive Mixed Waste Generation
Hazardous wastes are those wastes which meet one of the four general hazardous characteristics (ignitability, reactivity, toxicity, and corrosivity) or which contain materials listed in Part 261 of the Colorado Hazardous Waste Regulations. Radioactive mixed wastes are both hazardous and radioactive, and can be low level, TRU, or residues.

Radioactive mixed wastes are presently being treated and stored at the Site. Typical Site waste forms in this category include solvents, oils, acids and bases, laboratory chemicals, paint and paint thinner, plating solutions, sludges and solvent contaminated solids.

Hazardous Waste Generation
The manufacturing processes and support operations at the Site also generated hazardous wastes as defined by RCRA. Examples of typical hazardous wastes forms generated at the Site include; solvents, oils, acids and bases, laboratory chemicals, paint and paint strippers, plating solutions, sludges, and solvent contaminated solids.

Wastes Addressed by this Permit
Hazardous and radioactive mixed wastes generated during manufacturing operations are stored and/or treated in specific waste management units at the facility. See Part III, IV, and V of the permit for a listing and specific description of these units.

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PART I - STANDARD CONDITIONS

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- 5. Operating record I-6
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PART I - STANDARD CONDITIONS

A. EFFECT OF PERMIT

The Permittee is allowed to store and treat hazardous or mixed waste in accordance with the conditions of this Permit. Any storage and treatment of hazardous or mixed waste not authorized in this Permit is prohibited. Interim status treatment or storage units identified in the Part A Application continue to be regulated under the interim status requirements of the Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 265, or the generator requirements, 6 CCR 1007-3, Part 262. All documents, plans, and procedures referenced in this Permit which may impact the storage, treatment or management of hazardous and mixed waste are subject to enforcement under the Colorado Hazardous Waste Act.

Compliance with this permit constitutes compliance, for purposes of enforcement, with the Colorado Hazardous Waste Act (the Act) C.R.S. §25-15-101 et seq. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of Federal, State, or local laws or regulations. Compliance with the terms of this permit does not automatically constitute compliance with other Federal, State or local laws or regulations. Compliance with the terms of this permit does not constitute a bar to any order issued or any action brought under the imminent hazard provisions of the Act, Sections 3008(a), 3008(h), 3013 or Section 7003 of RCRA (42 U.S.C. §6901 et seq.); Sections 106 (a), 107, 104, or 102 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq. commonly known as CERCLA), or any other law providing for imminent hazard protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in 6 CCR 1007-3, Section 100.6. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

C. DEFINITIONS

For the purposes of this permit, terms used herein shall have the same meaning as those in 6 CCR 1007-3, Parts 2, 99, 100, 260, 264, 266, and 268, unless this permit specifically provides otherwise. Where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. The following definitions are applicable within this permit.

"Director" - the Executive Director of the Colorado Department of Public Health and Environment, or his designee or authorized representative.

"Division" - the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division.

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"Owner/operator" - The United States Department of Energy.

"Permittee" - the United States Department of Energy (DOE), the Kaiser-Hill Company, L.L.C. (K-H), DynCorp of Colorado, Inc. (DCI), Rocky Mountain Remediation Services, L.L.C. (RMRS), and Safe Sites of Colorado, L.L.C. (SSOC), all of whom are co-operators.

"Facility" - refers, collectively, to all hazardous waste management units at the Rocky Flats Environmental Technology Site that are identified in this permit.

"Mixed waste" - refers to radioactively contaminated waste that is commingled with RCRA-regulated hazardous waste or exhibits a characteristic of a RCRA-regulated hazardous waste. Mixed waste includes the radioactive waste classifications of Low-level, Transuranic, and Residue.

D. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstance and the remainder of this permit shall not be affected thereby.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply

The Permittee shall comply with all conditions of this permit. Except to the extent and for the duration certain noncompliance is authorized by an emergency permit or other legal agreement or order authorized by the Director, non-compliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

2. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall submit a complete application for a new permit at least 180 days before this permit expires (6 CCR 1007-3, Sections 100.11 (e)(1) and 100.42(b)).

3. Permit Expiration

This permit and all conditions contained in this document will expire at the end of five years unless extended by reapplication under 6 CCR 1007-3, 100.11(e) or modification under 6 CCR 1007-3 Section 100.61.

4. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

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5. Duty to Mitigate

In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of the permit.

7. Duty to Provide Information

The Permittee shall furnish to the Director within a reasonable time, any relevant information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry

The Permittee shall allow the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law to:

a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,

d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

Access and entry to the facility are subject to personnel safety and security requirements which are subject to change. The Permittee will evaluate all requests for access and entry in light of the current requirements and notify the requesting individual(s) of any potential issues or problems affecting the requested access or entry. All efforts will be made to comply with access and entry requests. In addition, all requirements regarding the handling of unclassified controlled nuclear information, restricted data, and national security information,

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including "need to know" requirements, are applicable to any access to information or facilities covered under the provisions of this permit.

9. Monitoring and Records.

a. Samples and measurements taken for the purpose of monitoring required in support of this permit shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 6 CCR 1007-3, Section 261, or an equivalent method from Appendix I of 6 CCR 1007-3, Section 261, or an equivalent method approved by the Division as described in Part VI of this permit.

Laboratory methods must be those specified in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," SW-846, (promulgated edition), or equivalent methods as described in Part VI of this permit.

b. The Permittee shall retain records of all monitoring information required to support this permit, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application, or as long as a particular waste is stored on-site, whichever is longer. These periods may be extended by request of the Director at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

c. Records of monitoring information shall include:

i. the dates, exact place, and time of sampling or measurements;

ii. the individual(s) who performed the sampling or measurements;

iii. the date(s) analyses were performed;

iv. the individual(s) who performed the analyses;

v. the analytical techniques or methods used; and

vi. the results of such analyses.

10. Reporting Planned Changes

The Permittee shall notify the Director as soon as possible of any planned physical alterations or additions to the permitted facility as specified in 6 CCR 1007-3, Section 100.42(l)(1).

11. Anticipated Noncompliance

6 CCR 1007-3, Section 100.42(l)(2) requires the Permittee to provide advance notice to the

Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Prior to initiating the storage, treatment, or disposal of hazardous or mixed waste in a new or modified facility, the Permittee is required to submit a letter to the Director stating that the facility has been constructed or modified in compliance with the permit, and the Director has inspected the modified or newly constructed facility and finds it is in compliance with conditions of the permit; or if, within 15 days of submittal of the letter, the Permittee does not receive notice from the Director of his intent to inspect the new or modified facility, the Permittee may initiate storage, treatment, or disposal of hazardous or mixed waste.

12. Transfer of Permits

This permit may be transferred to a new owner/operator only if it is modified or revoked and reissued pursuant to 6 CCR 1007-3, Section 100.62. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 6 CCR 1007-3, Sections 100, 264, and 266.

13. Compliance Schedules

The Permittee shall comply with the compliance schedules set forth in the individual parts of this permit.

14. Twenty-four Hour Reporting

The Permittee shall report to the Director any noncompliance with the permit which may endanger health or the environment as defined below. Any such information shall be reported within 24 hours from the time the Permittee becomes aware of the circumstances. The report may be oral or written and shall include the following:

a. Information concerning the release of any hazardous or mixed waste that may endanger public drinking water supplies.

b. Information concerning the release or discharge of any hazardous or mixed waste, or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include.

   i. Name, address, and telephone number of the owner or operator;

   ii. Name, address, and telephone number of the facility;

   iii. Date, time and type of incident;

   iv. Name and quantity of material(s) involved;

   v. The extent of injuries, if any;

   vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance (including exact dates and times); and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee need not comply with the five-day written notice requirement if the Director waives the requirement and the Permittee submits a written report within fifteen days of the time the Permittee becomes aware of the circumstances.

15. Other Information

When the Permittee becomes aware that it failed to submit any relevant facts in its permit application, or submitted incorrect information in a permit application or in any report to the Division, the Permittee shall promptly submit such facts or information.

16. Other Noncompliance. The Permittee shall report all instances of noncompliance not reported under Part I.(E)(9, 13, and 14) of this permit, at the time monitoring reports are submitted. The reports shall contain the information listed in Condition I.E.14.

F. SIGNATORY REQUIREMENTS

All reports or other information requested by the Director for compliance with this permit shall be signed by the appropriate Permittee(s) and certified as required by 6 CCR 1007-3, Sections 100.42(k) and 100.44(a).

G. DOCUMENTS TO BE MAINTAINED AT FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent, Colorado-registered professional engineer, the following documents along with amendments, revisions and modifications to these documents:

1. Waste analysis plan as required under 6 CCR 1007-3, Section 264.13 and this permit;

2. Personnel training documents and records as required by 6 CCR 1007-3, Section 264.16(d) and this permit;

3. Contingency plan as required by 6 CCR 1007-3, Section 264.53(a) and this permit;

4. Closure plan as required by 6 CCR 1007-3, Section 264.112(a) and this permit;

5. Operating record as required by 6 CCR 1007-3, Section 264.73 and this permit; and

6. Inspection schedule as required by 6 CCR 1007-3, Section 264.15(b) and this permit.

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PART II - GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

6 CCR 1007-3, Section 264.31 requires the Permittee to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous or mixed waste constituents to air, soil, or surface or ground water which could threaten human health or the environment.

B. HAZARDOUS WASTE FROM OFF-SITE SOURCES

The Permittee shall not receive hazardous or mixed waste from off-site sources without the prior written approval of the Director.

C. GENERAL WASTE ANALYSIS

6 CCR 1007-3, Section 264.13 requires the Permittee to develop, maintain, and follow a waste analysis plan. The Permittee will perform waste analysis in accordance with the facility waste analysis plan, which is included as Part VI of this permit.

D. SECURITY

6 CCR 1007-3, Section 264.14(b) requires the Permittee to implement and maintain security measures for the Site. The Permittee will implement and maintain the security measures described in Part VII of this permit. In addition, the Permittee will post the signs required by 6 CCR 1007-3, Section 264.14(c) in English only.

E. GENERAL INSPECTION REQUIREMENTS

6 CCR 1007-3, Section 264.15 requires the Permittee to comply with general inspection requirements. The Permittee will conduct inspections according to the requirements described in Part VII of this permit. 6 CCR 1007-3, Section 264.15(c) requires the Permittee to remedy any deterioration or malfunction discovered by an inspection. 6 CCR 1007-3, Section 264.15(d) requires the Permittee to keep inspection logs for a minimum of three years.

F. PERSONNEL TRAINING

6 CCR 1007-3, Section 264.16 requires the Permittee to provide training to facility personnel and maintain training documents and records. The Permittee will implement the training program described in Part IX of this permit.

G. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

6 CCR 1007-3, Section 264.17(a) requires the Permittee to comply with general requirements for ignitable, reactive, and incompatible wastes. The Permittee will comply with the general requirements for ignitable, reactive, and incompatible wastes in the manner described in Part VII of this permit.

H. LOCATION STANDARDS

6 CCR 1007-3, Section 264.18(b)(1) requires the Permittee to operate, maintain, and close the facility in a manner that prevents washout of any hazardous waste by a 100-year flood.

I. PREPAREDNESS AND PREVENTION

6 CCR 1007-3, Sections 264.30 through 264.37 requires the Permittee to comply with preparedness and prevention requirements. The Permittee will address the preparedness and prevention requirements through the implementation and maintenance of the requirements identified in Part VII of this permit.

1. Required Equipment

   6 CCR 1007-3, Section 264.32 requires the Permittee to, at a minimum, equip the facility with the emergency equipment identified in Part VII of this permit . The Permittee will equip the facility with the emergency equipment identified in Part VII of this permit.

2. Testing and Maintenance of Equipment

   6 CCR 1007-3, Section 264.33 requires the Permittee to test and maintain required equipment. The Permittee will test and maintain required equipment as described in Part VII of this permit.

3. Access to Communications or Alarm System

   6 CCR 1007-3, Section 264.34 requires the Permittee to maintain access to communication and alarm systems. The Permittee will provide immediate access to internal alarm or emergency communication devices to personnel involved in hazardous waste handling operations as described in Part VII of this permit.

4. Required Aisle Space

   6 CCR 1007-3, Section 264.35 requires the Permittee to maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment in an emergency to any area of the facility subject to this permit. The Permittee will comply with the unit-specific aisle space requirements identified in Parts III, IV, and V for container storage, tank storage, and treatment units, respectively.

5. Arrangements with Local Authorities.

   a. 6 CCR 1007-3, Section 264.37(a)(1) and (2) requires the Permittee to attempt to obtain arrangements with local fire and police departments and familiarize these agencies with the layout of the facility, and properties of the hazardous and mixed wastes handled on site and their associated hazards. The Permittee will specify (as applicable) each agency's assigned tasks when responding to emergency situations. 6 CCR 1007-3, Section 264.31(b) requires the Permittee to document any refusal by state or local officials to enter into these preparedness and prevention arrangements in the operating record. Documentation of the arrangements which have been made are available at the Site.

   b. 6 CCR 1007-3, Section 264.37(a)(4) requires the Permittee to make arrangements with a local hospital to familiarize the hospital with the properties of hazardous and mixed wastes handled at the facility. The Permittee is also required to establish a written agreement with the hospital outlining their responsibilities should emergency medical services be required. Documentation of the agreement with local hospitals is contained in Part VIII, Contingency Plan, of this Permit.

J. CONTINGENCY PLAN AND EMERGENCY PROCEDURES

6 CCR 1007-3, Sections 264.50 through 264.56 requires the Permittee to comply with contingency plan and emergency procedure requirements which include the following.

1. Implementation of Plan

   6 CCR 1007-3, Section 264.51 requires the Permittee to immediately carry out the provisions of the facility RCRA contingency plan, based on the conditions presented in the plan.

2. Copies of Plan

   6 CCR 1007-3, Section 264.53 requires the Permittee to maintain a copy of the facility RCRA contingency plan at the facility and submit copies to all local police departments, fire departments, hospitals, and local emergency response teams that may be called upon to provide emergency services.

3. Amendments to Plan

   6 CCR 1007-3, Section 264.54 requires the Permittee to review and immediately amend, as it becomes necessary, the facility RCRA contingency plan.

4. Emergency Coordinator

   6 CCR 1007-3, Section 264.55 requires the Permittee to ensure that a trained emergency coordinator is available at all times in case of an emergency.

5. Emergency Procedures

   6 CCR 1007-3, Section 264.56 requires the Permittee to comply with emergency procedure requirements.

When applicable, the Permittee will follow the facility RCRA contingency plan, which is included as Part VIII of this permit.

K. MANIFEST SYSTEM

6 CCR 1007-3, Sections 264.71, 264.72, and 264.76 requires the Permittee to comply with applicable manifest requirements. Site procedures are used to comply with these requirements.

L. RECORDKEEPING AND REPORTING

1. Operating Record

   6 CCR 1007-3, Section 264.73 requires the Permittee to maintain a written operating record at the facility. A procedure at the Site identifies what information is included in the facility operating record.

2. Biennial Report

   6 CCR 1007-3, Section 264.75 requires the Permittee to comply with the biennial report requirements. This requirement will be met by the Permittee.

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M. CLOSURE REQUIREMENTS

1. Performance Standard

   6 CCR 1007-3, Sections 264.111, 264.178, 264.197, and 264.601 through 264.603 requires the Permittee to close the facility in accordance with the closure plan presented in Part X of this Permit.

2. Amendment to Closure Plan

   6 CCR 1007-3, Section 264.112(c) requires the Permittee to amend the closure plan whenever necessary. Amendment of the facility closure plan will be accomplished in accordance with Part X of this Permit.

3. Notification of Closure

   6 CCR 1007-3, Section 264.112(d)(1) requires the Permittee to notify the Director at least 45 days prior to the date the Permittee expects to begin closure of permitted units. Proper notification will be provided in accordance with Part X of this Permit.

4. Time Allowed for Closure

   6 CCR 1007-3, Section 264.113 requires that the Permittee, after receiving the final volume of hazardous waste, treat or remove from the site all hazardous or mixed waste from permitted waste management units. The schedule provided in Part X of this Permit specifies applicable time periods for the closure of individual units.

5. Disposal or Decontamination of Equipment Structures, and Soils

   6 CCR 1007-3, Section 264.114 requires the Permittee to decontaminate and/or dispose of all contaminated equipment, structures, and soils. The Permittee will implement this requirement in accordance with Part X of this permit.

6. Certification of Closure.

   6 CCR 1007-3, Section 264.115 requires the Permittee to submit a certification that the facility has been closed within 60 days after completion of final closure. The Permittee will implement this requirement in accordance with the specifications in Part X of this permit.

N. LAND DISPOSAL RESTRICTIONS

6 CCR 1007-3, Part 268 requires the Permittee to comply with the Land Disposal Restriction requirements.

O. WASTE MINIMIZATION

6 CCR 1007-3, Section 264.73 (b)(9) requires the Permittee to maintain a program to reduce the volume/quantity and toxicity of hazardous waste generated by the Permittee to the degree determined by the Permittee to be economically practicable, and to use practicable treatment, storage, or disposal methods currently available to the Permittee which minimize the present and future threat to human health and the environment. The waste minimization program must be clearly stated in a written plan maintained in the operating record. In addition, the Permittee is required to certify annually in the operating record that these waste minimization practices are being implemented at the facility.

The Permittee shall submit this annual written certification to the Director by December 31 of each year.

PART III - STORAGE UNITS

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PART III - CONTAINER STORAGE UNITS

A. INTRODUCTION

Part III of the permit establishes specific conditions for storage in container storage units in accordance with Part 264, Subpart I of the CHWR. Section B of Part III contains standard conditions for container storage units, while Section C contains unit-specific conditions.

Each container storage unit in this permit is provided with a maximum waste capacity and a list of EPA waste codes which may be stored in the unit. Separate storage areas may exist within container storage units and may utilize a portion or all of the maximum waste capacity and any of the approved EPA waste codes for the unit. Specific waste codes and capacities for storage areas within a storage unit are identified in Part III.C. Typically, the waste codes for specific types of waste storage areas within a waste storage unit (e.g., glovebox, room, vault) will be the same to allow for maximum usage of existing storage capabilities.

Waste capacities and specific waste codes are based on the physical characteristics of the container storage area. Specific container storage areas which exist within container storage units are identified in Part III.C, Container Storage Units: Unit-Specific Conditions. Container storage units may include the following: 1) units within buildings consisting of single or multiple areas; or 2) single locations which function solely as container storage units.

B. CONTAINER STORAGE UNITS: STANDARD CONDITIONS

1. Types of Container Storage Units

A container storage unit may consist of single or multiple container storage areas. A container storage unit may be any of the following types.

a. Building: The container storage unit is the building. The walls, roof, and floor of the area of the building within which the unit is located will be maintained in a structurally sound condition.

b. Designated Area: A container storage unit comprised of separate physical structures which could be cargo containers, tents, or other structures which are grouped together in a single area.

c. Special Material Storage Enclosure: The unit will be physically defined by the enclosure. The enclosure will be regularly maintained and kept in good condition.

2. Types of Container Storage Areas

Container storage areas are individual locations within a container storage unit where containers are physically stored. There may be one or more of the same or different types of container storage areas within a container storage unit. Container storage areas may be of any of the following types.

a. Room: The area is located in a room within a building. The ceiling, floor, and walls surrounding the area will be kept in good condition.

Specific rooms used as storage areas within a unit are identified in Section C of this part, Container Storage Units: Unit-Specific Conditions. In some cases, the entire room will be used for storage, while in others only a portion of the room will be used.

In these instances, the portion of the room used for container storage will be delineated with striping painted on the floor or by another means intended to clearly identify the perimeter boundaries of the area. More specific information regarding the actual portion of rooms used for container storage will be maintained in the operating record for the unit.

b. Cargo container: The area will be physically defined by a cargo container typically made of aluminum or steel. Cargo containers typically range in size from 20 feet long x 8 feet wide x 8 feet high to 40 feet long x 12 feet wide x 8 feet 8 inches high. Multiple compartment cargo containers (typically 3 compartments) are normally 24 feet long x 8 feet wide x 8 feet high. Each cargo container will be fitted with an electrical ground and air ventilators. Each cargo container will be maintained in good condition.

c. Fenced area: The area will be physically defined by a fence around the outside perimeter of the area. The perimeter fence will be kept in good condition free of holes and gaps.

d. Tent: The area is physically defined by a tent structure which is used to provide protection from the weather for the stored wastes. The tent ceiling will be maintained in good condition. As identified in the drawing for Unit 750.1, hazardous wastes which contain no free liquid may be stored around the outside perimeter of the tent structures.

e. Glovebox: Gloveboxes are typically constructed of steel and are used to store small containers. Gloveboxes are located inside of buildings and are maintained under a vacuum (typically 0.25 inches of water). Gloveboxes will be maintained in good condition.

f. Vault: A vault is a type of room within a building which is typically used for the storage of numerous small containers of highly radioactive mixed waste. Vaults are equipped with additional security features to prevent and detect unauthorized personnel access. The vault ceiling, floor, and walls will be maintained in good condition.

g. Special Material Storage Enclosure: The unit will be physically defined by the enclosure. The enclosure will be regularly maintained and kept in good condition.

Building personnel are required to comply with the operational safety and surveillance requirements for each storage unit or area in accordance with the building's authorization basis. The authorization basis may consist of any of the following: Facility Safety Analysis Report (FSAR); Operational Safety Requirements (OSRs); Limiting Condition of Operation (LCO); Justification for Continued Operation (JCO); Basis for Interim Operation (BIO); or Basis for Operation (BFO). The authorization basis includes surveillance requirements to maintain negative pressure and exhaust system requirements for each glovebox, HEPA filtration systems, glove changes, and the glovebox overheat system, as applicable.

3. <u>Storage Limits</u>

a. Container storage units: There are two applicable storage limits for a container storage unit.

i. Maximum storage limit: The total combined volume of liquid and solid waste which may be stored within the unit.

ii. Liquid capacity limit: The portion of the maximum storage limit which is available for liquid waste storage within the unit.

b. Container storage areas: Storage limits for each container storage area will be all or a portion of the approved maximum storage limit for the container storage unit within which the area is located. The actual amount of hazardous or mixed waste which may be present within a storage area is identified in the drawings and unit specific conditions sheet taking into account the following limitations and controls.

i. Authorization basis: All ongoing and proposed activities in facilities at the Site are subject to review when changes in operations occur that were not included in the initial or most recent review. As a part of this review, hazards assessments and evaluations of the amount and configuration of mixed wastes being managed are conducted. Hazards assessments and associated accident analyses, conducted on all activities that involve hazardous wastes, identify controls and limits necessary to ensure safe storage or operations and result in an authorization basis for the activities within the facility.

These assessments may also affect the amount and configuration of mixed waste which may be stored in a respective container storage area. Any limitations or conditions identified as a part of these assessments for the storage of mixed waste must be followed.

ii. Secondary containment capacity: In order for liquid wastes to be stored within an area, the capacity of the secondary containment must be evaluated to determine its adequacy for containment of the waste volume to be stored.

iii. Physical space: For areas which are not subject to the aforementioned limitations, the storage limit may be based on the physical space available in the area. Considerations affecting the amount of available storage capacity would include: maintenance of aisle space; building structural feature location and design considerations; and the location of facility safety equipment.

Information concerning storage limitations for individual container storage areas will be maintained in the operating record for the unit and in the unit descriptions and drawings in Part III.C.

4. Warning Signs

All container storage units will have signs containing the warning "Danger - Unauthorized Personnel Keep Out" (or equivalent) conspicuously posted at intervals around the perimeter of the unit or at each approach or entrance to a container storage unit. The signs will be in English. The Permittee will post "No Smoking" signs at units where ignitable or reactive wastes are stored or treated.

5. Storage of Ignitable and Reactive Wastes

The Permittee will separate and protect ignitable or reactive waste from sources of ignition or reaction. The Permittee will locate containers storing ignitable or reactive waste at least 15 meters (or approximately 50) feet inside the facility property line. The Permittee will prohibit smoking and open flames where ignitable or reactive waste is being handled.

Any hazardous waste which exhibits the characteristic of reactivity as defined in 6CCR 1007-3, Section 261.23 (excluding chemicals capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement) and requires special management procedures will be treated in Unit 881.3B or transferred off-site within 90 calendar days. Special management requirements will be identified on the unit information sheet and the facility's operating record. In addition, all reactive hazardous wastes will be managed in accordance with the Hazardous Waste Chemical Management Plan.

Shock sensitive hazardous or mixed waste chemicals (i.e., chemicals capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement) will be destroyed, transferred off-site, or placed in isolate storage at Unit 993.1 within 14 calendar days from discovery. Verbal requests for extensions to the 14 calendar days requirement may be approved verbally by the Division.

6. Precautions to Prevent Reactions

The Permittee shall take precautions to prevent:

a. Accidental ignition or reaction of ignitable or reactive wastes by following the procedures specified in Part VII of this permit;

b. Reactions that generate extreme heat or pressure, fires or explosions, or violent reactions;

c. Reactions that produce uncontrolled toxic or flammable fumes, dusts, or gases in sufficient quantities to threaten human health and the environment;

d. Reactions that cause damage to the structural integrity of the container or facility; and

e. Any other reactions that could threaten human health or the environment through other means.

7. Inspection Method

At least weekly, or as specified in the unit specific conditions in Part III.C, the Permittee will inspect all container storage units where hazardous and mixed waste containers are stored. The container storage units will be inspected to identify leaks, significant container deterioration or corrosion, and deterioration of secondary containment systems that would allow the migration of contaminants to the environment. Inspections will be conducted by one of the following methods or an alternate method approved by the Director.

a. Visual: The inspection will be conducted by physically entering the storage unit and visually inspecting the unit and the containers.

b. Remote radiation monitoring: To minimize personnel exposure and to enhance efficiency, inspections may be conducted for certain units by evaluating the results of continuous remote monitoring within the units so equipped rather than by physically entering the unit. Remote radiation monitoring equipment may include Selective Alpha Air Monitors (SAAMs) as a primary means of leak detection and fixed air samplers as a secondary means of leak detection.

SAAMs are stationary air monitoring units which operate continually, drawing ambient air through a filter and providing a continuous count of the alpha activity collected. The SAAMs are equipped with recording and alarming capability. Fixed air samplers serve as airborne particulate filters which continuously gather samples from fixed locations in buildings. The filters are collected at specified intervals and evaluated for airborne radioactive contaminants. The SAAMs and the fixed air head samplers are maintained and inspected to ensure they are operating properly. Both of these devices are used to detect airborne radioactive releases which may indicate a containment breach in the area served by the device.

During the weekly inspection, the inspectors will indicate in the comments section of the inspection form if any SAAM alarm activations from actual hazardous waste releases have occurred since the last inspection. In the event a release of hazardous waste has occurred, the inspectors will notify their supervisor or on-site emergency response personnel in accordance with Part VIII, Contingency Plan, of this permit.

c. Remote visual surveillance: Another alternative inspection method to minimize personnel exposure and to enhance efficiency includes the inspection of certain areas by remote visual surveillance on a monthly basis (the Stacker/Retriever in Building 371). Container storage areas subject to this type of inspection will be specifically identified in Part III.C, Container Storage Units: Unit-Specific Conditions.

A camera will be used to look for evidence of leaks or spills from the stored containers and to examine the floor and walls for signs of significant deterioration.

In addition, an annual inspection will be conducted on a statistical population of the containers within areas subject to remote visual surveillance to assess container condition. This includes the random selection of a percentage of the containers stored within the area which are then physically evaluated to determine their condition. The randomly selected containers are considered representative of all of the containers in storage in the unit and serve to identify any problems as they develop while still protecting the worker from unnecessary exposure.

8. Types of Storage Containers

Hazardous and mixed waste may be stored in approximately 1-, 2-, 3-, or 4-liter (or smaller) cans, or glass or plastic bottles; 5-, 10-, 30-, 35-, or 55-gallon drums; crates; boxes; gas cylinders; or other Site authorized containers.

9. Container Labels

All containers of hazardous or mixed waste in storage will be labeled with the words "Hazardous

Waste," an accumulation start date, and the compatibility code. The hazardous waste label must not be obstructed from view.

Containers with deteriorating hazardous waste labels which have become illegible will be relabeled within 3 months of discovery of the label illegibility or prior to being handled, whichever is sooner. For a container holding 10 gallons or less, the hazardous waste label may be affixed to the container's holder, shielding, or glovebox. However, each outer container (the individual container or the outer container for labpacks or multi-package containers) must be labeled upon removal from the unit. In lieu of each container being labeled, a single hazardous waste label for all containers may be posted at each entrance to container storage units or areas in which containers of pondcrete, saltcrete, pond sludge, or vacuum filter sludge are stored (Unit 15B, 24, and 750.1). This applies only to the containers storing these waste types and does not exempt the Permittee from labeling containers of other wastes in the unit appropriately.

10. Condition of Containers

a. Containers of hazardous and mixed waste will be maintained in good condition. If a container is not in good condition (e.g., has severe rusting, structural defects compromising the integrity of the container, or begins to leak), the Permittee will immediately place the container in a pan or overpack or otherwise isolate the container. The Permittee will then transfer the waste to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this Permit. In addition, containers stored outside will be protected from infiltration, precipitation, and any other accumulation of liquids.

b. Containers of hazardous and mixed waste will be closed during storage, except when it is necessary to add or remove waste or when necessary to prevent other hazards. Containers in gloveboxes storing waste subject to pressure build-up may be stored with the caps loosely in place.

c. Containers storing hazardous or mixed wastes that are prone to expansion or freezing which could damage or degrade the integrity of the container will be stored in an area designed to maintain the temperature above freezing, such as a heated cargo container or within a heated building. Additionally, containers storing waste that are prone to pressure build-up that could damage or degrade the integrity of the container will be stored in areas where the temperature can be maintained at acceptable levels or will have vented lids.

d. Hazardous or mixed waste containers stored outside will be covered to protect them from the elements.

e. Each gas cylinder storing hazardous waste will be secured to prevent toppling, such as by being chained to a wall of the area structure or secured within a rack which is secured to the wall.

f. Containers of hazardous or mixed waste will not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

11. Compatibility with the Container

a. All containers used to store hazardous or mixed waste will be made of or lined with material

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that is compatible with the waste being stored so that the ability of the containers to hold the waste is not impaired.

b. The Permittee will not place hazardous or mixed waste in an unrinsed container that previously held an incompatible waste or material.

12. Compatibility with Other Wastes

Incompatible liquid hazardous or mixed wastes stored within a unit will be separated by a berm, wall, catch pan, or other physical barrier that is adequate to prevent commingling of incompatible waste. Incompatible solid hazardous or mixed wastes stored within a unit will be separated by a distance of at least 10 feet, unless separated by a berm, wall, catch pan or other physical barrier. Incompatible wastes will not be placed within the same container. Each crate storing hazardous or mixed waste will be labeled with the applicable compatibility code.

13. Container Spacing

The Permittee will maintain container spacing in accordance with the following, as applicable.

a. Standard: A minimum 26-inch aisle will be maintained between double rows of containers of hazardous or mixed waste. The 26-inch minimum aisle width is predicated on standard 55-gallon drums and movement with a hand cart. If larger containers or handling equipment are used, aisles sufficient to accommodate movement of the containers must be maintained.

For safety equipment and building structures requiring access space, clearance will be maintained as necessary.

Containers stored against a wall or other barrier will be stored so that each container can be inspected.

In units where containers are stacked, an aisle sufficient to allow forklift access within each room or to the front of each row of containers will be maintained (typically 8 to 10 feet).

b. Vault storage: For storage of hazardous or mixed waste containers on the floors of vaults, a minimum 26-inch entrance aisle shall be maintained. Secondary aisles shall be spaced so that no more than two containers need to be moved to reach a container.

For shelf storage in vaults, spacing between hazardous or mixed waste containers is dictated by fixed shelf storage locations or must be sufficient to allow for the inspection of each container.

c. Shelves: For shelf storage (typically in flammable material storage cabinets within container storage units), hazardous or mixed waste container spacing must be sufficient to allow for the inspection of each container.

d. Gloveboxes: Mixed waste containers stored in gloveboxes shall be provided with sufficient spacing to allow for inspection of each container. A minimum 26-inch aisle will be maintained outside the glovebox in front of the window used for inspection or glovebox operation to allow for access to the glovebox.

Diagrams depicting container arrangements for each of the permitted container storage units and areas within the units are included with the unit information sheets in Part III.C.

14. Stacking

The Permittee may store and stack hazardous or mixed waste containers in one or more of the following arrangements unless otherwise specified in the unit specific conditions sheet.

a. Planar: In this arrangement, containers will not be stacked.

b. Crate stacking: Full-size crates (typically 4 feet high x 4 feet wide x 8 feet long) will be stacked no more than four high. Half-size crates (typically 2 feet high x 4 feet wide x 8 feet long) will be stacked no more than five high. In combination, stacked crates will not exceed 18 feet in height.

c. Drum stacking: Drums may be stacked no more than four high. Drums may be stacked on pallets, plywood or within pans. In order to minimize hazards during stacking and storage activities, containers stacked on pallets will be banded together. Unit specific conditions will identify more restrictive stacking requirements (e.g., in Unit 776.1, Rooms 134, 154 and 159, drums may be stacked no more than two high).

In Unit 1, 10 and 15A, a 5- or 10-gallon container may be stacked on the top of each 55- or 85-gallon container provided the 55- or 85-gallon container is blocked to prevent inadvertant movement and the 5- or 10-gallon container is placed on blocks to elevate it above the top of the 55- or 85-gallon drum.

d. Racks: Drums stored in racks will be stored horizontally and will be stacked no more than three high. The total weight of the drums stored in a rack will not exceed the structural design capacity of the rack.

e. Shelves: Containers on shelves will be stored in a planar configuration, fixed positions, or stacked in an array similar to the arrangement provided at the end of this section.

15. Secondary Containment

Liquid hazardous or mixed wastes will be stored in areas providing secondary containment.

Except for storage within gloveboxes, containers storing liquids within a secondary containment area without a slope to remove liquids will be elevated off the floor in a stable manner, and the containers will not extend onto or over the edge of any berms which are present.

Secondary containment areas will be designed and maintained to prevent run-on and run-off of liquids into the containment system. Liquids accumulated within secondary containment areas will be removed in a timely manner as is necessary to prevent overflow of the collection system using the appropriate means necessary. The collected liquids will be transferred to a container of adequate integrity and managed appropriately based on the waste characterization.

Secondary containment will be adequate to contain at least 10% of the volume of the liquid hazardous or mixed waste containers stored in the area or the volume of the largest container, whichever is greater. For hazardous or mixed waste containers with known and documented

volumes of incidental free liquid, secondary containment will be provided based on the actual amount of incidental free liquid present within the container(s) located within the secondary containment structure. "Incidental free liquid" is defined as small amounts of liquid resulting from condensation within the waste container or liquid which was entrained in the waste matrix when packaged, but has since separated from it. Secondary containment will be provided by one of the following types:

a. Coated concrete: The area will be surrounded by a berm or wall which meets the minimum berm height necessary to provide adequate secondary containment. The concrete will be coated with epoxy, or other coating offering similar protection. The coating will cover the entire floor and berm or wall up to the minimum necessary berm height. The floor and berm or wall of concrete secondary containment areas will be maintained in good condition and free of cracks and gaps that could impair its effectiveness as containment and allow the migration of contaminants to the environment.

b. Stainless steel: Secondary containment is provided by stainless steel which is maintained in good condition and free of cracks and gaps that could impair the effectiveness of the containment and allow the migration of contaminants to the environment. The secondary containment will surround the storage area and meet or exceed the minimum required berm height necessary to provide adequate secondary containment. Secondary containment in Unit 776.1, Room 208, is provided by angle iron, sealed to the floor and coated with epoxy paint.

c. Catch basins: Catch basins providing secondary containment for liquids will be constructed of metal, high density polyethylene (HDPE), fiberglass, stainless steel or other materials compatible with the wastes being stored; and maintained in good condition free of cracks and gaps that could impair their effectiveness as containment and allow the migration of contaminants to the environment. Catch basins constructed of material other than HDPE, fiberglass, or stainless steel will be coated with epoxy or other coating providing equivalent protection.

   Each catch basin will have an integral berm of sufficient height to contain 10% of the volume of the containers stored in the catch basin or the volume of the largest container, whichever is greater. For hazardous waste containers with known volumes of incidental liquid, the minimum berm height will be based on the actual amount of incidental liquid present within the container(s) located within the secondary containment structure.

d. Gloveboxes: Gloveboxes will be maintained in good condition free of cracks and gaps that could impair their effectiveness as containment and allow the migration of contaminants to the environment. Gloveboxes used for secondary containment that have a criticality prevention drain must be capable of containing 100% of the hazardous or mixed liquid waste being stored within it without overtopping the criticality drain within the glovebox.

   A criticality prevention drain consists of compatible piping, typically 2-inch in diameter, connected through the floor of a glovebox to prevent spilled solutions from accumulating to a volume or depth within the glovebox (critical mass) that could initiate a nuclear fission reaction. Criticality prevention drains typically extend to a height of one inch inside the glovebox and will allow accumulated liquids in excess of this depth to drain to the floor of the room or to a tank.

e. Bermed asphalt: An asphalt pad underlying the container storage unit/area serves as secondary containment. Berms shall surround the unit/area and must be sealed to the asphalt. The berms must be 4 inches in height at likely spill collection areas and 2 inches in height at all other locations. Bermed asphalt is acceptable containment for units/areas managing only saltcrete, pondcrete, and associated waste forms.

16. Recordkeeping

The Permittee will place the results of all waste analyses, waste determinations, waste compatibility analyses, and ignitable and reactive waste handling compliance documentation in the facility operating record. Specific recordkeeping requirements are identified in the following documents:

a. Completed inspection forms/logs will be maintained in the inspection log for the unit.

b. The operating record will specify each hazardous or mixed waste-container within the unit. The location of each container within the unit will also be present in a "locator system" to allow for locating the container in a timely manner to minimize unnecessary exposure to personnel. The locator system must be capable of providing sufficient information to determine the location of individual containers in a reasonable amount of time. In addition, general information concerning the unit (i.e., storage areas within the unit, description(s) of the area, approved waste codes, and any area-specific information) will be present.

17. Special Provisions for Container Staging Areas

For the purposes of this permit, a staging area is recognized as an area within a container storage unit/area in which containers are placed for a short period of time (not to exceed 15 calendar days) while being prepared for or awaiting transfer; while being received; while awaiting sampling, analysis, and/or analytical results; or while awaiting nuclear or safety related activities such as drum venting. While in the staging area, container configurations may not mirror those depicted in the container layouts for the unit/area in Part III.C. If containers are stored in a staging area for more than 15 days, the 26 inch aisle space requirement must be met. Staging areas and containers temporarily located within them are subject to the following requirements.

a. Staged containers may be grouped together in arrays of up to three containers wide by eight containers long. Staged containers placed along walls in a unit/area shall not exceed two containers wide.

b. Each container group will be clearly marked with signs indicating the that area is designated for staging and the date the staging area was initiated.

c. Staged containers shall be placed with sufficient space between double rows of containers (at least 4 to 6 inches) to identify any leaks or releases which may occur while the containers are in the staging area.

A minimum 26 inch aisle will be maintained around groups of containers located within a staging area.

d. Staged containers will be identified by a roped area, a painted boundary on the floor of the area, or other physical means to identify the status of the containers. The staging area will also be identified in the unit's operating record.

e. Staged containers will be subject to locator system requirements if staged for more than 15 days. Otherwise, the locator system need not be maintained for containers while in a staging area.

f. Containers located within staging areas must not impede the ability of facility personnel to respond to incidents in the area.

g. Containers will be configured to ensure adequate inspectability.

18. Incidental Waste Management Activities

In any permitted container storage unit, the Permittee may add absorbent materials to waste containers without active mixing for the sole purpose of removing incidental free liquids. Precautions will be taken to ensure no releases occur during this activity. Absorbent materials may only be added to the following waste types: combustibles; plastic; insulation; sludge; filter socks; blacktop; concrete; soil; and spill clean-up materials such as wipes, booms, and used absorbent. In addition, manual compaction of soft waste and crushing of fluorescent light tubes is allowed in certain container storage units. Container storage units in which manual compaction and fluorescent light tube crushing occur are identified in the special unit conditions at the end of this section. In all cases, incidental waste management activities in container storage units will be conducted in accordance with approved process-specific procedures.

19. Addition of New Container Storage Areas Within a Container Storage Unit

In the event the Permittee identifies the need for a new container storage area within an existing container storage unit, approval for the new area may be gained via the following procedure. The Permittee shall evaluate the storage capabilities of the proposed area in accordance with Part III.B. Once the proposed area has been determined to be acceptable for container storage, the Permittee shall submit a letter to the Director identifying the proposed new area. The letter shall contain the following: a container layout diagram consistent with those present in Part III.C; revised unit information sheets; the proposed capacity of the new area; and any limitations on the storage of wastes in the area. Prior to introducing any wastes into the new area, the Director must provide written approval.

This method of new area addition will only be possible if the addition of the new area can be accomplished under the current maximum unit capacity. If the maximum unit capacity will be exceeded, the Permittee will submit a permit modification in accordance with 6 CCR 1007-3, Part 100.63, and Part 100, Appendix I.

20. P- and U-listed Waste Management

The Permittee is authorized to store the specific P- and U-listed wastes currently identified in the unit's descriptions in Part III.C. If, in the future, additional P- and/or U-listed wastes are discovered and require storage, the Permittee will submit a letter to the Director identifying the newly discovered waste, the waste management practices that will be instituted based on waste-specific issues, and the location for storage of the waste. Prior to placing the waste into storage, the Director must provide written approval for the storage of the waste.

21. Non-RCRA Regulated Storage

Non-RCRA regulated materials will be managed as RCRA-regulated materials as provided in Part III, Sections 3, 5, 6, 7, 10, 12, 13, 14, 15 and 16b of this permit, unless they are located outside the boundaries of the RCRA unit. The boundaries of the unit are shown on the drawing for each unit

C. CONTAINER STORAGE UNITS: UNIT-SPECIFIC CONDITIONS

The Permittee may store hazardous wastes in container storage units, subject to the general terms of this permit and the specific conditions as follows. A container configuration diagram for each of the units and areas within the units are provided following the unit information sheet(s) for the unit. Container configurations present within the areas may differ slightly from the container configurations provided in this section due to normal, short duration (not to exceed 15 calendar days) activities within the unit. If area-specific conditions or other individual unit aspects mandate a storage configuration that differs significantly from the diagram of the unit in this section, a revised drawing will be submitted to the Division to replace the incorrect version. Maximum capacities are provided in "gallons" for units which are used for the storage of both liquids and solids in drums or drum-type containers. In units where solid wastes are stored in crates, the capacity is also provided in "cubic yards." Finally, in units where wastes are stored within gloveboxes, "liters" is also provided as a unit of measure.

LEGEND & ABBREVIATIONS

TYPICAL SYMBOLS

SA — OBJECT OF OBSTRUCTION

PL — OBJECT OF OBSTRUCTION

EW — OBJECT OF OBSTRUCTION

EP — OBJECT OF OBSTRUCTION

2' X 3' (RS)

COLUMN IN WALL

CL — COLUMN IN CENTER OF ROOM

SINGLE DOOR

DOUBLE DOOR

ROLL DOOR

GLOVE BOX DOOR

CONVEYOR CONTROL SWITCH

CONTAINERS

24" DIAMETER 55 GALLON DRUM

STACKED 55 GALLON DRUM

14" DIAMETER 10 GALLON DRUM

6" DIAMETER 1 GALLON CAN
6" DIAMETER 4 LITER BOTTLE

CRATE (4' X 7' X 4')

FIXED POSITION STORAGE AREA

EXISTING EQUIPMENT

ABBREVIATIONS

AC	AIR CONDITIONING UNIT
BA	BREATHING APPARATUS
C	CALORIMETER
CA	CABINET
CL	COLUMN
CP	CONTROL PANEL
DT	DUCT
EP	ELECTRICAL PANEL
EQ	EQUIPMENT
EW	EYE WASH
FB	FIRE BLANKET
FE	FIRE EXTINGUISHER
FH	FIRE HOSE
FN	FURNITURE
FP	FIRE PHONE
GA	GAMMA ALARM
GB	GLOVEBOX
LD	LADDER
PD	PEDESTAL
PL	PLENUM
PP	PIPING
RS	RESTRICTED SPACE
SA	SAAM
SH	SHIELDING
SP	SUMP
SS	SAFETY SHOWER
TK	TANK
TP	TELEPHONE
TYP	TYPICAL

KEYWORDS	ISSUE	DESCRIPTION			DATE	RFP	DOE	CLASS	JOB NO.
1.RCRA	A	ORIGINAL ISSUE			04/29/94	SRL SRL PRB			
2.CONTAINER		DESIGNED	LENNIE	04/29/94	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
3.STORAGE		DRAWN	LENNIE	04/29/94	Rocky Flats Plant GOLDEN, COLORADO 80401				
4.WASTE		CHECKED	BIERBAUM	04/29/94					
5.SECONDARY		APPROVED			MIXED RESIDUES PART B APPLICATION				
BLDG./FACILITY SITE					LEGEND & ABBREVIATIONS				
ROOM/AREA GEN									
GRID COOR./COL. NO.		SUBMITTED	BIERBAUM	04/29/94	SIZE	DRAWING NUMBER	ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: NONE	APPROVED RFP / APPROVED DOE			B	39650-X02	A	OF	

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

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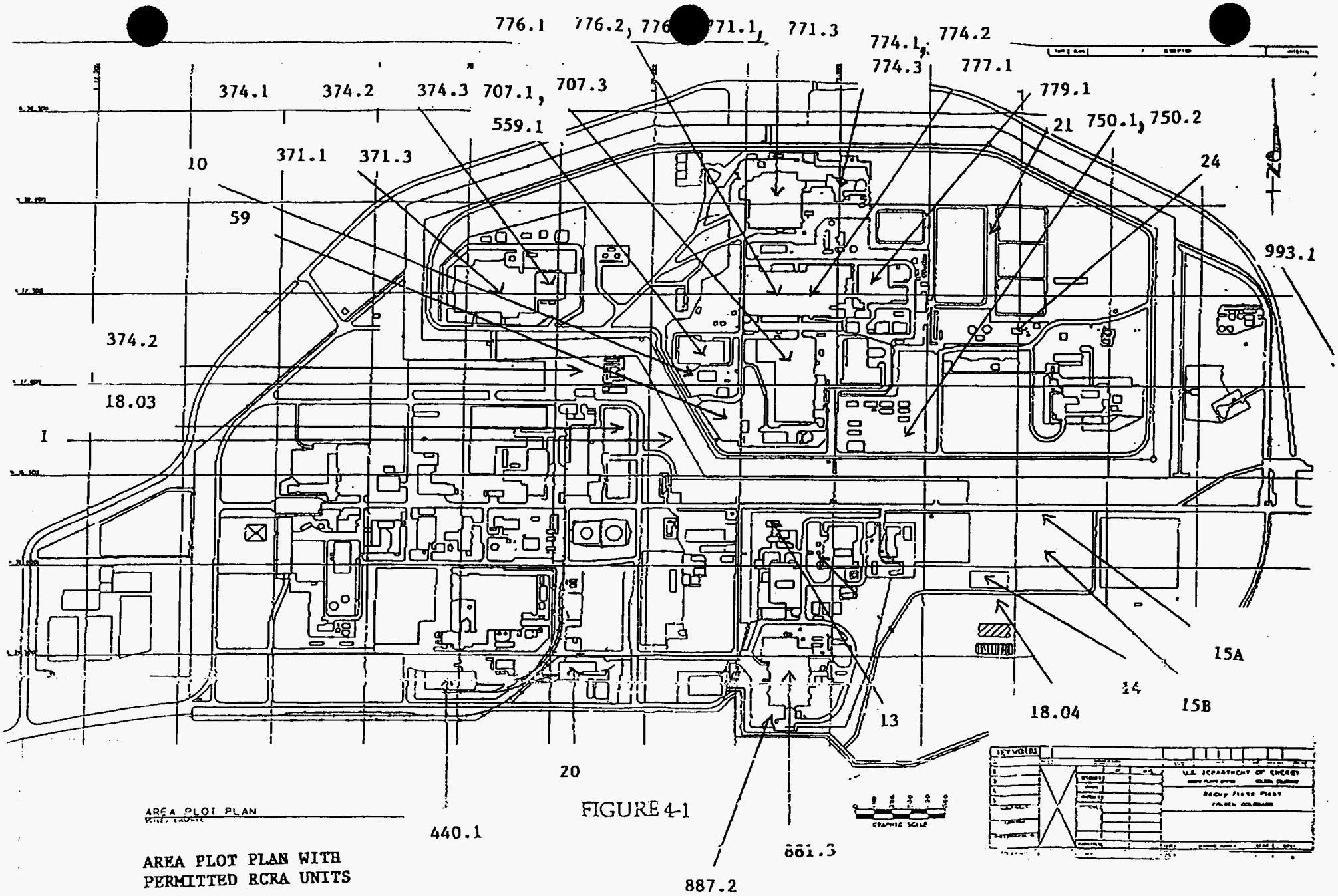

AREA PLOT PLAN
WITH GRAPHIC

FIGURE 4-1

AREA PLOT PLAN WITH
PERMITTED RCRA UNITS

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UNIT INFORMATION SHEET

1. Unit 1

Unit Description:	Outdoor, fenced area with multiple cargo containers located on the north end of the 750 parking lot.
Maximum Capacity:	123,300 gallons
Liquid Capacity:	123,300 gallons
Secondary Containment Type:	Catch Basins
EPA Waste Codes:	D001-D012, D015-D019, D021-D030, D033, D035-D043, F001-F003, F005-F009, F027, P002-P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P048, P051, P059, P063, P074, P077, P087, P089, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119-P121, P123, U002-U004, U007-U009, U012, U018, U019, U022, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U060, U061, U063, U067-U073, U075, U077-U084, U088, U098, U101-U103, U105-U108, U112, U113, U116-U118, U120, U122, U123, U127-U131, U134, U137, U138, U140, U144, U145, U147, U148, U151, U154, U159-U162, U165, U166, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U220, U221, U222, U225-U228, U234, U235, U238-U240, U328, U353, U359.
Waste Types:	Mixed, hazardous

Special Unit Conditions:

1) Hazardous waste will be physically separated from low-level mixed waste within the unit.

2) Manual compaction of waste and fluorescent light tube crushing is allowed in this container storage unit. Tube crushing will be performed in accordance with the Crushing Spent Fluorescent Light Tube Procedure WGS-96-001. A "Dextrite tube crusher" or similar equipment may be used for crushing fluorescent bulbs. The filters for the fluorescent lamp crusher must be changed after every third 55-gallon drum is filled with crushed bulbs or in accordance with the manufacturer's specifications.

3) The storage of reactive wastes within Unit 1 is governed by the following management requirements based on the specific type of hazard exhibited by the waste.

   a. Peroxides and peroxide forming compounds: The In-situ treatment process for these wastes, as described in Unit 881.3B, Part V of this permit, will allow for their treatment in the area in which they are discovered.

      Therefore, management of stabilized/treated peroxides and peroxide formers will be limited to clearly identifying the date of treatment on the waste container and the reactivity characteristic as being present due to the waste being a peroxide or peroxide

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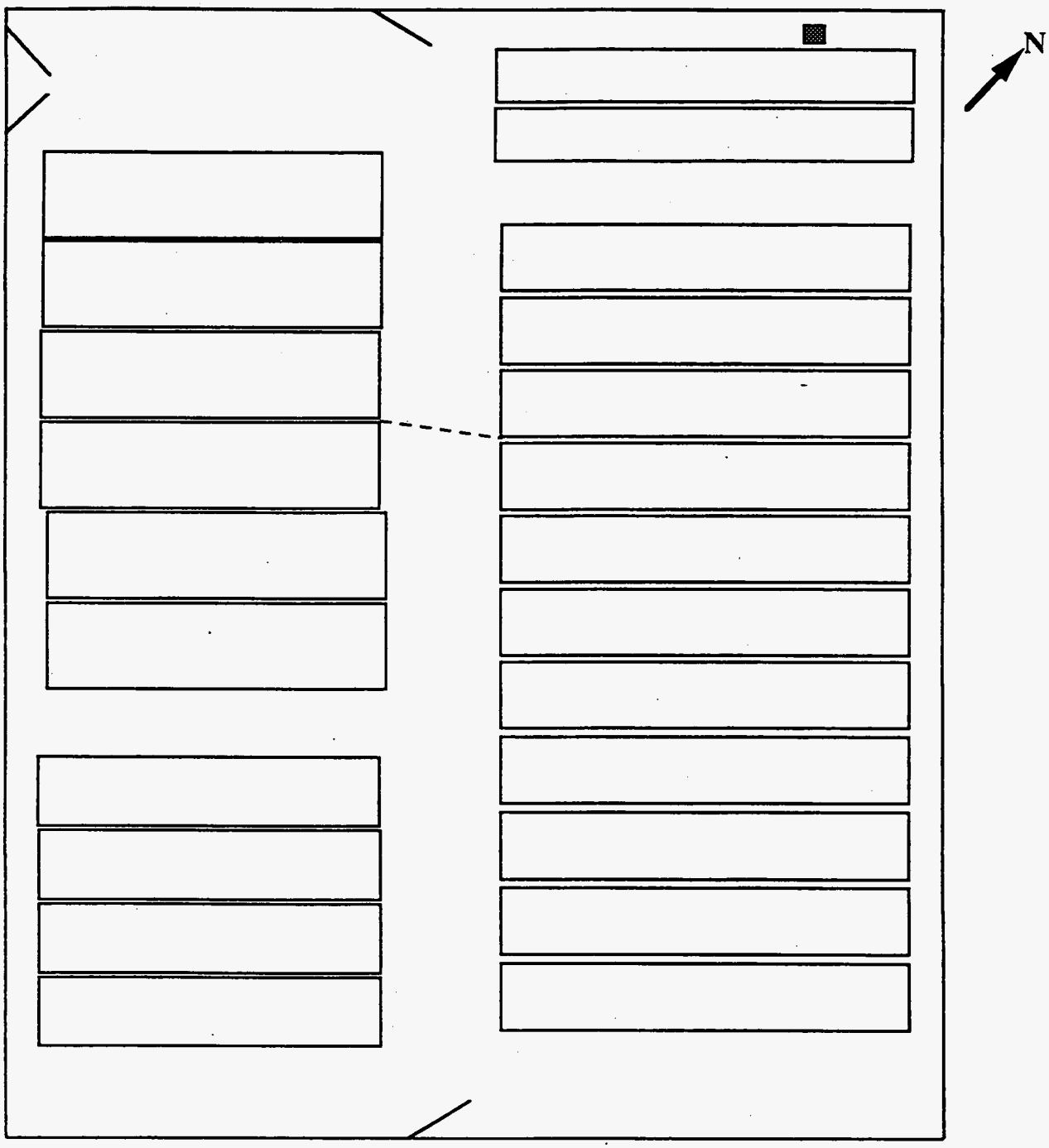
forming compound. These wastes will be stored in a flammable materials cabinet providing easy access at ambient temperatures below 100 degrees Fahrenheit. Examples of these types of waste include catalyst containing methyl ethyl ketone peroxides, methyl ethyl ketone, methyl isobutyl ketone, sodium peroxide, tetrahydrofuran, and methylcellusolve.

b. Air/water reactive metals: If the waste has not been stabilized by immersion, the container will be kept closed to prevent contact with air and moisture. If the waste has been stabilized by immersion, the levels of liquid will be visually monitored on a semi-annual basis. If the waste has been stabilized under an inert environment, the waste will be visually monitored at least annually, to be determined on a case-by-case basis, to identify any color changes, crystal formation, or other changes in appearance that may be indicative of a chemical reaction. The exterior of the container will be clearly identified as containing an air/water reactive waste and the type of stabilization that has been conducted. These wastes will be stored in a location providing easy access for periodic treatment and inspections. Examples of these types of waste include sodium metal powder, lithium metal, and sodium borohydride. Inspection requirements, including frequencies, will be documented in the unit's operating record.

c. Highly ignitable/low auto ignition point and special handling compounds: These wastes will be stored in a flammable materials storage cabinet isolated from any potential source of ignition. The flammable materials cabinet will be located within a storage container in the unit away from any heat sources. The containers will be clearly identified with any special handling or management requirements and will be stored in an area providing easy access for periodic inspections and treatment. Examples of this type of waste include acrylonitrile, carbon disulfide, propionaldehyde, red phosphorous, hafnium metal, titanium powder, and zirconium metal and powder.

4) One 5- or 10-gallon DOT approved container may be stacked on top of each 55-gallon container located in heated cargo containers or on 55-gallon containers which contain no liquids. The 55-gallon containers will be blocked and the 5- and 10-gallon containers will be elevated using 2" x 4"s on top of the 55-gallon containers to allow for proper inspection.

RCRA Unit 1
Container Storage Area



Legend:

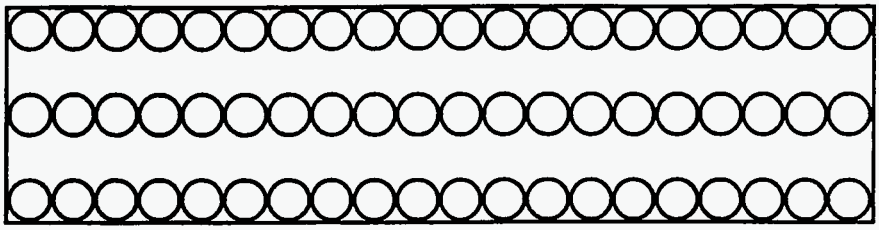
Spill response equipment

Phone

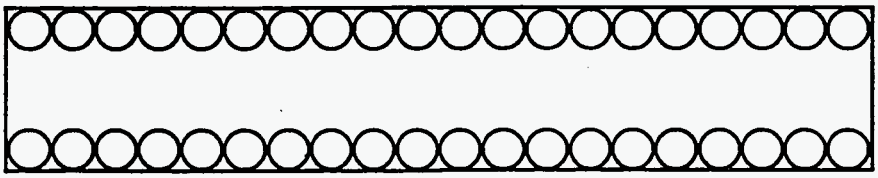
Internal fence

Cargo Containers
Typical Layout by Type

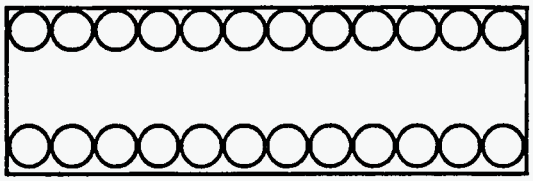
Type (A) New Large



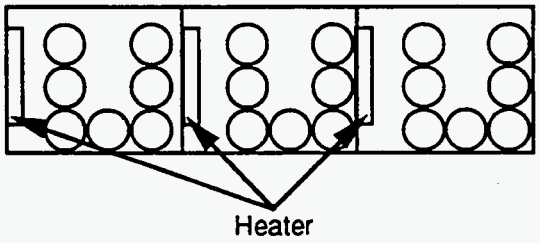
Type (B) Large



Type (C) Medium



Type (D) Small



Typical Layout for Cargo Containers
July 25, 1996 - Rev. 0

UNIT INFORMATION SHEET

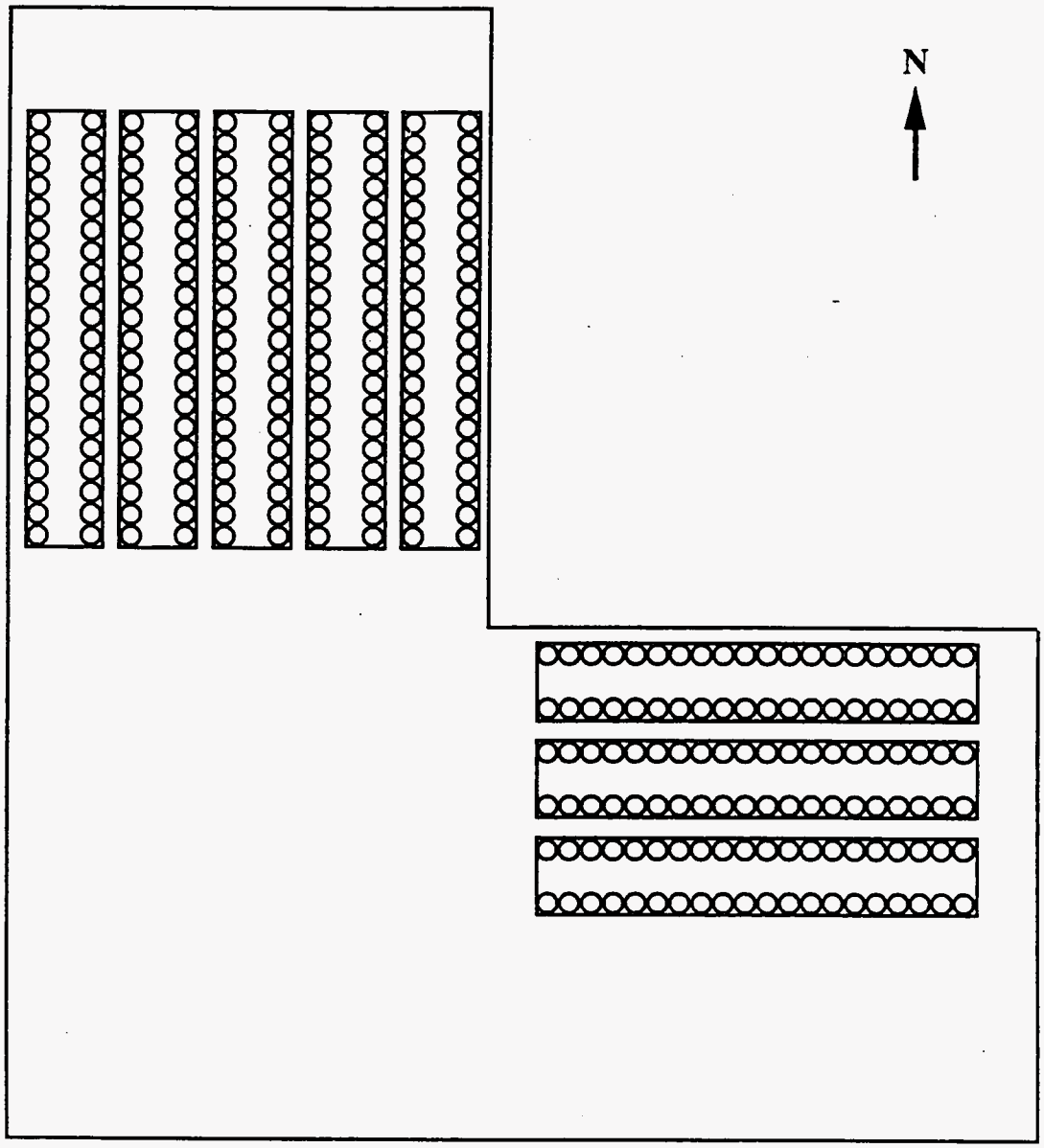
2. Unit 10

Unit Description:	Group of cargo containers located southwest of Building 561.
Maximum Capacity:	20,800 gallons
Liquid Capacity:	20,800 gallons
EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D043, F001-F003, F005-F007, F009, F027, P002, P003, P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P048, P051, P059, P074, P077, P087, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119, P121, P123, U002-U004, U007-U009, U012, U018, U019, U020, U022, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U063, U067-U073, U075, U077-U084, U088, U098, U101-U103, U105-U108, U112, U113, U116-U118, U120, U122, U123, U127-U131, U134, U137, U138, U140, U144, U147, U148, U151, U154, U159, U161, U162, U165, U166, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U220, U222, U225-U228, U235, U238-U240, U328, U353, U359.
Waste Types:	Mixed

Special Unit Conditions:

1) One 5- or 10-gallon DOT approved container may be stacked on top of each 55-gallon container located in heated cargo containers or on 55-gallon containers which contain no liquids. The 55-gallon containers will be blocked and the 5- and 10-gallon containers will be elevated using 2" x 4"s on top of the 55-gallon containers to allow for proper inspection.

RCRA Unit 10
Container Storage Area
Building 561



NOTES:
1) ~~Typical~~ container layout, actual arrangement may vary.

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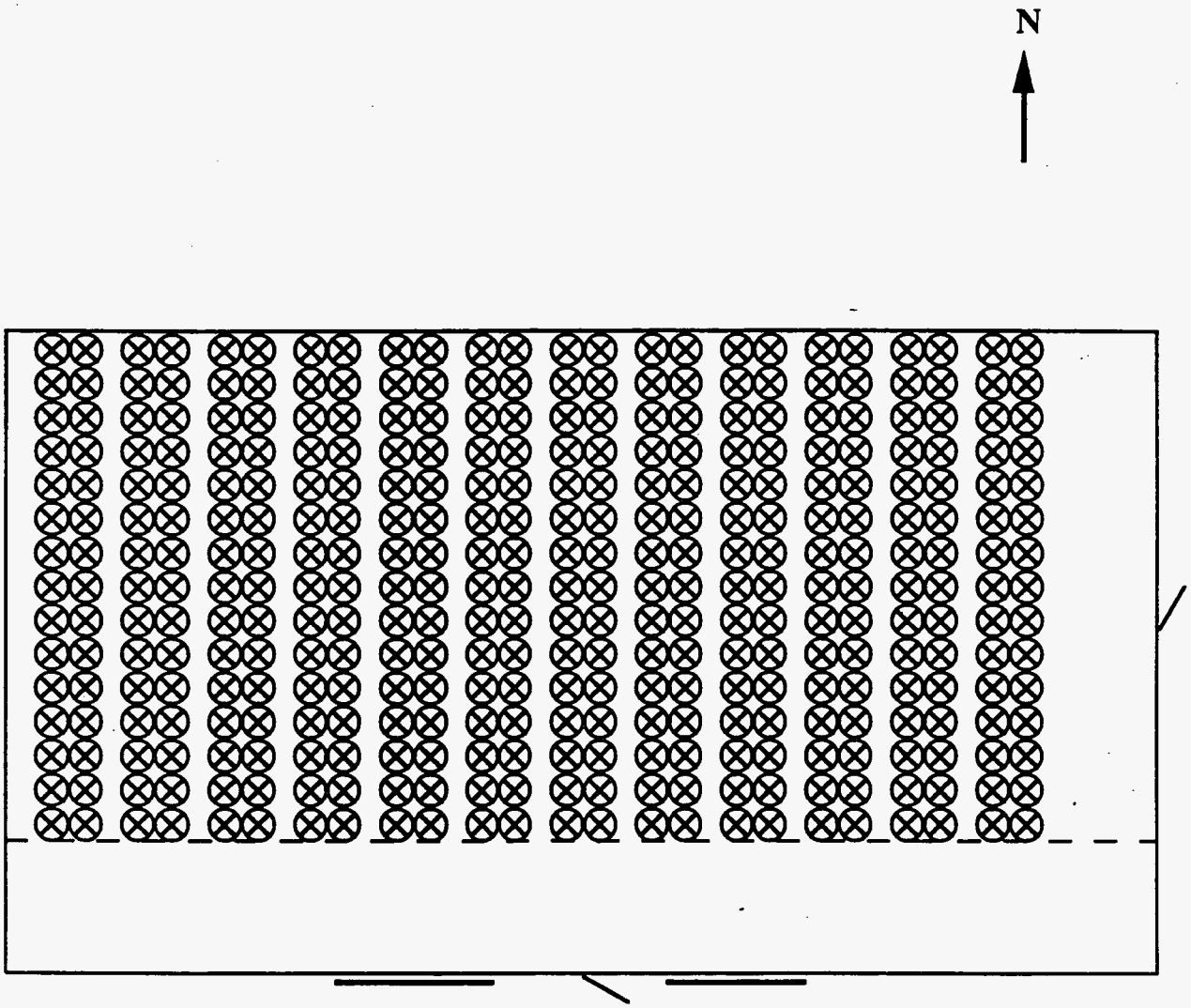
UNIT INFORMATION SHEET

3. Unit 13

Unit Description:	Building 884 is a corrugated steel building located south of Central Avenue.
Maximum Capacity:	55,440 gallons
Liquid Capacity:	36,960 gallons
EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D043, F001-F003, F005-F007, F009, F027, P015.
Waste Types:	Mixed
Special Unit Conditions:	None

RCRA Unit 13
Container Storage Unit
Building 884



Legend:

⊗ Stacked containers

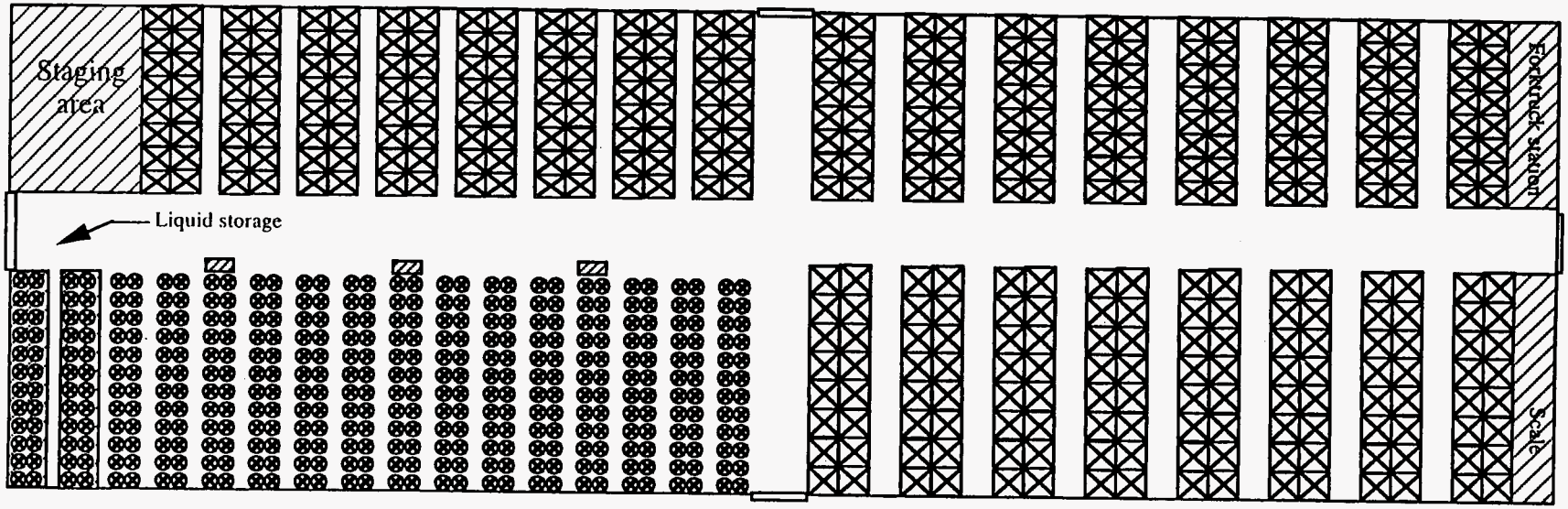
—— Roll up door

NOTES:
1) Typical container layout, actual arrangement may vary.

UNIT INFORMATION SHEET

4. Unit 14

Unit Description:	Building 906 is a steel building located west of the 904 Pad.
Maximum Capacity:	1,050,400 gallons (5,200 cubic yards)
Liquid Capacity:	5,500 gallons
EPA Waste Codes:	D001-D011, D016-D019, D021, D022, D024-D029, D033, D035-D041, D043, F001-F003, F005-F009, F027, F039, P011, P012, P014, P015, P022, P028, P029, P045, P062, P076, P087, P098, P101, P104-P106, P113, P119-P121, U002-U004, U019, U031, U037, U041, U042, U044, U055-U057, U067, U071, U074, U075, U077, U079, U080, UO84, U098, U102, U107, U108, U112, U120-U123, U127, U131, U133, U134, U138, U144, U148, U151, U154, U158, U159, U161, U162, U165, U167, U169, U170, U188, U190, U191, U196, U201, U207, U209-U211, U213-U220, U225, U227, U228, U236, U239, U246, U328, U353, U359.
Waste Types:	Mixed, hazardous
Special Unit Conditions:	None



Unit Capacity: (Typical Inventory)	55-gallon drums:	crates:
	1,536	1,152

N

Note:
Drawing shows a typical layout. Actual arrangement and combination of container types may vary.

RCRA Unit 14
Building 906

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UNIT INFORMATION SHEET

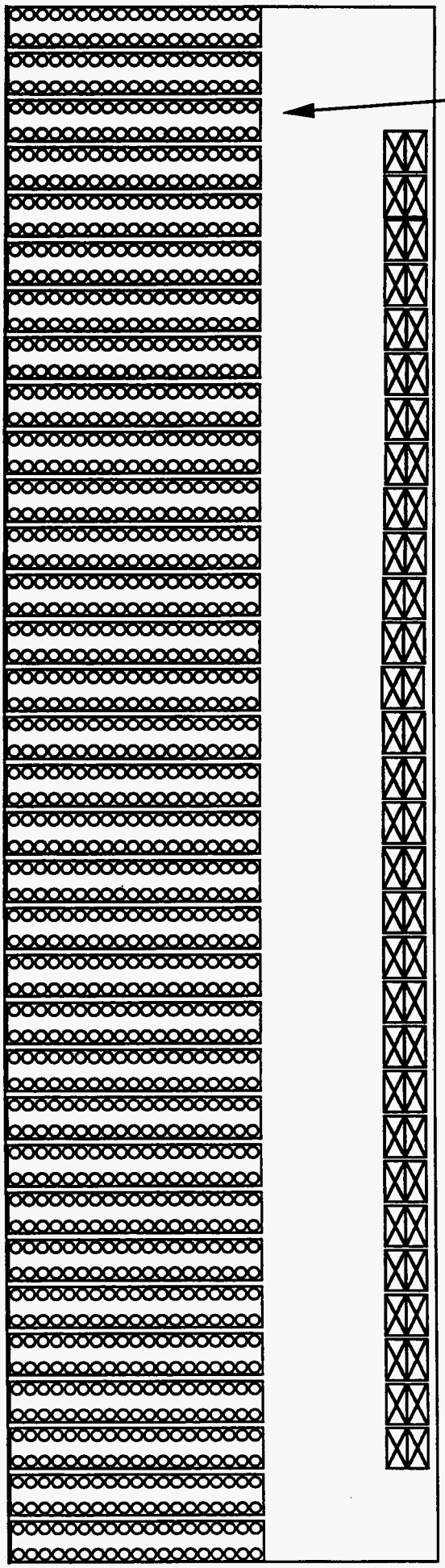
5. Unit 15A

Unit Description:	Outdoor fenced area with multiple cargo containers located south of Central Avenue on the 904 Pad.
Maximum Capacity:	71,565 gallons in drums in cargo containers and 151,470 gallons (750 cubic yards) in crates outside of cargo containers
Liquid Capacity:	71,565 gallons
EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D043, F001-F003, F005-F007, F009, F027, P002, P003, P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P048, P051, P059, P074, P077, P087, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119, P121, P123, U002-U004, U007-U009, U012, U018, U019, U022, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U063, U067-U073, U075, U077-U084, U088, U098, U101-U103, U105-U108, U112, U113, U116-U118, U120, U122, U123, U127-U131, U134, U137, U138, U140, U144, U147, U148, U151, U154, U159, U161, U162, U165, U166, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U220, U222, U225-U228, U235, U238-U240, U328, U353, U359.
Waste Types:	Mixed

Special Unit Conditions:

1) Manual compaction of waste and fluorescent light tube crushing is allowed in this container storage unit in accordance with the Crushing Spent Fluorescent Light Tube Procedure WGS-96-001. A "Dextrite tube crusher" or similar equipment may be used for crushing fluorescent bulbs. The filters for the fluorescent lamp crusher must be changed after every third 55-gallon drum is filled with crushed bulbs or in accordance with the manufacturer's specifications.

2) One 5- or 10-gallon DOT approved container may be stacked on top of each 55-gallon container located in heated cargo containers or on 55-gallon containers which contain no liquids. The 55-gallon containers will be blocked and the 5- and 10-gallon containers will be elevated using 2" x 4"s on top of the 55-gallon containers to allow for proper inspection.



RCRA Unit 15A
Container Storage Area
904 Pad

Cargo container storage area

Crate storage

N

Stacked Containers

NOTES:
1) Typical container layout, actual arrangement may vary.
2) All crates may be stacked three high

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UNIT INFORMATION SHEET

6. Unit 15B

Unit Description:	Multiple tents located on the 904 Pad and Tent 7 located directly west of the 904 Pad.
Maximum Capacity:	15,981 cubic yards (3,228,162 gallons)
Liquid Capacity:	13,975 cubic yards (2,822,950 gallons)
EPA Waste Codes:	D001-D011, D018, D019, D022, D028, D029, D035, D040, D043, F001-F003, F005-F007, F009, F039, P002, P003, P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P048, P051, P059, P074, P077, P087, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119, P121, P123, U002-U004, U007-U009, U012, U018, U019, U022, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U063, U067-U073, U075, U077-U084, U088, U098, U101-U103, U105-U108, U112, U113, U116-U118, U120, U122, U123, U127-U131, U134, U137, U138, U140, U144, U147, U148, U151, U154, U159, U161, U162, U165, U166, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U220, U222, U225-U228, U235, U238-U240, U328, U353, U359.
Waste Types:	Mixed, hazardous
Aisle Space:	24" between rows and 10' down center of tent for fork truck access inside tents. 26" outside of tents.

Special Unit Conditions:

1) Crates with fiberglass lids may be stored in this unit.

2) Releases that occur in Unit 15B will be cleaned up according to current Waste Operations Procedures. However, the requirement stated in (Part VIII - Contingency Plan, Section E.1.k.) that an engineer perform a visual inspection of the containment to certify that the area affected is free of cracks, gaps, structural inadequacies, or other pathways to soil, surface water, or ground water is not required.

3) Analytical investigation of the pad surface will be required as part of the RCRA closure process.

4) The Permittee may post a single hazardous waste label at each entrance for containers storing pondcrete and saltcrete. In addition, a list of containers which correspond to each label will be placed in a nearby location to assist personnel in identifying hazards associated with each container in the unit. Whenever a container is removed from the unit for off-site shipment, a hazardous waste label containing the required information pursuant to Part 262 of the CHWR will be affixed to the container. Before transporting, each container will be labeled in accordance with the U.S. Department of Transportation regulations.

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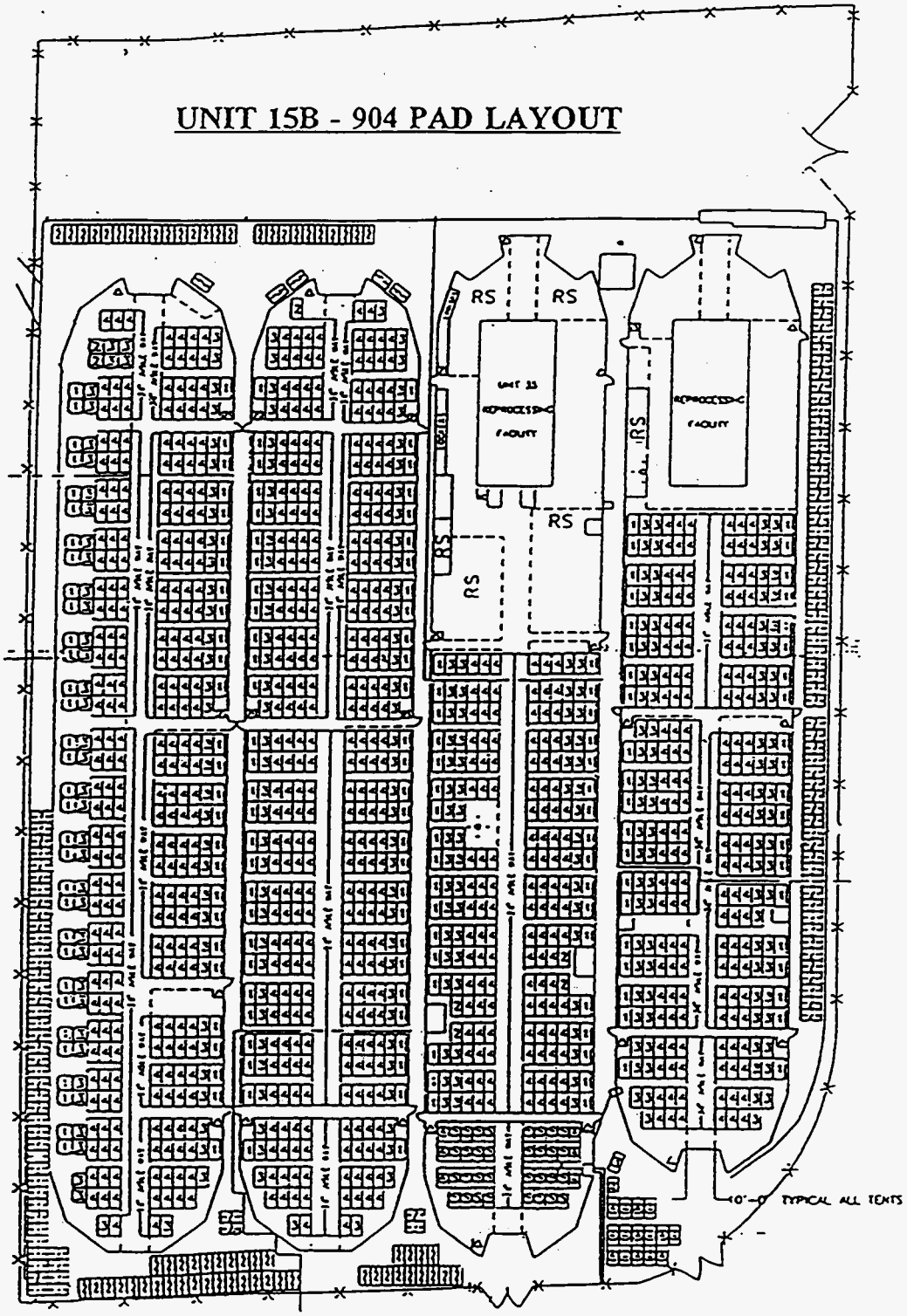
5) Precipitation will managed in accordance with the RMRS Precipitation Management letter to Kaiser-Hill dated 2/25/97.

6) All wooden crates and crates with fiberglass lids storing hazardous or mixed waste will be removed from Unit 15B by September 30, 1997.

7) Hazardous or mixed wastes stored in plywood or metal crates will be covered to protect the crates from the elements including: wind, rain, snow, and direct sun light. In the event the tent panels are damaged and do not provide adequate protection from the elements, all crates storing hazardous or mixed wastes will be covered within 24 hours.

UNIT 15B - 904 PAD LAYOUT



E	CLARIFY AISLE SPACING & NOTE 6	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	98691
D	ADD CRATES ON OUTSIDE OF TENTS	3/30/95	[illegible]	[illegible]	[illegible]		[illegible]	98691
C	DRAWING UPDATE	1/13/95	[illegible]	[illegible]	[illegible]		[illegible]	98914
B	UPDATE CRATE SIZES & LOCATIONS	10/18/94	[illegible]	[illegible]	[illegible]		[illegible]	9891
A	ORIGINAL ISSUE	3/1/94	[illegible]	[illegible]	[illegible]		[illegible]	9891

KEYWORDS
1. CRATE
2. SALTJETTE
3.
4.
5.
904 PAD

ISSUE	DESCRIPTION	DATE	DOC	CLASS	JOB NO
			RFP		

TOLERANCES		BY	DATE
FRAC ± 1/32	DESIGNED	[illegible]	3/1/94
ANGLE ± 2°	DRAWN	[illegible]	3/1/94
DEC ± .005	CHECKED	[illegible]	3/1/94
UNLESS NOTED OTHERWISE	APPROVED	[illegible]	3/1/94
REMOVE BURRS AND SHARP EDGES			
NEXT ASSEMBLY			

U.S. DEPARTMENT OF ENERGY

Rocky Flats Plant

GOLDEN, COLORADO

904 PAD

TENT LAYOUT

LEGEND

- △ FIRE EXTINGUISHER
- E EYEWASH STATION
- MONITORING WELL
- RS RESERVED SPACE

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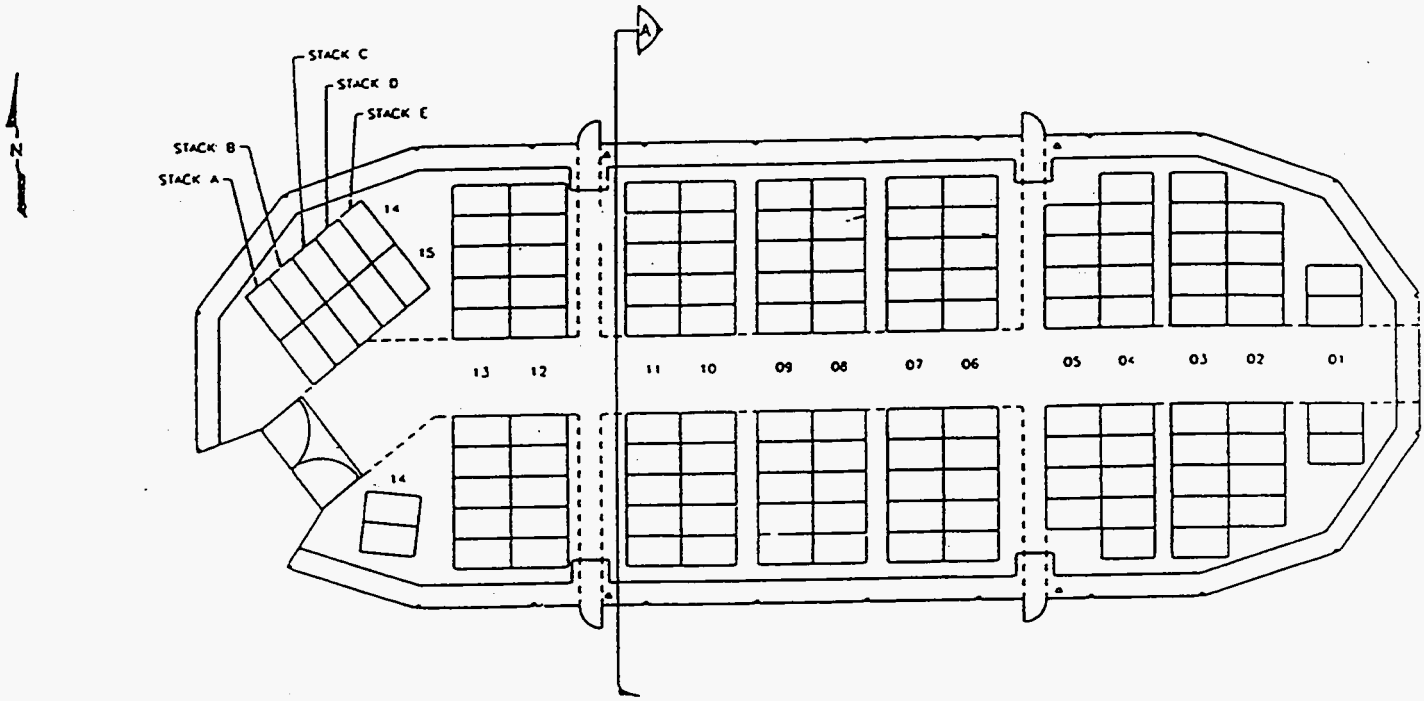
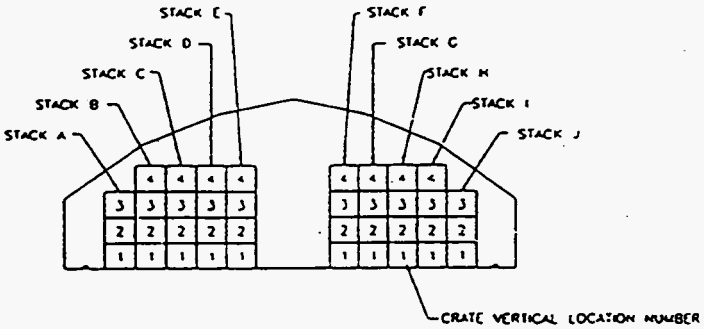
UNIT 15B - TENT 7 LAYOUT



TENT 7 LAYOUT



A SECTION
SCALE 1" = 10'

LEGEND

[ ] = OVERSIZED METAL 1/2 CRATES. # INDICATES STACK HEIGHT (#7 = 65" = 45')

- - - - EGRESS AISLE WAY

▲ FIRE EXTINGUISHER

KEYWORDS	A	ORIGINAL ISSUE			8/30/95						266912
1.	ISSUE	DESCRIPTION			DATE	RFP			DOC	CLASS.	JOB NO.
2.	TOLERANCES FRAC ± 1/32			BY	DATE	U.S. DEPARTMENT OF ENERGY					
3.	ANGLE ± 1°	DESIGNED			8/30/95						
4.	DEC ± .005	DRAWN			8/30/95	Rocky Flats Plant					
5.	UNLESS NOTED OTHERWISE	CHECKED				GOLDEN, COLORADO					
TENT 7		APPROVED				902 PAD					
	REMOVE BURRS AND SHARP EDGES					TENT 7 CRATE IDENTIFICATION NUMBER					
	NEXT ASSEMBLY										

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UNIT INFORMATION SHEET

7. Unit 18.03

Unit Description:	Fenced area with cargo containers and racks located in the parking area east of Building 551.
Maximum Capacity:	472,245 gallons
Liquid Capacity:	92,400 gallons
EPA Waste Codes:	D001, D002, D004-D009, D011, D019, D022, D027-D029, D035, D039, D040, D043, F001, F002, F005-F007, and F009.
Waste Types:	Mixed

Special Unit Conditions:

1) Crates with fiberglass lids are approved for use on containers stored at this unit.

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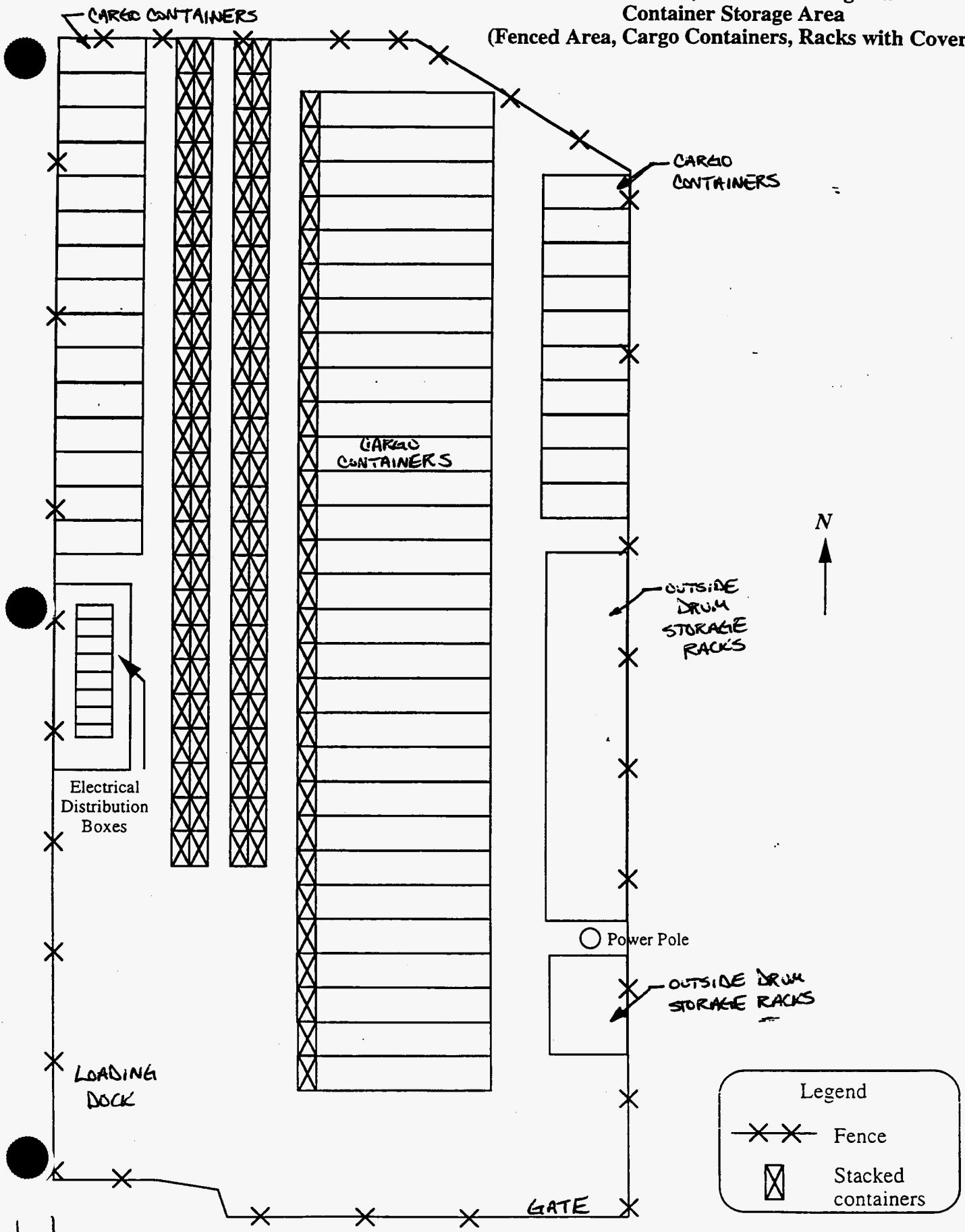
RCRA Unit 18.03
Fenced Area, East of Building 551
Container Storage Area
(Fenced Area, Cargo Containers, Racks with Covers)



UNIT INFORMATION SHEET

8. Unit 18.04

Unit Description:	Building 892 and cargo containers located south of Unit 14, Centralized Waste Storage Facility.
Maximum Capacity:	903 cubic yards (182,406 gallons)
Liquid Capacity:	87,340 gallons
EPA Waste Codes:	D004-D009, D011, D019, D022, D027-D029, D035, D039, D040, D043, F001-F003, F005-F007, F009, F039.
Waste Types:	Mixed, hazardous
Special Unit Conditions:	None

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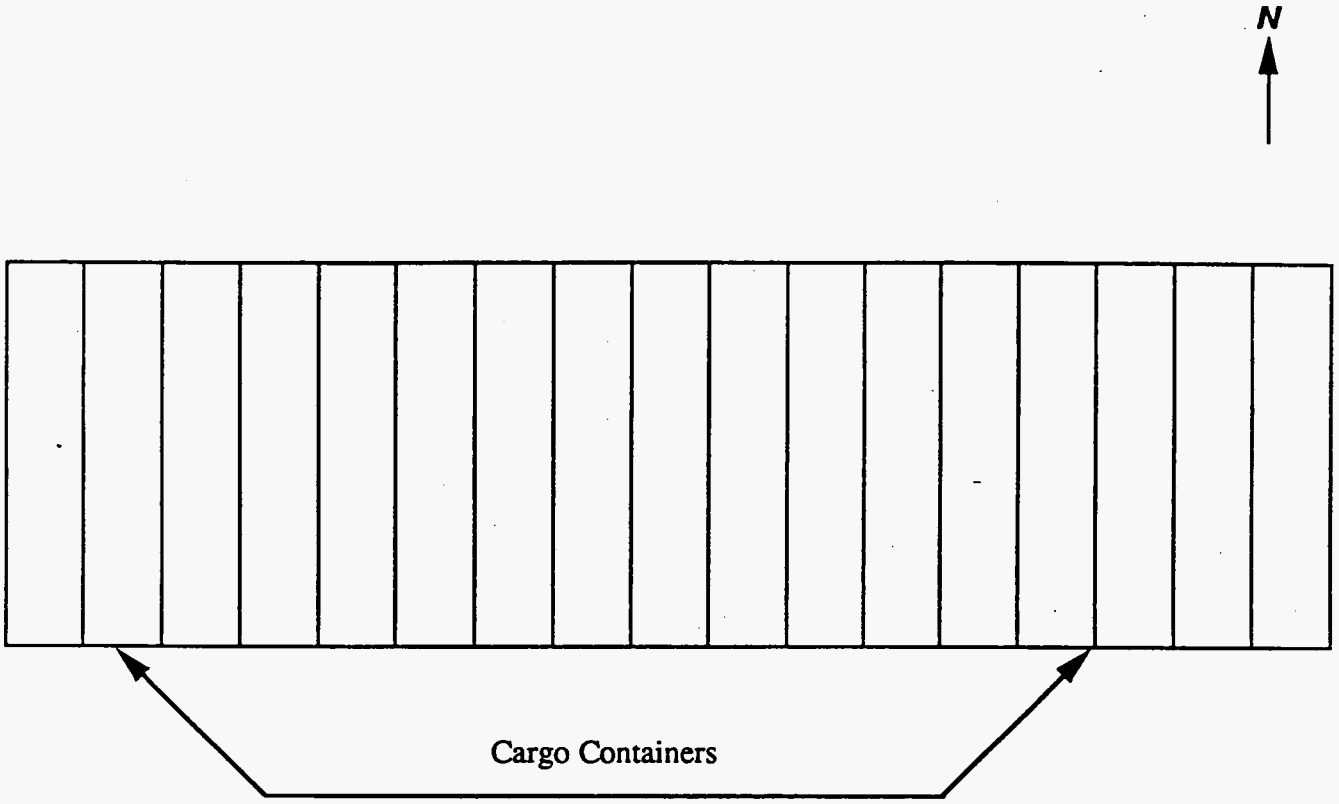
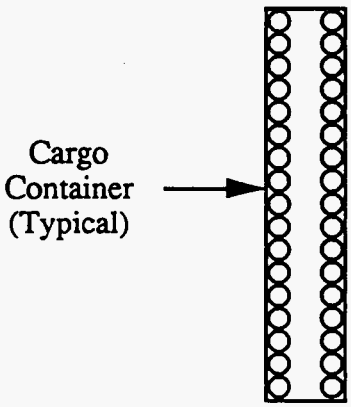
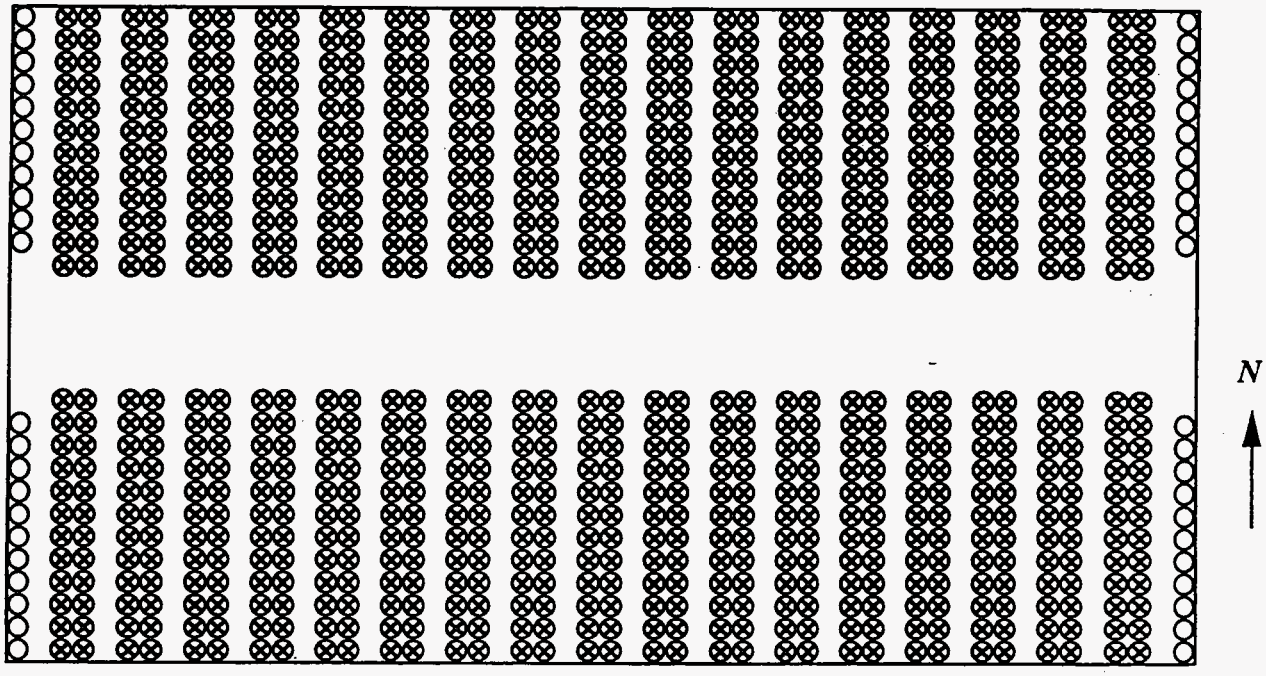
RCRA Unit 18.04
Containers Storage Area

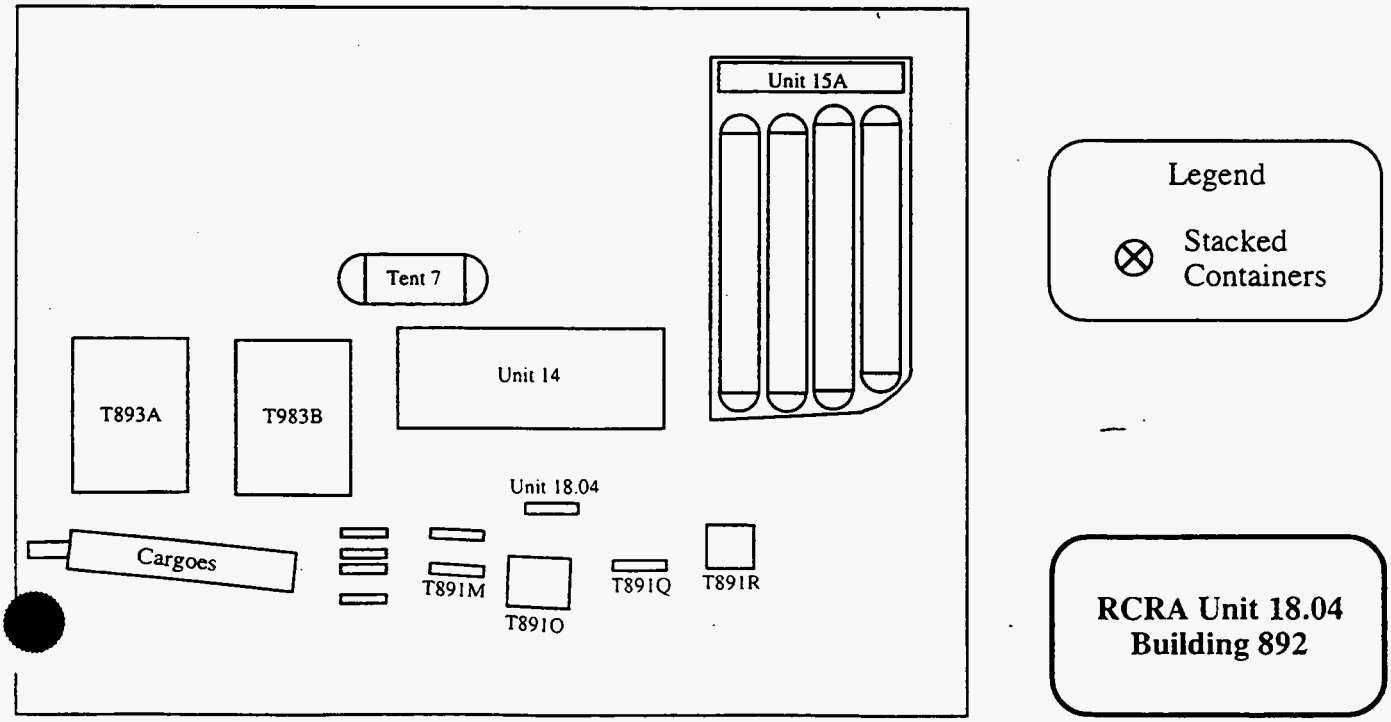




NOTES:
1) Typical container layout, actual arrangement may vary.

43

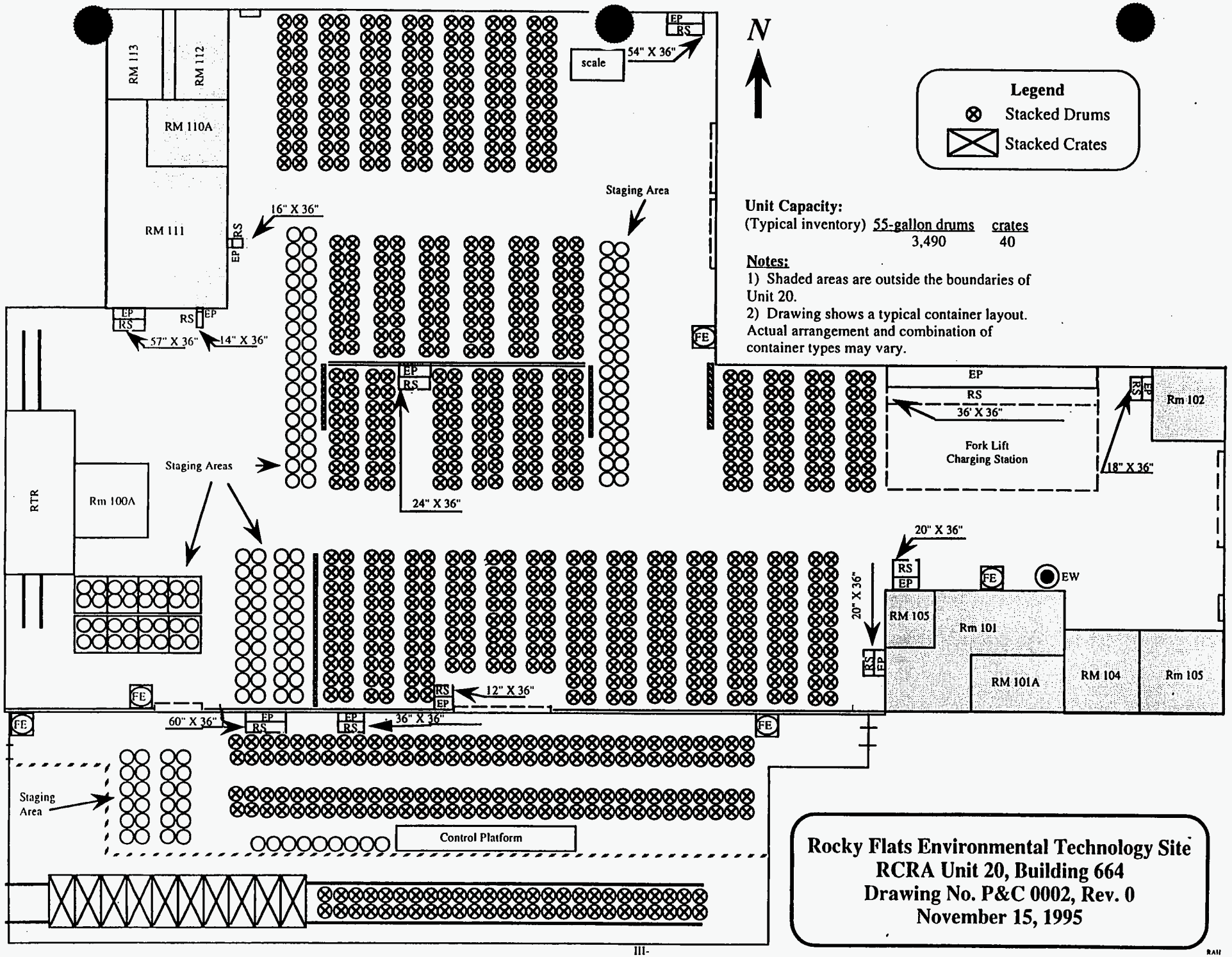

N


Unit 15A
Tent 7
Unit 14
T893A
T983B
Unit 18.04
Cargoes
T891M
T891O
T891Q
T891R
Legend
Stacked Containers
RCRA Unit 18.04
Building 892

UNIT INFORMATION SHEET

9. Unit 20

Unit Description:	Building 664 is a metal building on the southwest side of the facility in which container storage occurs in Rooms 100, 110, and the High Bay area.
Maximum Capacity:	230,248 gallons
Liquid Capacity: 1,760 gallons	
EPA Waste Codes:	D001-D011, D016-D019, D021, D022, D024-D030, D035-D041, D043, F002, F003, F005-F009, F027, P002, P003, P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P045, P048, P051, P059, P062, P074, P076, P077, P087, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119-P121, P123, U002-U004, U007-U009, U012, U018, U019, U022, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U063, U067-U075, U077-U084, U088, U098, U101-U103, U105-U108, U112, U113, U116-U118, U120-U123, U127-U131, U133, U134, U137, U138, U140, U144, U147, U148, U151, U154, U158, U159, U161, U162, U165-U167, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U220, U222, U225-U228, U235, U236, U238-U240, U246, U328, U353, U359.
Waste Types:	Mixed, hazardous
Special Unit Conditions:	None



Rocky Flats Environmental Technology Site
RCRA Unit 20, Building 664
Drawing No. P&C 0002, Rev. 0
November 15, 1995

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UNIT INFORMATION SHEET

10. Unit 21

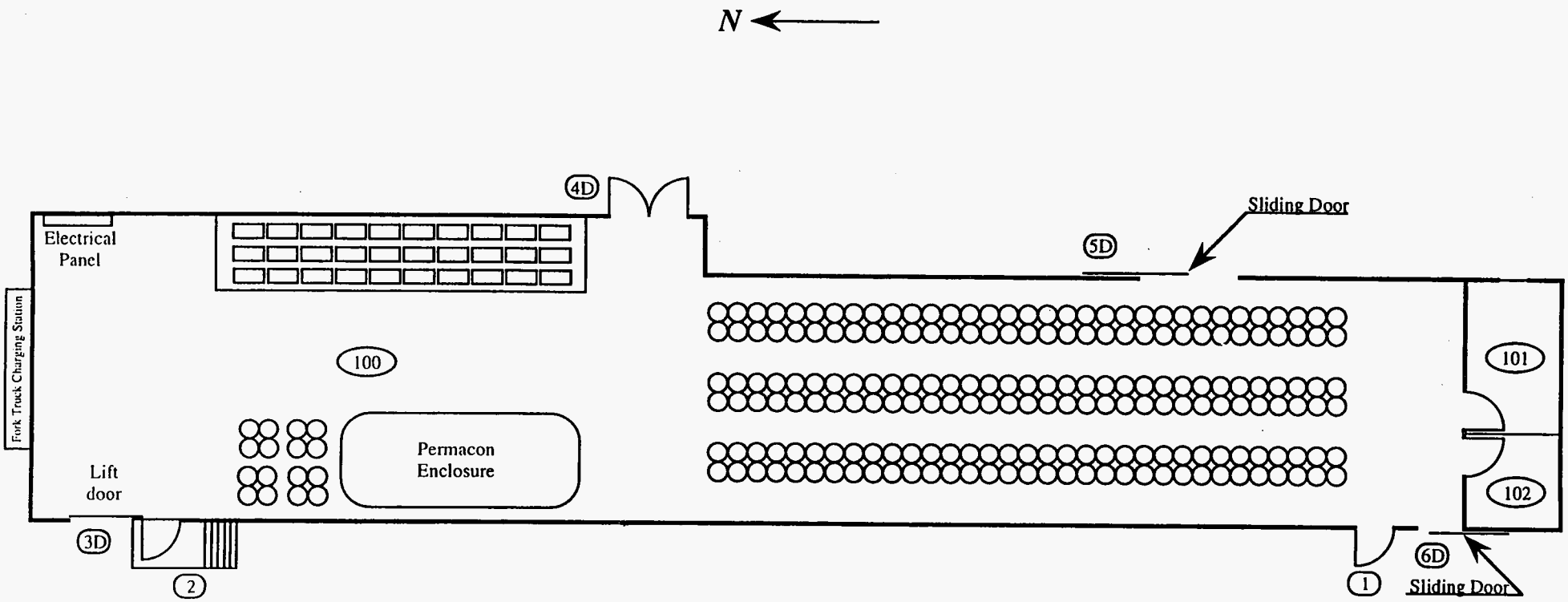
Unit Description:	Building 788 is a metal building located on the eastern side of the Protected Area.
Maximum Capacity:	200 cubic yards (44,000 gallons)
Liquid Capacity:	200 gallons
EPA Waste Codes:	D001-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005-F009.
Waste Types:	Mixed, hazardous

Special Unit Conditions:

1) Secondary containment capable of providing 100% containment for liquids identified in regulated wastes within this unit will be provided as necessary.

2) A Permacon is located within this unit and will be used for the repackaging of wastes. All repackaging operations will be conducted in accordance with Solid Waste Repackaging Operations Procedure (4-P23-WO-1105).

67



Legend:

Door Numbers

Room Numbers

RCRA UNIT 21
BUILDING 788
CONTAINER STORAGE AREA
ROOMS 100, 101, & 102

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UNIT INFORMATION SHEET

11. Unit 24

Unit Description:	Building 964 is a corrugated metal building located at the east end of the facility.
Maximum Capacity:	123,200 gallons
Liquid Capacity:	None
EPA Waste Codes:	D002, D004, D006-D011, F001-F003, F005-F007, F009.
Waste Types:	Mixed

Special Unit Conditions:

1) The Permittee may post a single hazardous waste label at each entrance for containers storing pondcrete and saltcrete. In addition, a list of containers which correspond to each label will be placed in a nearby location to assist personnel in identifying hazards associated with each container in the unit. Whenever a container is removed from the unit for off-site shipment, a hazardous waste label containing the required information pursuant to Part 262 of the CHWR will be affixed to the container. Before transporting, each container will be labeled in accordance with the U.S. Department of Transportation regulations.

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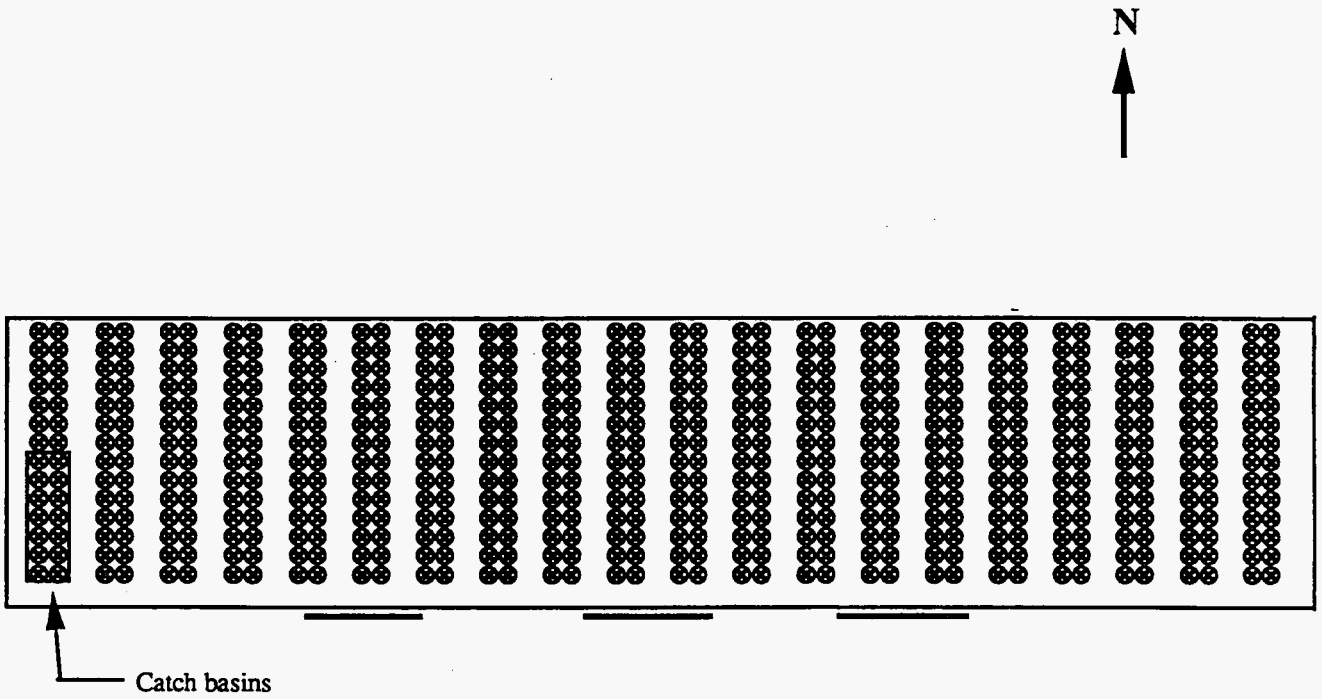
RCRA Unit 24
Container Storage Area
Building 964



Legend:

Roll up door

Stacked containers

NOTES:
1) Typical container layout, actual arrangement may vary.

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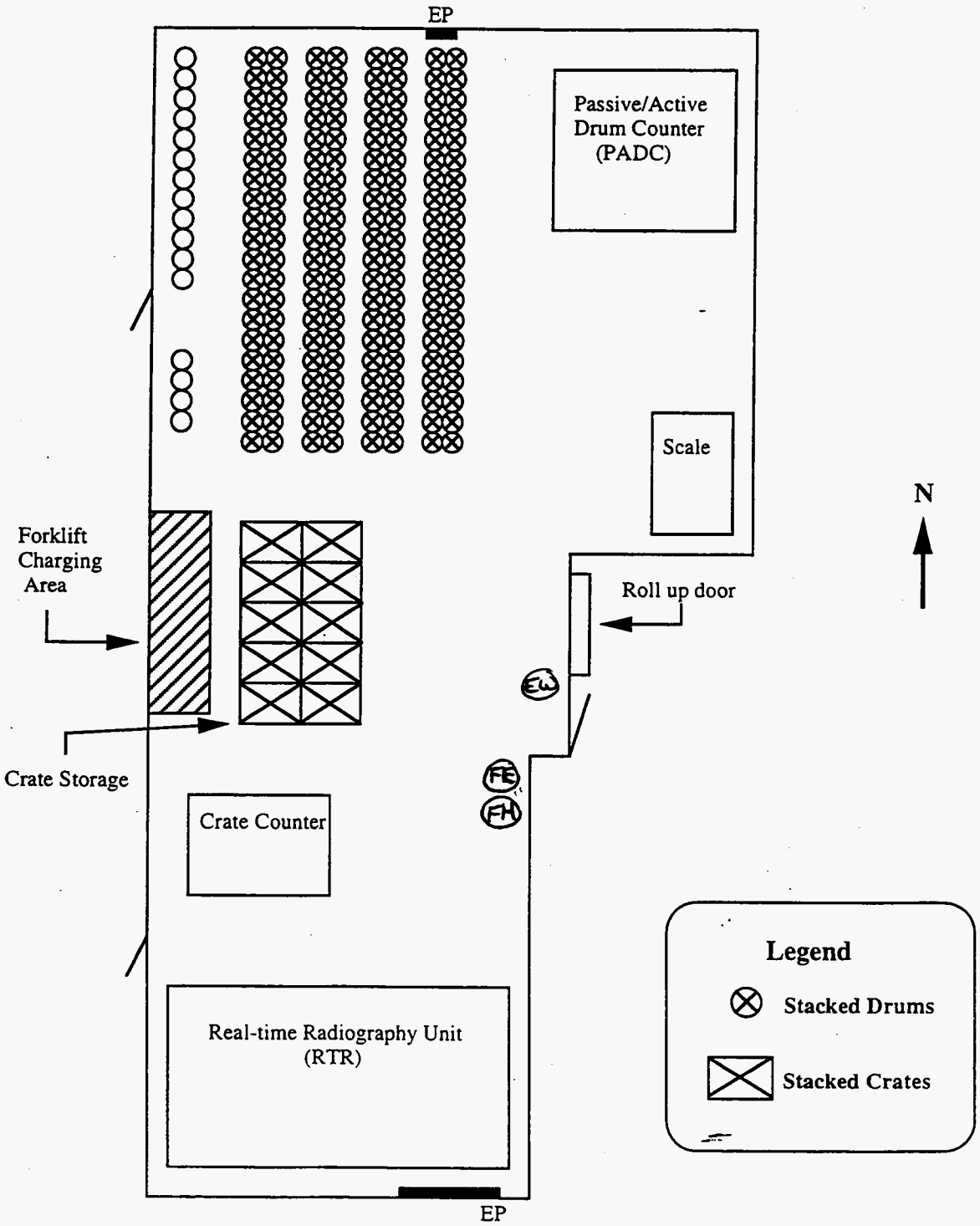
UNIT INFORMATION SHEET

12. Unit 59

Unit Description:	Building 569 is a metal building located south of Building 561. This unit contains drum and crate assay equipment and a real-time radiography unit.
Maximum Capacity:	35,140 gallons
Liquid Capacity:	1,000 gallons
EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D040, D043, F001-F003, F005-F009, P011, P012, P014, P015, P022, P028, P029, P045, P062, P076, P087, P098, P101, P104-P106, P113, P119-P121, U002-U004, U019, U031, U037, U041, U042, U044, U055-U057, U067, U071, U074, U075, U077, U079, U080, U084, U098, U102, U107, U108, U112, U120-U123, U127, U131, U133, U134, U138, U144, U148, U151, U154, U158-U162, U165, U167, U169, U170, U188, U190, U191, U196, U201, U207, U209-U211, U213-U220, U225, U227, U228, U236, U239, U246, U328, U353, U359.
Waste Types:	Mixed
Special Unit Conditions:	None

RCRA Unit 59
Container Storage
Building 569



NOTES:
1) Typical container layout, actual arrangement may vary.

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UNIT INFORMATION SHEET

13. Unit 371.1

Unit Description:	Building 371 is located on the northwest end of the facility. This unit has multiple container storage areas which include rooms, gloveboxes, and vaults.
Maximum Unit Capacity:	152,372 gallons
Unit Liquid Capacity:	36,972 gallons
Unit EPA Waste Codes:	See specific waste codes below for each type of container storage area.
Unit Waste Types:	Mixed, hazardous

Container Storage Areas Within This Unit:

a. Room type areas

The following EPA waste codes apply globally to the "room" type areas within this container storage unit. The individual rooms that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual room type areas.

EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D043, F001-F003, F005-F007, F009, F039, P011, P012, P014, P015, P022, P028, P029, P045, P062, P076, P087, P098, P101, P104-P106, P113, P119-P121, U002-U004, U019, U031, U037, U041, U042, U044, U055-U057, U067, U071, U074, U075, U077, U079, U080, U084, U098, U102, U107, U108, U112, U120-U123, U127, U131, U133, U134, U138, U144, U148, U151, U154, U158, U159, U161, U162, U165, U167, U169, U170, U188, U190, U191, U196, U201, U207, U209-U211, U213-U220, U225, U227, U228, U236, U239, U246, U328, U353, U359.

Room 1210

Maximum capacity:	2,750 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) Waste in containers stored in this area must be compatible with the liquid waste in the tanks (compatibility code 1A) or elevated above the minimium identified berm height until such time as the tanks and ancillary equipment are drained.

Room 2202A, B, and C

Maximum capacity:	2,420 gallons
Liquid capacity:	2,420 gallons

Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 2207

Maximum capacity:	12,760 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 2223/2207

Maximum capacity:	6,380 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) Wastes within this area must have a compatibility code of NA (no liquids).

2) Containers stored in this area must be elevated or otherwise protected from contact with accumulated liquids.

Room 2325

Maximum capacity:	11,770 gallons
Liquid capacity:	N/A
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 3187B

Maximum capacity:	55 gallons
Liquid capacity:	55 gallons
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 3189

Maximum capacity:	14,520 gallons
Liquid capacity:	N/A
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 3206

Maximum capacity:	7,260 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 3321

Maximum capacity:	7,425 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 3341

Maximum capacity:	5,115 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 3420

Maximum capacity:	56,100 gallons
Liquid capacity:	19,580 gallons
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 3501

Maximum capacity:	14,850 gallons
Liquid capacity:	14,850 gallons
Waste types:	TRM, Mixed residues
Area limitations:	None

b. Glovebox type areas

The following EPA waste codes apply globally to the "glovebox" type areas within this container storage unit. The individual gloveboxes that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual areas.

EPA Waste Codes: D002, D004-D008, D011.

Room 3408 Glovebox 72B and 72C

Maximum capacity:	4 gallons (15 liters) for each glovebox
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 3412 Glovebox 48B and 48C

Maximum capacity:	GBox 48B - 12 gallons (45 liters) GBox 48C - 8 gallons (30 liters)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 3602 Glovebox 1

Maximum capacity:	39 gallons (148 liters)
Liquid capacity:	39 gallons (148 liters)
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

c. Vault type areas

The following EPA waste codes apply globally to "vault" type areas within this container storage unit. Individual vault type areas that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual areas.

EPA Waste Codes: D003-D011, D018, D019, D035, D040, F001-F003, F005

Room 3202

Maximum capacity:	450 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly- selected portion of the containers and an annual 100% container inspection which is coordinated with routine nuclear material accountability inventories will be conducted.

Room 3204

Maximum capacity:	830 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly-selected portion of the containers and an annual 100% container inspection which is coordinated with routine nuclear material accountability inventories will be conducted.

Room 3602

Maximum capacity:	47 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly- selected portion of the containers and an annual 100% container inspection which is coordinated with routine nuclear material accountability inventories will be conducted.

Room 3606

Maximum capacity: 6,810 gallons
Liquid capacity: N/A
Waste types: TRM, Mixed residues
Area limitations:

1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly selected portion of the containers and an annual 100% container inspection which is coordinated with routine nuclear material accountability inventories will be conducted.

2) The containers in this area are stored on shelves and are not in fixed positions, however, the containers will be placed no more than three deep as indicated in the area drawing.

Stacker

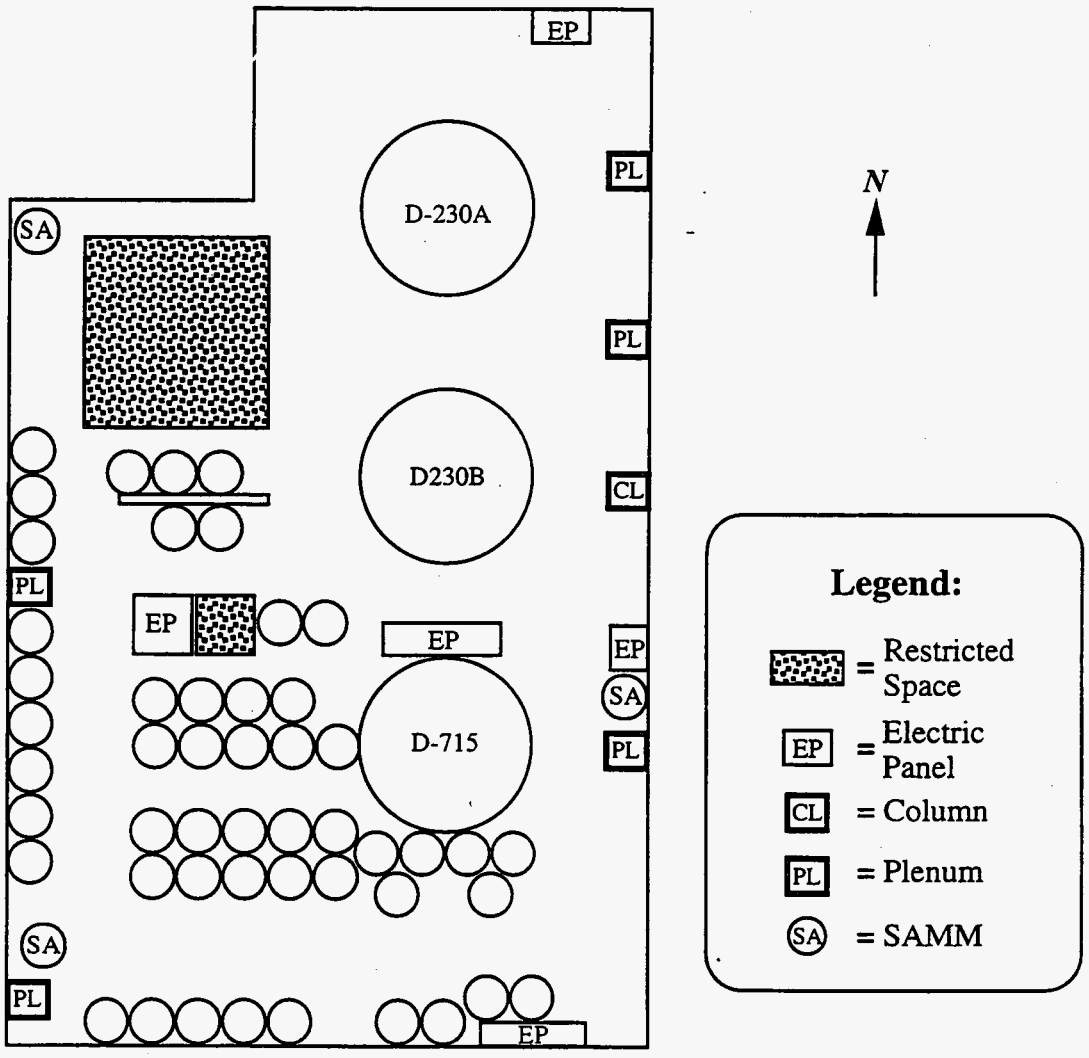
Maximum capacity: 2,763 gallons
Liquid capacity: N/A
Waste types: TRM, Mixed residues
Area limitations:

1) The mixed waste containers stored in the Stacker are subject to monthly camera inspections and bimonthly physical statistical inspections. Approximately 10% of the total number of containers will be inspected over a one-year period.

2) Hazardous waste labels do not have to be affixed to the container while the container is stored in the Stacker. Instead, information which is required to be kept on the label will be maintained in the operating record for this unit.

3) Operation and management shall be maintained in accordance with the established guidelines for the Stacker, including: Procedures for Stacker/Retriever Operations (4-D54-CO-5039), Input/Output Stations Operations Building 371 (4-E29-NDA-001), Material Access Area and Material Balance Area MC&A Plan (material control and accountability) Plan and Procedures, Nuclear Materials Safeguards Manual, Limiting Conditions of Operations Surveillance Tracking Form, and Nuclear Material Safety Limits.

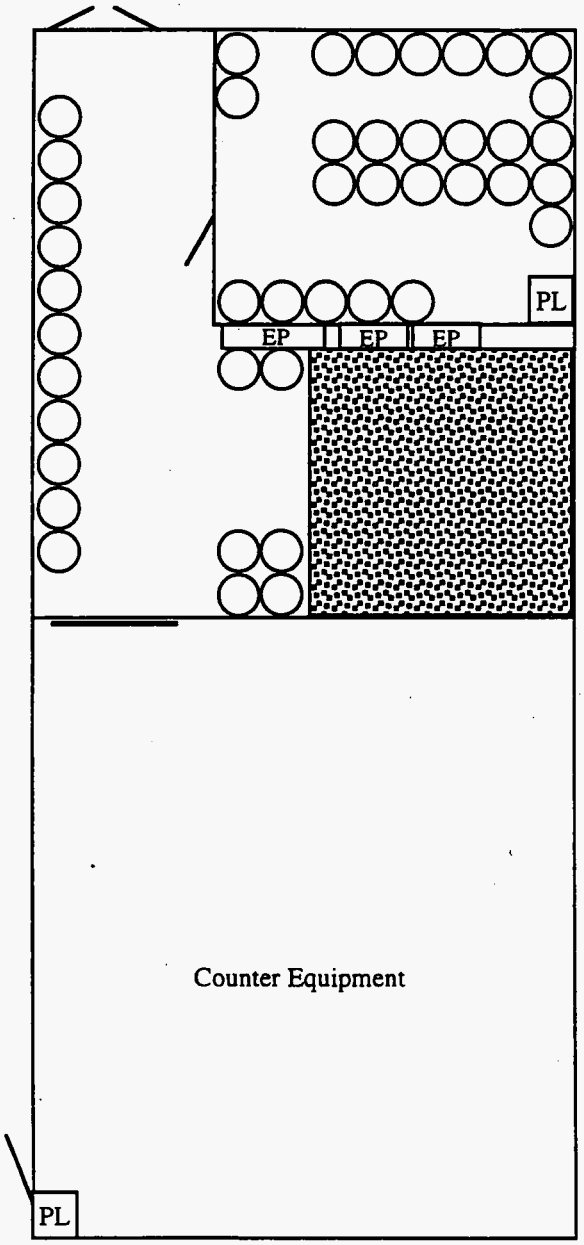
RCRA Unit 371.1
Room 1210
Container Storage Area
(Room)



NOTES:
1) Typical container arrangement, actual arrangement may vary.
2) SAAMs are shown for information only and their locations are subject to change.
3) Tank D-715 is a Plenum deluge tank for emergency use only. Tanks D-230A and D-230B are out-of-service utility scrubbers.

78

RCRA Unit 371.1
Room 2202
Container Storage Area
(Room)



Legend:

= Restricted Space

EP = Electric Panel

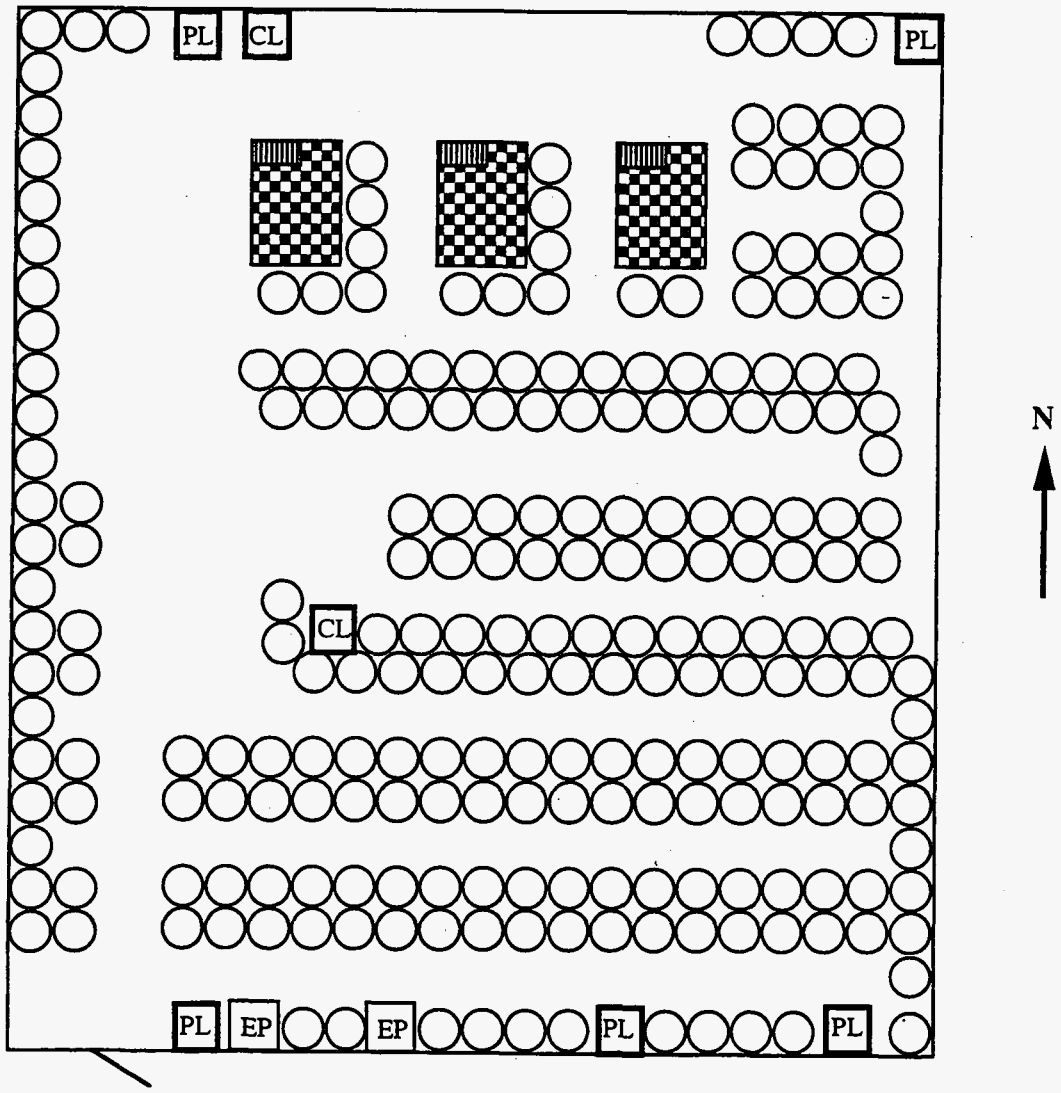
SA = SAMM

= Sliding Door

NOTES:
1) Typical container alyout, actual arrangement may vary.

79

RCRA Unit 371.1
Container Storage (Room)
Building 371, Room 2207



Legend:

= Compressor

= Electrical panel

PL = Plenum

CL = Column

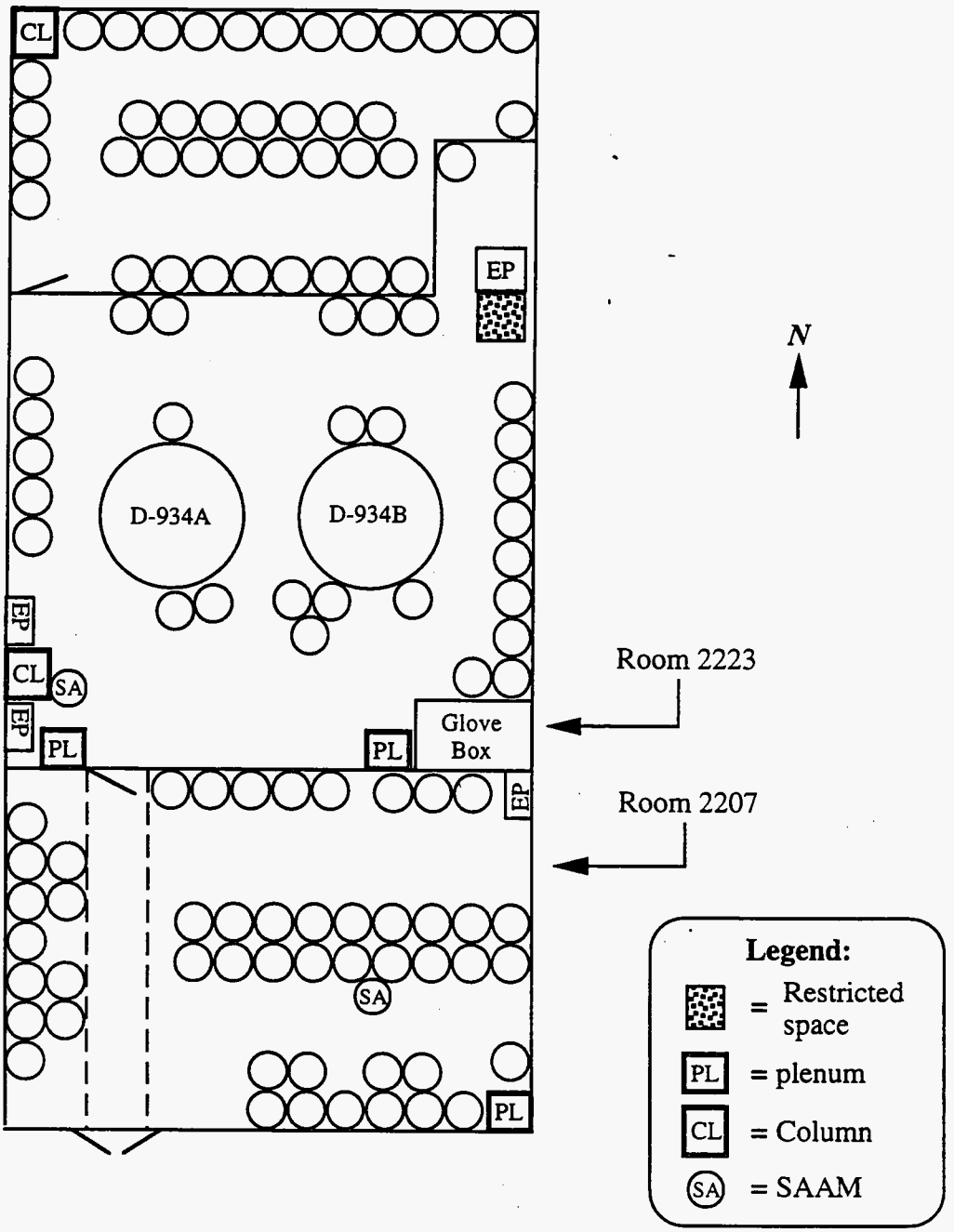
NOTES:

1) Typical container layout, actual arrangement may vary.

2) SAAM locations are shown for information only and are subject to change.

80

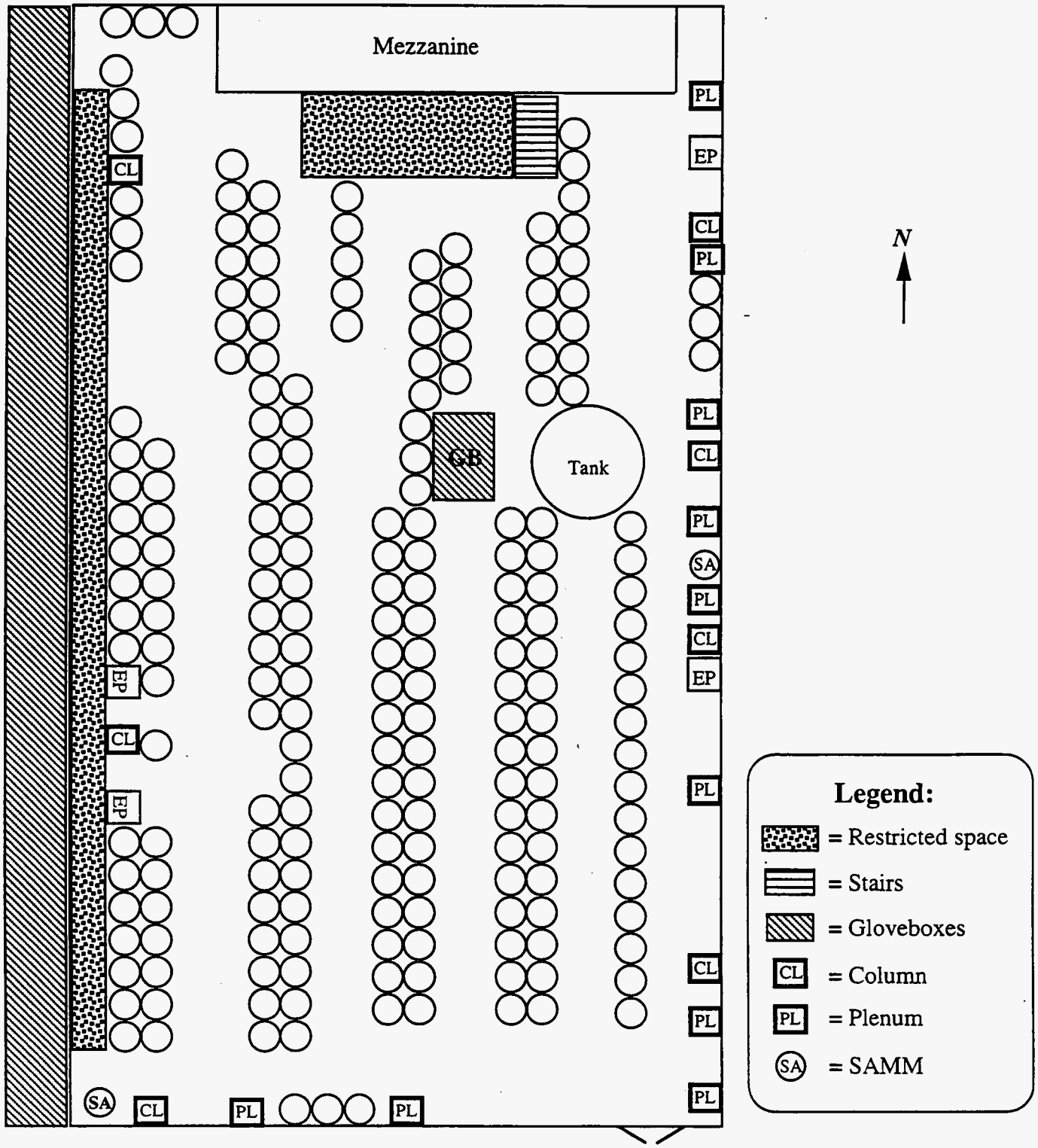
RCRA Unit 371.1
Rooms 2223/2207
Container Storage Area
(Room)



NOTES:
1) Typical container layout, actual arrangement may vary.
2) SAAM locations are for information only and are subject to change.
3) No secondary containment calculations are provided since the containers must be solid waste only.

81

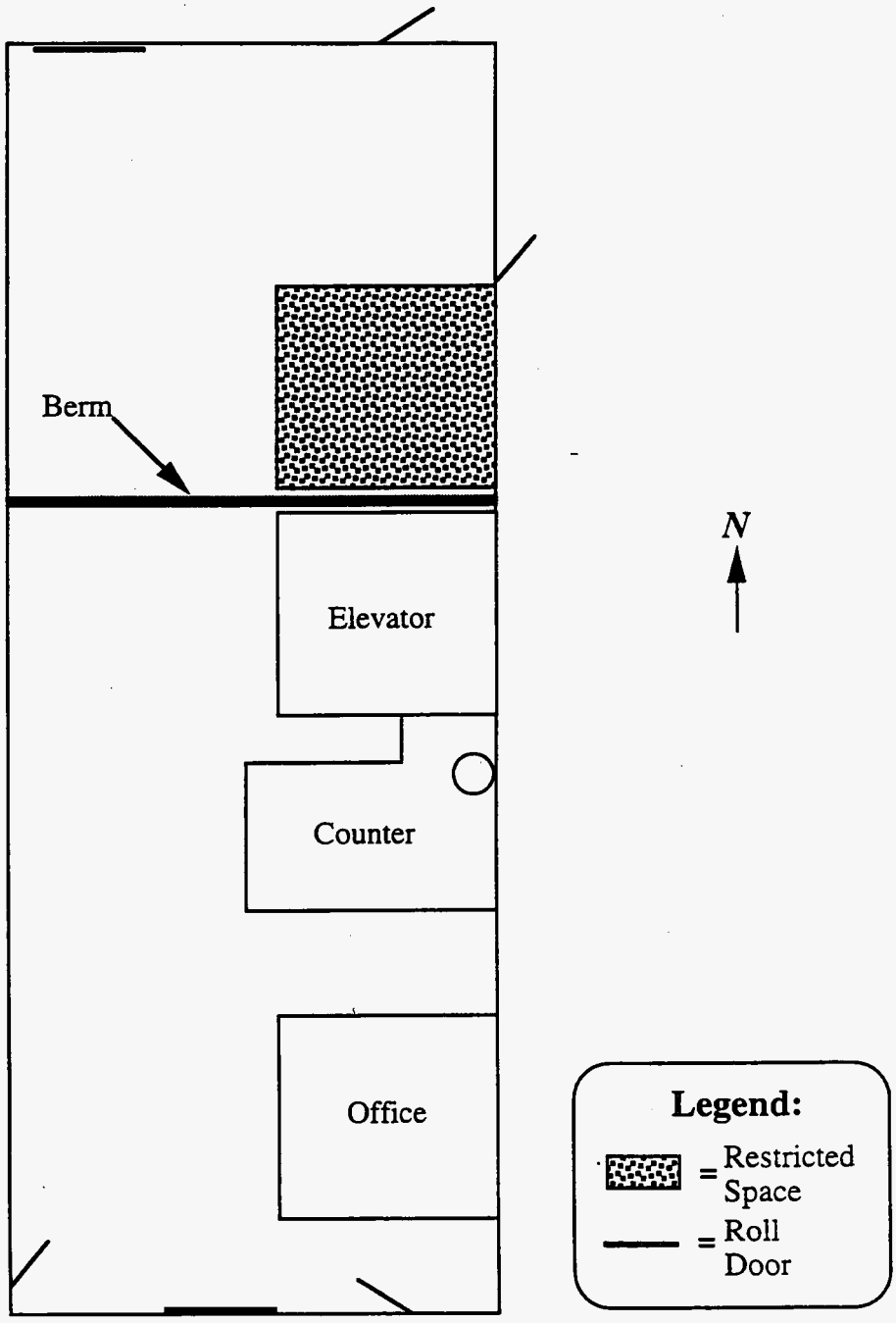
RCRA Unit 371.1
Container Storage Area
Room 2325



NOTES:
1) Typical container layout, actual arrangement may vary.
2) SAAM locations are for information only and are subject to change.

82

RCRA Unit 371.1
Container Storage Area
Room 3187B

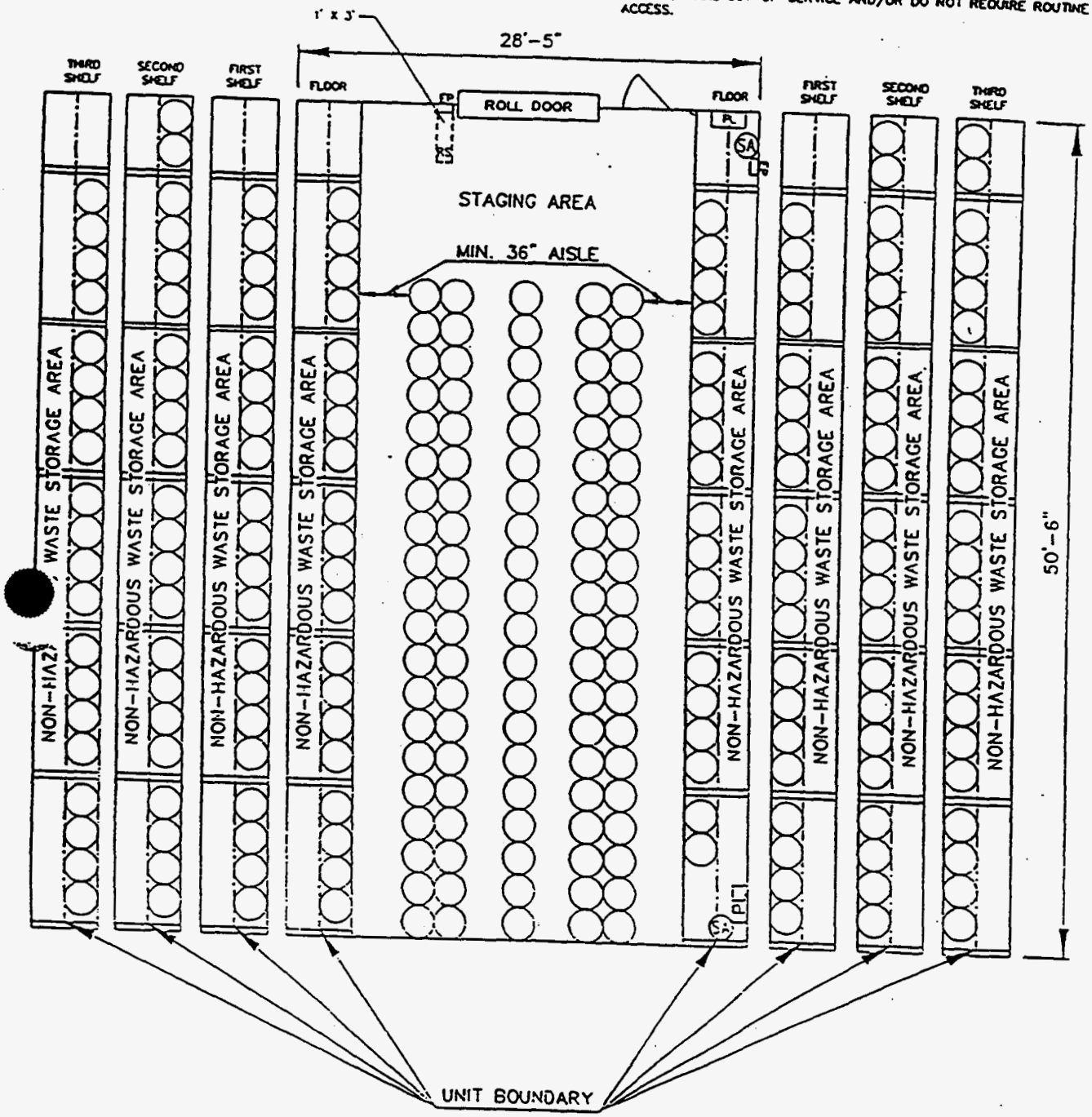


NOTES:
1) Typical container arrangement, actual may vary.

83

NOTES:

1) TYPICAL CONTAINER LAYOUT. ACTUAL ARRANGEMENT MAY VARY.
2) A MINIMUM 26 INCH AISLE SPACE WILL BE MAINTAINED BETWEEN DOUBLE ROWS OF CONTAINERS.
3) SAAMS ARE SHOWN FOR INFORMATIONAL PURPOSES AND FOR DETERMINING TYPICAL CONTAINER LAYOUT. SAAMS ARE NOT USED FOR REMOTE MONITORING IN THIS UNIT.
4) ELECTRICAL PANELS (EP) WITHOUT RESTRICTED SPACE IDENTIFIED ON DRAWINGS ARE OUT-OF-SERVICE AND/OR DO NOT REQUIRE ROUTINE ACCESS.



UNIT CAPACITY

TYPICAL INVENTORY (ft):

55-GAL

264 ea

0 10' 20'

SCALE : 1"=10'

KEYWORDS					
RCRA	MARK	DESCRIPTION	DATE	INIT	DOC CLASS JOB NO.
CONTAINER			04/30/94		
STORAGE					
WASTE					
SECONDARY					
371					
3189					
R12					
MASTER	SCALE: 1"=10'				

Rocky Flats Plant

GOLDEN, COLORADO 80401

RCRA PERMIT MODIFICATION
CONTAINER STORAGE

SIZE	DRAWING NUMBER	REVISION	SHEET
A	39650-200	A	

371
3189
R12

84

III-53

"COMPUTER GENERATED"

PART	QUAN.	DESCRIPTION	MATERIAL

NOTES:

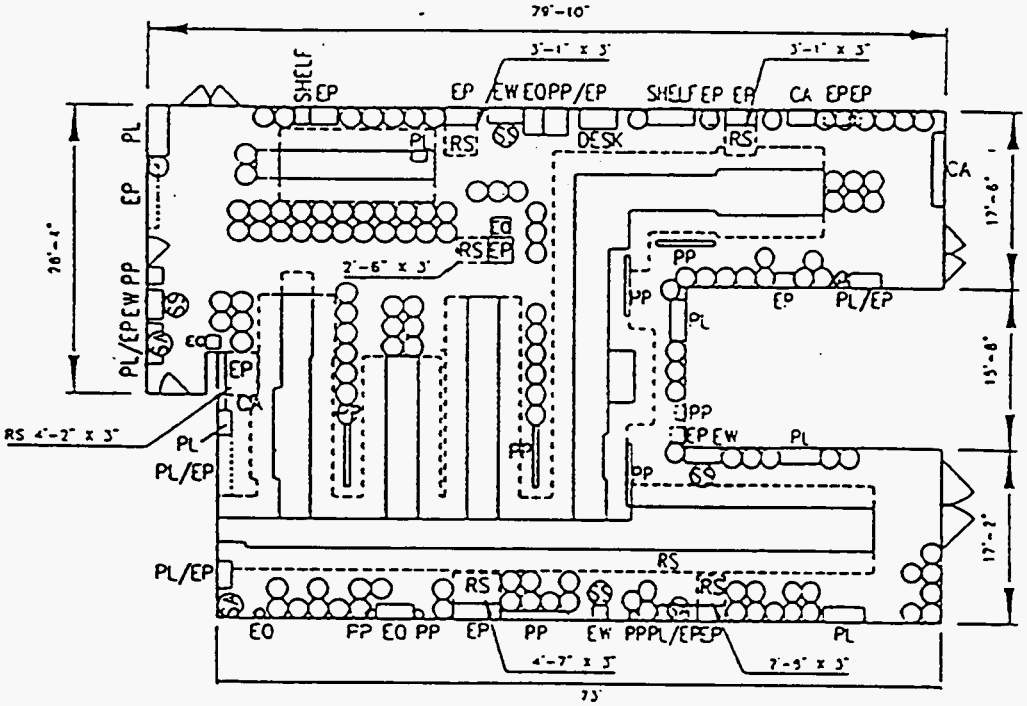
1) TYPICAL CONTAINER LAYOUT. ACTUAL ARRANGEMENT MAY VARY.

2) A MINIMUM 26 INCH AISLE SPACE WILL BE MAINTAINED BETWEEN DOUBLE ROWS OF CONTAINERS.

3) SAANS ARE SHOWN FOR INFORMATIONAL PURPOSES AND FOR DETERMINING TYPICAL CONTAINER LAYOUT. SAANS ARE NOT USED FOR REMOTE MONITORING IN THIS UNIT.

4) ELECTRICAL PANELS (EP) WITHOUT RESTRICTED SPACE IDENTIFIED ON DRAWINGS ARE OUT-OF-SERVICE AND/OR DO NOT REQUIRE ROUTINE ACCESS.

5) A 26-INCH RESTRICTED SPACE AISLE IS REQUIRED AROUND THE ENTIRE GLOVEBOX.



371
3206

KEYWORDS	A	ORIGINAL ISSUE	06/30/94
1. RCRA	SYM	DESCRIPTION	DATE
2. CONTAINER		DESIGNED	06/30/94
3. STORAGE		DRAWN	06/30/94
4. WASTE		CHECKED	06/30/94
5. SECONDARY		APPROVED	
BLDG/FACILITY 371			
ROOM/AREA 3206			
CHG CODE/CDL NO.			
MASTER	SCALE: 1"=20'		06/30/94

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant
GOLDEN, COLORADO 80401

RCRA PERMIT MODIFICATION
CONTAINER STORAGE

SIZE A | DRAWING NUMBER 39650-208 | REV A | SHEET

CAPACITY
INVENTORY (lt): SS-CAL 132 ea

10' 0 20' 40'

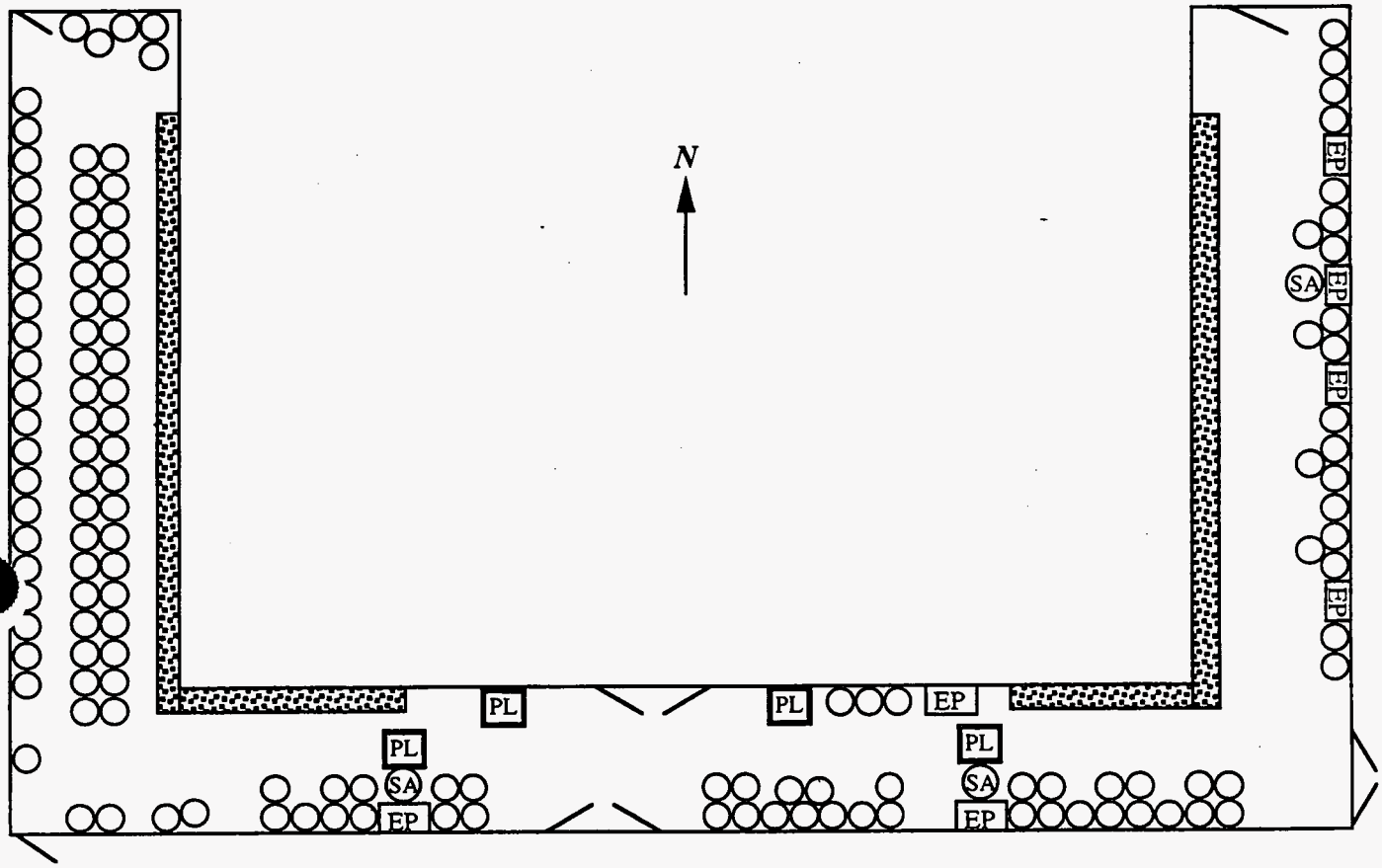
SCALE : 1"=20'

85

III - 54

"COMPUTER GENERATED: NO MANUAL CHANGES ALLOWED"

Building 371
Container Storage Area
Room 3321



NOTES:
1) Typical contain arrangement, actual may vary.
2) SAAM locations are for information only and are subject to change.

Legend:

= Restricted space

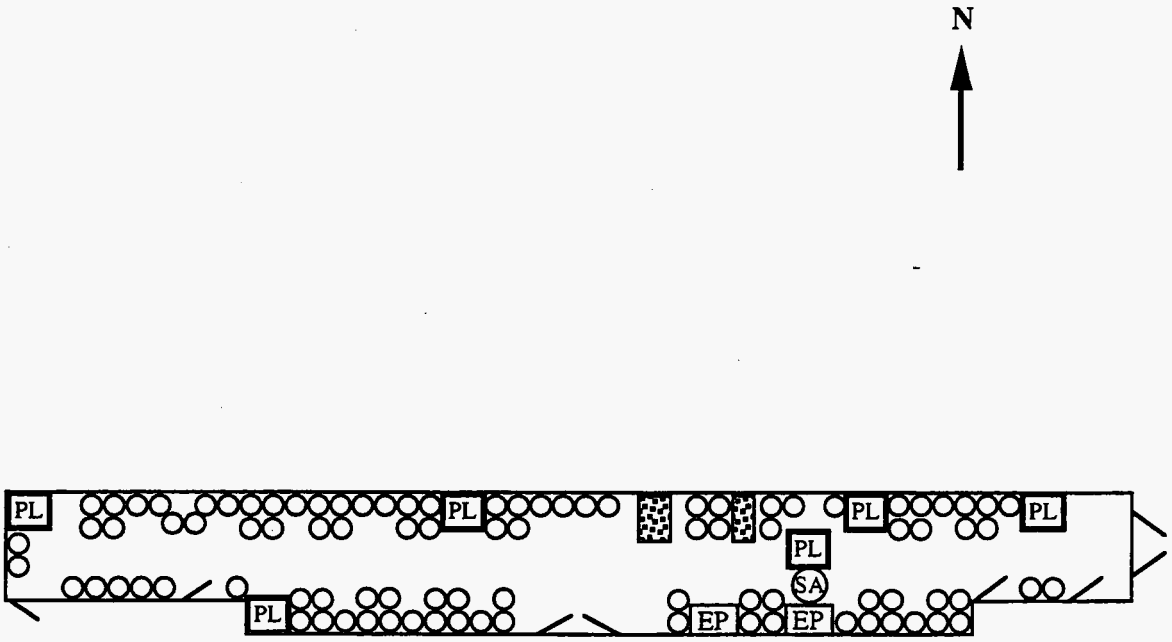
EP = Electric Panel

PL = Plenum

SA = SAMM

86

RCRA Unit 371.1
Container Storage Area
Room 3341



NOTES:
1) Typical container arrangement, actual may vary.
2) SAAM location is provided for information only and is subject to change.

Legend:

= Restricted space

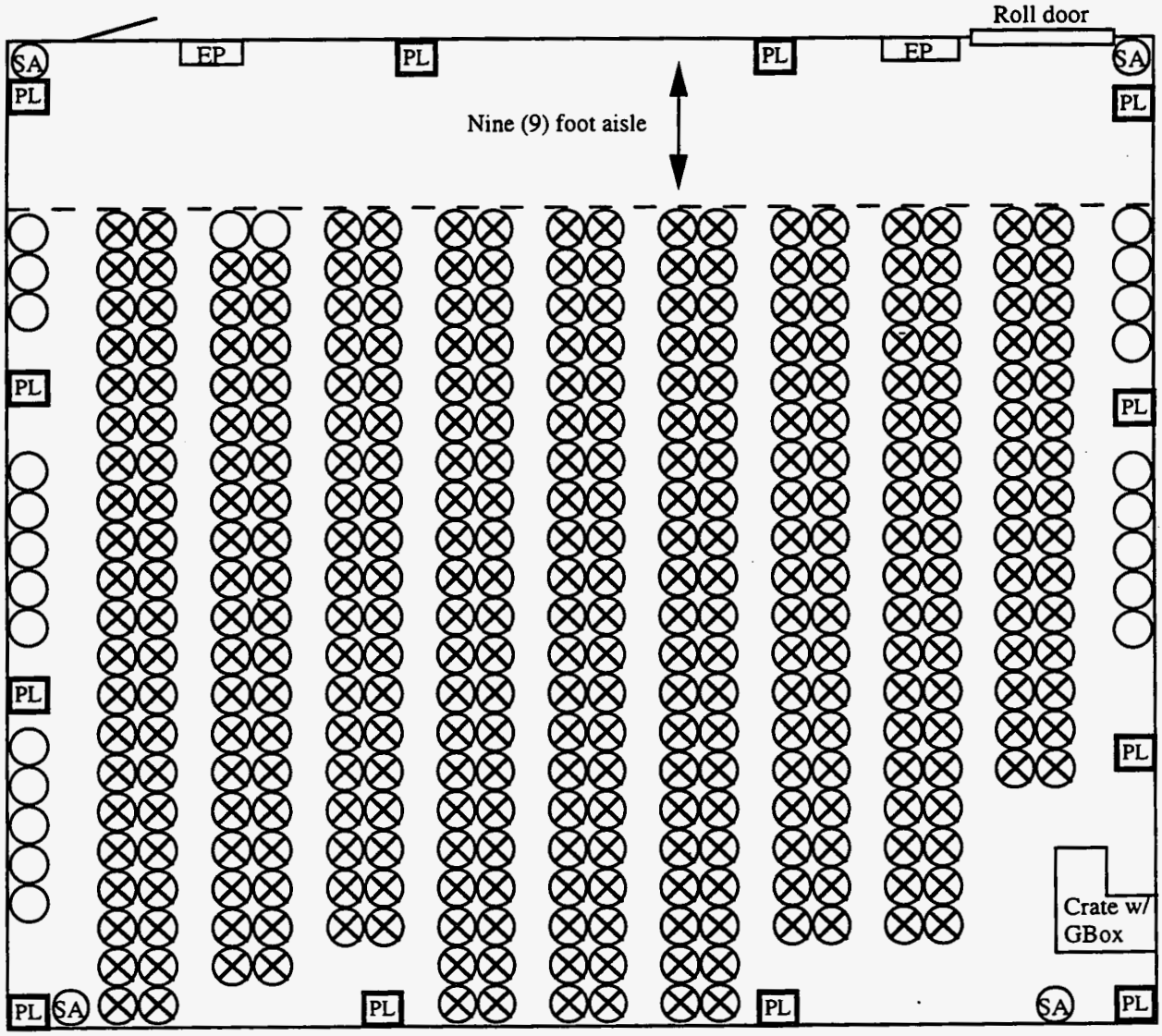
EP = Electric Panel

PL = Plenum

SA = SAMM

87

RCRA Unit 371.1
Container Storage Area
Room 3420



Secondary containment capability:
- Typical inventory = 1020 55-gal. drums
- Total surface area = 3238 sf
- Minimum berm height = 1.0 in

NOTES:
1) Typical container configuration, actual may vary.
2) SAAM locations are provided for information and are subject to change.
3) Three-high container stacking may take place in this are in all locations.

Legend:

⊗ = Multi Stacked

EP = Electric Panel

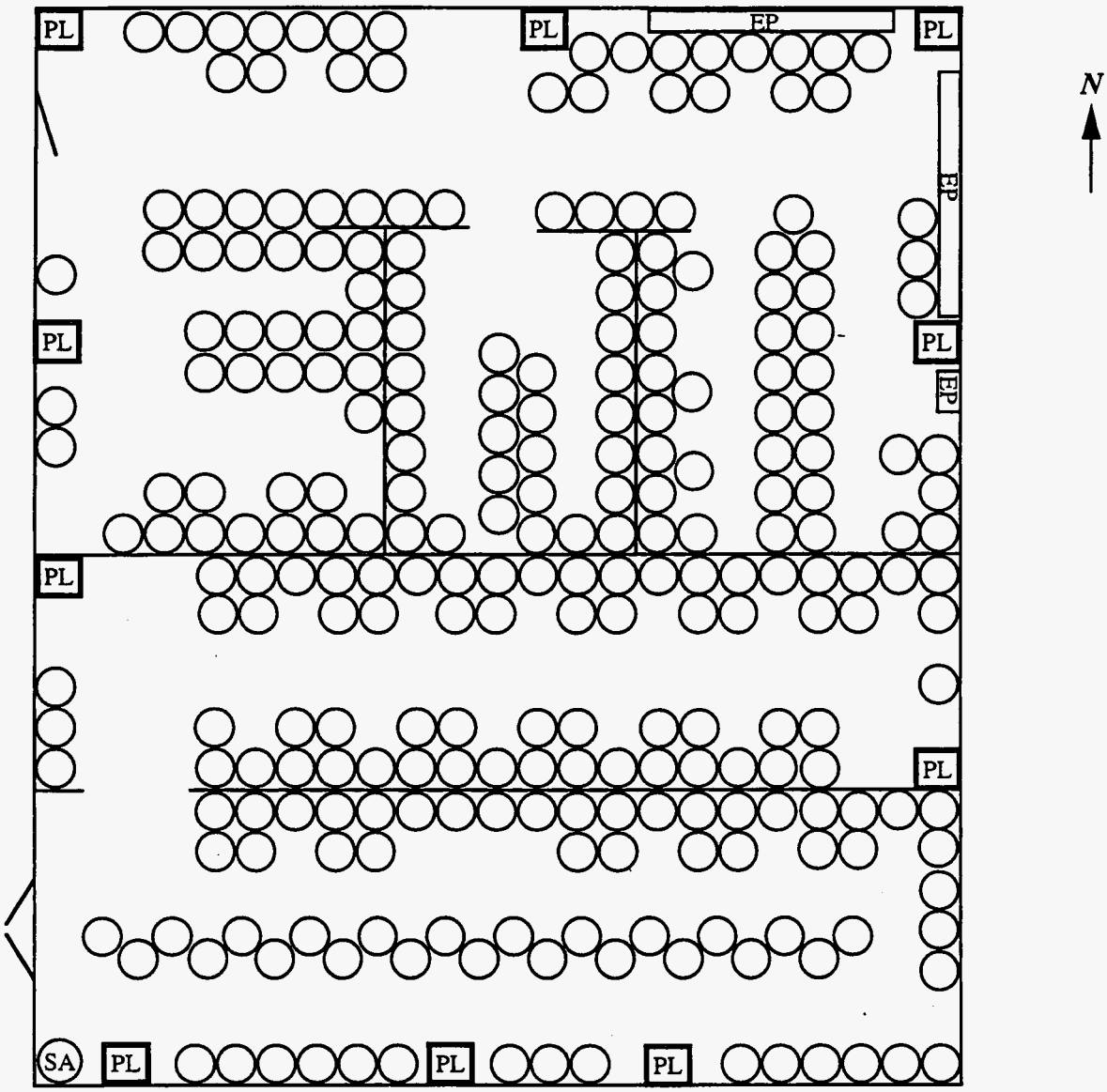
PL = Plenum

SA = SAMM

88

KAII

RCRA Unit 371.1
Container Storage Area
Room 3501



Secondary containment capability:	North	South
Total container inventory =	134	136 (55-gal drums)
Total surface area =	1092 sf	1073 sf
Minimum berm height =	1.1 in	1.2 in

Legend:

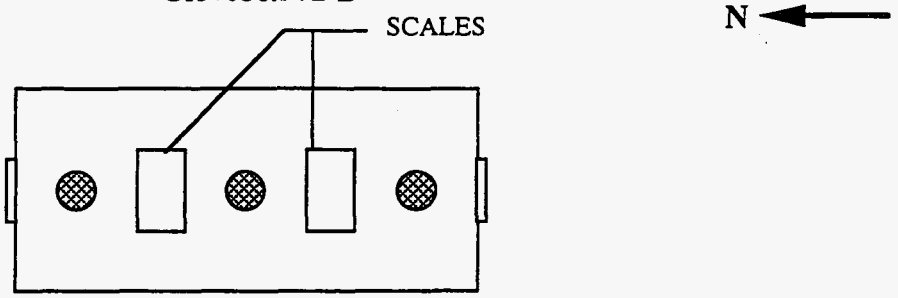
- = Restricted space
- PL = plenum
- CL = Column
- SA = SAAM

NOTES:
1) Typical container layout, actual may vary.
2) SAAM locations are provided for information and are subject to change.

89

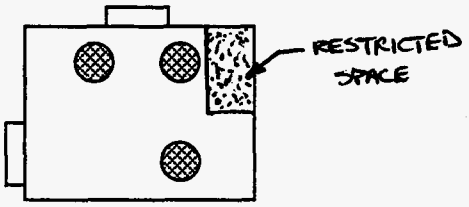
RCRA Unit 371.1
Container Storage Area (Glovebox)
Room 3408, GB-72B and GB-72C

Glovebox 72-B



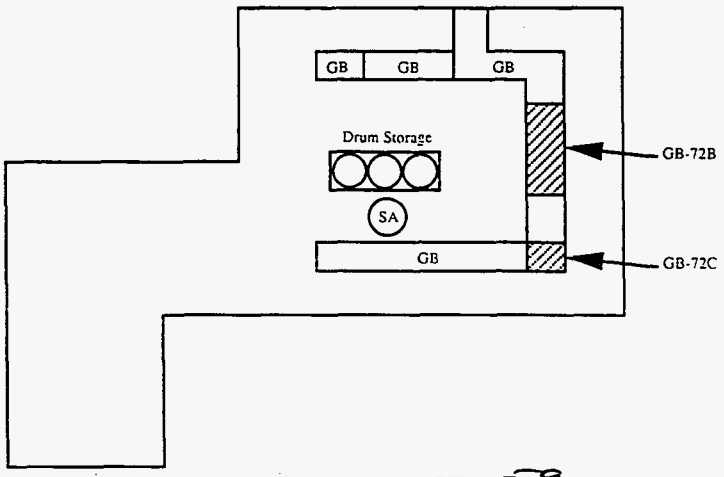
Secondary containment capability:
Typical inventory = 12 liters
Glovebox area = 13 sf
Minimum berm height = 0.2 in

Glovebox 72-C



Secondary containment capability:
Typical inventory = 12 liters
Glovebox area = 3 sf
Minimum berm height = 0.8 in

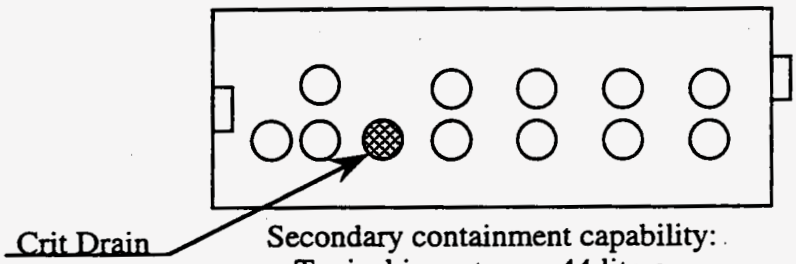
NOTES:
1) Typical container layout, actual may vary.
2) Individual storage locations within the gloveboxes are depicted with



90

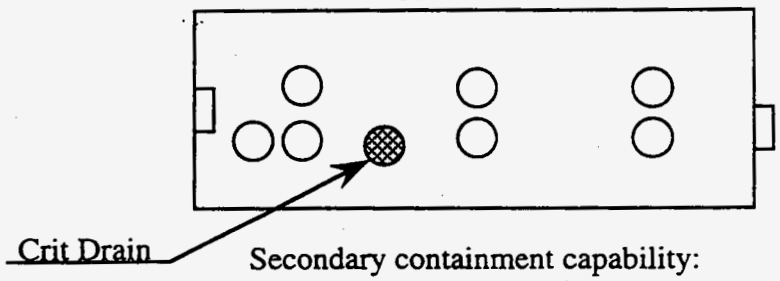
RCRA Unit 371.1
Container Storage Area (Glovebox)
Room 3412, GB-48B and GB-48C

Glovebox 48-B



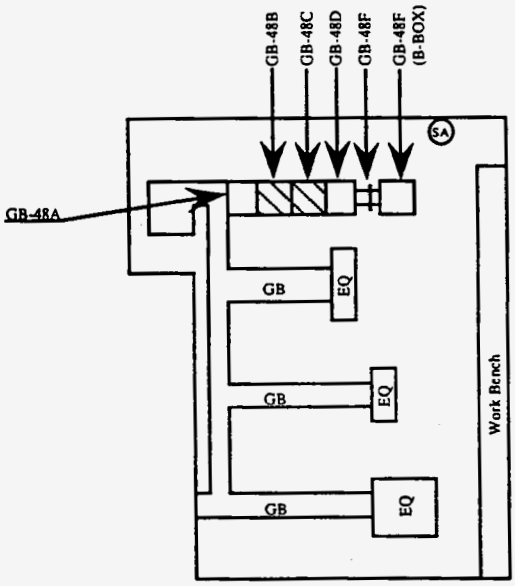
Secondary containment capability:
- Typical inventory = 44 liters
- Glovebox area = 13 sf
- Minimum berm height = 0.4 in

Glovebox 48-C



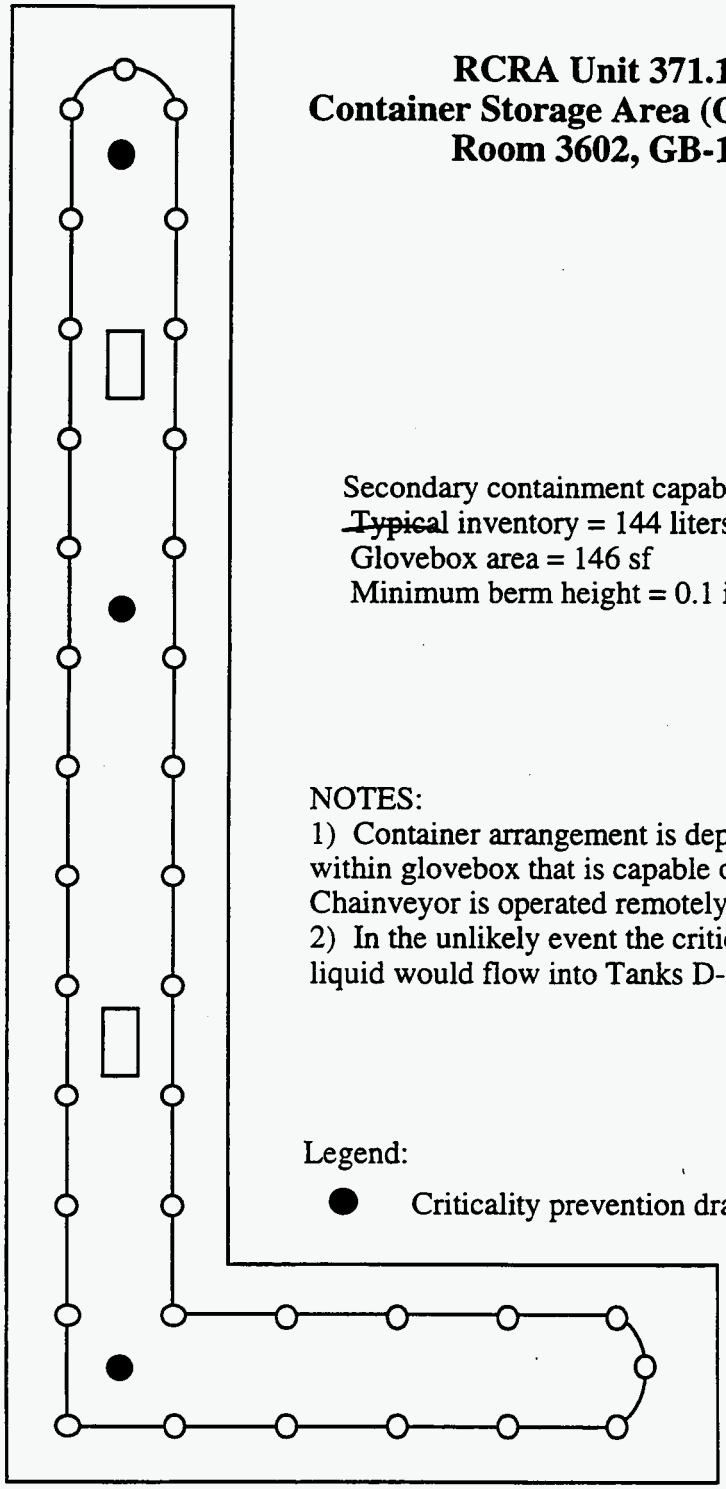
Secondary containment capability:
- Typical inventory = 28 liters
- Glovebox area = 13 sf
- Minimum berm height = 0.3 in

NOTES:
1) Typical container layout is based on fixed positions in gloveboxes depicted.
2) In the unlikely event a glovebox criticality drain were to overflow, excess liquid would overflow onto the floor of the room.



91

RCRA Unit 371.1
Container Storage Area (Glovebox)
Room 3602, GB-1

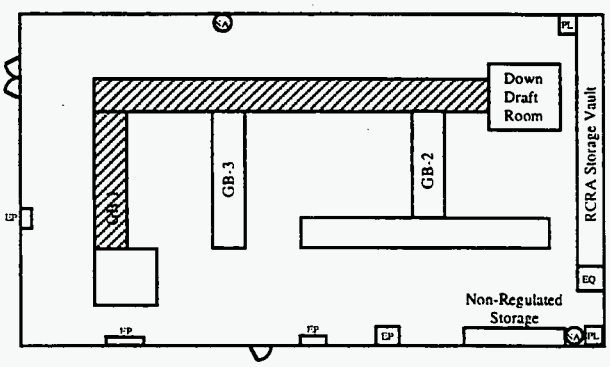


N

Secondary containment capability:
~~Typical~~ inventory = 144 liters
Glovebox area = 146 sf
Minimum berm height = 0.1 in

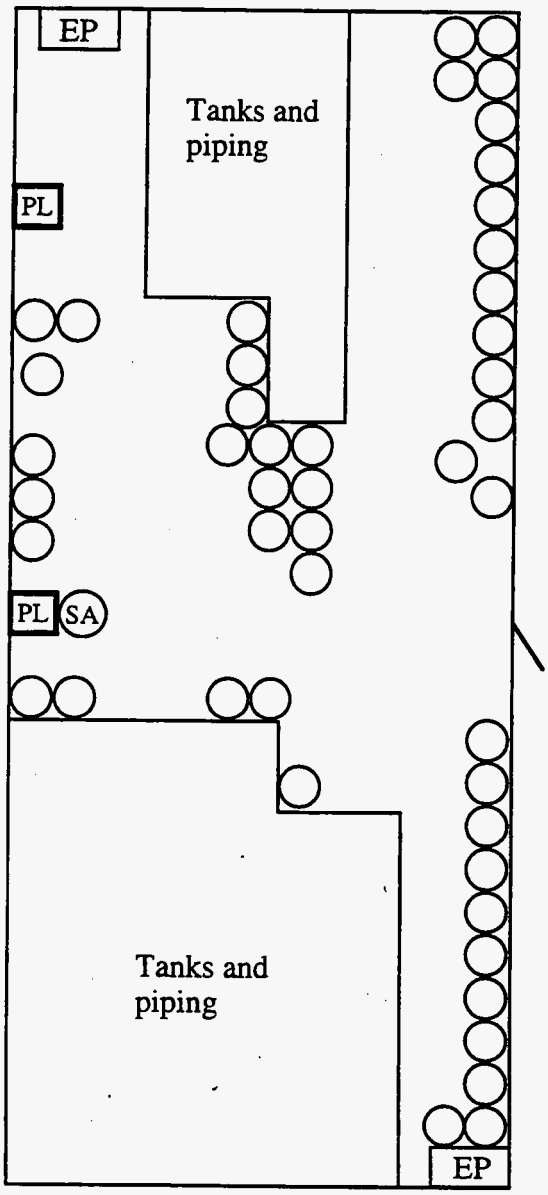
NOTES:
1) Container arrangement is dependent on position of chainveyor within glovebox that is capable of holding 36 individual containers. Chainveyor is operated remotely.
2) In the unlikely event the criticality drain were to overflow, excess liquid would flow into Tanks D-934A and/or D-934B.

Legend:
● Criticality prevention drain



92

RCRA Unit 371.1
Container Storage Area
Room 3202



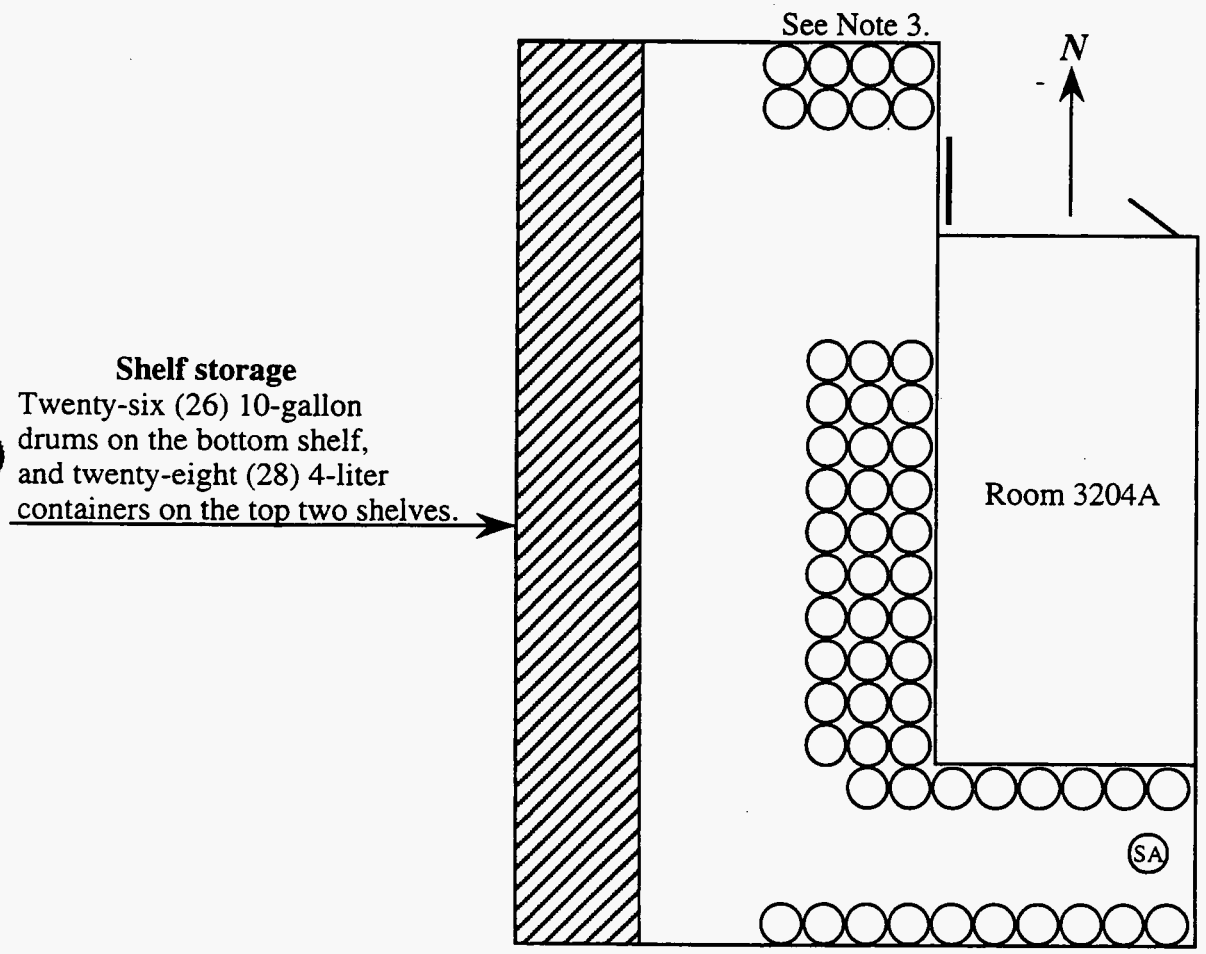
NOTES:
1) Typical container layout, actual may vary.
2) SAAM location is for information only and is subject to change.

Legend:

EP	= Electric Panel
PL	= plenum
CL	= Column
SA	= SAAM

93

RCRA Unit 371.1
Container Storage Area
Room 3204

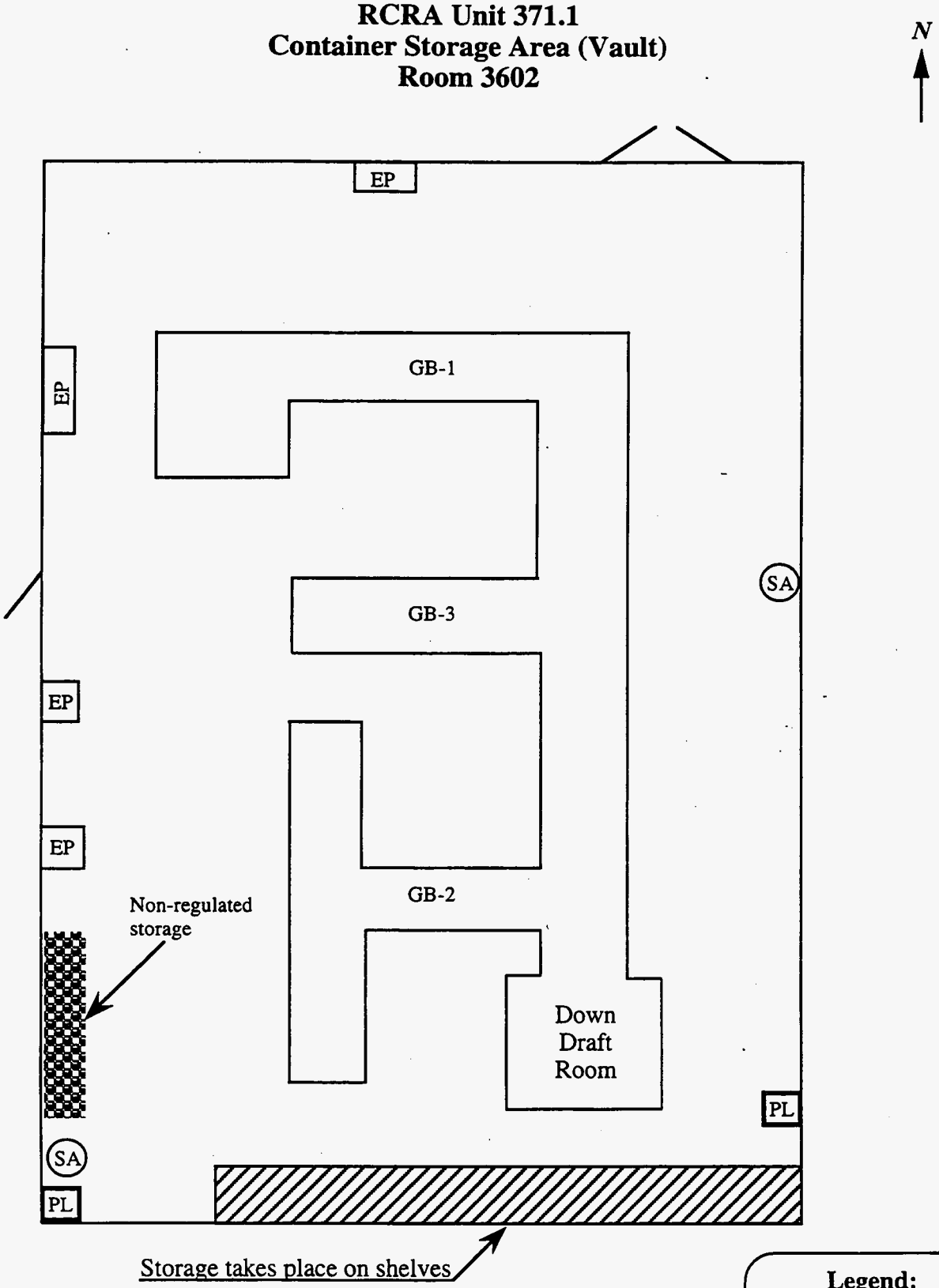


NOTES:
1) Typical container layout; actual may vary.
2) SAAM location is for information only and is subject to change.
3) An electrical panel is located above these drums, but does **not** require that any restricted space be maintained around it.

Legend:
SA = SAAM

94

RCRA Unit 371.1
Container Storage Area (Vault)
Room 3602



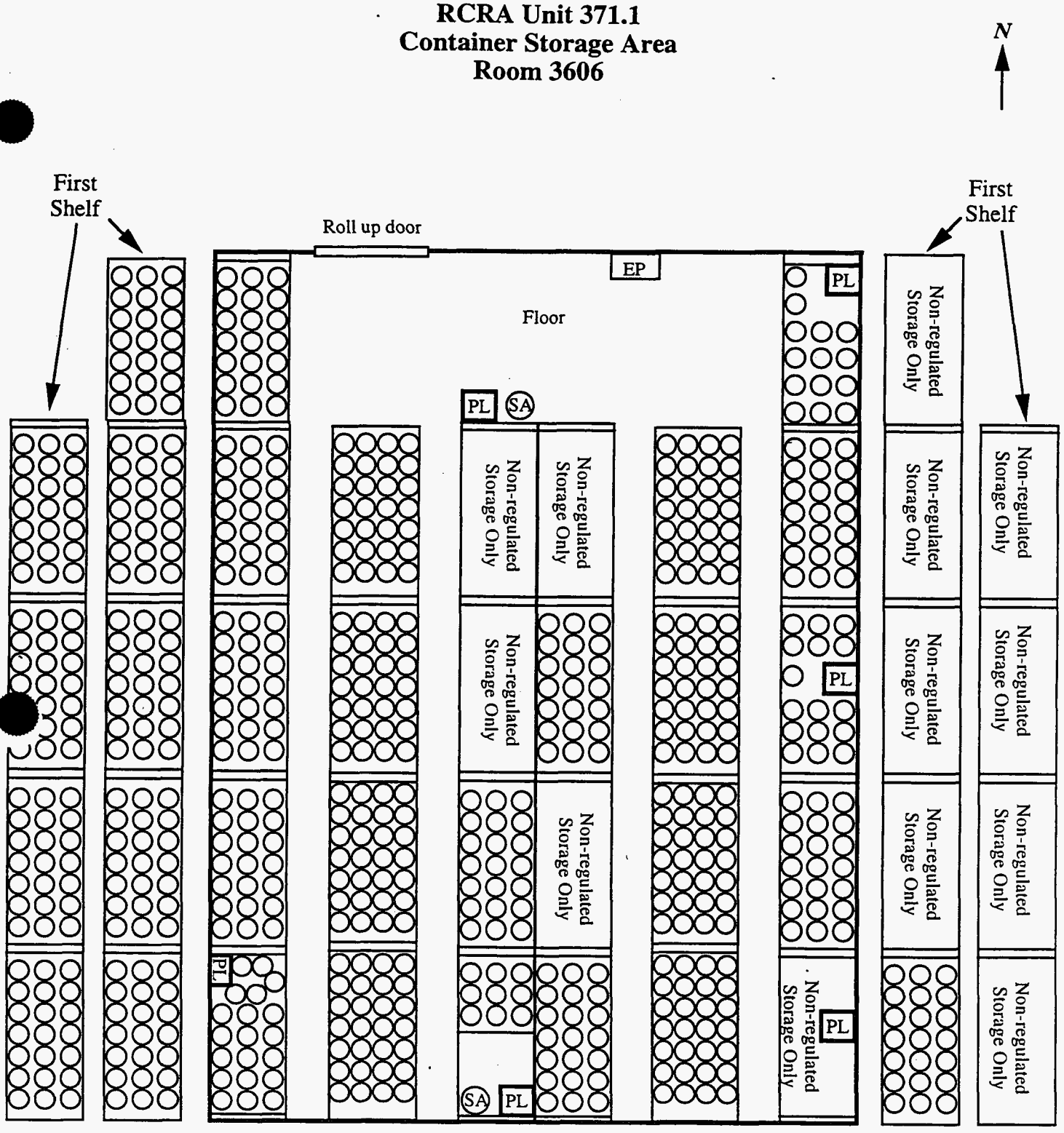
NOTES:
1) Each of the two shelves is capable of storing forty-four (44) containers spaced 12" center-to-center.
2) SAAM locations are provided for information only and are subject to change.

Legend:

EP	= Electric Panel
PL	= plenum
CL	= Column
SA	= SAAM

95

RCRA Unit 371.1
Container Storage Area
Room 3606



NOTES:
1) Typical container arrangement, actual may vary.
2) SAAM locations are provided for information and are subject to change.

Legend:

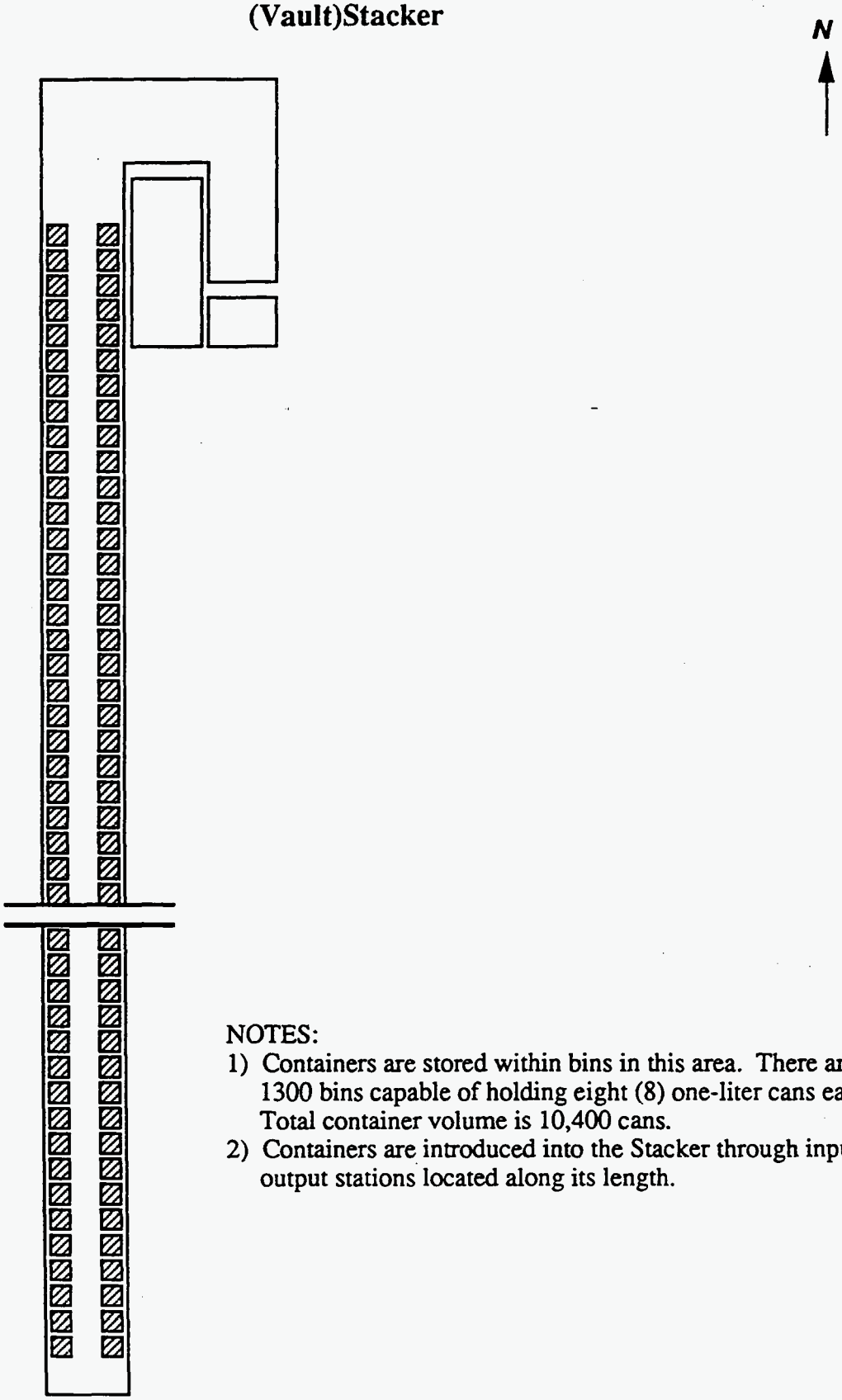
EP = Electric Panel

PL = plenum

SA = SAAM

96

RCRA Unit 371.1
Container Storage Area
(Vault)Stacker



NOTES:

1) Containers are stored within bins in this area. There are 1300 bins capable of holding eight (8) one-liter cans each. Total container volume is 10,400 cans.
2) Containers are introduced into the Stacker through input/ output stations located along its length.

UNIT INFORMATION SHEET

14. Unit 374.1

Unit Description:	Building 374 is located on the northwest end of the facility adjacent to Building 371. Room 3813 is the only area within this unit designated for container storage.
Maximum Capacity:	50,704 gallons
Liquid Capacity:	9,900 gallons
EPA Waste Codes:	D001-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005-F009.
Waste Types:	Mixed

Special Unit Conditions:

1) A minimum aisle space of eight feet will be maintained at the beginning of each stacked row of containers for forklift access, except for the staging area shown in the unit drawing. In this area, containers may be staged for up to fifteen calendar days with a minimum of 26 inches of aisle space between double rows of containers for inspection purposes.

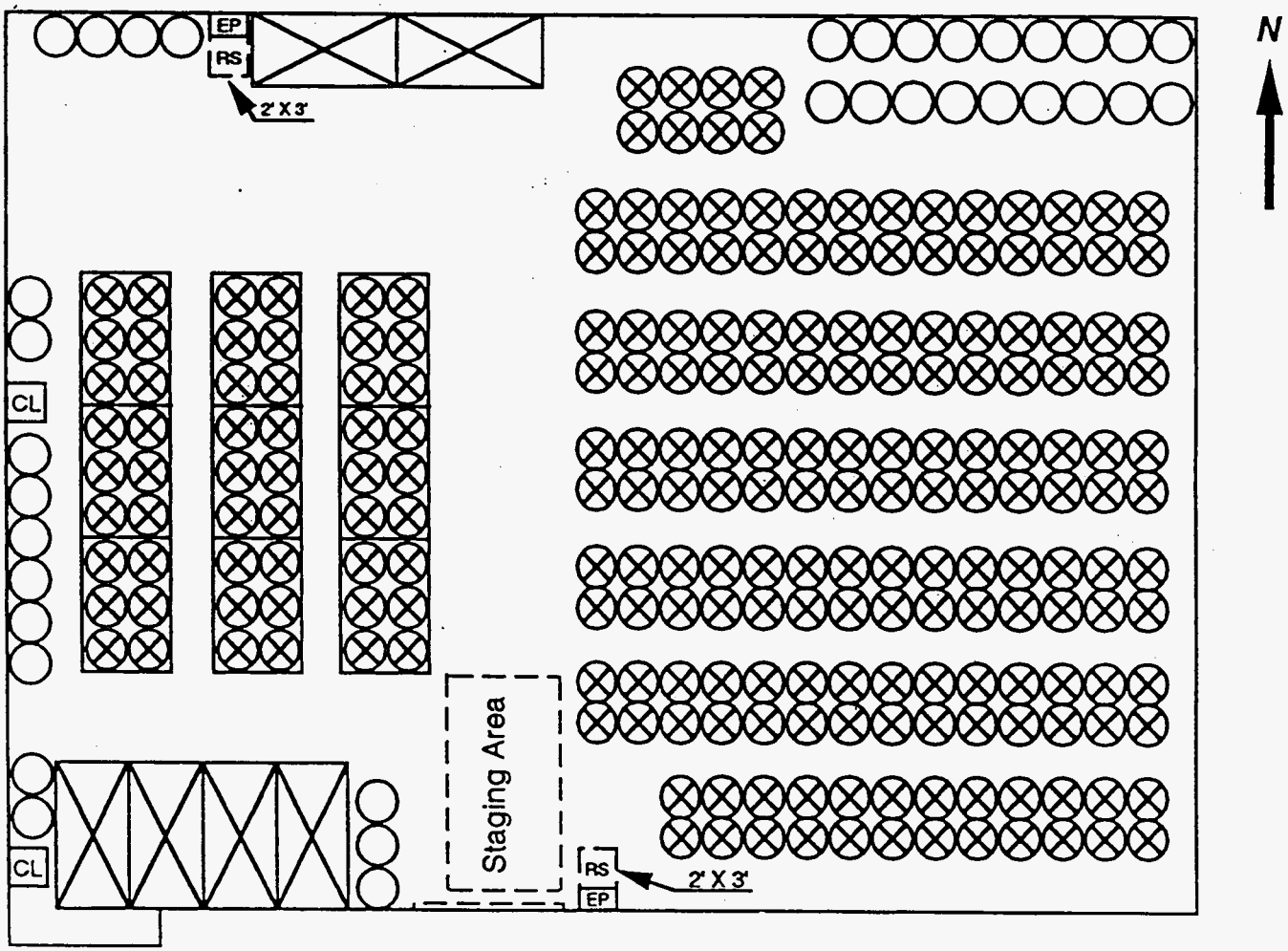
2) The west boundary of the unit will be identified with a painted line on the floor.

98

Unit Capacity:
(Typical Inventory)

55-gallon drums	crates
713	12

Note:
1) Drawing shows a typical container layout. Actual arrangement and combination of container types may vary.



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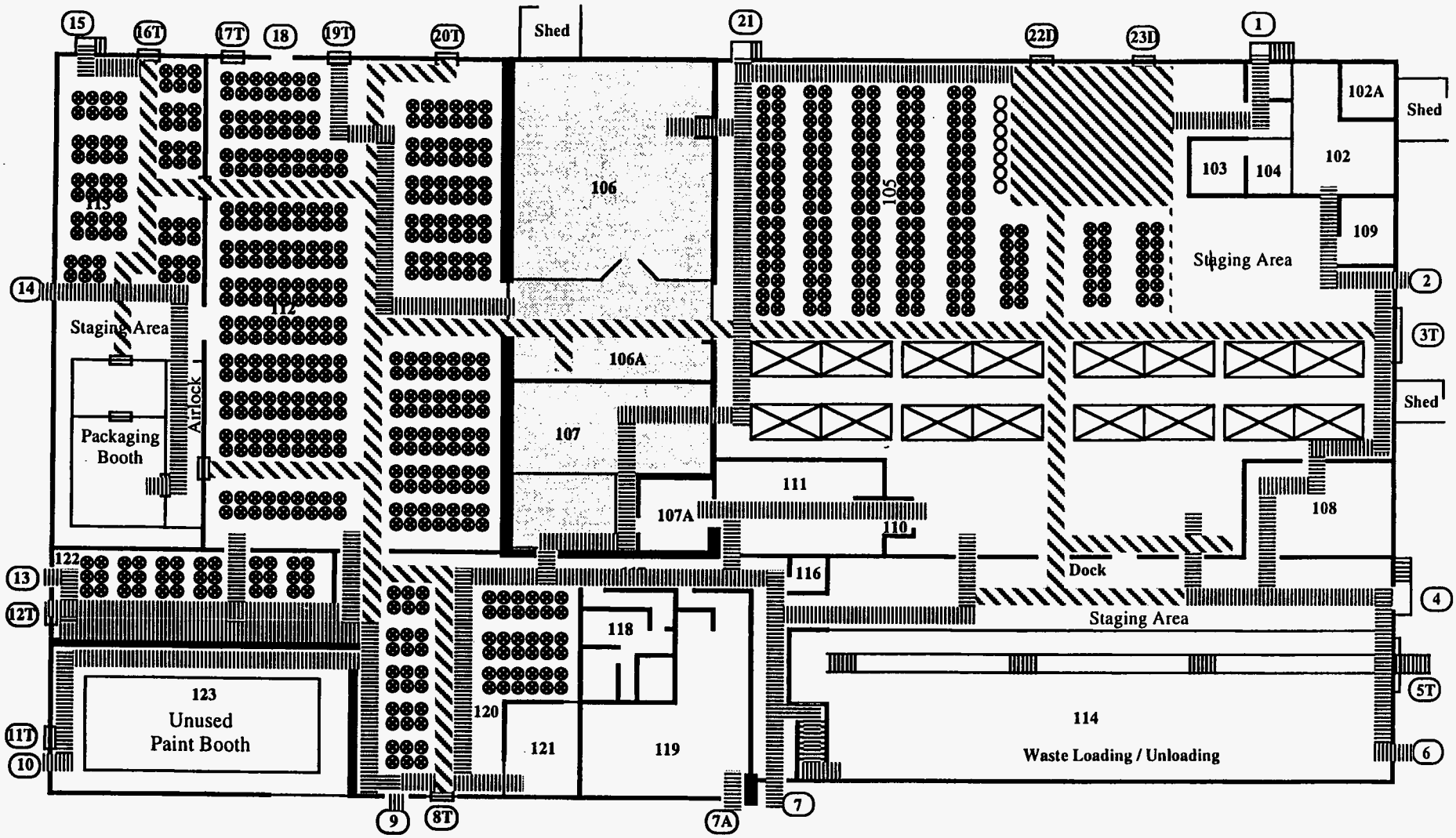
Rocky Flats Environmental Technology Site
UNIT ID 374.1
Building 374, Rm 3813
Drawing No. P&C 0001, Rev. 0
November 15, 1995

UNIT INFORMATION SHEET

15. Unit 440.1

Unit Description:	Building 440 is a metal building located on the south side of the facility. This building is used as a storage and staging area for the shipment of hazardous, low-level and transuranic mixed waste.
Maximum Capacity:	2,275 cubic yards (456,500 gallons)
Liquid Capacity:	N/A
EPA Waste Codes:	D001-D012, D015-D019, D021-D030, D033, D035-D043, F001-F003, F005-F009, F027, P002-P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P045, P048, P050, P051, P059, P062, P063, P074, P076, P077, P087, P089, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119-P121, P123, U002-U004, U007-U009, U012, U018, U019, U022, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U060, U061, U063, U067-U075, U077-U084, U088, U098, U101-U103, U105-U108, U112, U113, U116-U118, U120- U123, U127-U131, U134, U137, U138, U140, U144, U145, U147, U148, U151, U154, U159, U161, U162, U165-U167, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U222, U225-U228, U235, U236, U238-U240, U246, U247, U328, U353, U359.
Waste Types:	Mixed (Low-level and Transuranic), Hazardous
Special Unit Conditions:	None



Legend:

- = Door Numbers
- = Roll-up Door
- = Stacked Drum
- = Single Layer Drums
- = Buffer area to segregate TRU Waste from combustible containers ie wooden boxes.
- = Egress Routes
- = Equipment Handling Paths
- = Stacked Crate

N

FIGURE 1
BUILDING 440
FLOOR PLAN

89-11

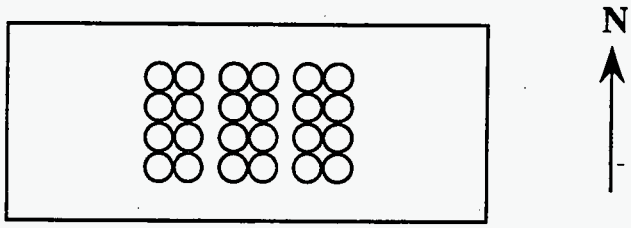
101

UNIT INFORMATION SHEET

16. Unit 559.1

Unit Description:	Building 559 is a laboratory located west of Building 707. Container storage occurs in Glovebox C-17 in Room 102 in this building.
Maximum Unit Capacity:	26 gallons (99 liters)
Unit Liquid Capacity:	26 gallons (99 liters)
Unit EPA Waste Codes:	D002, D004-D008, D011.
Unit Waste Types:	Mixed (residues)
Special Unit Conditions:	None

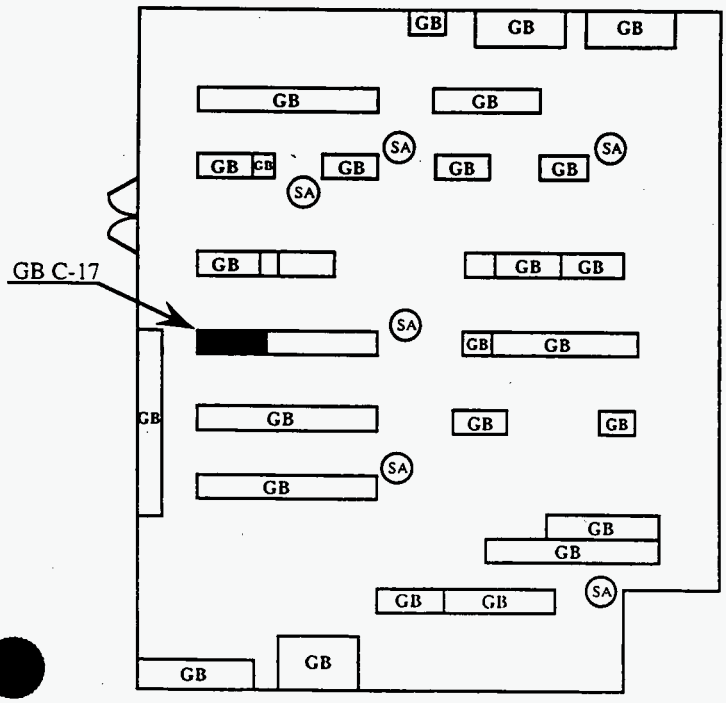
RCRA Unit 559.1
Container Storage Area
(Glovebox)
Building 559, Room 102



GBox C-17

Secondary containment capability:
Typical inventory = 24 4-liter containers
Total surface area = 40 sf
Minimum berm height = 0.2 in

NOTES:
1) Typical container layout, actual arrangement may vary.



103

UNIT INFORMATION SHEET

17. Unit 707.1

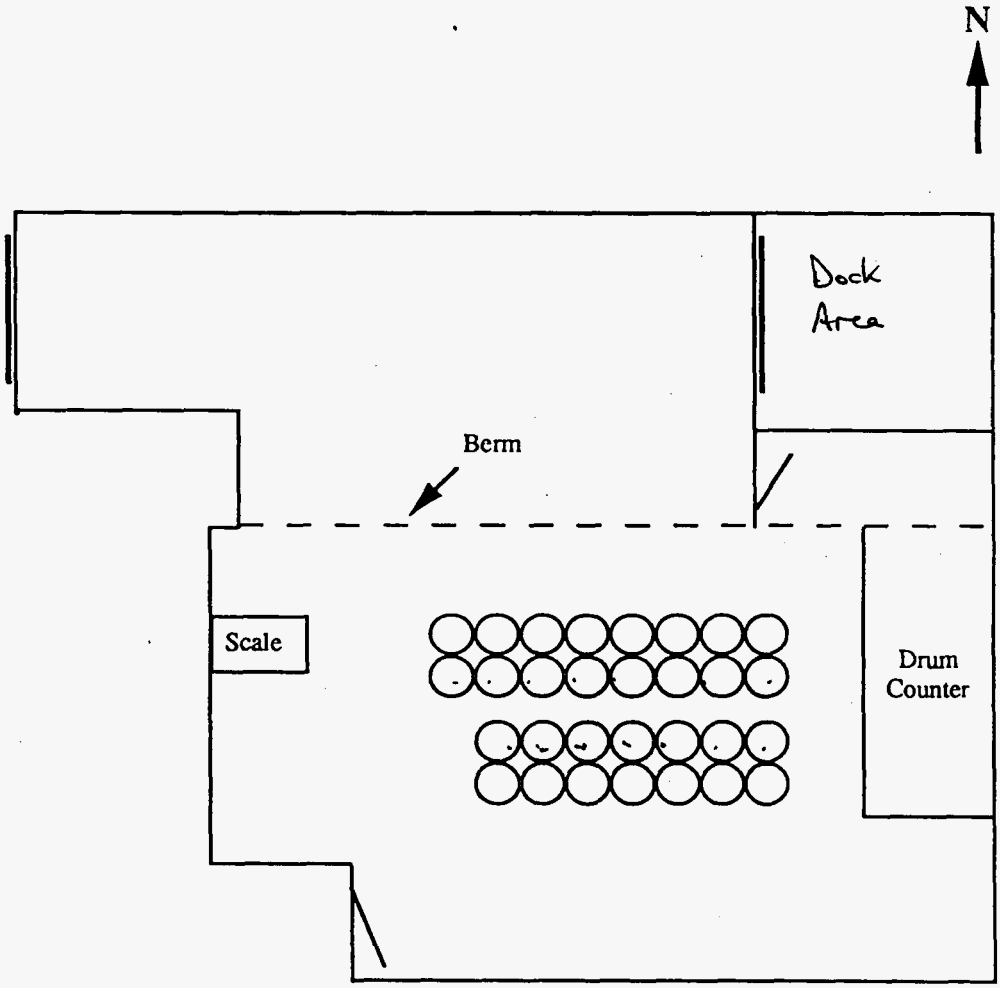
Unit Description:	Building 707 is located north of Central Avenue in the center of the facility.
Maximum Unit Capacity:	1,650 gallons
Unit Liquid Capacity:	1,650 gallons
Unit EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D038, D040-D043, F001-F003, F005-F007, F009, U227.
Unit Waste Types:	Hazardous, LLM, TRM, Mixed residues

Special Unit Conditions:

1) Staging of containers may occur in the C-Cell or other areas within Module A that are identified in accordance with Part III.B.17.

2) Catch basins and/or the building floor and berm in Room 196 may be used as secondary containment.

RCRA Unit 707.1
Container Storage Area
Building 707, Room 196



Secondary containment capability:
Typical inventory = 30 55-gallon drums
Total surface area = 861 sf
Minimum berm height = 0.4 in

Legend:
Roll up door

NOTES:
1) Typical container layout, actual arrangement may vary.

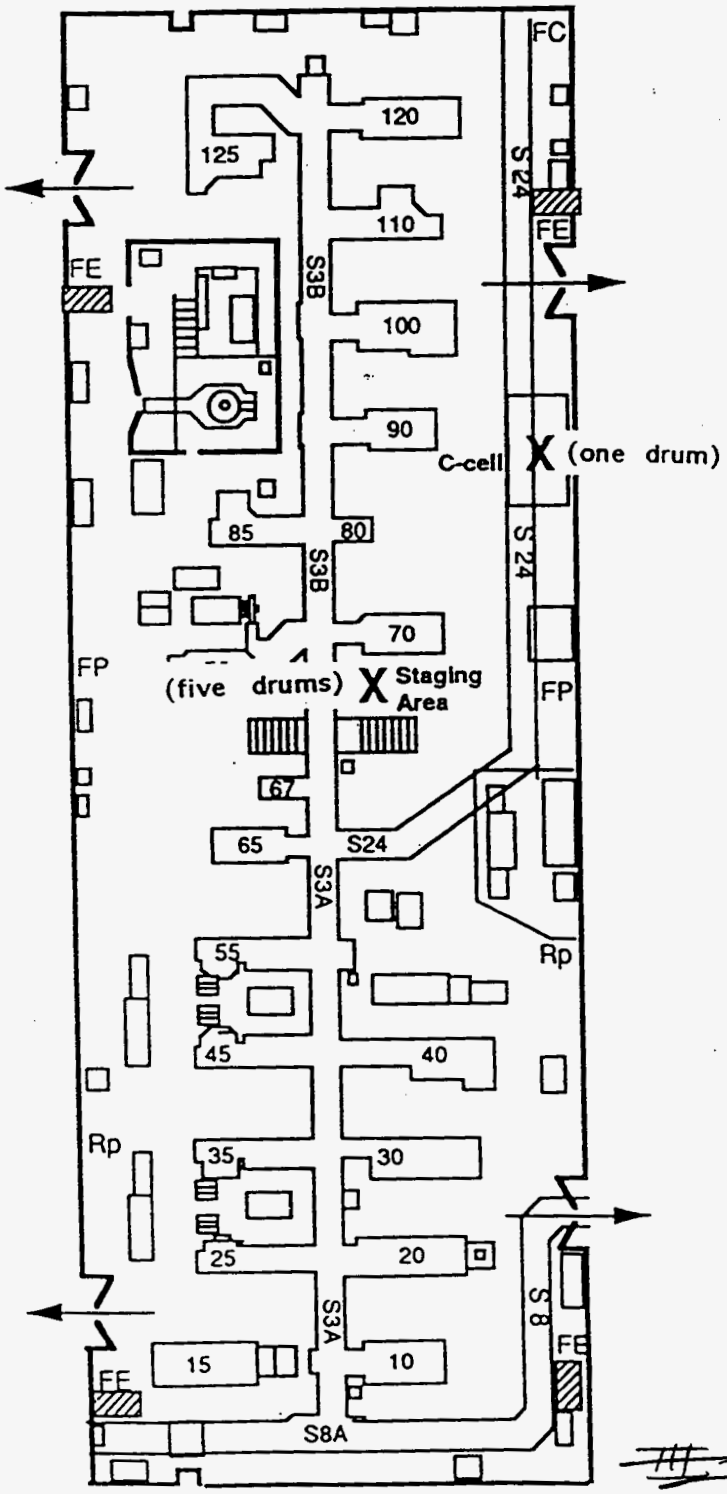
105

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

Module A Building 707
Building Maps

N →

Last Revision Date: 01/09/96



Legend

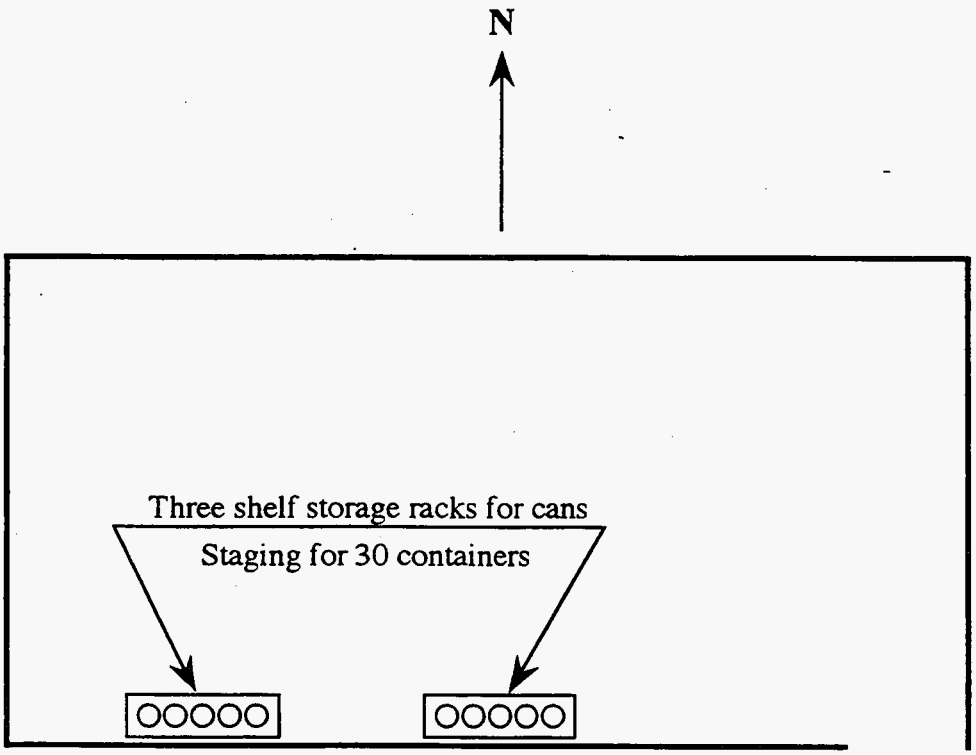
FIRE EXTINGUISHER= ▨
FLAMMABLE CABINET=FC
FIRE PHONE= FP
REGULAR PHONE= RP
Egress Route
(Primary) = →

106

~~III-35b~~

~~55B~~ III-73

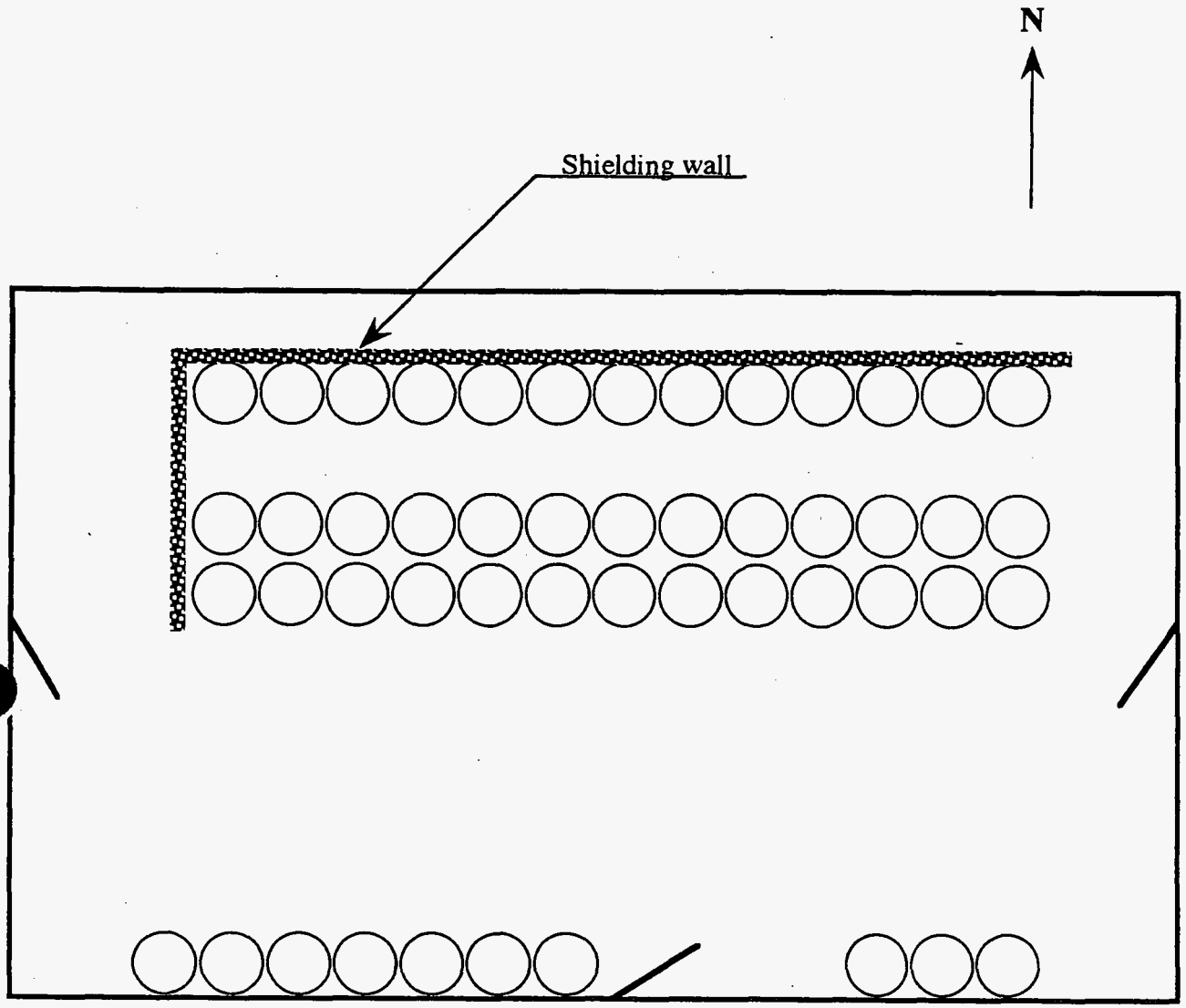
Building 707, Room 167
Container Storage and
Calorimetry Area



NOTE:
1.) Typical container layout. Actual may vary.

107

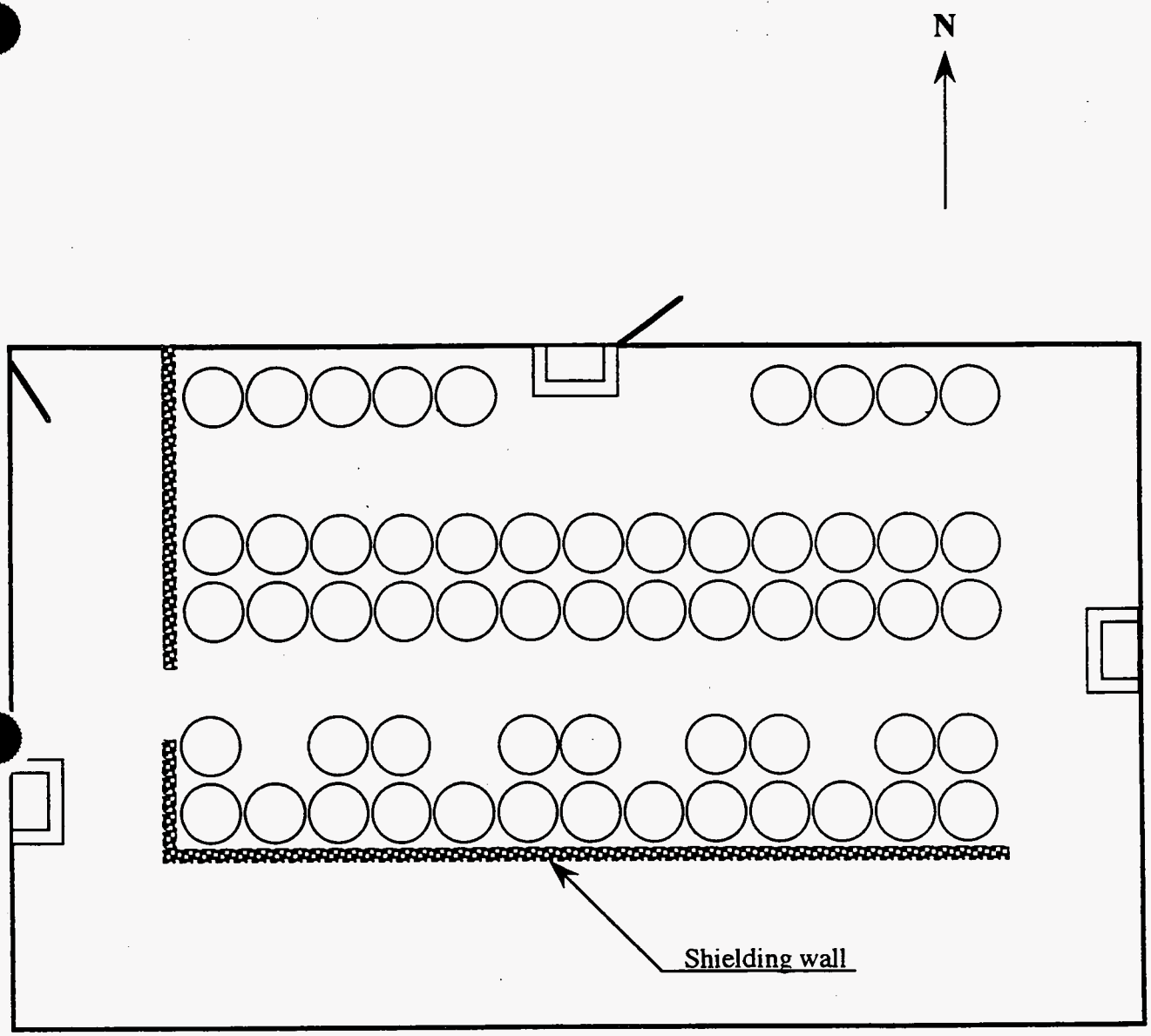
Building 707, Room 181
Container Storage Area



NOTE:
1.) Typical container layout. Actual may vary.

108

Building 707, Room 182
Container Storage Area

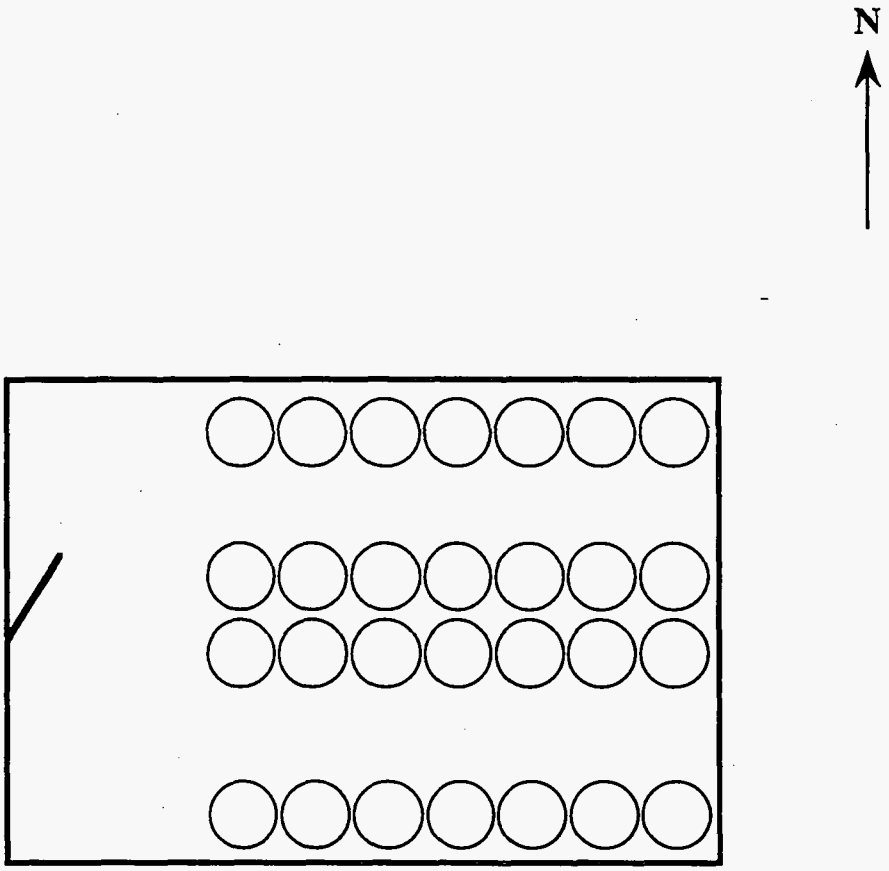


NOTE:
1.) Typical container layout. Actual arrangement may vary.

RAH
02/08/97

109

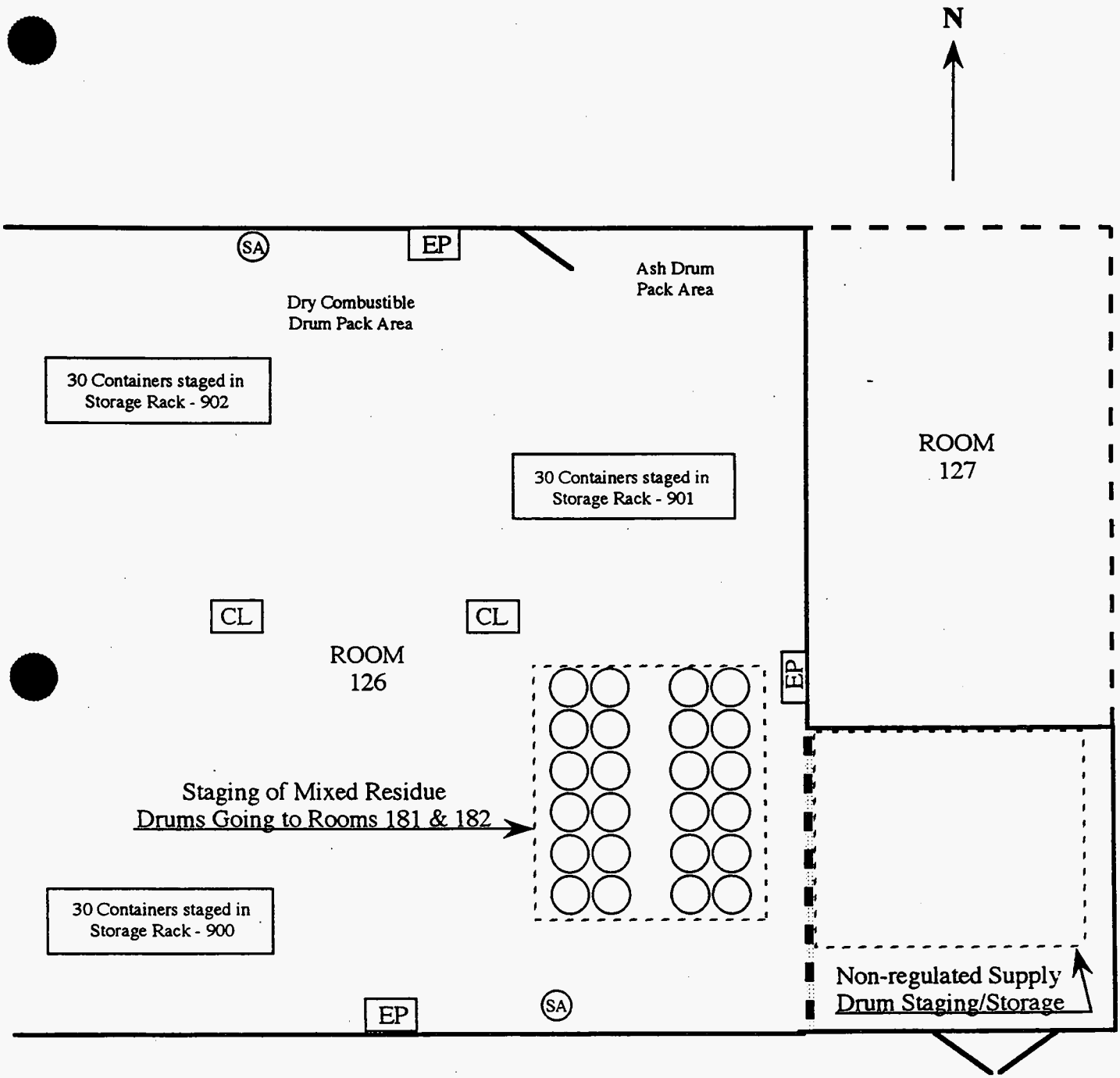
Building 707, Room 183
Container Storage Area



NOTE:
1.) Typical container layout. Actual may vary.

110

Building 707, Module F, Room 126
Container Storage Area



Legend:

EP = Electric Panel

CL = Column

SA = SAAM

NOTE:
1.) Typical container layout. Actual may vary.
2.) SAAM locations are provided for information only and are subject to change.

RAH
02/06/97

111

UNIT INFORMATION SHEET

18. Unit 750.1

Unit Description:	Unit 750.1 is made up of six tents within a fenced area on the 750 Pad located between Portal 1 and Building 750 on the south side of the Protected Area.
Maximum Unit Capacity:	10,200 cubic yards (2,244,000 gallons)
Unit Liquid Capacity:	9,900 cubic yards (2,178,000 gallons)
Unit EPA Waste Codes:	D001-D011, D018, D019, D022, D028, D029, D035, D038, D040, D043, F001-F003, F005-F007, F009, F039, P002, P003, P005, P010-P012, P014-P016, P018, P022, P024, P027-P030, P048, P051, P059, P074, P077, P087, P092, P093, P098, P101, P104-P106, P108, P113, P116, P119, P121, P123, U002-U004, U007-U009, U012, U018, U019, U022, U025, U027, U028, U030, U031, U034, U036, U037, U041-U044, U047, U048, U050, U052, U053, U055-U057, U063, U067-U073, U075, U077-U084, U088, U098, U101-U103, U105, U108, U112, U113, U116-U118, U120, U122, U123, U125, U127-U131, U134, U137, U138, U140, U144, U147, U148, U151, U154, U159, U161, U162, U165, U166, U166, U169, U170, U173, U179, U188, U190, U191, U196, U197, U201, U202, U204, U207-U211, U213-U220, U222, U225-U228, U235, U238-U240, U328, U353, U359.
Unit Waste Types:	Mixed, hazardous

Special Unit Conditions:

1) Stacking: Inside - Half crates may be stacked five high (three high along walls), full crates may be stacked three high for existing and new I and V crates (two high along walls) and drums may be stacked two high in Tent 5 (with secondary containment as necessary for liquids). Outside - Half crates may be stacked two high, full crates may not be stacked.

2) Releases of pondcrete that occur in Unit 750.1 will be cleaned up according to current Waste Operations Procedures. However, the requirement stated in Part VIII - Contingency Plan, Section E.1.k. that an engineer perform a visual inspection of the containment to certify that the area affected is free of cracks, gaps, structural inadequacies, or other pathways to soil, surface water, or ground water is not required.

3) Analytical investigation of the pad surface will be required as part of the RCRA closure process.

4) The Permittee may post a single hazardous waste label at each entrance for containers storing saltcrete, pondcrete, and pond sludge. In addition, a list of containers which correspond to each label will be placed in a nearby location to assist personnel in identifying hazards associated with each container in the unit. Whenever a container is removed from the unit for off-site shipment, a hazardous waste label containing the required information pursuant to Part 262 of the CHWR will be affixed to the container. Before transporting, each container will be labeled in accordance with the U.S. Department of Transportation regulations.

5) Precipitation will managed in accordance with the RMRS Precipitation Management letter to Kaiser-Hill dated 2/25/97.

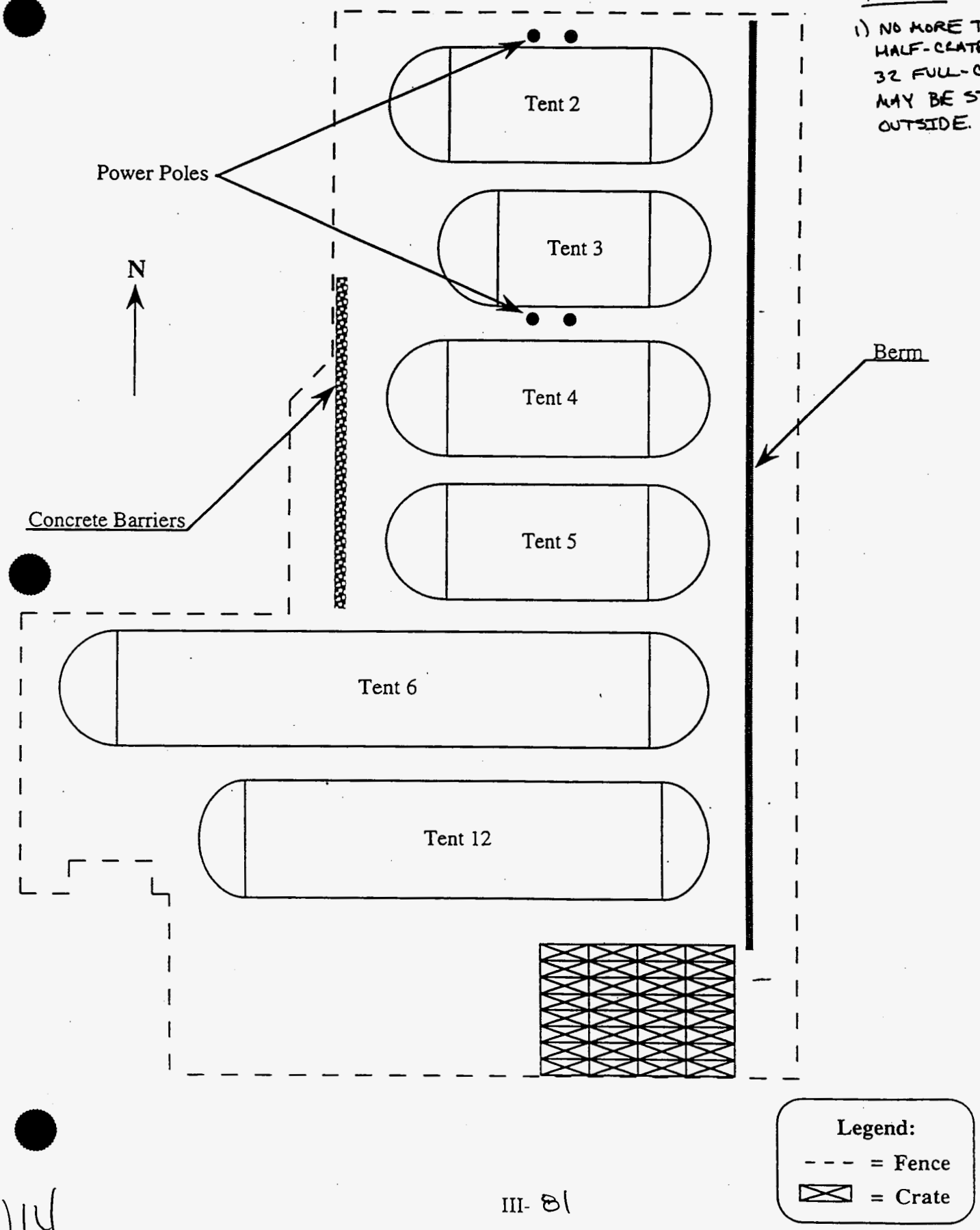
6) All wooden crates and crates with fiberglass lids storing hazardous or mixed waste will be removed from the 750 Pad by September 30, 1997.

7) Hazardous or mixed wastes stored in plywood or metal crates will be covered to protect the crates from the elements including: wind, rain, snow, and direct sun light. In the event the tent panels are damaged and do not provide adequate protection from the elements, all crates storing hazardous or mixed wastes will be covered within 24 hours.

RCRA Unit 750.1
750 Pad
Outside Storage Arrangement

NOTES:

1) NO MORE THAN 64 HALF-CRATES OR 32 FULL-CRATES MAY BE STORED OUTSIDE.



114

PART	QUAN.	DESCRIPTION	MATERIAL

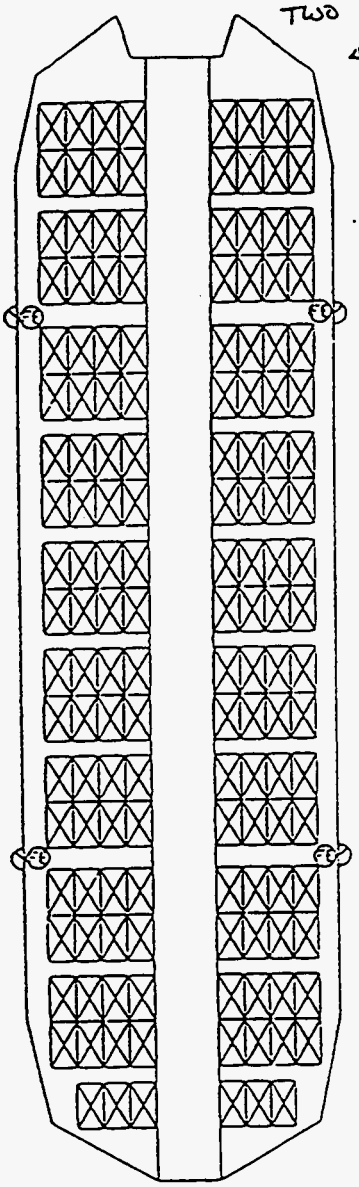
NOTES:

1) TYPICAL CONTAINER LAYOUT. ACTUAL ARRANGEMENT MAY VARY.

2) HALF-CRATES MAY BE STACKED FIVE HIGH.
FULL CRATES MAY BE STACKED THREE HIGH

3) FULL CRATES STORED ALONG THE WALLS OF THE TENT MAY ONLY BE STACKED TWO HIGH.

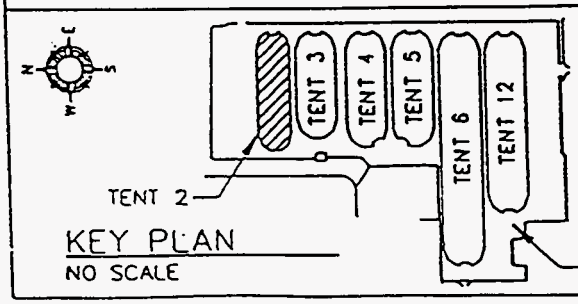
4) HALF CRATES STORED ALONG THE WALLS OF THE TENT MAY ONLY BE STACKED A MAXIMUM OF THREE HIGH.



TENT 2

30' 15' 0 30' 60'

SCALE : 1"=30'



KEY PLAN
NO SCALE

REVISION	B	REVISED		09/20/93
KEYWORDS	A	ORIGINAL ISSUE		11/07/94
1. RCRA	JOB NO.	39650071		
2. TANK	TOLERANCES		BY	DATE
3. STORAGE	FRAC ± 1/32	DESIGNED		11/07/94
4. WASTE	ANGLE ± 1/2°	DRAWN		11/07/94
5. LAYOUT	DEC ± .XX	CHECKED		11/07/94
DRAWING / FOLDOUT 750_PAD	UNLESS NOTED OTHERWISE	APPROVED		
FILE / PAGE TENT_2	REMOVE BURRS AND SHARP EDGES			
DWG GROUP / SEQ. NO. —	NEXT ASSEMBLY NEXT			
		SUBMITTED		
	SCALE: NONE	APPV RTP		
		APPV DOE		

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
GOLDEN, COLORADO 80401

RCRA PERMIT MODIFICATION
750 PAD, TENT 2 LAYOUT

SIZE	DRAWING NUMBER	REV	SHEET
A	39650-806	A	of

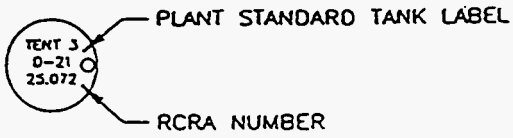
ASME FORMAT

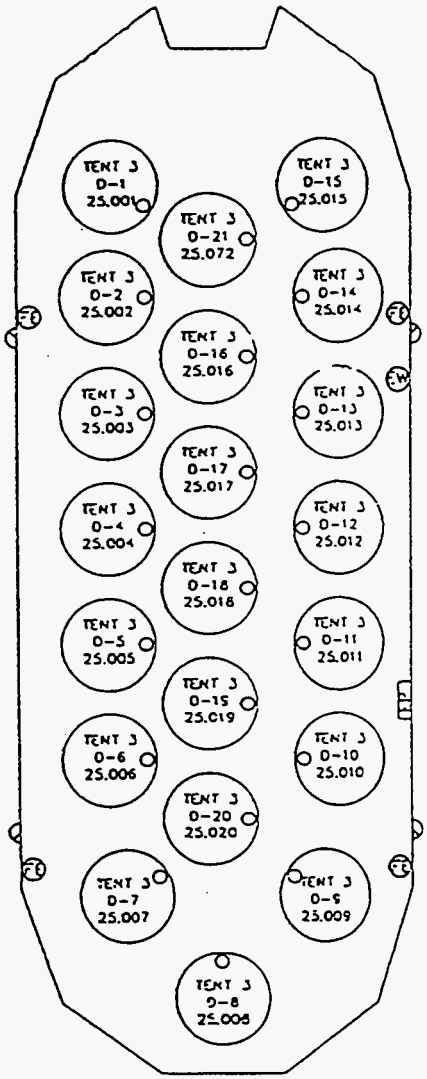
AUTOCAD REL 12 GENERATED

113

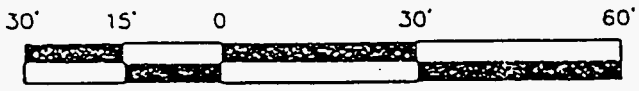
PART	QUAN	DESCRIPTION	MATERIAL

NOTES:

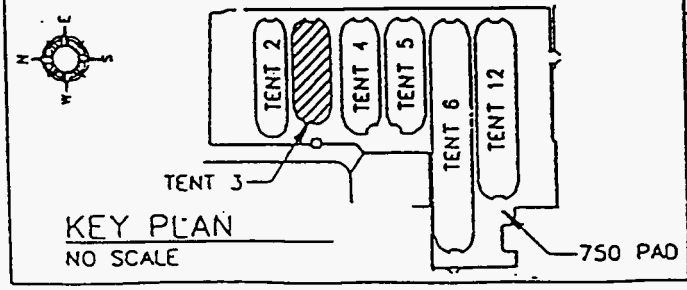




TENT 3



SCALE : 1"=30'



KEY PLAN
NO SCALE

REVISION	B	REVISED		09/20/95
KEYWORDS	A	ORIGINAL ISSUE		11/07/94
1. RCRA	JOB NO.	39650001		
2. TANK	TOLERANCES FRAC ± 1/16		BY	DATE
3. STORAGE		DESIGNED		11/07/94
4. WASTE	ANGLE ± 30'	DRAWN		11/07/94
5. LAYOUT	DEC ± .XX UNLESS NOTED OTHERWISE	CHECKED		11/07/94
750_PAD		APPROVED		
TENT_3	REMOVE BURRS AND SHARP EDGES			
	NOT ASSEMBLY NOTE	SUBMITTED		
	SCALE: NONE	APPV REP		
		APPV DOE		

U.S. DEPARTMENT OF ENERGY

Rocky Flats Environment Technology Site
Golden, Colorado

RCRA PERMIT MODIFICATION

750 PAD, TENT 3 LAYOUT

SIZE	DRAWING NUMBER	REV	SHEET
A	39650-801	A	of

ASME FORMAT

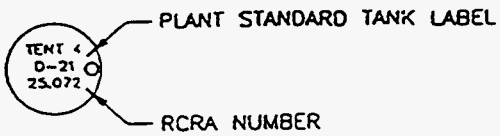
AUTOCAD REL 12 GENERATED

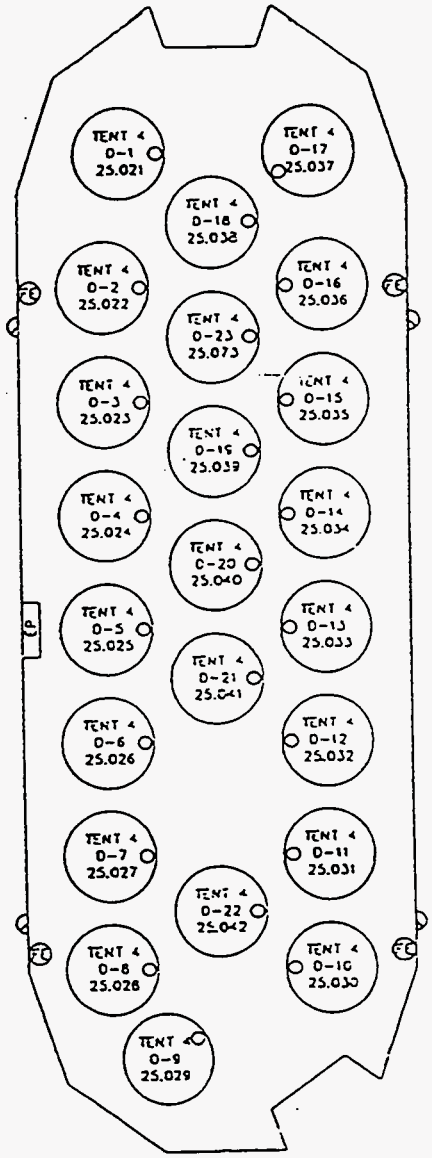
116

III-03

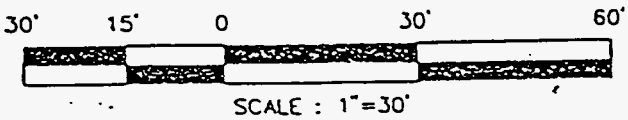
PART	QUAN.	DESCRIPTION	MATERIAL

NOTES:

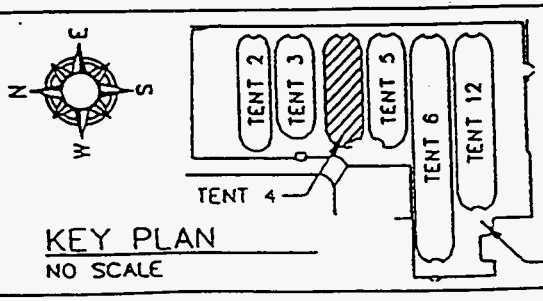




TENT 4



SCALE : 1"=30'



KEY PLAN
NO SCALE

REVISION	B	REVISED		09/20/95
KEYWORDS	A	ORIGINAL ISSUE		11/07/94
1. RCRA	JOB NO.	39650602		
2. TANK	TOLERANCES FRAC ± 1/2		BY	DATE
3. STORAGE	ANGLE ± 1°	DESIGNED		11/07/94
4. WASTE	DEC ± .01	DRAWN		11/07/94
5. LAYOUT	UNLESS NOTED OTHERWISE	CHECKED		11/07/94
750 PAD		APPROVED		
TENT 4	REMOVE BURRS AND SHARP EDGES			
	NEXT ASSEMBLY NEXT	SUBMITTED		
	SCALE: NONE	APPV MFG		
		APPV QUC		

U.S. DEPARTMENT OF ENERGY

Rocky Flats Environmental Technology Site
Golden, Colorado

RCRA PERMIT MODIFICATION
750 PAD, TENT 4 - LAYOUT

SIZE	DRAWING NUMBER	REV	SHEET
A	39650-802	A	

AUTOCAD REL 12 GENERATED

117

TTT - 04

PART	QUAN.	DESCRIPTION	MATERIAL

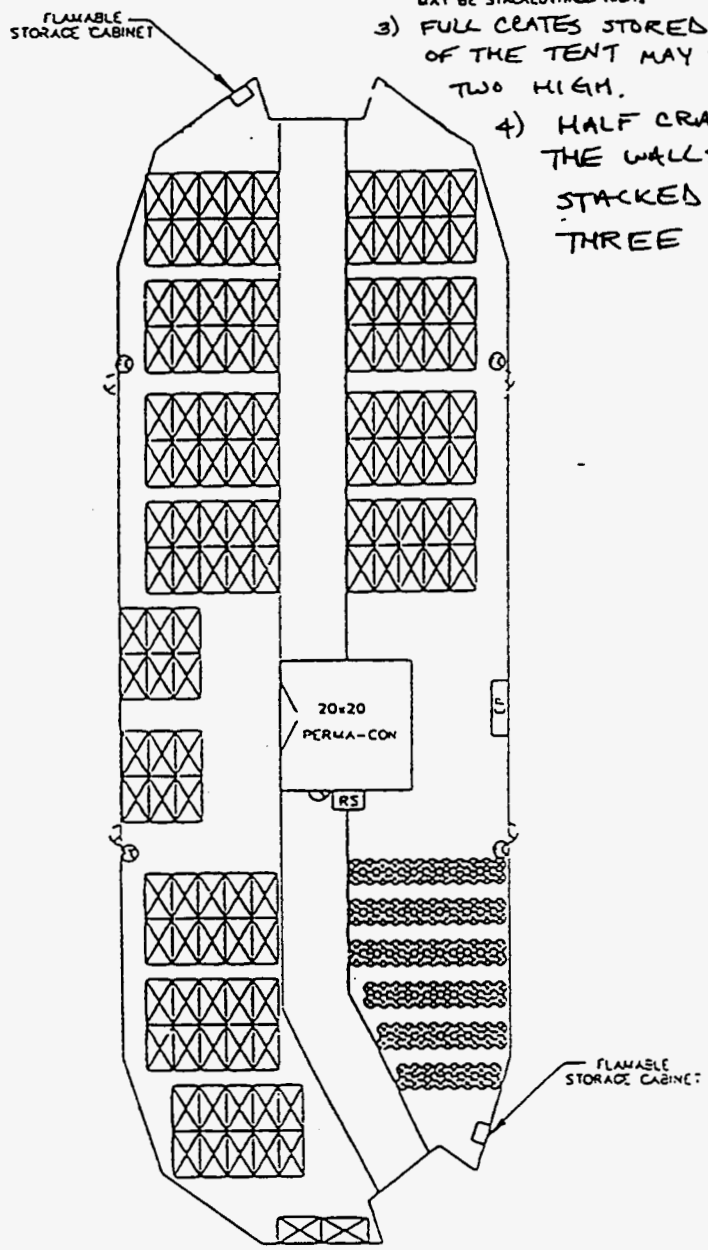
NOTES:

1) TYPICAL CONTAINER LAYOUT. ACTUAL ARRANGEMENT MAY VARY.

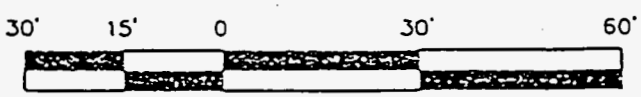
2) HALF-CRATES MAY BE STACKED FIVE HIGH, DRUMS MAY BE STACKED TWO HIGH, AND FULL CRATES MAY BE STACKED THREE HIGH.

3) FULL CRATES STORED ALONG THE WALLS OF THE TENT MAY ONLY BE STACKED TWO HIGH.

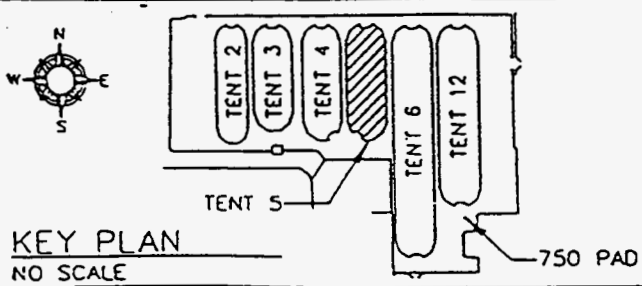
4) HALF CRATES STORED ALONG THE WALLS MAY ONLY BE STACKED A MAXIMUM OF THREE HIGH.



TENT 5



SCALE : 1"=30'



KEY PLAN
NO SCALE

REVISION	B	REVISED			09/20/95
KEYWORDS	A	ORIGINAL ISSUE			11/07/94
1. RCRA	JOB NO.	39650802			
2. TANK	TOLERANCES		BY	DATE	
3. STORAGE	FRAC ± X/X	DESIGNED		11/07/94	
4. WASTE	ANGLE ± XX°	DRAWN		11/07/94	
5. LAYOUT	DEC ± .XX	CHECKED		11/07/94	
750 PAD	UNLESS NOTED OTHERWISE	APPROVED			
TENT 5	REMOVE BURRS AND SHARP EDGES				
	NEXT ASSEMBLY	SUBMITTED			
	NEXT	APPV RTP			
	SCALE: NONE	APPV DOE			

U.S. DEPARTMENT OF ENERGY

Rocky Flats Environmental Technology Site

RCRA PERMIT MODIFICATION

750 PAD, TENT 5 LAYOUT

SIZE	DRAWING NUMBER	ISSUE	SHEET
A	39650-807	A	0

ASME FORMAT

AUTOCAD REL 12 GENERATED

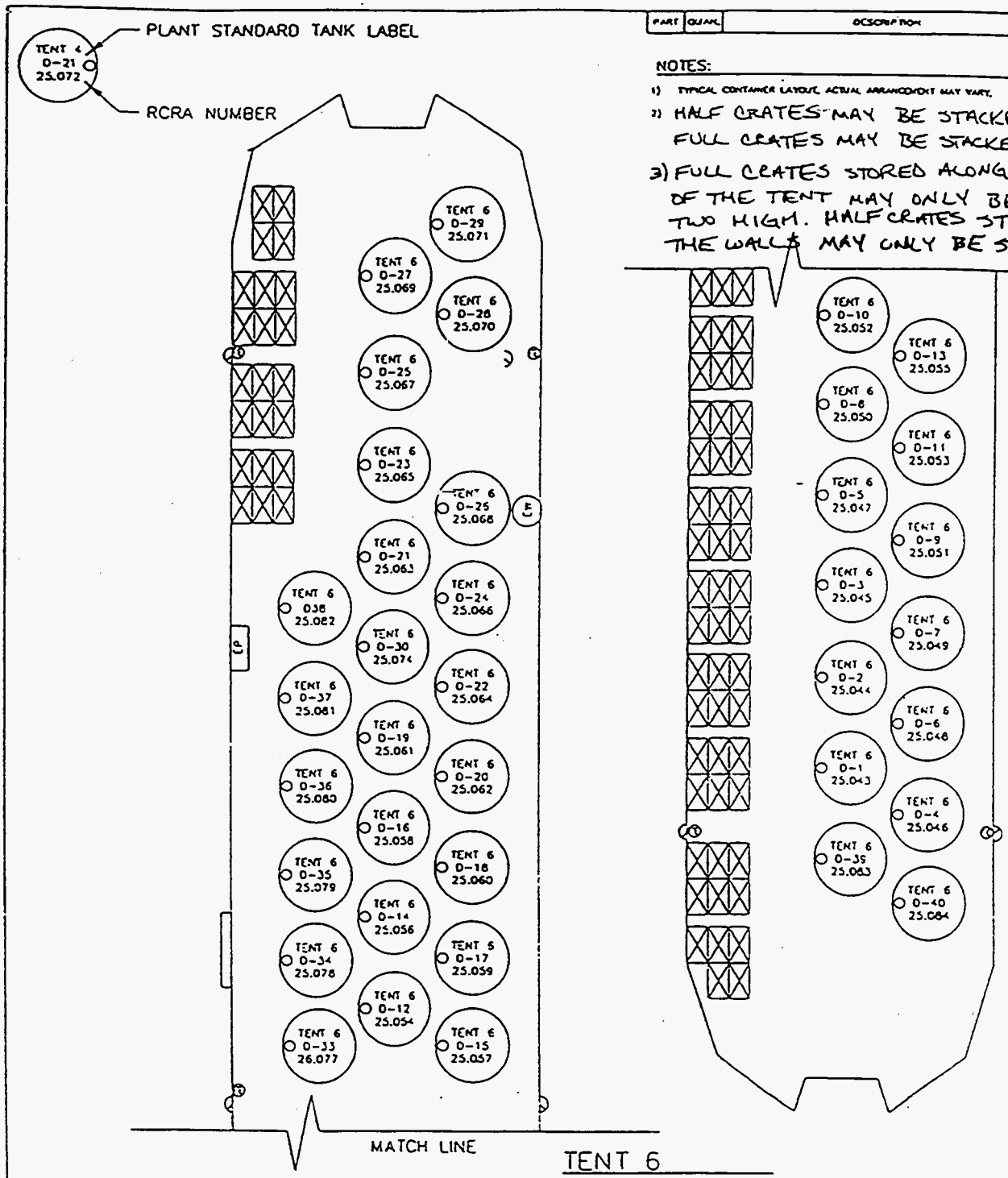
118

TTT - 8

PART	QUAN.	DESCRIPTION	MATERIAL

NOTES:

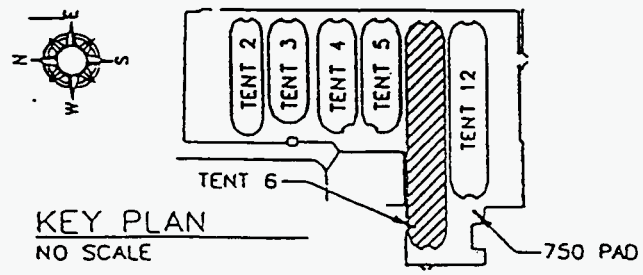
1) TYPICAL CONTAINER LAYOUT, ACTUAL ARRANGEMENT MAY VARY.
2) HALF CRATES MAY BE STACKED FIVE HIGH
FULL CRATES MAY BE STACKED THREE HIGH
3) FULL CRATES STORED ALONG THE WALLS OF THE TENT MAY ONLY BE STACKED TWO HIGH. HALF CRATES STACKED ALON THE WALLS MAY ONLY BE STACKED THREE



TENT 6

30' 15' 0 30' 60'

SCALE : 1"=30'



KEY PLAN
NO SCALE

	B	REVISED	09/20/93		
KEYWORDS	A	ORIGINAL ISSUE	11/07/94		
1. RCRA		DESCRIPTION	DATE		
2. TANK	TOLERANCES FRAC ± X/X ANGLE ± XX° DEC ± .XX UNLESS NOTED OTHERWISE		BY	DATE	
3. STORAGE		DESIGNED		05/25/95	
4. WASTE		DRAWN		05/25/95	
5. LAYOUT		CHECKED		05/25/95	
750_PAD		APPROVED			
TENT_6	REMOVE BURRS AND SHARP EDGES				
	NOT ASSEMBLY NEXT				
	SCALE: NONE	SUBMITTED			
		APPV RTP			
		APPV DOC			

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
GOLDEN, COLORADO 80401
RCRA PERMIT MODIFICATION
750 PAD, TENT 6 LAYOUT

SIZE	DRAWING NUMBER	REV	SHEET
A	39650-803	A	of

A-SIZE FORMAT

AUTOCAD REL 12 GENERATED

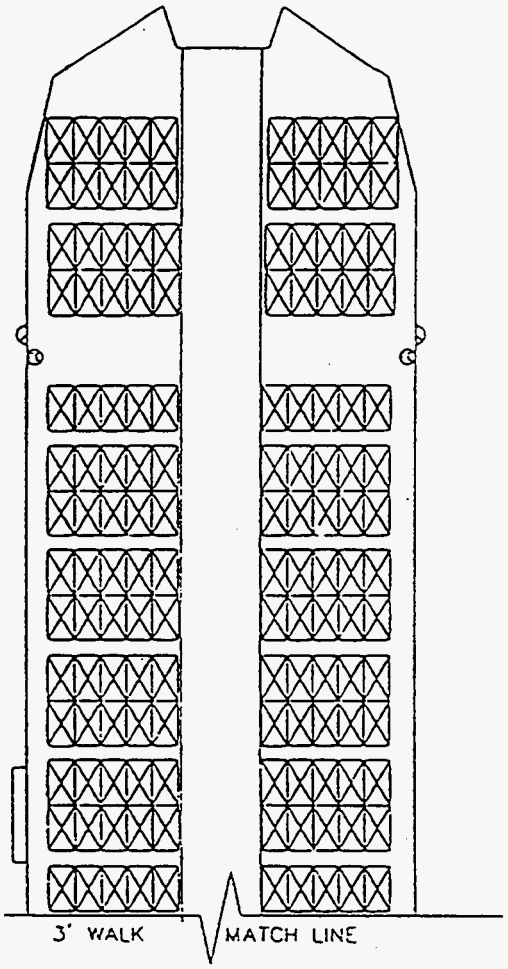
119

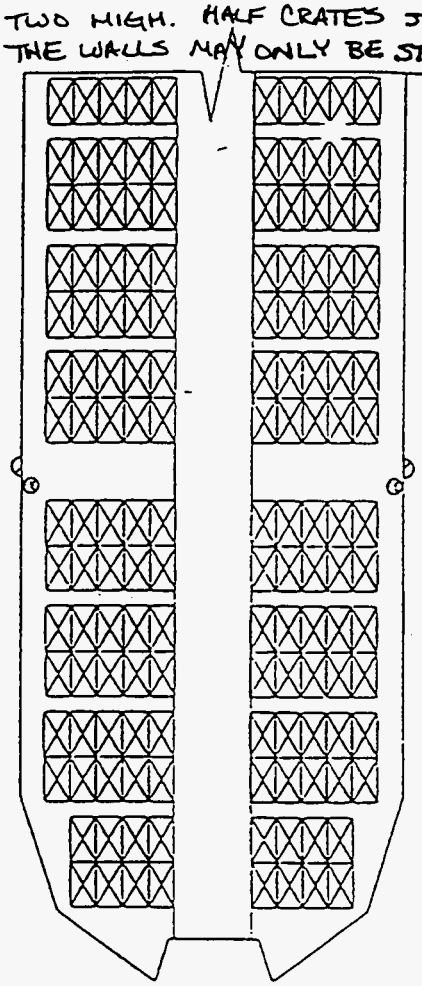
TTT-86

PART	QUAN.	DESCRIPTION	MATERIAL

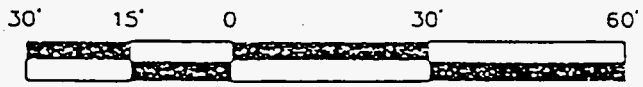
NOTES:

1) TYPICAL CONTAINER LAYOUT, ACTUAL ARRANGEMENT MAY VARY.
2) HALF CRATES MAY BE STACKED FIVE HIGH. FULL CRATES MAY BE STACKED THREE HIGH.
3) FULL CRATES STORED ALONG THE WALLS OF THE TENT MAY ONLY BE STACKED TWO HIGH. HALF CRATES STORED ALONG THE WALLS MAY ONLY BE STACKED THREE HIGH.

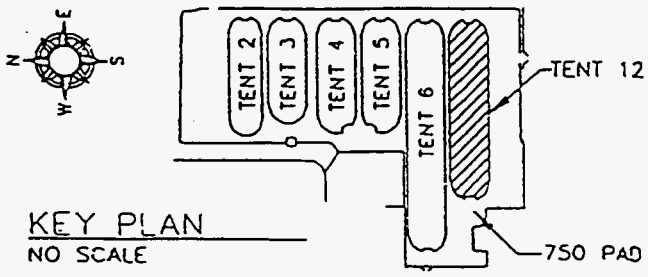




TENT 12



SCALE : 1"=30'



KEY PLAN
NO SCALE

	B	REVISED			05/20/95			
KEYWORDS	A	ORIGINAL ISSUE.			11/07/94			39650803
1. RCRA		DESCRIPTION			DATE			JOB NO.
2. TANK	TOLERANCES FRAC ± X/X		BY	DATE	U.S. DEPARTMENT OF ENERGY			
3. STORAGE	ANGLE ± XX°	DESIGNED		05/25/95				
4. WASTE	DEC ± .XX	DRAWN		05/25/95	Rocky Flats Environmental Technology Site			
5. LAYOUT	UNLESS NOTED OTHERWISE	CHECKED		05/25/95	GOLDEN, COLORADO 80401			
GRAPHIC / FIGURE 750_PAD	REMOVE BURRS AND SHARP EDGES	APPROVED			RCRA PERMIT MODIFICATION			
FILE / AREA TENT_12					750 PAD, TENT 12 LAYOUT			
-	NEXT ASSEMBLY NEXT							
		SUBMITTED			SIZE	DRAWING NUMBER	ISSUE	SHEET
	SCALE: NONE	APPV REP			A	39650-808	A	OF
		APPV DOC						

ASME FORMAT REV 0 NOVEMBER 1984

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UNIT INFORMATION SHEET

19. Unit 771.1

Unit Description:	Building 771 is located on the northern end of the facility with storage areas consisting of rooms, gloveboxes, and vaults.
Maximum Unit Capacity:	32,102 gallons
Unit Liquid Capacity:	6,214 gallons (23,520 liters)
Unit EPA Waste Codes:	See specific waste codes below for each type of container storage area.
Unit Waste Types:	Mixed, hazardous
Special Unit Conditions:	None

Container Storage Areas Within This Unit:

a. Room type areas

The following EPA waste codes apply globally to the "Room" type areas within this container storage unit. The individual rooms that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual areas.

EPA Waste Codes:	D001-D012, D015-D019, D021-D029, D033, D035-D043, F001-F003, F005-F007, F009, P011, P012, P014, P015, P022, P028, P029, P045, P062, P076, P087, P098, P101, P104-P106, P113, P119, P120, P121, U002-U004, U019, U031, U037, U041, U042, U044, U055-U057, U067, U071, U074, U075, U077, U079, U080, U084, U098, U102, U107, U108, U112, U120, U121-U123, U127, U131, U133, U134, U138, U144, U148, U151, U154, U158, U159, U161, U162, U165, U167, U169, U170, U188, U190, U191, U196, U201, U207, U209 -U211, U213-U220, U225, U227, U228, U236, U246, U328, U353, U359.

Room 172

Maximum capacity:	5,225 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 181A

Maximum capacity:	5,720 gallons
Liquid capacity:	5,720 gallons
Waste types:	TRM, Mixed residues

Area limitations:

1) Caustic wastes will not be stored adjacent to the tanks nor under any acid-containing piping.

Room 182

Maximum capacity:	880 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) The boundary of this unit will be identified with a rope or tape on the floor.

Room 183

Maximum capacity:	5,830 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 186

Maximum capacity:	2,420 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Annex

Maximum capacity:	11,330 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

b. Glovebox type areas

The following EPA waste codes apply globally to the "glovebox" type areas within this container storage unit. The individual gloveboxes that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual areas.

EPA Waste Codes: D002, D004-D008, D011

Room 163 Glovebox 108, 109, and 110

Maximum capacity:	GBox 108 - 14 gallons (53 liters)
	GBox 109 - 18 gallons (68 liters)
	GBox 110 - 24 gallons (91 liters)
	GBox 112 - 22 gallons (83 liters)
	GBox 113 - 38 gallons (144 liters)

	GBox 114 - 16 gallons (61 liters)
	GBox 115 - 14 gallons (53 liters)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 164 Glovebox 62, 68, 72, 74, 98, 101, and 103

Maximum capacity:	GBox 62, 72, and 74 - 17 gallons each (63 liters each)
	GBox 68, 98, 101, and 103 - 16 gallons each (61 liters each)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 180A Glovebox A31, A51, A52, and A53

Maximum capacity:	GBox A31 - 7 gallons (27 liters)
	GBox A51, A52, and A53 - 42 gallons each (159 liters each)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	

1) The containers stored in GBox A31 will not be physically removed from their storage bins during routine inspections of the containers in this glovebox. The containers will be inspected in conjunction with the bi-monthly nuclear material accountability inspection, or at some other frequency, in accordance with the Nuclear Materials Safeguards Procedure Manual.

Room 180E Glovebox E11

Maximum capacity:	24 gallons (91 liters)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 180F Glovebox F60

Maximum capacity:	43 gallons
Liquid capacity:	43 gallons
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 180K Glovebox K10 and K20

Maximum capacity:	GBox K10 - 15 gallons (57 liters)
	GBox K20 - 43 gallons (163 liters)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	

1) Solutions from tanks may be drained into bottles within GBox K20. During

draining operations, precautions will be taken to prevent any spilled liquid from contacting other bottles in GBox K20.

Room 187 Glovebox 187A and 187C

Maximum capacity:	GBox 187A - 39 gallons (148 liters) GBox 187C - 20 gallons (62 liters)
Liquid capacity:	Same as maximum capacity
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

c. Vault type areas

The following EPA waste codes apply globally to "vault" type areas within this container storage unit. Individual vault type areas that are used for container-storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual areas.

EPA Waste Codes: D001, D003-D011, D018, D019, D035, D040, F001-F003, F005

Room 146C

Maximum capacity:	75 gallons (284 liters)
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

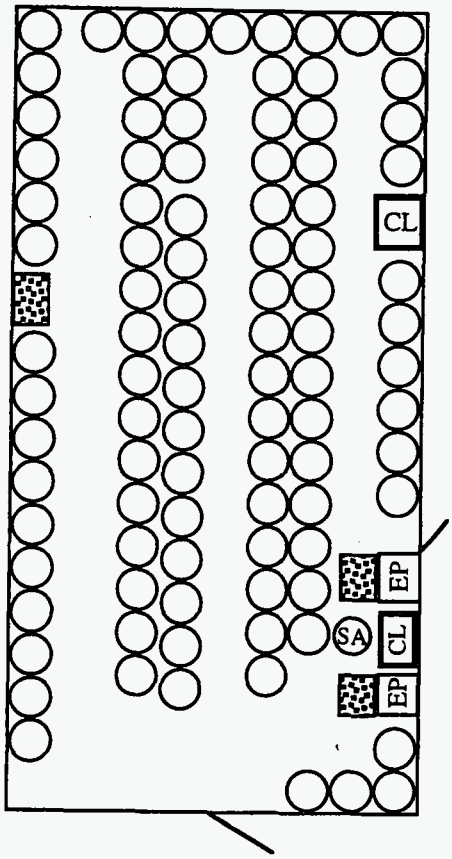
1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly-selected portion of the containers and an annual 100% inspection, which is coordinated with routine nuclear material accountability inventories, will be conducted.

Room 184

Maximum capacity:	128 gallons (485 liters)
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly-selected portion of the containers and an annual 100% inspection, which is coordinated with routine nuclear material accountability inventories, will be conducted.

RCRA Unit 771.1
Room 172
Container Storage Area
(Room)



N

NOTES:
1) Typical container layout, actual may vary.
2) SAAM locations are provided for information only and are subject to change.

Legend:

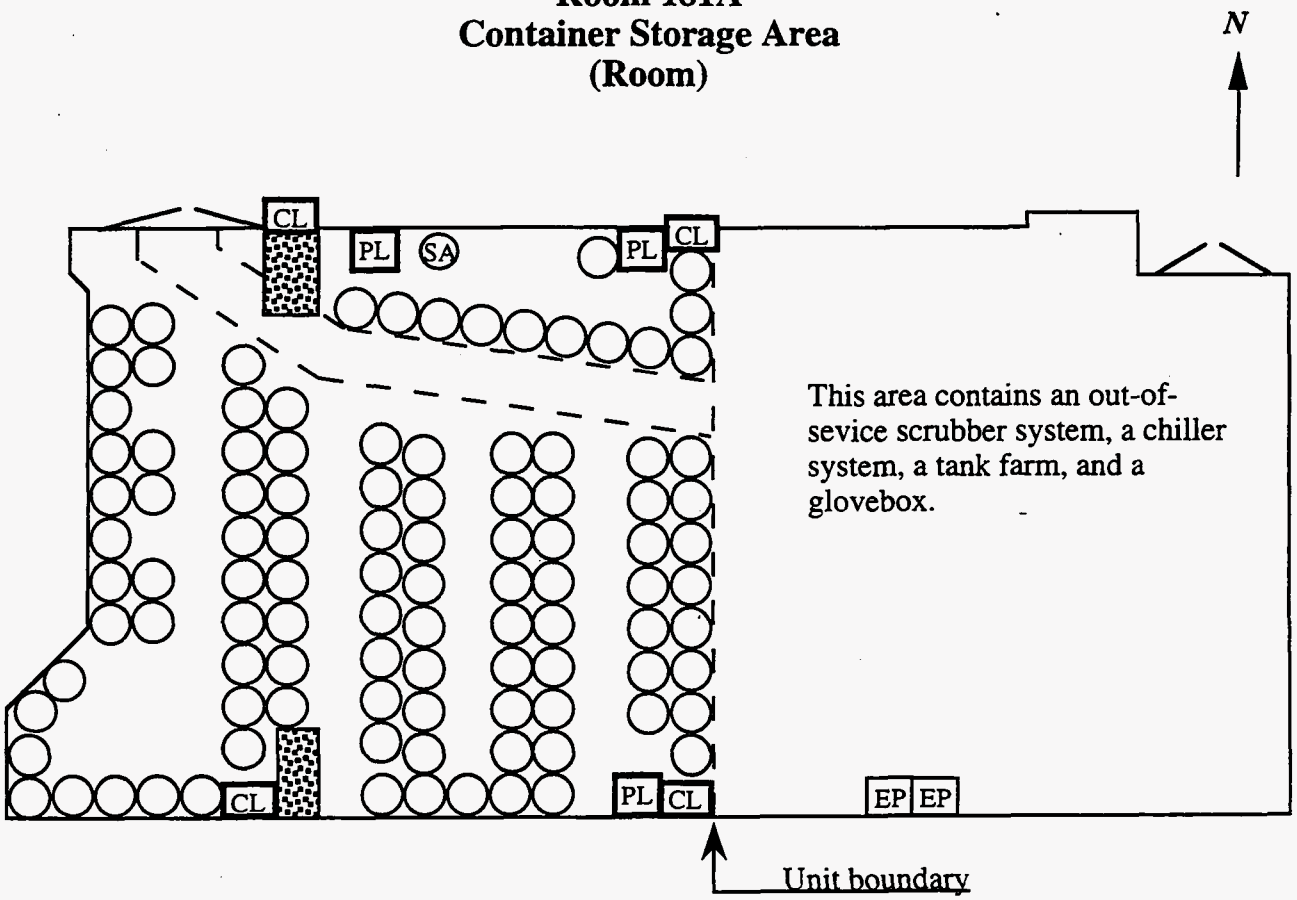
= Restricted space

CL = Column

SA = SAAM

125

RCRA Unit 771.1
Room 181A
Container Storage Area
(Room)



Secondary containment capability:
Typical inventory = 104 55-gal containers
Glovebox area = 1717 sf
Minimum berm height = 0.6 in

NOTES:
1) Typical container layout, actual may vary.
2) SAAM locations are provided for information only and are subject to change.
3) Secondary containment is provided 10% of the container volume and 100% of the volume of the 32-gallon pencil tank located in the room. Secondary containment is provided by the entire floor in Room 181A.

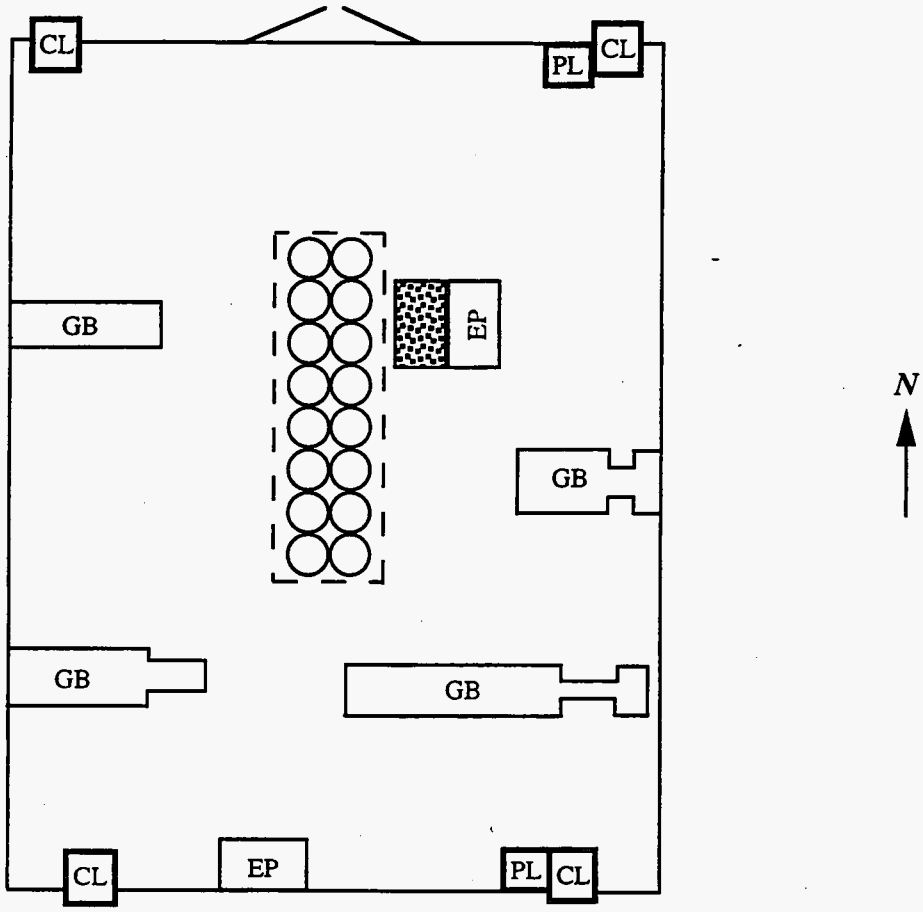
Legend:

EP = Electric Panel
PL = plenum
CL = Column
SA = SAAM
= Restricted space

126

RAII

RCRA Unit 771.1
Room 182
Container Storage Area
(Room)



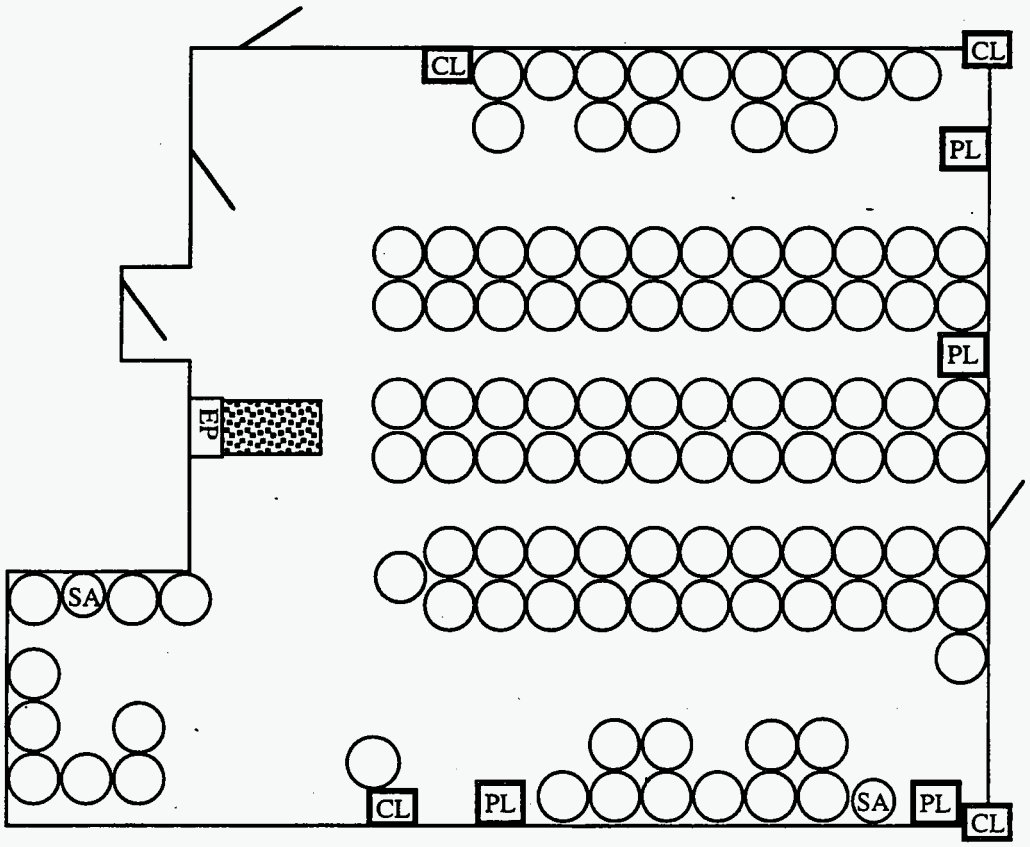
NOTES:
1) Typical container arrangement, actual may vary.
2) SAAM locations are provided for information only and are subject to change.

Legend:

EP	=	Electric Panel
PL	=	plenum
CL	=	Column
- - -	=	Unit Boundary
	=	Restricted space

127

RCRA Unit 771.1
Room 183
Container Storage Area
(Room)



NOTES:
1) Typical container arrangement, actual may vary.
2) SAAM locations are provided for information only and are subject to change.

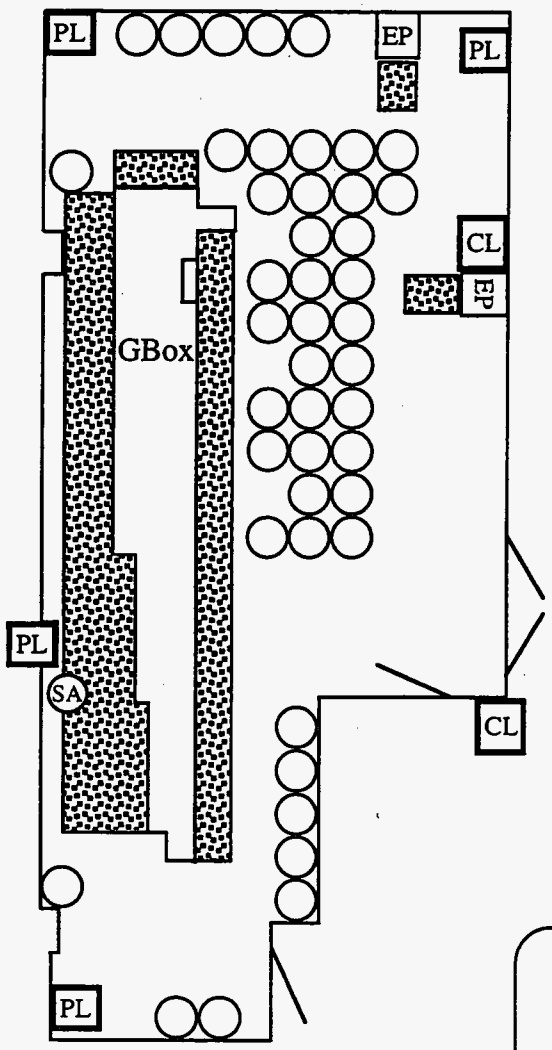
Legend:

- EP = Electric Panel
- PL = plenum
- CL = Column
- SA = SAAM
- = Restricted space

128

RA11

RCRA Unit 771.1
Room 186
Container Storage Area
(Room)



Legend:

- EP = Electric Panel
- PL = plenum
- CL = Column
- SA = SAAM
- = Restricted space

NOTES:
1) Typical container arrangement, actual may vary.
2) SAAM locations are provided for information only and are subject to change.

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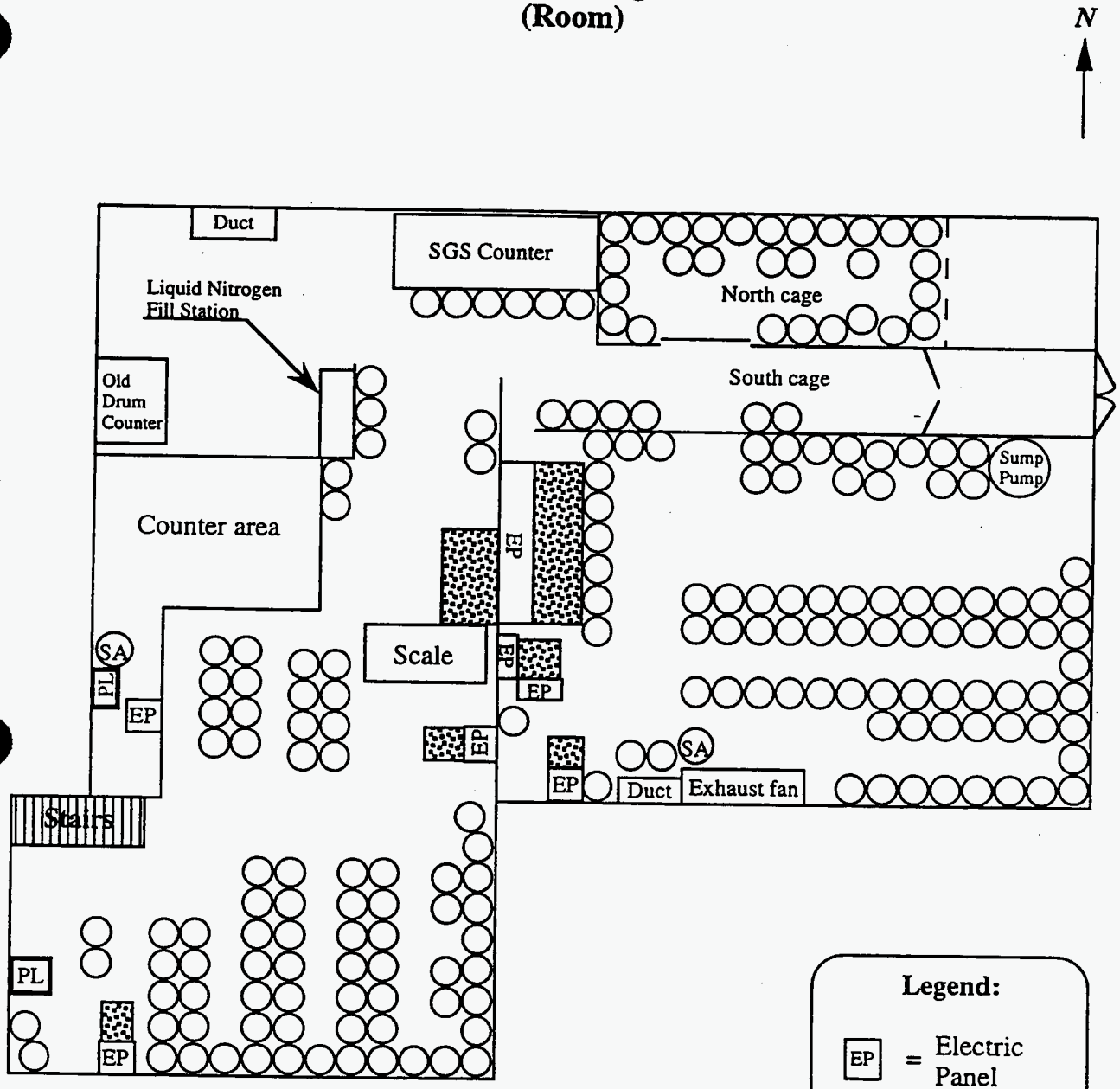
RCRA Unit 771.1
Annex
Container Storage Area
(Room)



Legend:

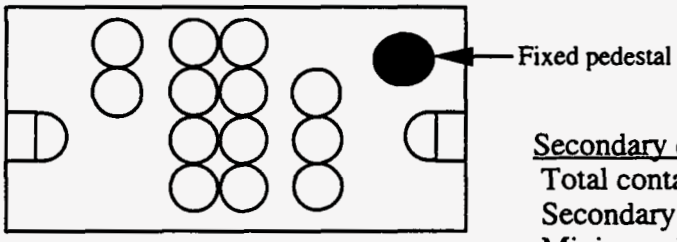
EP	=	Electric Panel
PL	=	plenum
CL	=	Column
SA	=	SAAM
	=	Restricted space

NOTES:
1) Typical container layout, actual may vary.
2) SAAM locations are provided for information only and are subject to change.

130

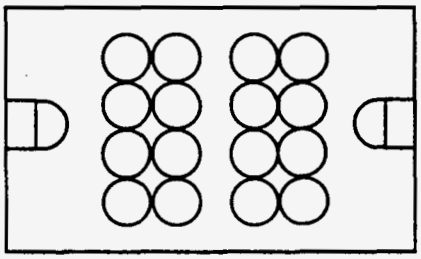
RCRA Unit 771.1
Room 163
Container Storage Area
(Gloveboxes)

N



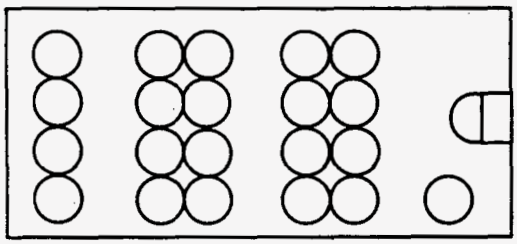
GB 108

Secondary containment capability:
Total container inventory = 42 liters
Secondary containment area = 7 sf
Minimum berm height = 0.9 in



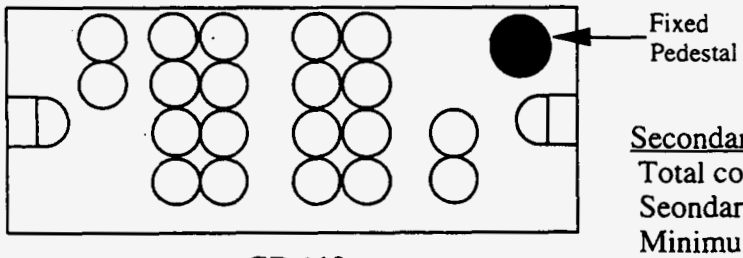
GB 109

Secondary containment capability:
Total container inventory = 68 liters
Secondary containment area = 8 sf
Minimum berm height = 0.9 in



GB 110

Secondary containment capability:
Total container inventory = 88 liters
Secondary containment area = 10 sf
Minimum berm height = 1.0 in



GB 112

Secondary containment capability:
Total container inventory = 88 liters
Seondary containment area = 10 sf
Minimum berm height = 0.9 in

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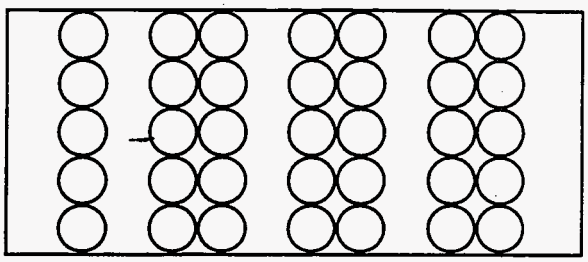
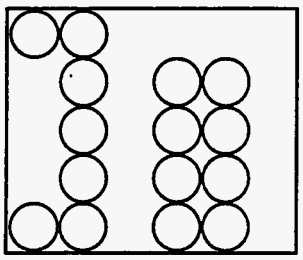
Continued on next page

RCRA Unit 771.1
Room 163
Container Storage Area
(Gloveboxes)



GB 113

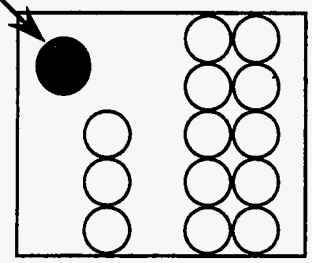
Secondary containment capability:
Total container inventory = 140 liters
Secondary containment area = 15 sf
Minimum berm height = 0.9 in



GB 114

Secondary containment capability:
Total container inventory = 60 liters
Secondary containment area = 8 sf
Minimum berm height = 0.9 in

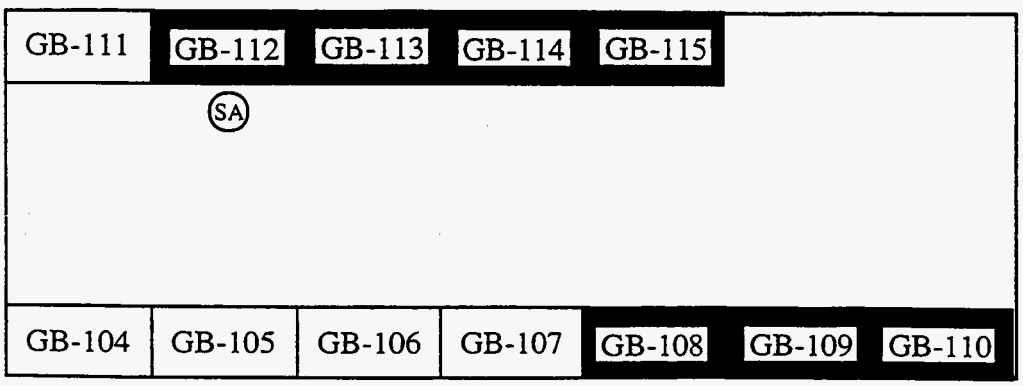
Fixed pedestal



GBox 115

Secondary containment capability:
Total container inventory = 42 liters
Secondary containment area = 3 sf
Minimum berm height = 0.9 in

NOTES:
1) Typical container layout, actual may vary.
2) Fixed pedestals in gloveboxes are approximately 1 1/2" high and 9" in diameter.
3) Gloveboxes 108, 109, and 110, and Gloveboxes 112, 113, 114, and 115 are connected to each other but are separated by a 2" lip between these gloveboxes and the non-regulated gloveboxes they are connected to.



N

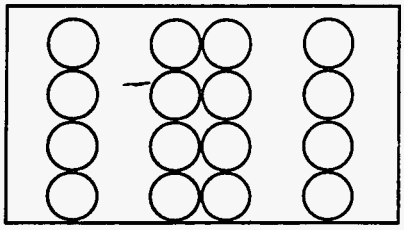
Legend:

SA = SAAM

132

RCRA Unit 771.1
Room 164
Container Storage Area
(Gloveboxes)

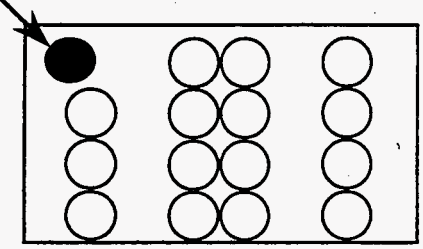
N



GBox 62

Secondary containment capability:
Typical inventory = 64 liters
Secondary containment area = 9 sf
Minimum berm height = 0.7 in

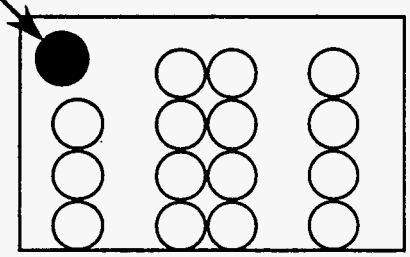
Fixed pedestal



GBox 68 and 101

Secondary containment capability:
Typical inventory = 60 liters each
Secondary containment area = 9 sf each
Minimum berm height = 0.6 in each

Fixed pedestal



GBox 98 and 103

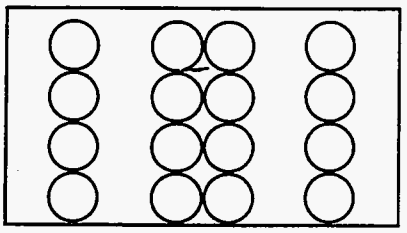
Secondary containment capability:
Typical inventory = 60 liters each
Secondary containment area = 9 sf each
Minimum berm height = 0.6 in each

GBox 98 and 103 (These gloveboxes are mirror images of each other. This diagram depicts GBox 98, GBox 103 is the exact opposite.)

NOTES:
1) Typical container arrangement, actual my vary.
2) Gloveboxes are bounded on either side and all have a 2" lip between them.
3) Fixed pedestals are approximately 1 1/2" high and 9" in diameter.

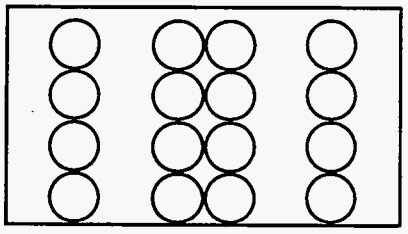
133 Continued on next page.

RCRA Unit 771.1
Room 164
Container Storage Area
(Gloveboxes)



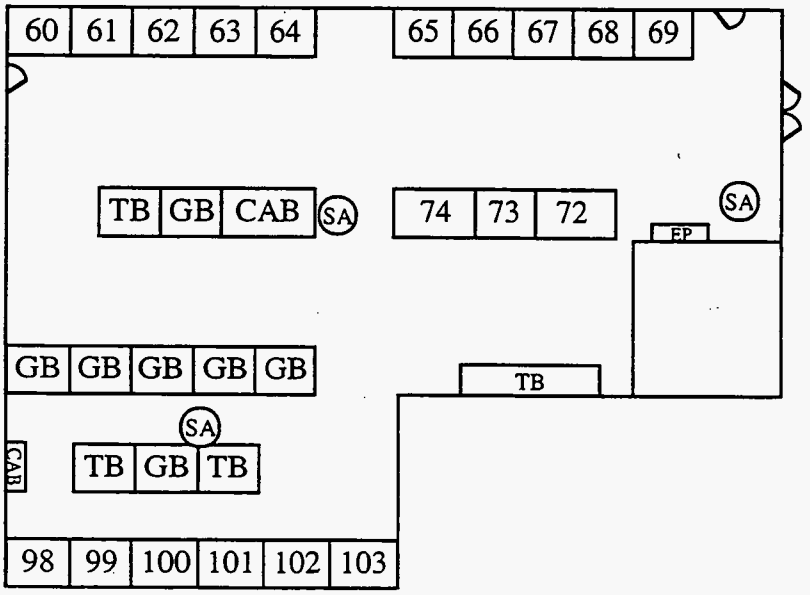
GBox 72

Secondary containment capability:
Typical inventory = 64 liters each
Secondary containment area = 9 sf each
Minimum berm height = 0.7 in each



GBox 74

Secondary containment capability:
Typical inventory = 64 liters each
Secondary containment area = 9 sf each
Minimum berm height = 0.7 in each



N

Legend:

SA = SAAM

EP = Electric Panel

NOTES:
1) Typical container arrangement, actual my vary.
2) Gloveboxes are bounded on either side and all have a 2" lip between them.
3) Fixed pedestals are approximately 1 1/2" high and 9" in diameter.

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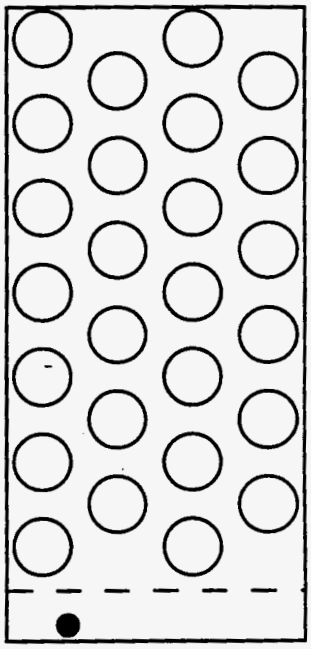
RCRA Unit 771.1
Room 180A
Container Storage Area
(Gloveboxes)

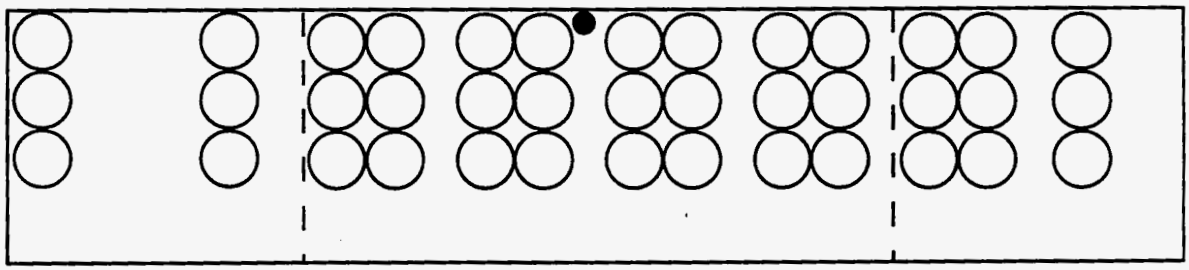
N



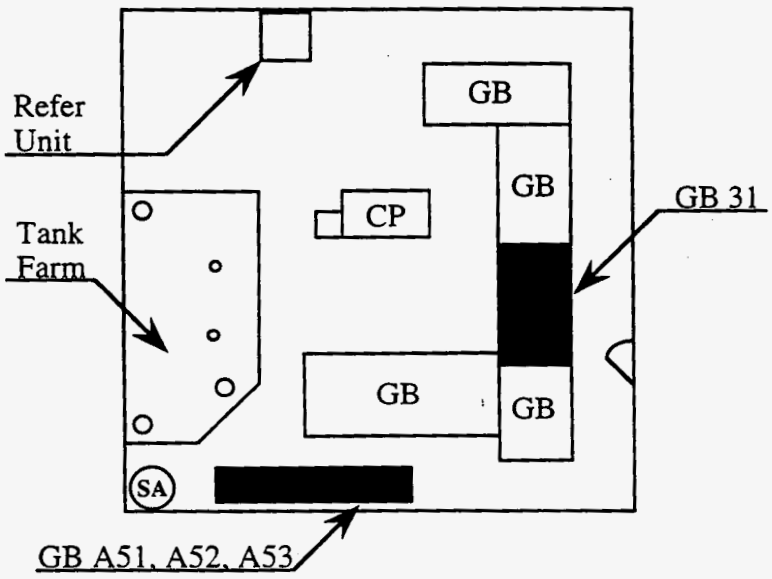
GBox A31

Secondary containment capability:
Typical inventory = 26 liters
Secondary containment area = 18 sf
Minimum berm height = 0.1 in

NOTES:
1) Typical container layout, actual may vary.
2) GBox A31 has twenty-six (26) fixed storage positions.
3) In the unlikely event the criticality drain were to overflow, the excess liquid would drain to the floor of the room.



GBox A51 GBox A52 GBox A53



Secondary containment capability:
Typical inventory = 156 liters
Secondary containment area = 8 sf
Minimum berm height = 0.4 in

Legend:

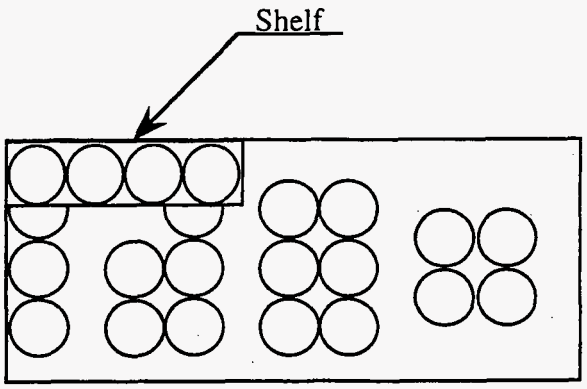
● = Criticality drain

— — = Glovebox boundary

(SA) = SAAM

135

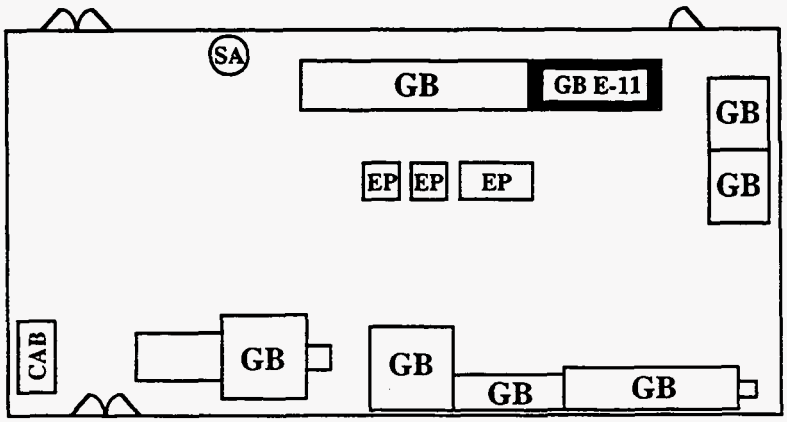
Building 771, Room 180E
Container Storage Area
(Glovebox)



GB E-11

Secondary Containment Capability:
Typical inventory = 88 liters
Secondary containment area = 14 sf
Minimum berm height = o.5 in.

NOTES:
1) Actual container arrangement may vary.
2) In the unlikely event the criticality drain were to overflow, excess liquid would be directed to the floor of the room.

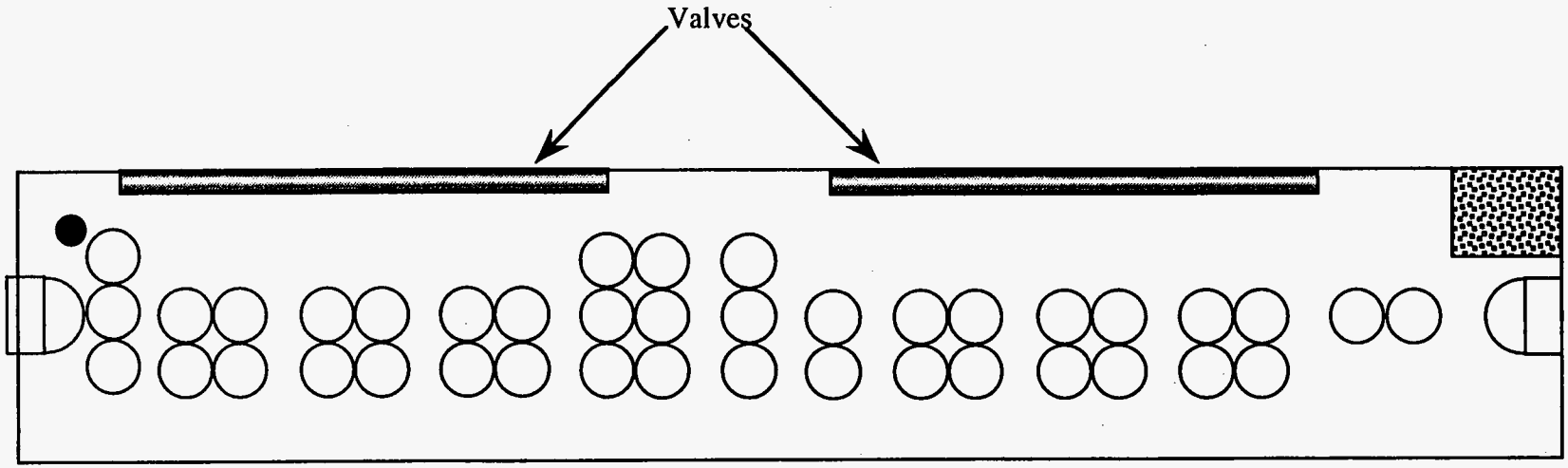


Legend:
SA = SAAM
EP = Electric Panel

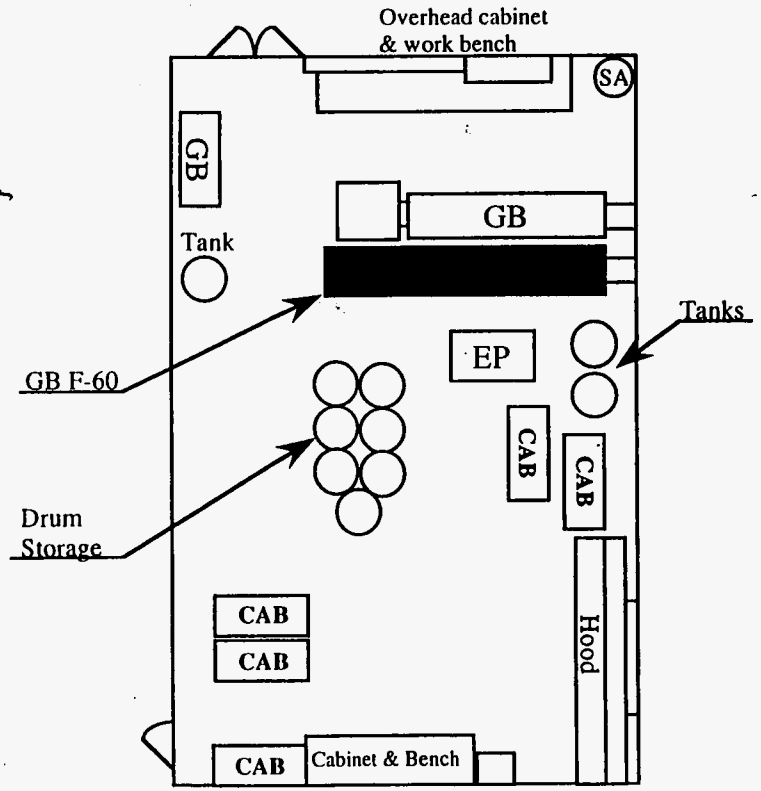
136

137

RCRA Unit 77 Room 180F
Container Storage Area
(Glovebox)



GB F-60



N

Secondary containment capability:
Typical inventory = 160 liters
Secondary containment area = 24 sf
Minimum berm height = 0.6 in

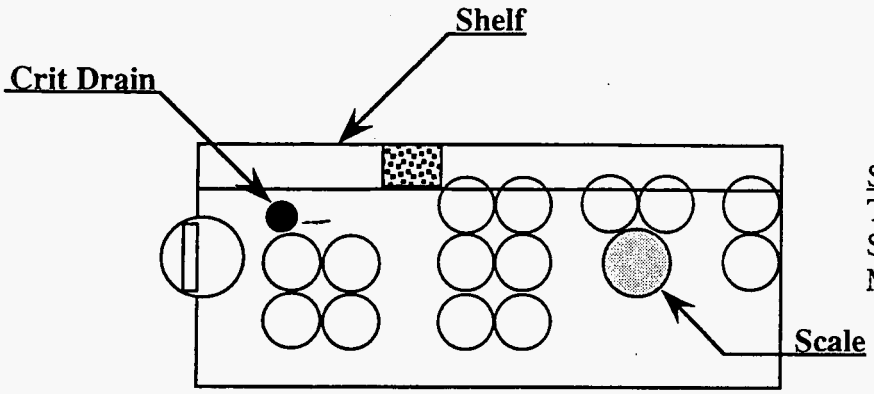
NOTES:
1) Typical container arrangement, actual may vary.
2) In the unlikely event that the criticality drain were to overflow, excess liquid would be directed to the floor of the room.

Legend:

- EP = Electric Panel
- SA = SAAM
- = Restricted space
- = Crit Drain

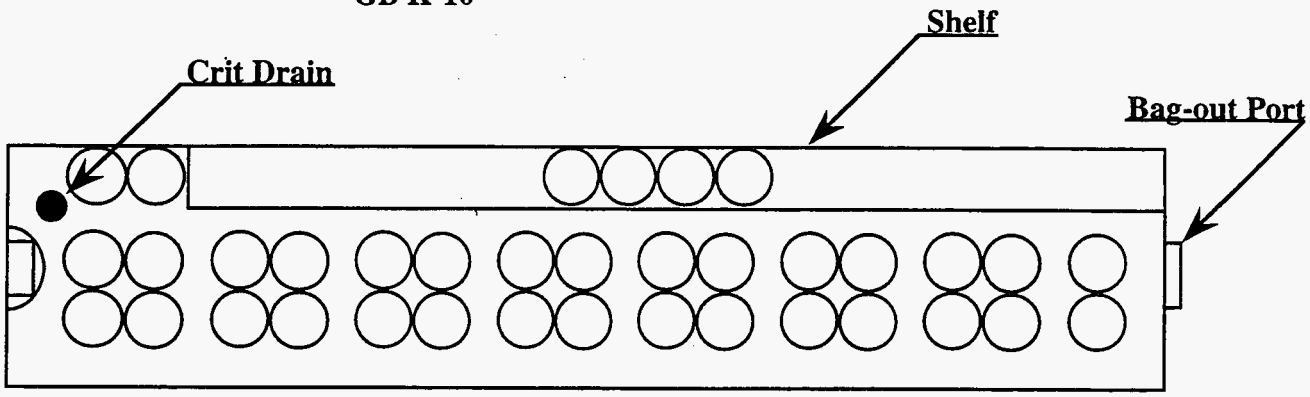
III-104

Building 771, Room 180K
Container Storage Area
(Glovebox)



Secondary containment capability:
Typical inventory = 56 liters
Secondary containment area = 14 sf.
Minimum berm height = 0.3 in.

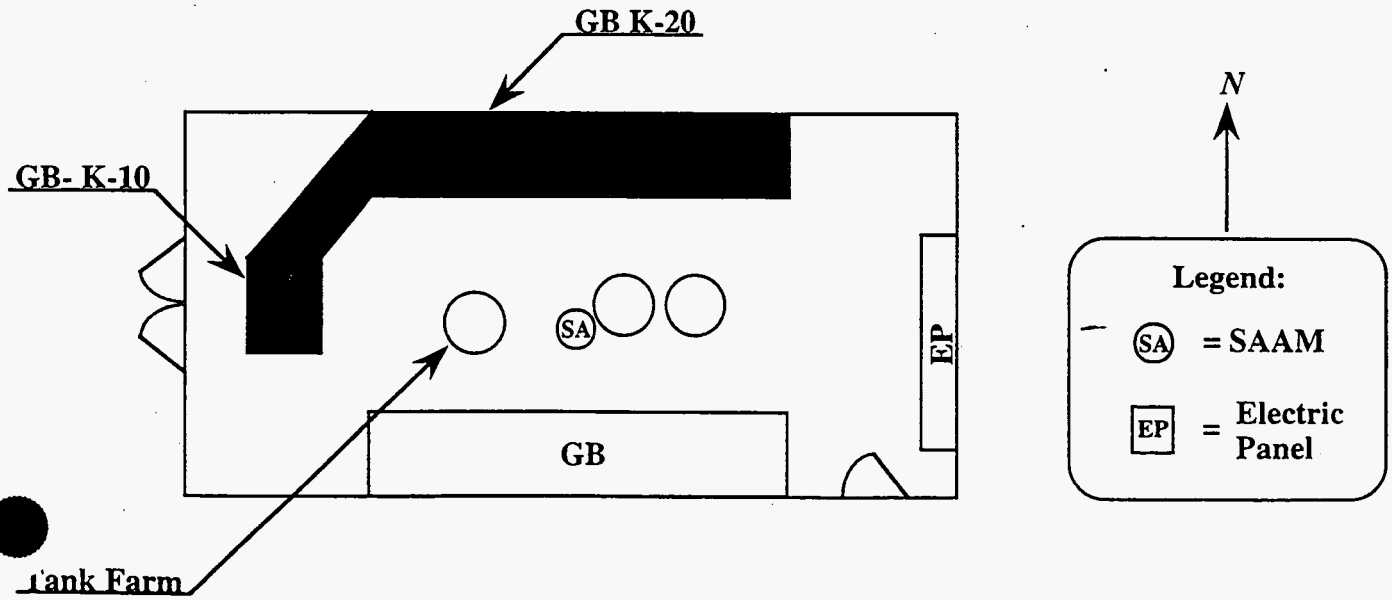
GB K-10



GB K-20

Secondary containment capability:
Typical inventory = 160 liters
Secondary containment area = 28 sf.
Minimum berm height = 0.4 in.

NOTES:
1) Actual container arrangement may vary.
2) In the unlikely event the criticality drain were to overflow, excess liquid will be directed to the floor of the room.
3) Container storage in GBox K-20 may occur on and below the shelf in the rear of the glovebox.



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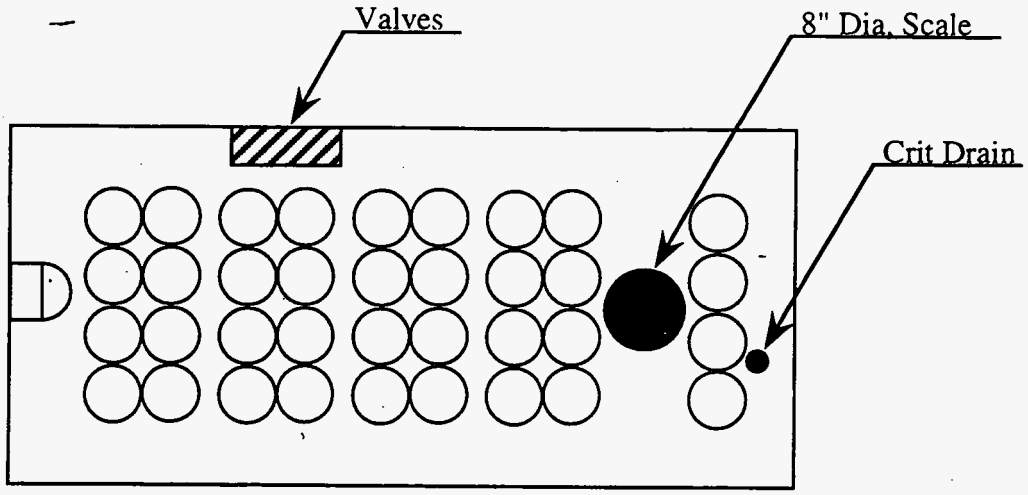
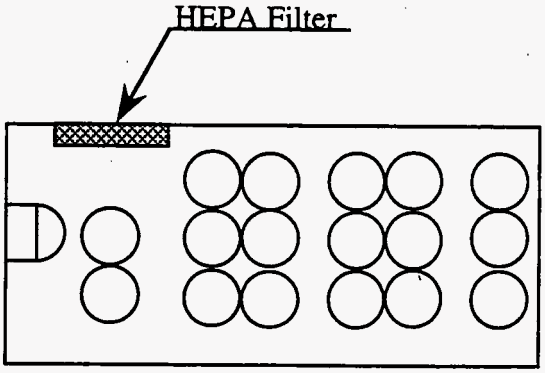
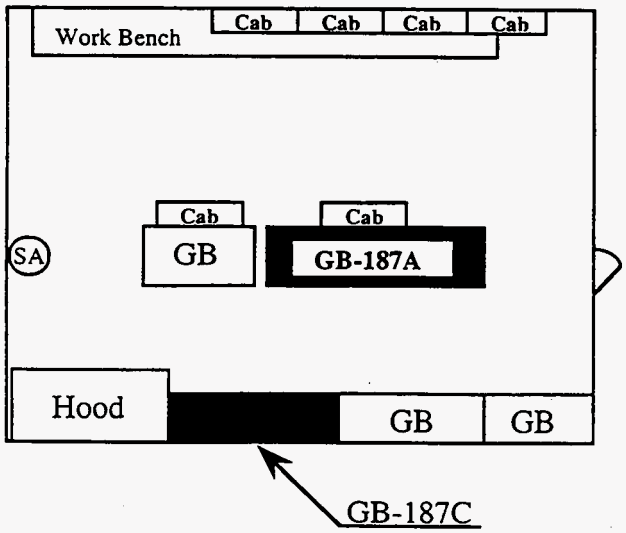
RCRA Unit 771.1, Room 187
Container Storage Area
(Gloveboxes)



GB 187A

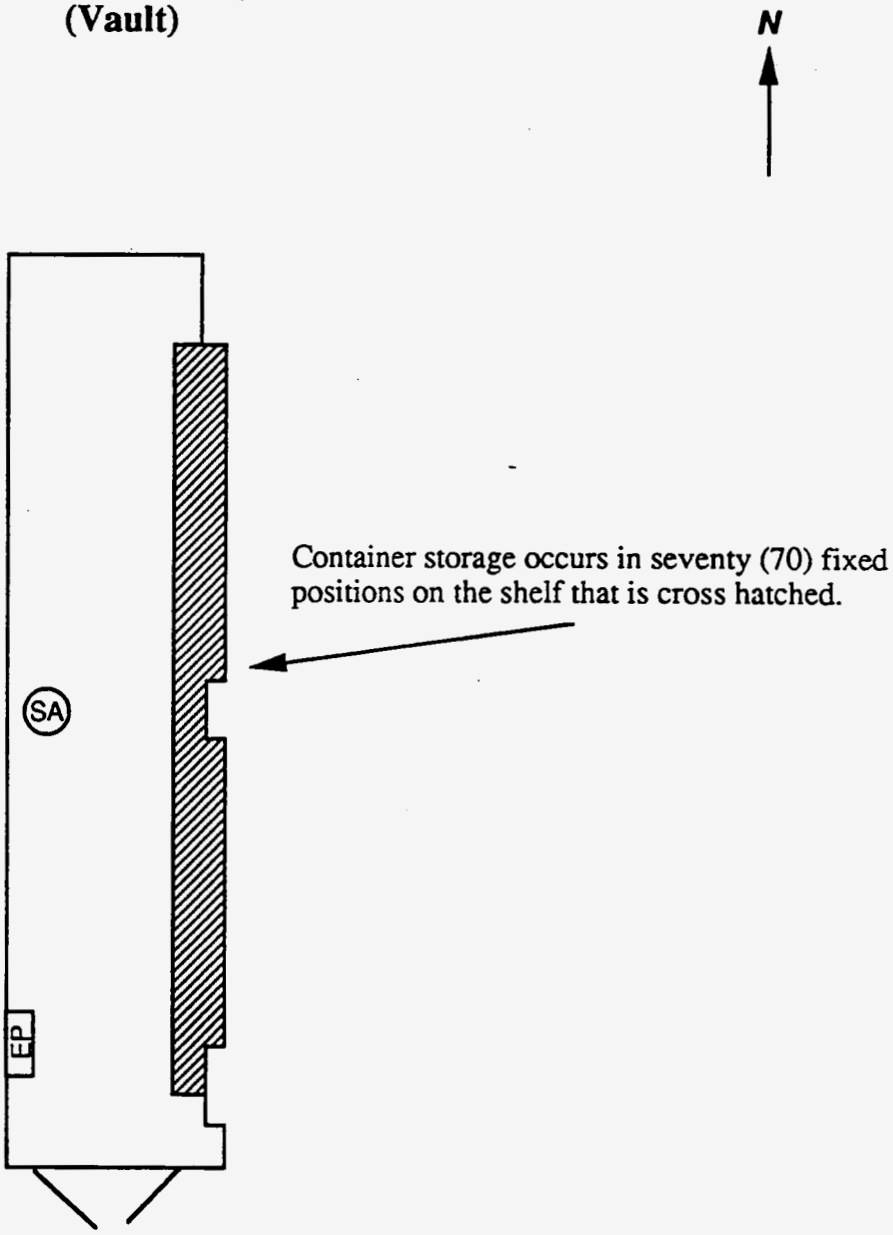


GB 187C



139

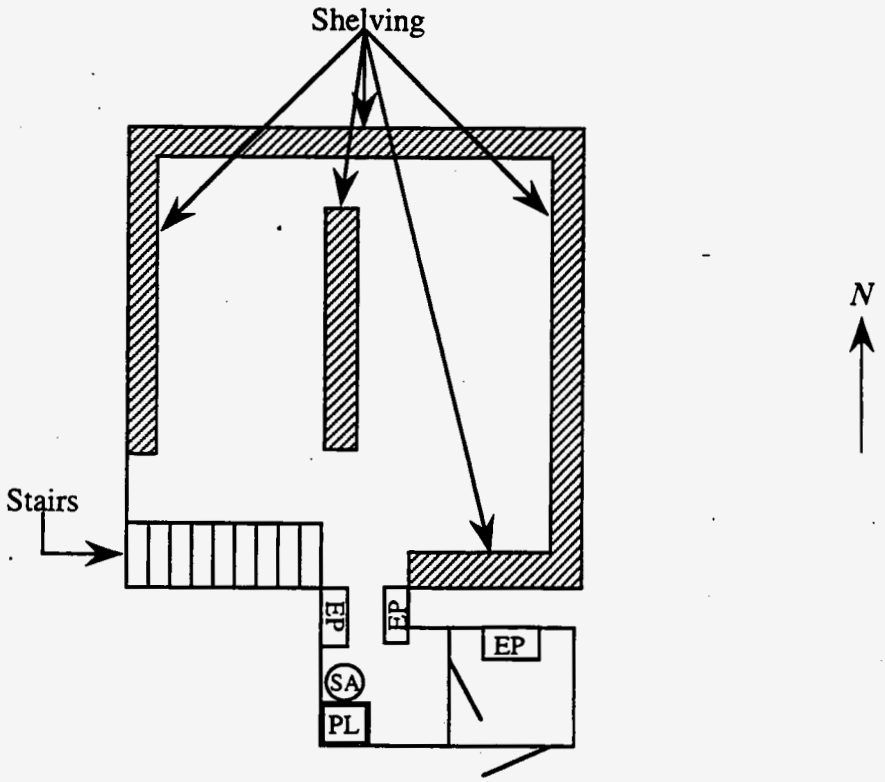
RCRA Unit 771.1
Room 146C
Container Storage
(Vault)



NOTES:
1) SAAM location is provided for information only and is subject to change.

040

RCRA Unit 771.1
Room 184
Container Storage Area
(Vault)



NOTES:

1) Containers may be placed into one hundred twenty (120) fixed positions for can storage on the lower shelves. The mezzanine level is for the storage of non-hazardous material only.
2) The SAAM location is provided for information only and are subject to change.

Legend:

EP	= Electric Panel
PL	= plenum
CL	= Column
SA	= SAAM

141

RAII

UNIT INFORMATION SHEET

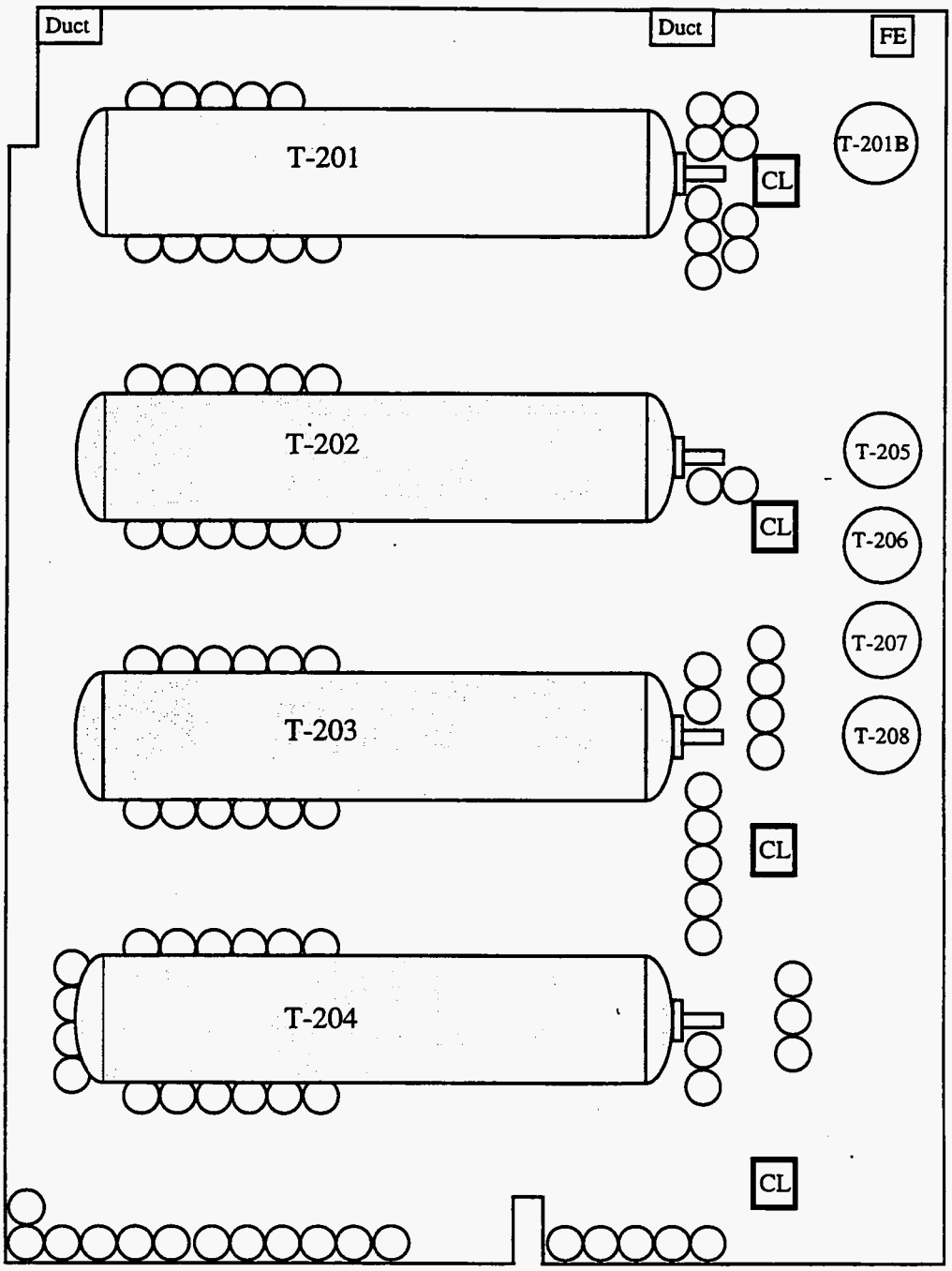
20. Unit 774.1

Unit Description:	Building 774 is a concrete building located adjacent to Building 771 on the north side of the facility. Container storage occurs in Room 241 of Building 774.
Maximum Capacity:	5,225 gallons
Liquid Capacity:	5,225 gallons
EPA Waste Codes:	D001, D002, D004-D011, D018, D019, D028, D035, D038, D040, D043, F001-F003, F005, F007-F009.
Waste Types:	Mixed, Hazardous

Special Unit Conditions:

1) Any hazardous or mixed waste stored in this unit that is incompatible with the waste stored in the tanks must be separated from the tank or protected from the contents of the tanks by means of a dike, berm, wall or other physical device.

RCRA Unit 774.1
Building 774, Room 241



Secondary Containment Calculations

A = Net floor area = 2,885.6 sq. ft.
Total volume of drums = 5,225 gallons
B = 10% volume of drums = 522.5 gallons = 69.85 cu. ft.
Min. berm height = B/A X 12 in./ft . = 0.3in.

Unit Capacity:
(Typical Inventory)
55-gallon drums
95

Note:

1) Boundary for containment is the perimeter of Room 241.
2) Drawing shows a typical container layout. Actual arrangement and combination of container types may vary.

Legend:

CL = Column

143

UNIT INFORMATION SHEET

21. Unit 776.1

Unit Description:	Building 776 is located north of Building 707 which contains multiple storage areas comprised of rooms and fenced areas within rooms.
Maximum Capacity:	170,601 gallons
Liquid Capacity:	20,075 gallons
EPA Waste Codes:	See specific waste codes below for each type of container storage area.
Waste Types:	Mixed, Hazardous

Special Unit Conditions:

Container Storage Areas Within Unit 776.1:

a. Room and fence type areas

The following EPA waste codes apply globally to the "room" and "fence" type areas within this container storage unit. The individual areas that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual room and fence type areas.

EPA Waste Codes:	D001-D011, D018, D019, D021-D029, D033, D035-D040, D043, F001-F003, F005-F009, P011, P012, P014, P015, P022, P028-P030, P045, P062, P076, P087, P098, P101, P104-P106, P113, P116, P119-P121, U002-U004, U019, U031, U037, U041-U044, U055-U057, U067, U071, U074, U075, U077, U079, U080, U084, U098, U102, U107, U108, U112, U120-U123, U127, U131, U133, U134, U138, U144, U148, U151, U154, U158-U162, U165, U167, U169, U170, U188, U190, U191, U196, U201, U204, U207, U209-U211, U213-U220, U225-U228, U236, U239, U246, U328, U353, U359.

Room 127

Maximum capacity:	56,980 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Rooms 134, 154, and 159 (including the Advanced Size Reduction Facility)

Maximum capacity:	102,236 gallons
Liquid capacity:	5,500 gallons
Waste types:	LLM, TRM, Mixed residues

144

Area limitations:

1) The Airlock and Manual Disassembly Areas of the Advanced Size Reduction Facility are considered part of this container storage area and, as such, may be used for the storage of regulated wastes.

Room 208

Maximum capacity:	2,750 gallons
Liquid capacity:	2,750 gallons
Waste types:	LLM
Area limitations:	

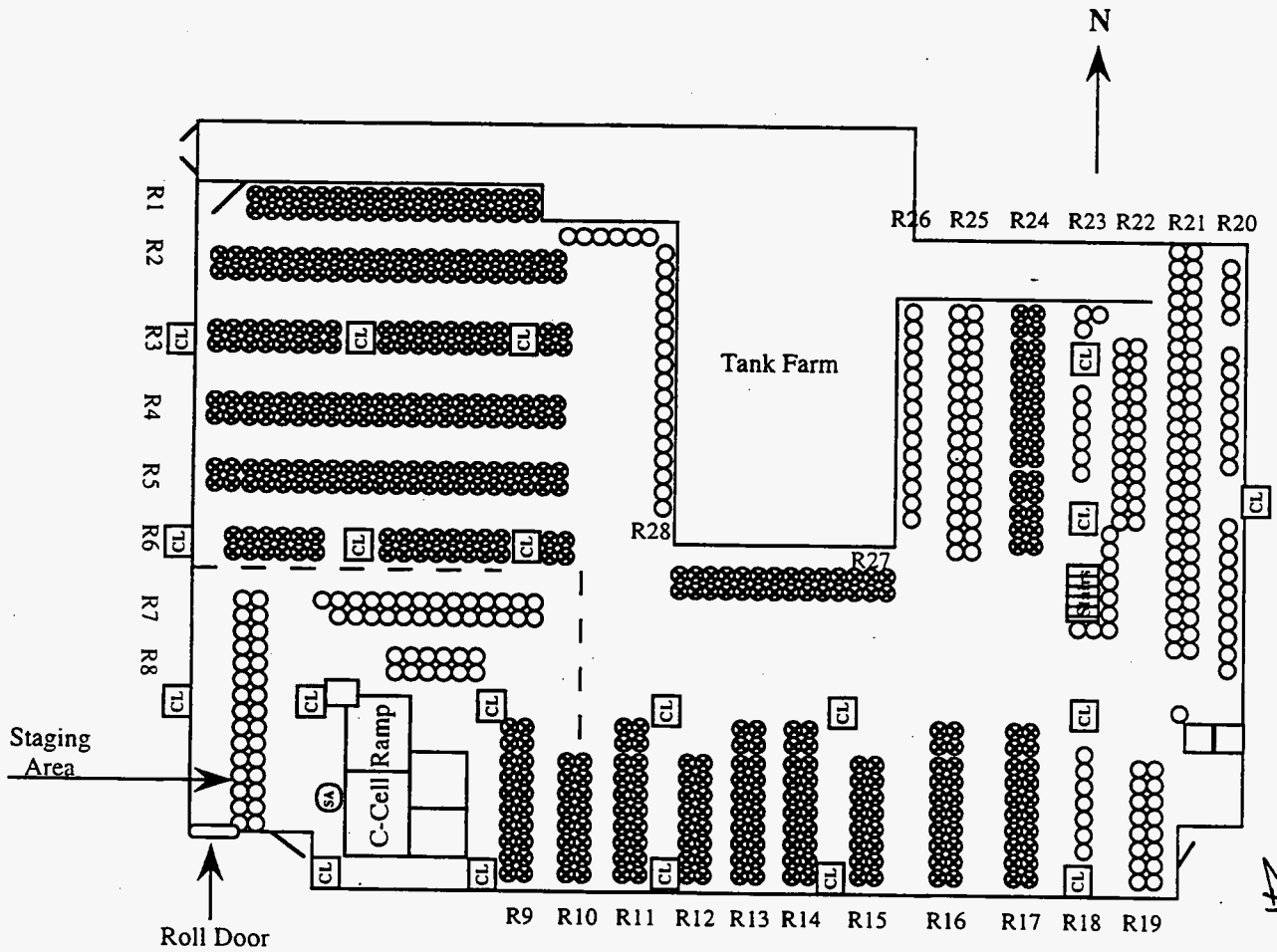
1) All containerized waste will be removed from Room 208 by September 30, 1997.

Room 237

Maximum capacity:	10,010 gallons
Liquid capacity:	10,010 gallons
Waste types:	LLM
Area limitations:	

1) All containerized waste will be removed from Room 237 by September 30, 1997.

RCRA Unit 776.1
Container Storage Area
Building 776, Room 127



Drums | Rm 127

- 32
+ 32
+ 64
- 12
+ 4
+ 16

Legend:

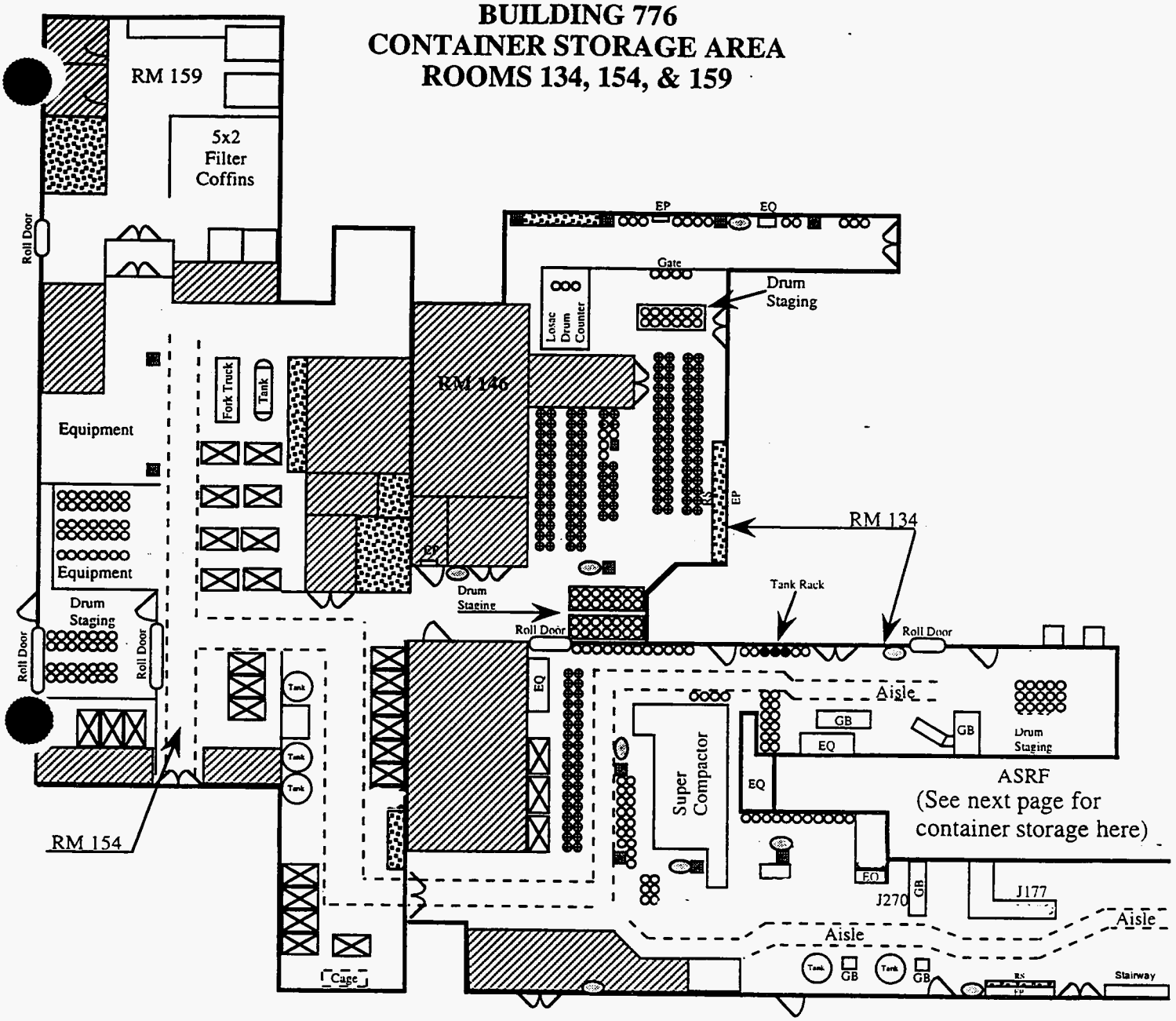
- = Res spa
- = Stair
- CL = Column
- SA = SAAM
- ⊗ = Stacked containers
- ○ = Single layer

NOTES:

1) Typical container layout, actual arrangement may vary.
2) SAAM locations are provided for information only and are subject to change.
3) Tank farm is physically separated from the container storage area by lead shielding and a berm.

146

RCRA UNIT 776.1
BUILDING 776
CONTAINER STORAGE AREA
ROOMS 134, 154, & 159



Legend:

- Cage Area
- Column
- Restricted Space
- SAAM Location
- Non-Permited Areas

NOTES: 1) Typical container layout, actual arrangement may vary.
2) SAAM locations are provided for information only and are subject to change.

III - ~~436~~ 114

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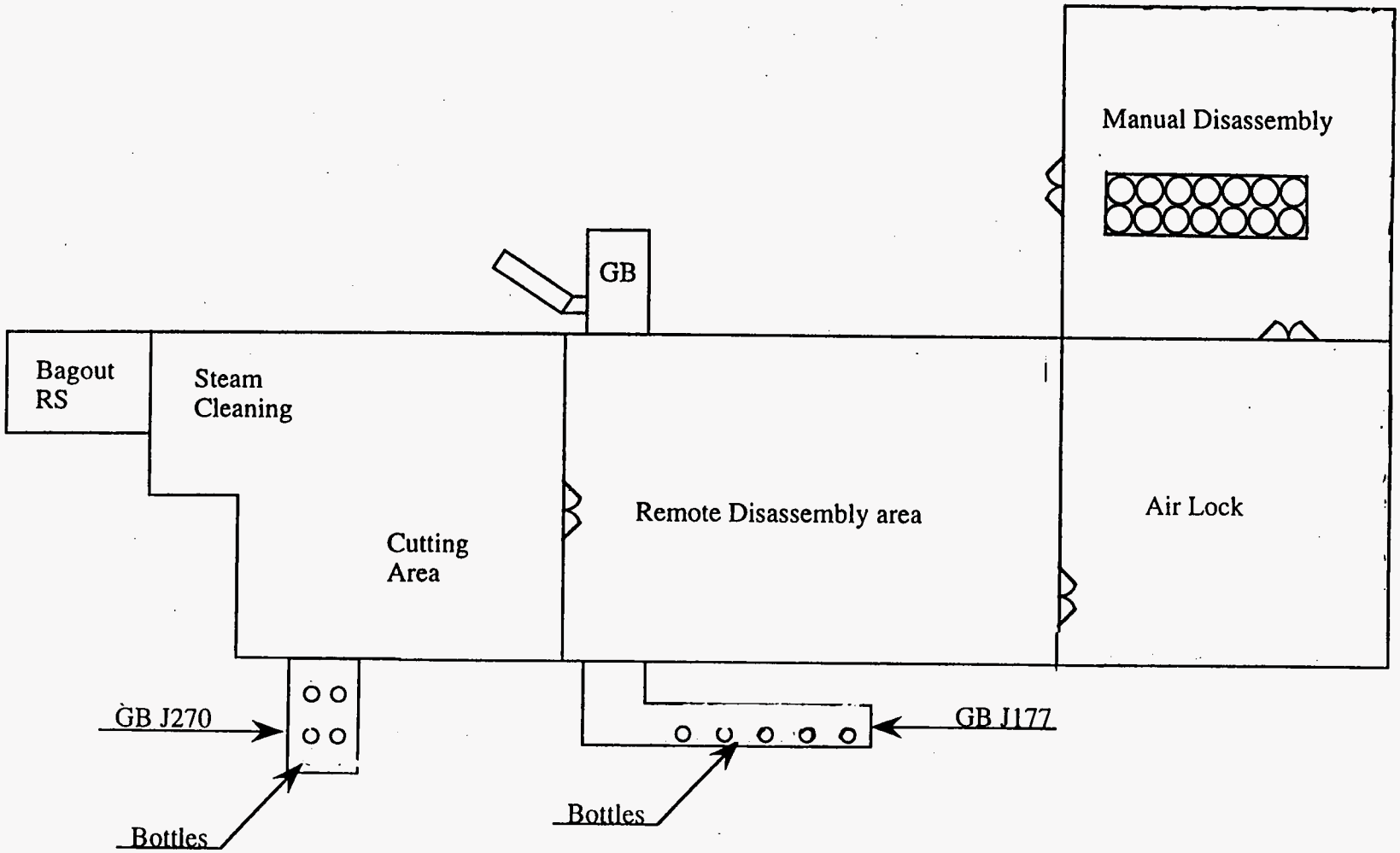
RCRA Unit 776.1
Building 776
Container Storage Area
ASRF



III-115

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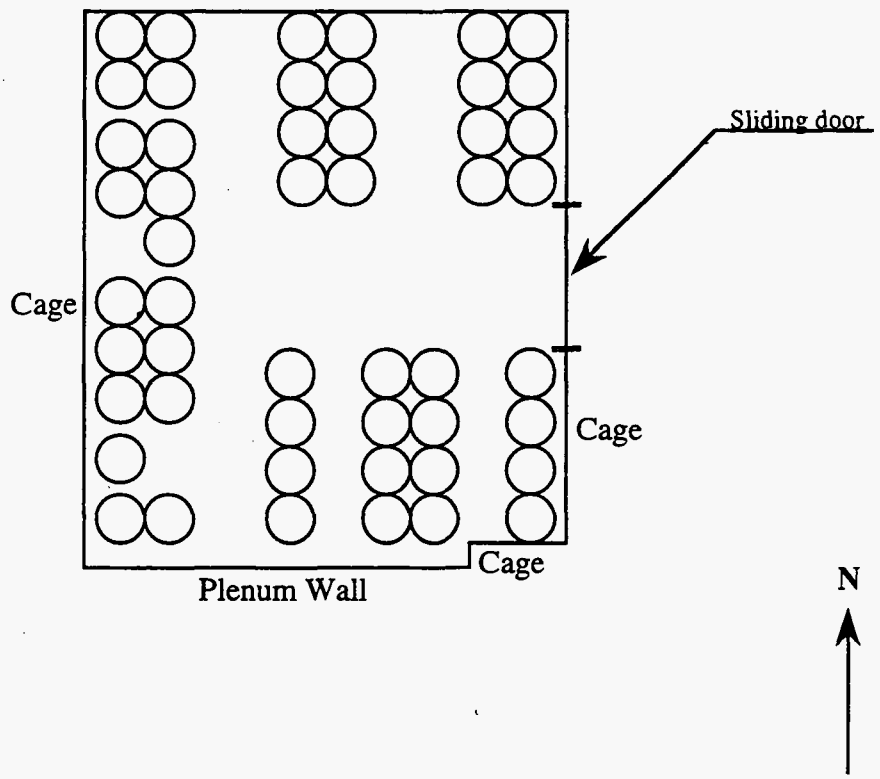
RCRA Unit 776.1
Container Storage Area
Building 776, Room 208

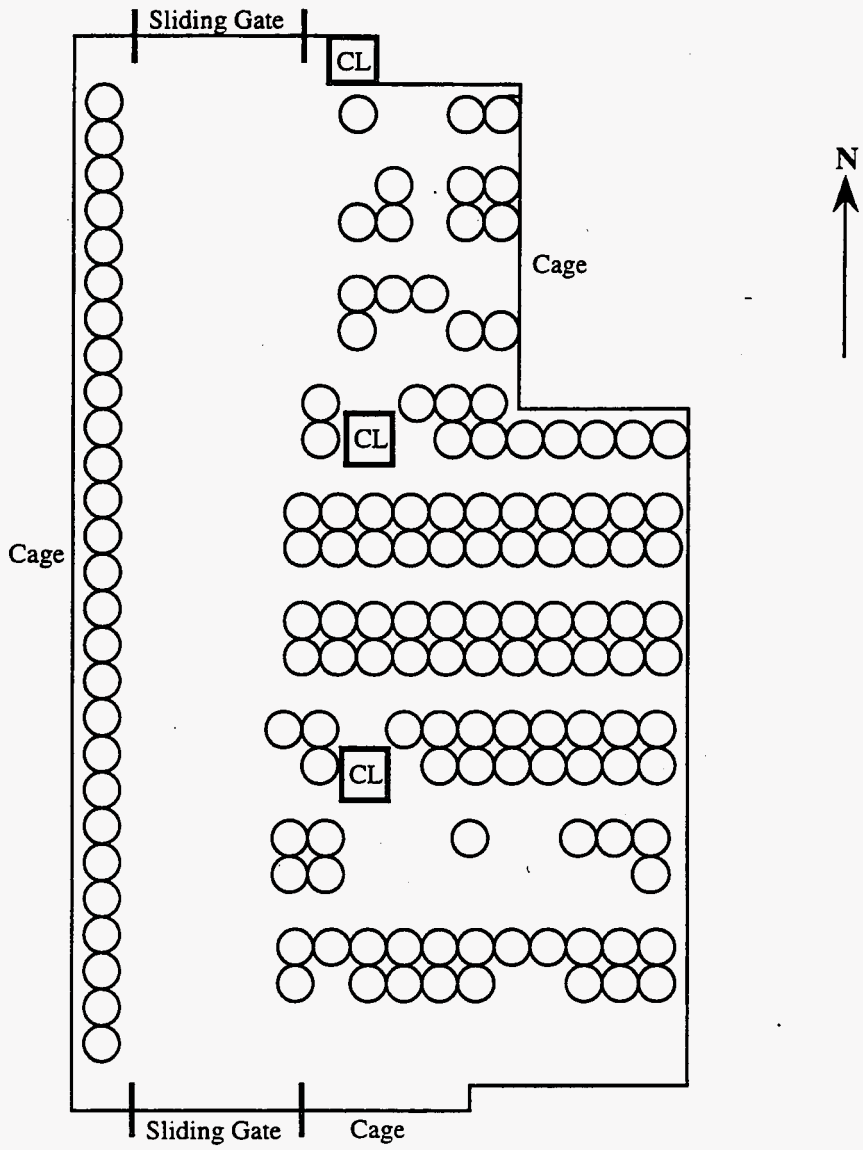


Secondary Containment Capability:
Typical inventory = 50 drums
Total floor area = 388 sf
Minimum berm height = 1.9 in

NOTES:
1) Typical container layout, actual arrangement may vary.

149

RCRA Unit 776.1
Container Storage Area
Building 776, Room 237



Secondary Containment Capability:
Typical inventory = 182 drums
Total floor area = 1,389 sf
Minimum berm height = 1.5 in

Legend:

CL = Column

NOTES:
1) Typical container layout, actual arrangement may vary.

150

UNIT INFORMATION SHEET

22. Unit 777.1

Unit Description:	Building 777 is a building which adjoins Building 776. This unit contains multiple storage areas consisting of rooms, fenced areas within rooms, and vaults.
Maximum Capacity:	26,871 gallons
Liquid Capacity:	330 gallons
EPA Waste Codes:	See specific waste codes below for each type of container storage area.
Waste Types:	Mixed, hazardous
Special Unit Conditions:	As noted in the following

Container Storage Areas Within Unit 777.1:

a. Room and fenced type areas

The following EPA waste codes apply globally to the "room" and "fenced" type areas within this container storage unit. The individual rooms that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual room and fence type areas.

EPA Waste Codes: D001-D011, D019, F001-FOO3, F005-F007, F009, U239.

Room 208 Area 10

Maximum capacity:	3,905 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) All containerized waste will be removed from Room 208, Area 10 by March 31, 1998.

Room 430 Area 2

Maximum capacity:	4,565 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

Room 430 Area 3

Maximum capacity:	9,240 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

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Room 432C

Maximum capacity:	330 gallons
Liquid capacity:	330 gallons
Waste types:	LLM, TRM, Mixed residues
Area limitations:	

1) Continuous monitoring for tritium will be conducted in this area.

2) This area wili be inspected by observing the containers through a window to ensure the containers are in good condition.

3) At a minimum of every six months, each container will be physically inspected to verify the integrity of the container and the absence of leaks and/or spills.

Room 483 Area 8

Maximum capacity:	8,525 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	None

b. Vault type areas

The following EPA waste codes apply globally to the "vault" type area within this container storage unit.

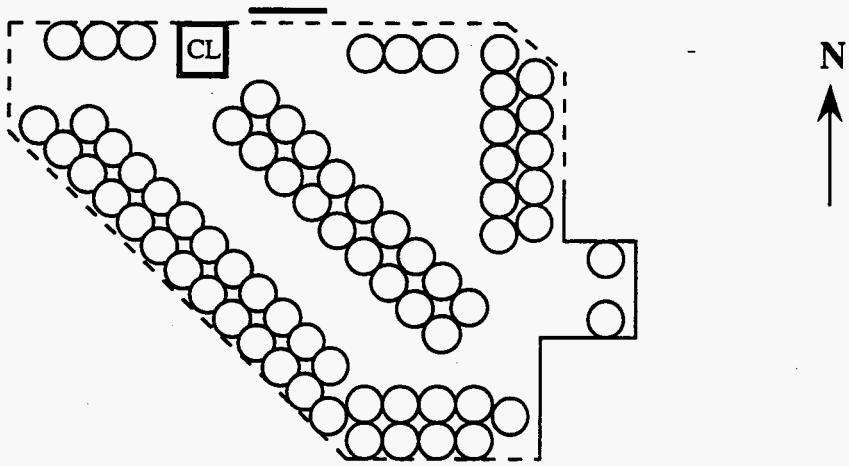
EPA Waste Codes: D003-D011, F001-F003, F005.

Non-Destructive Testing Vault

Area type:	Vault
Maximum capacity:	306 gallons
Liquid capacity:	N/A
Waste types:	TRM, Mixed residues
Area limitations:	

1) This area is subject to inspection by remote radiation monitoring. In addition, a bi-monthly inspection of a randomly- selected portion of the containers and an annual 100% inspection which is coordinated with routine nuclear material accountability inventories will be conducted.

RCRA Unit 777.1
Container Storage Area (fenced area)
Building 777, Room 208, Area 10



NOTES:
1) Typical container layout, actual arrangement may vary.

Legend:

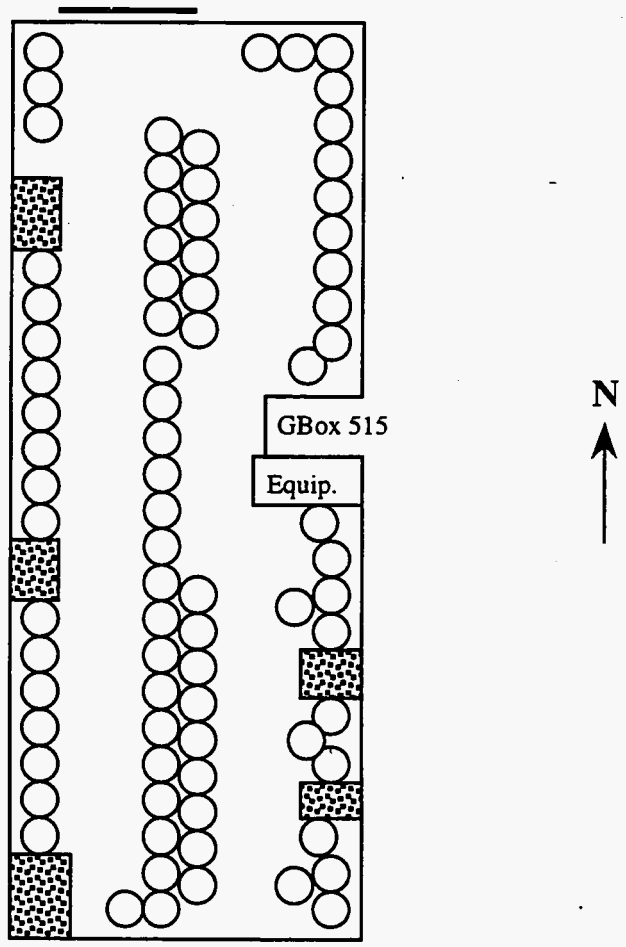
CL = Column

- - - = Fenced area (Cage)

——— = Gate

153

RCRA Unit 777.1
Container Storage Area (fenced area)
Building 777, Room 430, Area 2



NOTES:
1) Typical container layout, actual arrangement may vary.

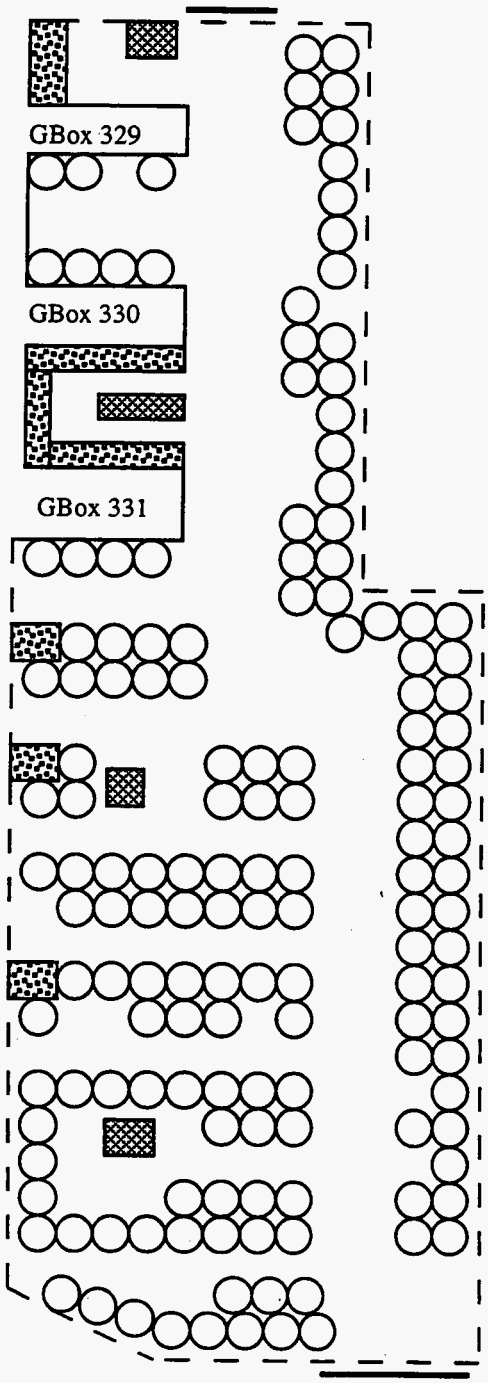
Legend:

= Restricted space

= Sliding gate

154

RCRA Unit 777.1
Container Storage Area (fenced area)
Building 777, Room 430, Area 3



N

Legend:

= Physical obstruction

= Restricted space

= Sliding gate

NOTES:

) Typical container layout, actual arrangement may vary.

) Gloveboxes are out of service. Gloves have been removed and replaced with boots, except where noted by restricted space

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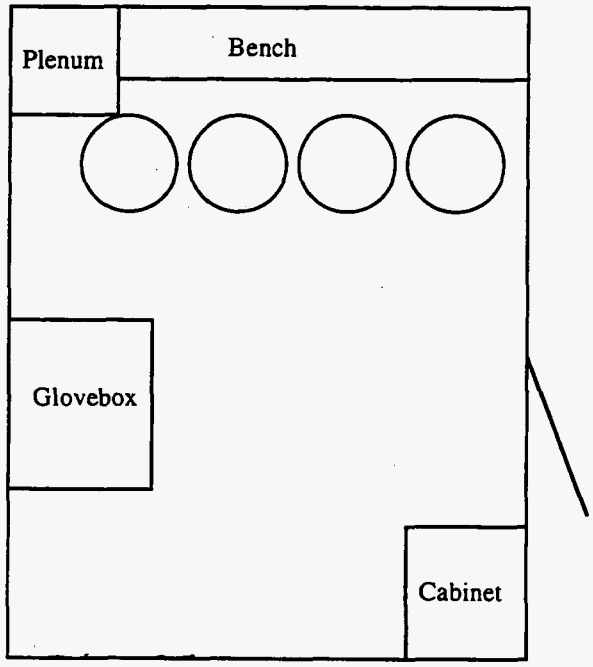
RCRA Unit 777.1
Container Storage Area
Building 777, Room 432C



<u>Secondary containment capability:</u>
Typical inventory = 6 55-gal. containers
Total floor area = 142 sf
Minimum berm height = 0.8 in

NOTES:
1) Typical container layout, actual arrangement may vary.

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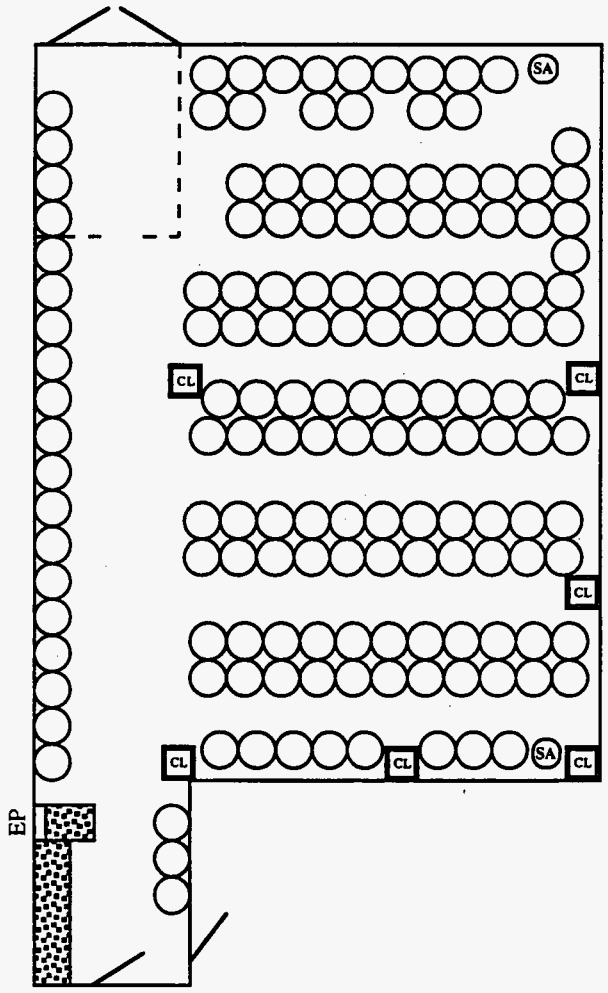
RCRA Unit 777.1
Container Storage Area (fenced area)
Building 777, Room 483, Area 8



N

Legend:

- = Restricted space
- CL = Column
- - - - = Fenced area (Cage)
- SA = SAAM
- EP = Electric Panel

NOTES:
1) Typical container layout, actual arrangement may vary.
2) SAAM locations are provided for information only and are subject to change.

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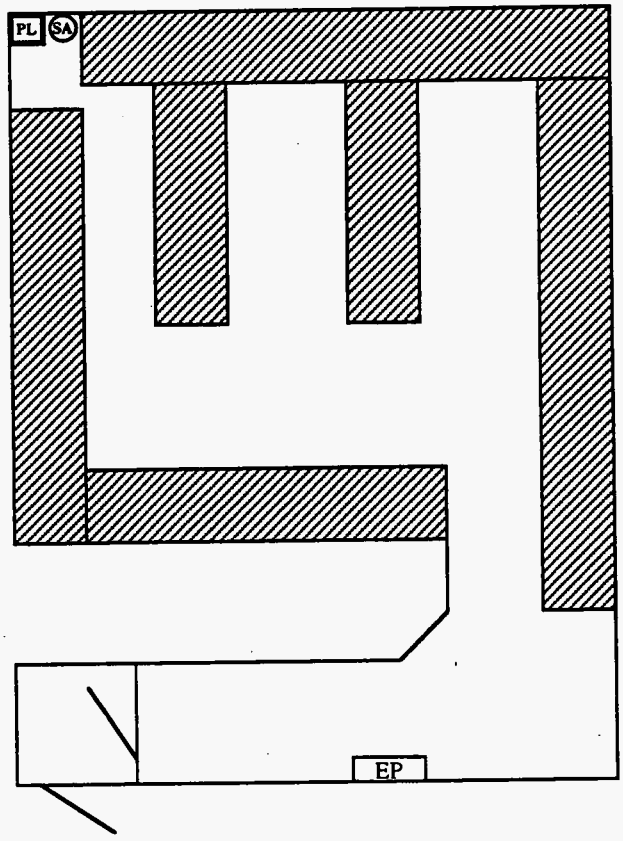
RAII

RCRA Unit 777.1
Container Storage Area (Vault area)
Building 777, NDT Vault



N

Legend:

EP = Electric Panel

PL = Plenum

= Shelving for storage

SA = SAAM

NOTES:

1) There are two hundred eighty eight (288) fixed positions for can storage on the lower level of the shelves. The mezzanine is for the storage of non-regulated material only.
2) The SAAM location is provided for information only and is subject to change.

158

RAII

UNIT INFORMATION SHEET

23. Unit 779.1

Unit Description:	Building 779 is located on the east end of the industrial portion of the facility and contains multiple storage areas comprised of gloveboxes within rooms.
Maximum Capacity:	89 gallons (337 liters)
Liquid Capacity:	72 gallons (273 liters)
EPA Waste Codes:	See specific waste codes below for each type of container storage area.
Waste Types:	Mixed
Special Unit Conditions:	None

Container Storage Areas Within Unit 779.1:

a. Glovebox type areas

The following EPA waste codes apply globally to the "glovebox" type areas within this container storage unit. The individual gloveboxes that are used for container storage in this unit follow the listing of the approved EPA waste codes. Typical container arrangement diagrams are provided after the listing of the individual areas.

EPA Waste Codes: D002-D011, F001-F003, F005.

Room 131 Glovebox 131A, 131B, 131D, and 131E

Maximum capacity:	12 gallons each (45 liters)
Liquid capacity:	12 gallons each (45 liters)
Waste types:	LLM, TRM, Mixed residues
Area limitations:	None

Room 137 Glovebox 106-3, 106-4, and 106-5

Maximum capacity:	8 gallons each (30 liters)
Liquid capacity:	8 gallons each (30 liters)
Waste types:	LLM, TRM, Mixed residues
Area limitations:	

1) The lead shielding in this glovebox will be positioned so that it is not necessary to move the shielding in order to inspect the stored containers.

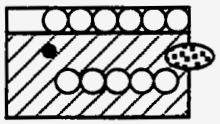
Room 160 Glovebox 860

Maximum capacity:	17 gallons (64 liters)
Liquid capacity:	N/A

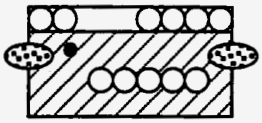
Waste types: TRM, Mixed residues
Area limitations:

1) The door to each storage bin will not be opened during routine inspections of this glovebox. Instead, containers will be inspected concurrently on a bimonthly basis during nuclear material accountability inspections in accordance with the Nuclear Materials Safeguards Procedure Manual.

RCRA Unit 779.1 - Container Storage Area (Gloveboxes)
Building 779, Room 131

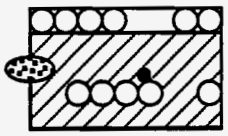


GBox 131~~A~~



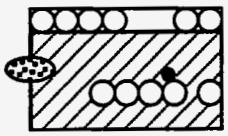
GBox 131B

Secondary containment capability:
Typical inventory = 11 4-liter containers each
Total surface area = 9 sf each
Minimum berm height = 0.6 in



GBox 131E

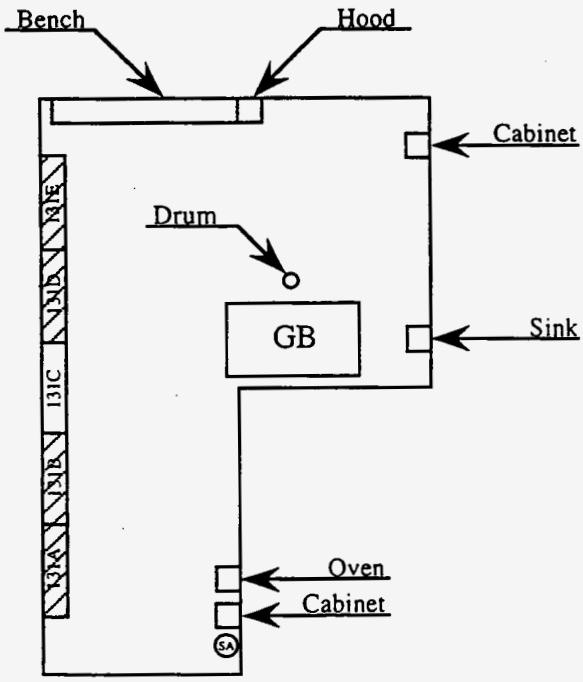
Secondary containment capability:
Typical inventory = 11 4-liter containers
Total surface area = 10 sf
Minimum berm height = 0.5 in



GBox 131D

Secondary containment capability:
Typical inventory = 11 4-liter containers
Total surface area = 9 sf
Minimum berm height = 0.6 in

NOTES:
1) Typical container layout, actual arrangement may vary.
2) In the unlikely event the criticality prevention drain were to overflow, the excess liquid would drain to the floor of the room.



Legend:

Restricted space

Criticality drain

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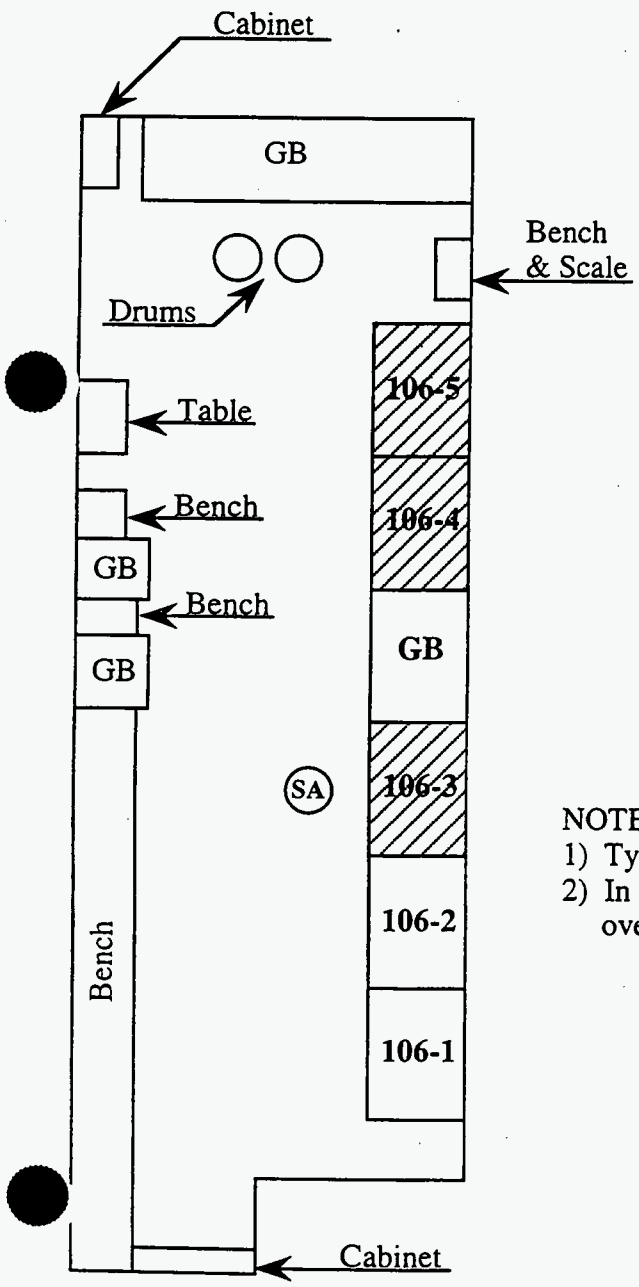
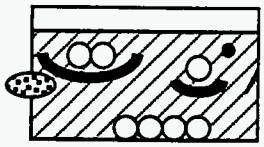
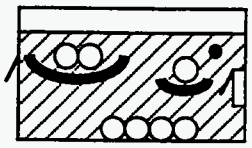
RCRA Unit 779.1 - Container Storage Area (Gloveboxes)
Building 779, Room 137





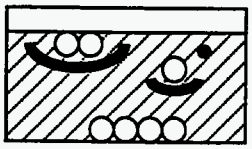
GBox 106-5

Secondary containment capability:
Typical inventory = 7 4-liter containers each
Total surface area = 10 sf each
Minimum berm height = 0.2 in



GBox 106-4

Secondary containment capability:
Typical inventory = 7 4-liter containers each
Total surface area = 10 sf each
Minimum berm height = 0.2 in



GBox 106-3

Secondary containment capability:
Typical inventory = 7 4-liter containers each
Total surface area = 10 sf each
Minimum berm height = 0.2 in

NOTES:
1) Typical container layout, actual arrangement may vary.
2) In the unlikely event the criticality prevention drain were to overflow, the excess liquid would drain to the floor of the room.

Legend:

= Restricted space

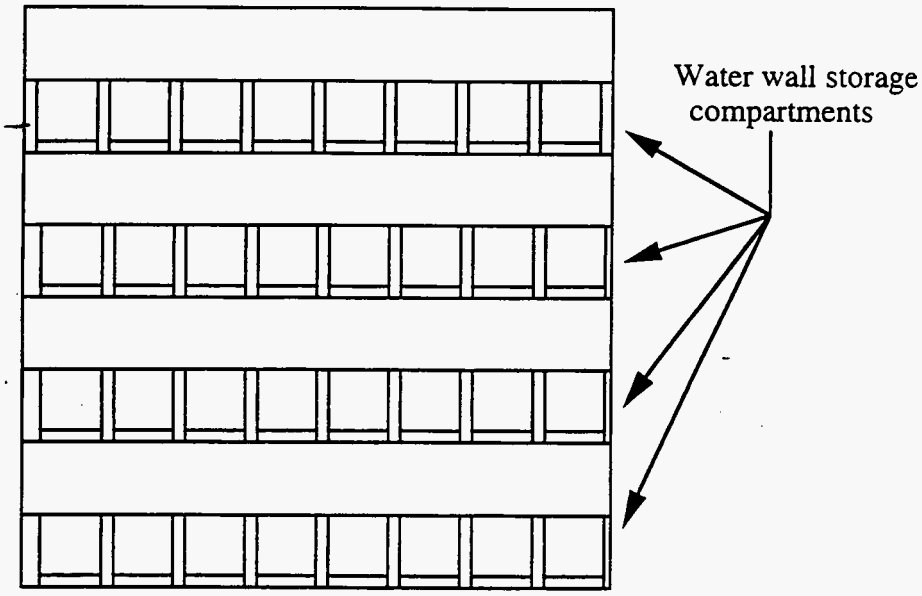
= Criticality drain

= Lead shielding

162

RCRA Unit 779.1 - Container Storage Area (Glovebox)
Building 779, Room 160

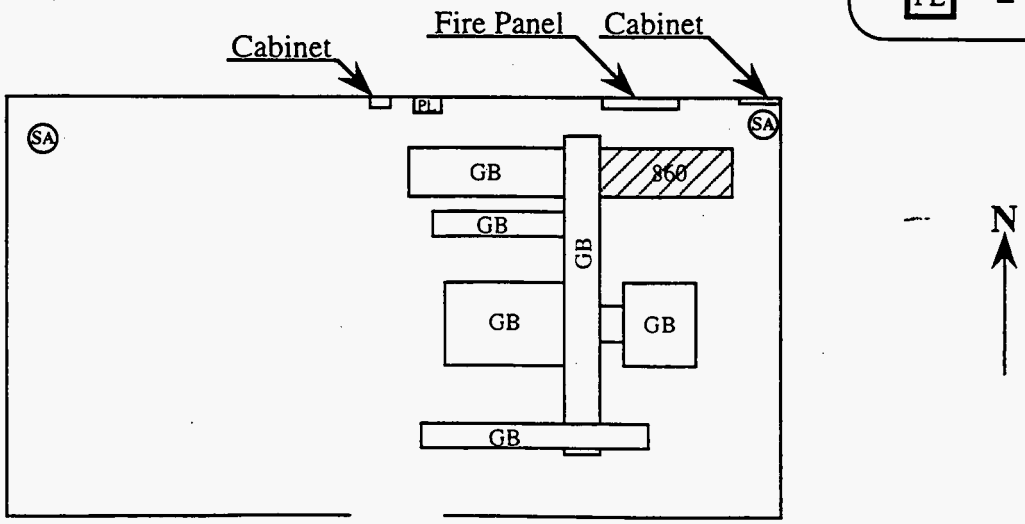
Plan view



GBox 860

NOTES:
1) There are eight storage locations on each of the four shelves for a total storage capacity of 32 containers.
2) In the unlikely event the criticality prevention drain were to overflow, the exces liquid would drain to the floor of the room.

Legend:
- ● = **Crit drain**
- = **Shelving**
- PL = **plenum**



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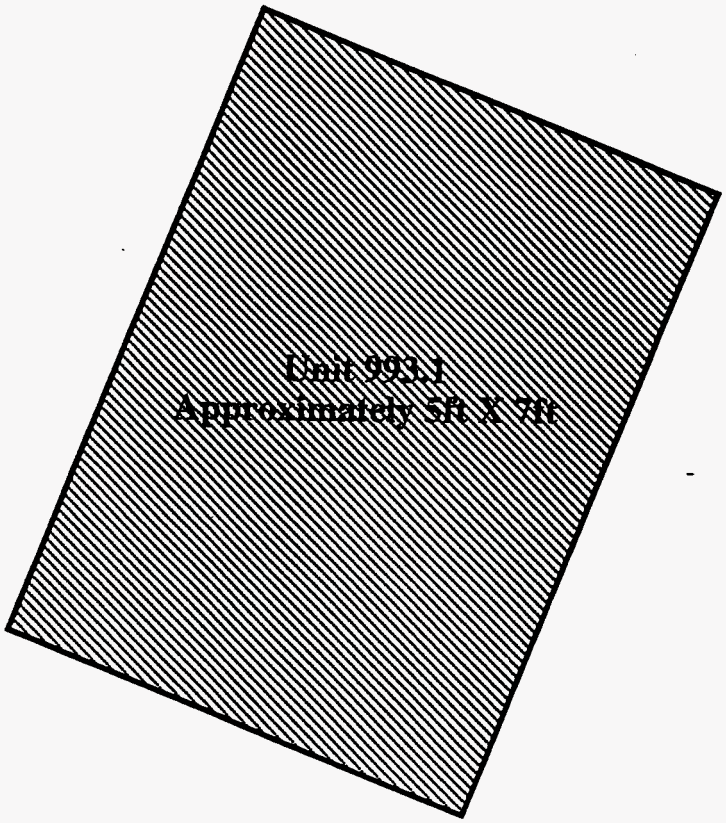
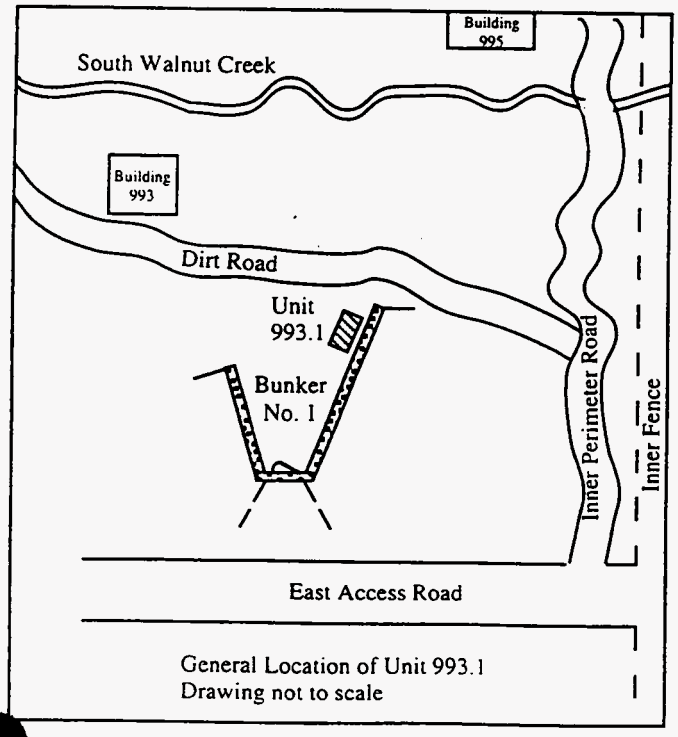
UNIT INFORMATION SHEET

24. Unit 993.1

Unit:	993.1
Type:	Special Material Storage Enclosure
Unit Description:	Unit 993.1 is a skid-mounted metal enclosure with outside dimensions of 5.5 feet by 7 feet by 7 feet located near Bunker Number 1 south and east of Building 993.
Maximum Capacity:	400 liters
Liquid Capacity:	400 liters
EPA Waste Codes:	D001, D003, D004-D012, D018, D019, D021, D022, D024, D025, D026, D028, D029, D035, D036, D038, D040, D041, D042, P011, P012, P010, P012, P014, P016, P022, P027, P028, P077, P093, P113, P116, P119, P120, P123, U002, U003, U009, U012, U018, U019, U027, U028, U031, U037, U041, U042, U044, U052, U053, U055, U056, U057, U067-U072, U077-U081, U083, U098, U102, U103, U106, U107, U108, U112, U113, U116, U118, U120, U122, U123, U124, U131, U134, U137, U138, U144, U145, U147, U148, U151, U154, U159, U160, U161, U162, U165, U166, U169, U170, U188, U190, U191, U196, U197, U204, U207, U209, U210, U211, U214- U222, U225, U226, U228, U234, U238-U240, U328, U353
Secondary Containment:	Catch basin to contain 100% of liquid waste stored in Unit 993.1
Minimum Berm Height:	N/A
Aisle Spacing:	Standard
Stacking:	Monolayer on floor and shelves
Inspection Method:	Visual
Unit Specific Conditions:	None

RCRA Unit 993.1





Legend:

— — — - = Fence

= Concrete Wall

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TABLE 1

DESCRIPTION OF WASTE CODES

D001	Ignitable
D002	Corrosive
D003	Reactive
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver
D012	Endrin
D015	Toxaphene
D016	2,4-D
D017	2,4,5-TP (Silvex)
D018	Benzene
D019	Carbon Tetrachloride
D021	Chlorobenzene
D023	o-Cresol
D024	m-Cresol
D025	p-Cresol
D026	Cresol (total)
D027	1,4-Dichlorobenzene
D028	1,2-Dichloroethane
D029	1,1-Dichloroethylene
D033	Hexachlorobutadiene
D035	Methyl ethyl ketone
D036	Nitrobenzene
D037	Pentachlorophenol
D038	Pyridine
D039	Tetrachloroethylene
D040	Trichloroethylene
D041	2,4,5-Trichlorophenol
D042	2,4,6-Trichlorophenol
D043	Vinyl Chloride
F001	Spent Halogenated Solvents used in Degreasing
F002	Spent Halogenated Solvents
F003	Spent Non-Halogenated Solvents (Ignitable)
F005	Spent Non-Halogenated Solvents (Ignitable and Toxic)
F006	Wastewater Treatment Sludges from Electroplating
F007	Spent Cyanide Plating Bath Solutions
F009	Spent Cyanide Stripping and Cleaning Solutions
F039	Multi-Source Leachate
P015	Beryllium Dust
P-Series Waste	Various (as listed in 6 CCR 1007-3, Section 261.33, as amended)
U-Series Waste	Various (as listed in 6 CCR 1007-3, Section 261.33, as amended)

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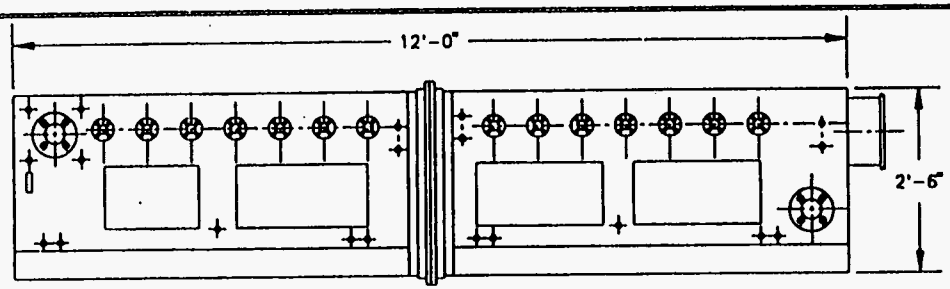
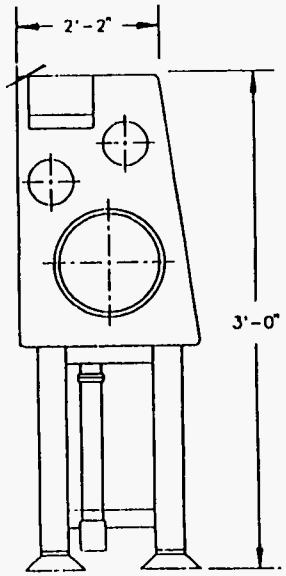
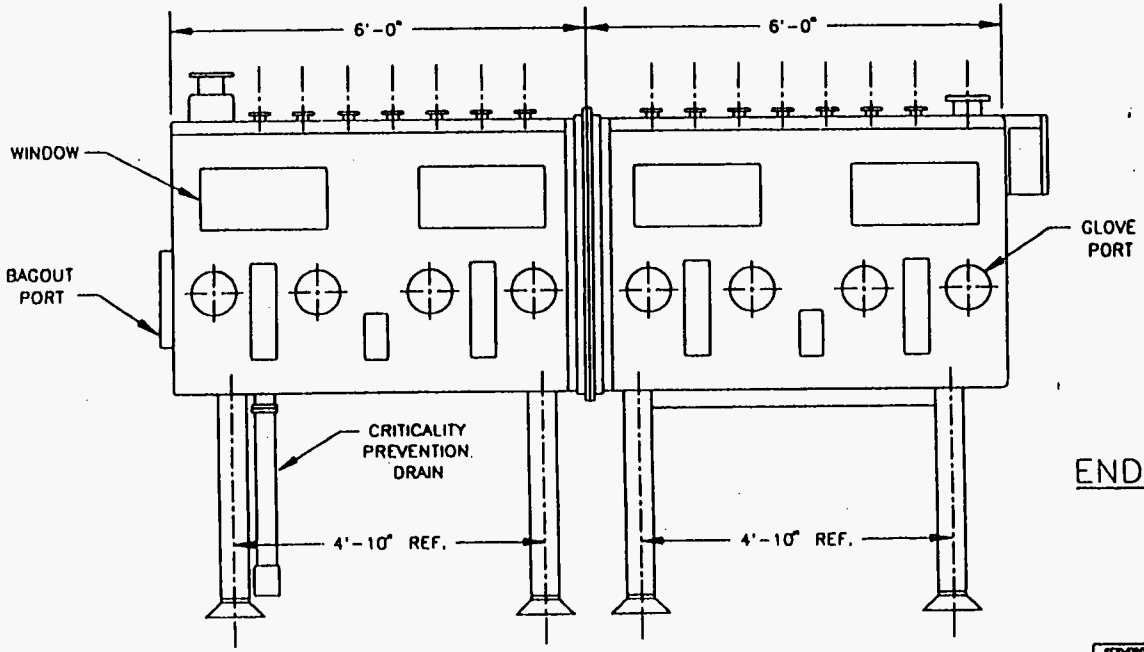


PLAN

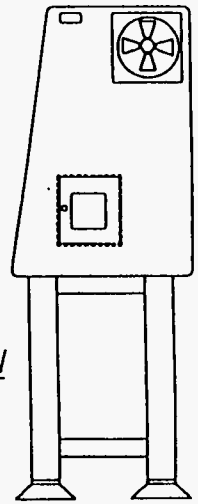


END VIEW



ELEVATION

NOT TO SCALE



END VIEW

A	ORIGINAL ISSUE		
		U.S. DEPARTMENT OF ENERGY	
		ROCKY FLATS	
		GLOVEBOX	
SCALE NONE		B	39650-02	A

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PART IV - TANK SYSTEMS

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PART IV - TANK SYSTEMS

A. INTRODUCTION

Part IV of the permit establishes specific conditions for the operation of tank systems. Section B of Part IV contains standard conditions for tank systems, while Section C contains unit-specific conditions.

The tank systems in this permit are grouped together based on the physical structures they are located within. For the tank systems identified, the physical structures are either tents or buildings. Additional unit-specific information concerning tanks which function primarily as part of treatment processes is provided in Part V - Treatment Units.

B. TANK SYSTEMS: STANDARD CONDITIONS

1. Types of Permitted Tanks

The Permittee may store RCRA-regulated hazardous wastes in the below-listed types of tanks.

a. Double-walled: A tank designed and constructed as an integral structure (i.e., an inner tank enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell.

b. Annular: A tank in which liquid is contained between the inner and outer walls; the core interior is hollow. This type of tank is designed for the storage of radioactive liquids.

c. Standard: A single-wall tank manufactured of non-earthen materials that provide structural support.

2. Labeling Requirements

Each tank will be clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation began.

3. Containment and Detection of Releases

The Permittee will provide secondary containment for all tanks included in this permit.

a. Secondary containment must be designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system. The secondary containment system must be capable of detecting and collecting releases and accumulated liquids until the collected material is removed. Secondary containment may be provided by one or more of the following types:

i. Secondary tank: A rigid containment material surrounding each tank to isolate any leaked wastes or other accumulated liquids from the surface on which the tanks are placed (e.g., the outer wall on a double-wall tank). The containment tank will be constructed of the same or similar material as the tanks, which will be compatible with the contents of the tank and will be maintained in good condition free of cracks and

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gaps that could impair its effectiveness as containment and allow the migration of contaminants to the environment.

ii. Coated concrete: The area will be surrounded by a berm or wall which meets the minimum berm height identified for the unit. The floor and berm or wall of this type of secondary containment structure will be maintained in good condition free of cracks and gaps that could impair its effectiveness as containment and allow the migration of contaminants to the environment.

The concrete will be coated with epoxy or another coating which offers similar protection and is compatible with the waste to be managed in the tank system. The coating will cover the entire floor and berm or wall as necessary to provide adequate secondary containment. Unless otherwise specified, the berms or walls will completely surround the perimeter of the tank system.

b. Ancillary equipment consisting of above-ground piping with welded flanges, welded joints, or welded connections that are visually inspected for leaks each operating day do not require secondary containment. "Welded flanges" include flanges which are welded to the pipe, but connected to the abutting flange with bolts. All other ancillary equipment will be provided with secondary containment.

c. Releases into secondary containment will be detected by visual inspections, liquid sensing instruments, or radiation monitoring instruments. Releases from tank systems or precipitation which has accumulated within secondary containment structures will be removed within 24 hours from detection, or in as timely a manner as possible. Any material removed from the collection systems must be characterized and managed appropriately.

4. Compatibility of Tank Systems and Wastes

The Permittee may place in a tank system only those waste types identified for that tank system in Part IV, Section C, Tank Systems: Unit Specific Conditions. The Permittee may not store hazardous waste in permitted tanks that are not compatible with the materials of construction of the affected tank. The Permittee shall not place hazardous wastes in any tank system if the waste could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail.

The Permittee will not store a waste mixture in a tank which has an average specific gravity exceeding the design specific gravity of the tank. Each tank will be labeled with any applicable waste specific gravity or fill height limitations. The Permittee will not place any new waste type into a tank system unless:

a. The compatibility of the new waste type with the prior contents of the tank system is determined by analytical testing or process knowledge by the Permittee; or

b. The existing tank system is cleaned or flushed to the extent necessary to ensure compatibility with the new waste type.

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5. Spill or Overfill Prevention

The Permittee will use appropriate controls and practices to prevent spills and overfills from tank or containment systems.

a. Spill prevention: Spill prevention is primarily maintained by hard-plumbed piping. When transfer lines are not hard-plumbed or when using open ended lines, the Permittee will use one or more of the following spill prevention controls or an equivalent control.

   i. Direct monitoring: The transfer is monitored continuously by process operators to prevent spills and promptly detect any that occur.

   ii. Vacuum transfer: A vacuum is applied to the transfer line so that liquids are moved into the line and then into the destination tank as a result of pressure differentials. The vacuum transfer method aids in preventing backflow of liquids.

   iii. Containment of open lines: A secondary containment device such as a glovebox is used to prevent spill releases.

b. Overfill prevention: The Permittee will use one or more of the following overfill prevention controls or an equivalent control.

   i. Level indicator: A device used to visually display the level of waste in a tank; if a level indicator is used for overfill prevention, the indicator must be monitored during liquid waste transfers, or checked prior to the transfer of waste to ensure that sufficient capacity exists in the receiving tank. Level indicators include sight gauges and level meters.

   ii. Automatic feed cutoff: A device used to stop the flow of waste into a tank when it is filled to operating capacity or another predetermined level.

   iii. High-level alarm: A device that detects the level of waste in a tank and that sounds an audible alarm or displays a visual alarm when the operating capacity level or another predetermined level is reached.

   iv. Bypass: A device or plumbing arrangement used to divert the flow of waste from the tank being filled to a second tank of sufficient capacity once the operating capacity level of the tank being filled or another predetermined level has been reached.

   The specific overfill prevention control for each tank system subject to this permit is identified in Part IV, Section C, Tank Systems: Unit Specific Conditions, or Part V, Section C, Treatment Units: Unit Specific Conditions for tanks that function as a part of a treatment unit.

6. Feed Mechanism, Pressure Controls, and Temperature Controls

Unless otherwise specified in Part IV, Section C, Tank Systems: Unit Specific Conditions, all tanks will be operated at ambient pressure and temperature when storing hazardous wastes. The Permittee will use one of the following feed mechanisms for tank systems or an equivalent transfer

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mechanism.

a. Pump transfer: Liquids are pumped into a tank through permanent or temporary transfer lines.

b. Vacuum transfer: Liquids are transferred into a tank by creating a vacuum in the receiving tank or tank system. Transfer lines may be permanent or temporary.

c. Gravity drain: Liquids are allowed to drain by gravity through permanent or temporary transfer lines.

7. Management of Ignitable or Reactive Wastes

Ignitable or reactive wastes will not be placed into a tank system which is not protected by one or more of the following: signs prohibiting smoking, open flames, or welding; an inert atmosphere blanket; or enclosed vents isolated from sources of ignition or reaction.

8. Inspections

Tank systems and their ancillary equipment will be inspected each operating day in accordance with the Site inspection plan. Inspections will be conducted to evaluate the condition of the tank and secondary containment system, to check for leakage from the tank system, and to check for the presence and operability of overfill prevention equipment. Inspection logsheets will be maintained as part of the Site's operating record. An inspection logsheet for a tank system is provided in Part VII (Procedures to Prevent Hazards) of this Permit.

9. Recordkeeping and Reporting

a. The Permittee shall report to the Director, within 24 hours of detection, when a release from the tank system or secondary containment system to the environment occurs, however:

b. Releases of a hazardous waste less than or equal to one pound and immediately contained and cleaned up within 24 hours need not be reported.

c. Within 30 days of detecting a release to the environment from the tank system or secondary containment system, the Permittee shall report the following information to the Director.

i. Likely route of migration of the release;

ii. Characteristics of the surrounding soil (including soil composition, geology, hydrogeology, and climate);

iii. Results of any monitoring or sampling conducted in connection with the release. If the Permittee finds that it will be impossible to meet the 30-day time period, the Permittee should provide the Director with a schedule of when the results will be available. This schedule must be provided before the required 30-day submittal period expires;

iv. Proximity of downgradient drinking water, surface water, and populated areas;

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v. Description of response actions taken or planned.

d. The Permittee shall submit to the Director all certifications of major repairs to correct leaks within seven days of returning the tank system to use.

e. The Permittee shall obtain, and keep on file at the facility, the written statements by those persons required to certify the design and installation of new tank systems.

f. The Permittee shall keep on file at the facility the written assessment regarding the integrity of each permitted tank.

g. The Permittee shall maintain at the facility a record of the integrity test results for each written assessment required above in Part IV.B.8.f.

h. The Permittee shall place the results of all waste analyses, waste determinations, and any other documentation showing compliance with the requirements of Part IV.B.3 in the facility operating record.

10. Response to Leaks or Spills

In the event of a leak or a spill from the tank system, from a secondary containment system, or if a system becomes unfit for use, the Permittee shall remove the system from service immediately and complete the following actions.

a. Stop the flow of hazardous waste into or out of the system and inspect the system to determine the cause of the release.

b. Remove waste from the system within 24 hours of detection of the leak to the extent necessary to prevent further release to the environment, and to allow inspection and repair of the system. If the Permittee finds that it will be impossible to meet this time period, the Permittee shall notify the Director and demonstrate that a longer time period is required.

c. Contain visible releases to the environment. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection: (1) prevent further migration of the leak or spill to soils or surface water, and (2) remove and properly dispose of any visible contamination of the soil or surface water. In addition, if the release exceeds one pound and cannot be contained and cleaned up within 24 hours, appropriate personnel shall implement the Contingency Plan as described in Part VIII of this Permit.

d. Close the system in accordance with an approved closure plan, unless one of the following actions are taken:

i. For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make any necessary repairs to fully restore the integrity of the system before returning the tank system to service.

ii. For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system prior to returning it to service.

iii. For a release to the environment caused by a leak from a portion of the tank system that does not have secondary containment and can be visually inspected, the Permittee shall repair the tank system before returning it to service.

iv. If the Permittee replaces a component of the tank system to eliminate the leak, that component must satisfy the requirements for new tank systems or components in 6 CCR 1007-3, Section 264.192 and 264.193.

11. Repair and Certification of Tank Systems

If a release occurs from a primary tank system, the Permittee will repair the tank system prior to returning it to service. Major repairs will be certified by a qualified, independent, registered Professional Engineer. The certification will be submitted to CDPHE within seven days after returning the tank system to service, and will certify that the repaired system will be capable of handling hazardous wastes without release for the intended life of the system.

C. TANK SYSTEMS: UNIT-SPECIFIC CONDITIONS

This section contains specific information regarding the permitted tanks at the Site. In addition, examples of typical configurations of the tank units subject to this permit and secondary containment capacities are provided. Operating capacities are provided for information purposes and are approximate. The Permittee shall not exceed the design capacity specified for each tank in this section.

Integrity Assessments (For units 750.2A, B, and C)

Six of the polyethylene tanks contain coupons, tanks 25.002 and 25.004 holding B207 pond sludge, 25.062, 25.064, and 25.066 in C207 sludge, and one tank, yet to be determined, holding clarifier sludge. Nine coupons shall be placed in each tank. Three coupons shall be located in the vapor space to serve as controls and three pairs of coupons shall be located below the liquid level on the tank. During daily visual inspections, if cracking or signs of deterioriation are identified for any tank, then coupon testing shall be conducted within 30 days. For all HDPE tanks containing coupons, an integrity assessment shall be performed which includes Low Temperature Impact Test (ASTM D1998-91) "Standard Specification for Polyethylene Upright Storage Tanks," June 3, 1991 for brittleness, and tensile strength per ASTM D638-91, "Standard Test Method for Tensile Properties of Plastics," November 15, 1991. The tensile test specimens will be conditioned per ASTM D618-61, "Standard Practice for Conditioning Plastics and Electrical Insulating Materials for Testing," September 18, 1961.

Regardless of whether deterioration is observed, these tests must be conducted on the coupons at a minimum of every 5 years. The results of the testing will be evaluated by an independent, qualified, Colorado registered, professional engineer to determine the fitness of the tanks for continued use. If the tanks are determined to be unfit for use, immediate action will be taken to remove the waste from the tanks. If any of the parameters measured are below the design value for the tank, all polyethylene tanks containing a similar hazardous waste shall be considered unfit for use, and removed from service immediately. The tanks shall be assessed and certified by an independent, qualified, Colorado registered, professional engineer in order to be returned to service.

If a tank system or component is found to be unfit for use as a result of the integrity assessment, the Permittee shall notify the Director immediately.

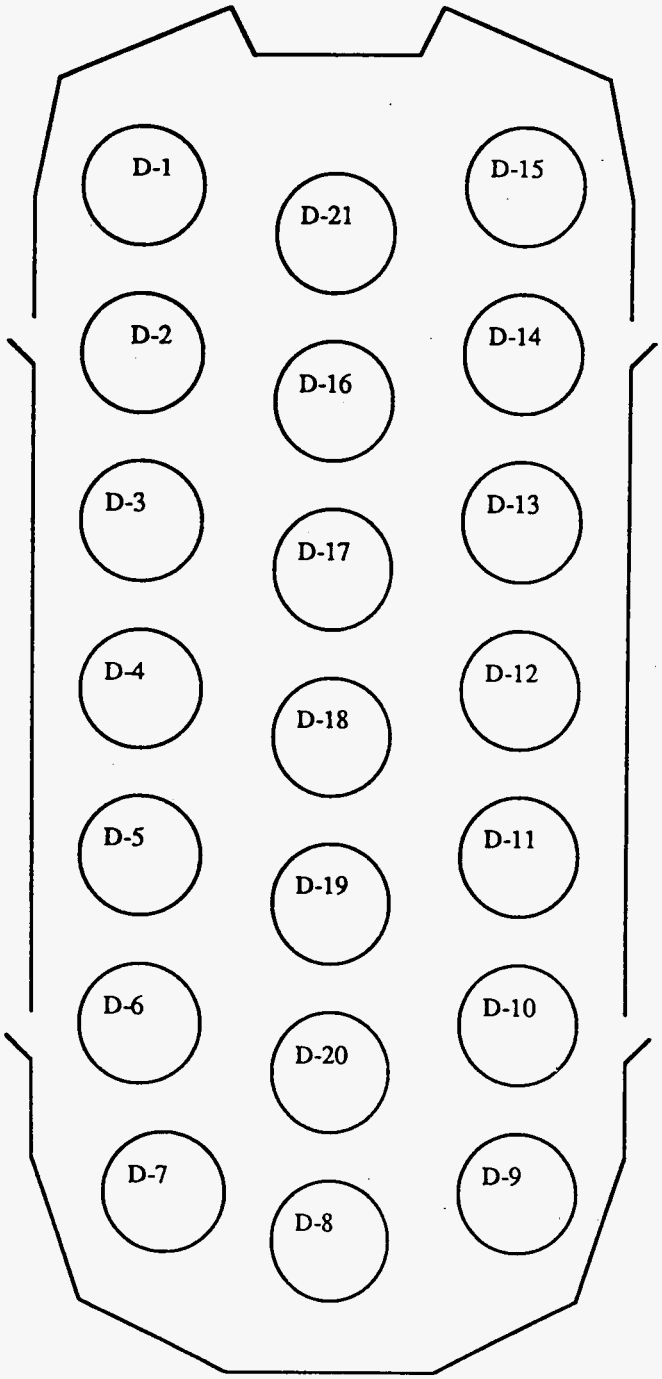
TANK UNIT INFORMATION SHEET

1. Unit 750.2A

Unit Description:	Pond sludge storage tanks located in Tent 3 on the 750 Pad.
Specific Tanks:	Tanks D-1 through D-21
Tank Type:	Double-walled (Polyethylene)
Function:	Storage
Design Capacity:	11,150 gallons
Operating Capacity:	10,000 gallons
Dimensions:	13 feet 3 inches OD x 12 feet high
EPA Waste Codes:	D006, D007, F001, F002, F005, F006, F007, F009.
Waste Types:	Mixed
Secondary Containment	
Type:	Secondary Tank
Minimum Height:	11.0 feet
Emptying:	Manual
Leak Detection:	Continuous moisture sensor at the bottom of the annulus
Inspection Method:	Visual/electronic sensor
Overfill Prevention:	Level indicator
P&ID Drawing Number:	39650-804
Special Unit Conditions:	Specific gravity (SG) limits for individual tanks are as follows:

Tank D-2: SG of 1.88 or fill only to 7 feet for SG up to 1.9.
Tank D-3: SG of 1.54 or fill only to 7 feet for SG up to 1.9.
Tank D-6: SG of 1.88 or fill only to 7 feet for SG up to 1.9.
Tank D-7: SG of 1.76 or fill only to 7 feet for SG up to 1.9.
Tank D-8: SG of 1.70 or fill only to 7 feet for SG up to 1.9.
Tank D-9: SG of 1.80 or fill only to 7 feet for SG up to 1.9.
Tank D-10: SG of 1.89 or fill only to 7 feet for SG up to 1.9.
Tank D-14: SG of 1.81 or fill only to 7 feet for SG up to 1.9.
Tank D-15: Limit fill height to 9.5 feet.

FIGURE IV-1 RCRA TANK STORAGE UNIT 750.2A
TENT 3, 750 PAD



NOTES:
1) Drawing is not to scale and may not depict the actual location of the tanks within the unit.
2) Each tank is a double-walled tank.

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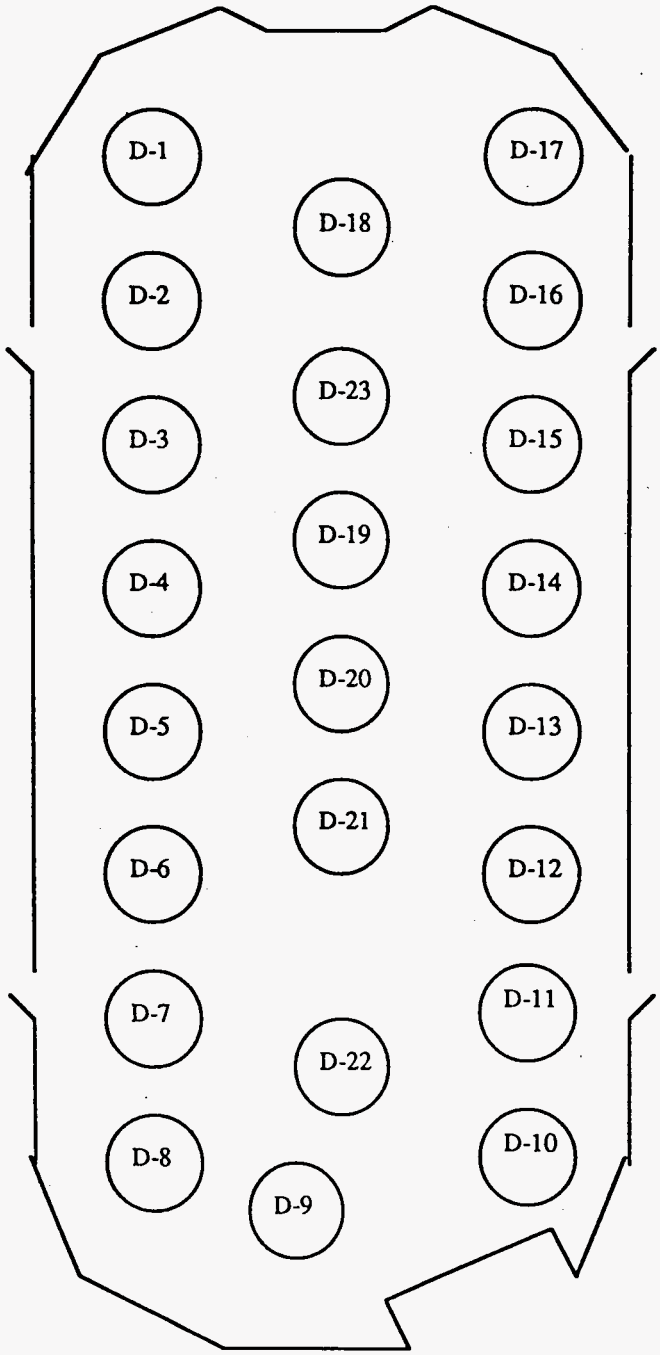
TANK UNIT INFORMATION SHEET

2. Unit 750.2B

Unit Description:	Pond sludge storage tanks located in Tent 4 on the 750 Pad.
Specific Tanks:	Tanks D-1 through D-23
Tank Type:	Double-walled (Polyethylene)
Function:	Storage
Design Capacity:	11,150 gallons
Operating Capacity:	10,000 gallons
Dimensions:	13 feet 3 inches OD x 12 feet high
EPA Waste Codes:	D006, D007, F001, F002, F005, F006, F007, F009.
Waste Types:	Mixed
Secondary Containment	
Type:	Secondary Tank
Minimum Height:	11.0 feet
Emptying:	Manual
Leak Detection:	Continuous moisture sensor at the bottom of the annulus
Inspection Method:	Visual/electronic sensor
Overfill Prevention:	Level indicator
P&ID Drawing Number:	39650-804
Special Unit Conditions:	Specific gravity (SG) limits for individual tanks are as follows:

Tank D-7: SG of 1.85 or fill only to 7 feet for SG up to 1.9.
Tank D-11: SG of 1.81 or fill only to 7 feet for SG up to 1.9.
Tank D-13: SG of 1.89 or fill only to 7 feet for SG up to 1.9.
Tank D-14: SG of 1.73 or fill only to 7 feet for SG up to 1.9.

FIGURE IV-2 RCRA TANK STORAGE UNIT 750.2B
TENT 4, 750 PAD



NOTES:
1) Drawing is not to scale and may not depict the actual location of the tanks within the unit.
2) Each tank is a double-walled tank.

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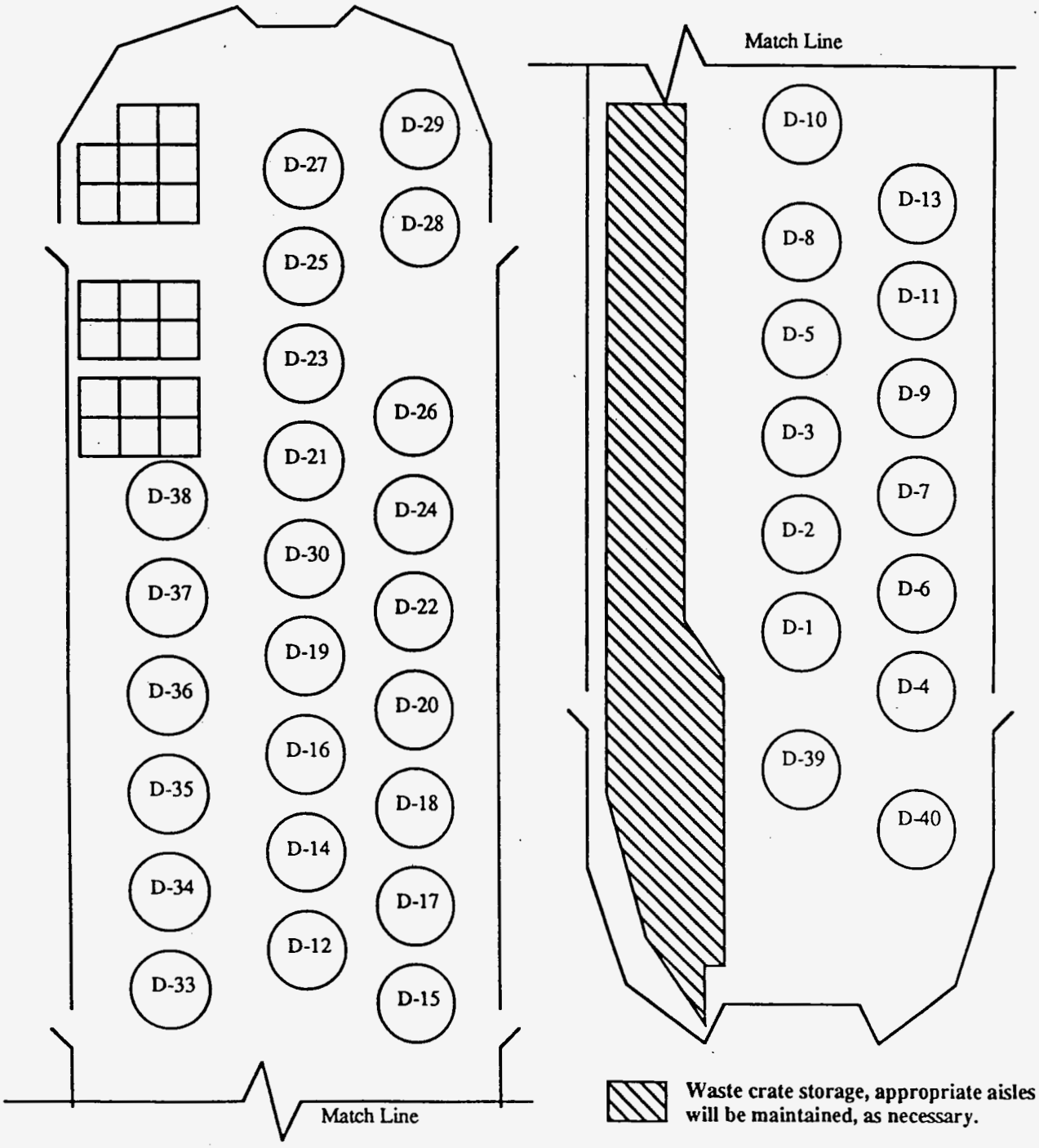
TANK UNIT INFORMATION SHEET

3. Unit 750.2C

Unit Description:	Pond sludge storage tanks located in Tent 6 on the 750 Pad.
Specific Tanks:	Tanks D-1 through D-30, D33 through D-40
Tank Type:	Double-walled (Polyethylene)
Function:	Storage
Design Capacity:	11,150 gallons
Operating Capacity:	10,000 gallons
Dimensions:	13 feet 3 inches OD x 12 feet high
EPA Waste Codes:	D006, D007, F001, F002, F005, F006, F007, F009.
Waste Types:	Mixed
Secondary Containment	
Type:	Secondary Tank
Minimum Height:	11.0 feet
Emptying:	Manual
Leak Detection:	Continuous moisture sensor at the bottom of the annulus
Inspection Method:	Visual/electronic sensor
Overfill Prevention:	Level indicator
P&ID Drawing Number:	39650-804
Special Unit Conditions:	None

FIGURE IV-3 **RCRA TANK STORAGE UNIT 750.2C**
TENT 6, 750 PAD



NOTES:
1) Drawing is not to scale and may not depict the actual location of the tanks within the unit.
2) Each tank is a double-walled tank.

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TANK UNIT INFORMATION SHEET

4. Unit 774.2

Unit Description:	Liquid waste storage prior to transfer or shipment
Specific Tanks:	Tanks T-102 and T-103 in Room 220 of Building 774.
Tank Type:	Standard
Function:	Storage
Design Capacity:	10,470 gallons
Operating Capacity:	10,470 gallons
Dimensions:	22.3 feet H x 9.0 feet D
EPA Waste Codes:	D002, D004-D008, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F009.
Waste Types:	Mixed
Secondary Containment	
Type:	Coated concrete
Minimum Height:	2.9 feet
Emptying:	Drain
Leak Detection:	Visual
Inspection Method:	Visual
Overfill Prevention:	High level alarm
P&ID Drawing Number:	39650-2070

Special Unit Conditions:

1) This unit will have a staging area located in Room 220 for drums or other containers whose contents are to be transferred into these tanks. The size of the area will be dependent on the secondary containment provided for the staged containers.

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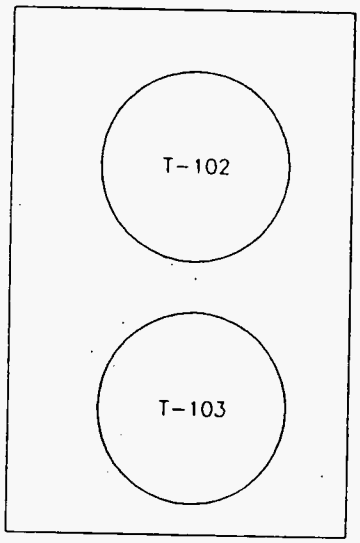

SECONDARY CONTAINMENT CALCULATIONS

1) VOLUME OF LARGEST TANK (Vt):	10,470	gal
2) FLOOR AREA (Af):	495	sf
3) AREA OF OBSTRUCTIONS (Ao):	0	sf
4) NET AREA (An): (An)=(Af)-(Ao)	495	sf
5) MINIMUM BERM (Hb): (Hb)=(Vt)/((An) x 7.48 gal./cf)	2.9	ft

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	KJA	SRL	PAN	SRH
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP		DOE	CLASS	JOB NO.
2. MIXED							
3. LOW LEVEL		DESIGNED ALMQUIST XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
4. TRU		DRAWN LENNIE XX/XX/93	Rocky Flats Plant				
5. SCND CONTAIN		CHECKED NAZARYK XX/XX/93	GOLDEN, COLORADO 80401				
BLDG./FACILITY 774		APPROVED HUGHES XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION				
ROOM/AREA 220			ROOM 220				
GRID COOR./COL NO.		SUBMITTED BIERBAUM XX/XX/93					
MASTER YES ☐ NO ☒	SCALE: NONE	APPROVED REP APPROVED DOE	SIZE B	DRAWING NUMBER 39650-2350	ISSUE A	SHEET of	

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

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D. AQUEOUS WASTE COLLECTION AND TREATMENT

Aqueous waste collection and treatment at the Site is accomplished through a three-part system. The system consists of aqueous waste collection tanks within buildings, a waste transfer system, and treatment processes for the aqueous waste. The collection tanks, the transfer system and part of the treatment process are considered a tank system as defined in 6 CCR 1007-3. Tank information sheets are located at the end of this section since the tanks function as a part of the treatment processes to which they transfer waste. Those parts of the treatment system that are not regulated as a tank system are subject to regulation as miscellaneous treatment units. Specific information regarding the regulatory status of individual portions of the aqueous waste collection and treatment system are contained in the unit information sheets at the end of this section.

1. Collection Tanks

Tanks are used at the Site for the collection of aqueous wastes generated as a result of building support and operations activities. In some cases, tanks are used for the collection of aqueous waste from several buildings, although, in most cases, collection tanks are used for a single buildings' waste generation. Waste streams input into the collection tanks have varied a great deal over the last ten years. Initially, waste streams included aqueous wastes from multiple processing operations, laboratory operations, and building support activities (i.e., HVAC generated wastes, process cooling water, and footing drain liquids). Due to the change in the mission for the Site, the generation of aqueous wastes from production processes has been discontinued, but the need for the collection of other aqueous wastes still exists.

The following is a listing of the tanks used for the collection and accumulation of aqueous process wastes at the Site. For purposes of simplicity, all information sheets for the collection tanks used for the storage of aqueous process wastes are included in this section.

- There are four tanks used for the collection of aqueous process waste in Building 776; T-1A (RCRA Unit 776.2A), T-1B (776.2B), T-2A (776.2C), and T-2B (776.2D). These tanks receive waste from Buildings 776, 777, and 779.

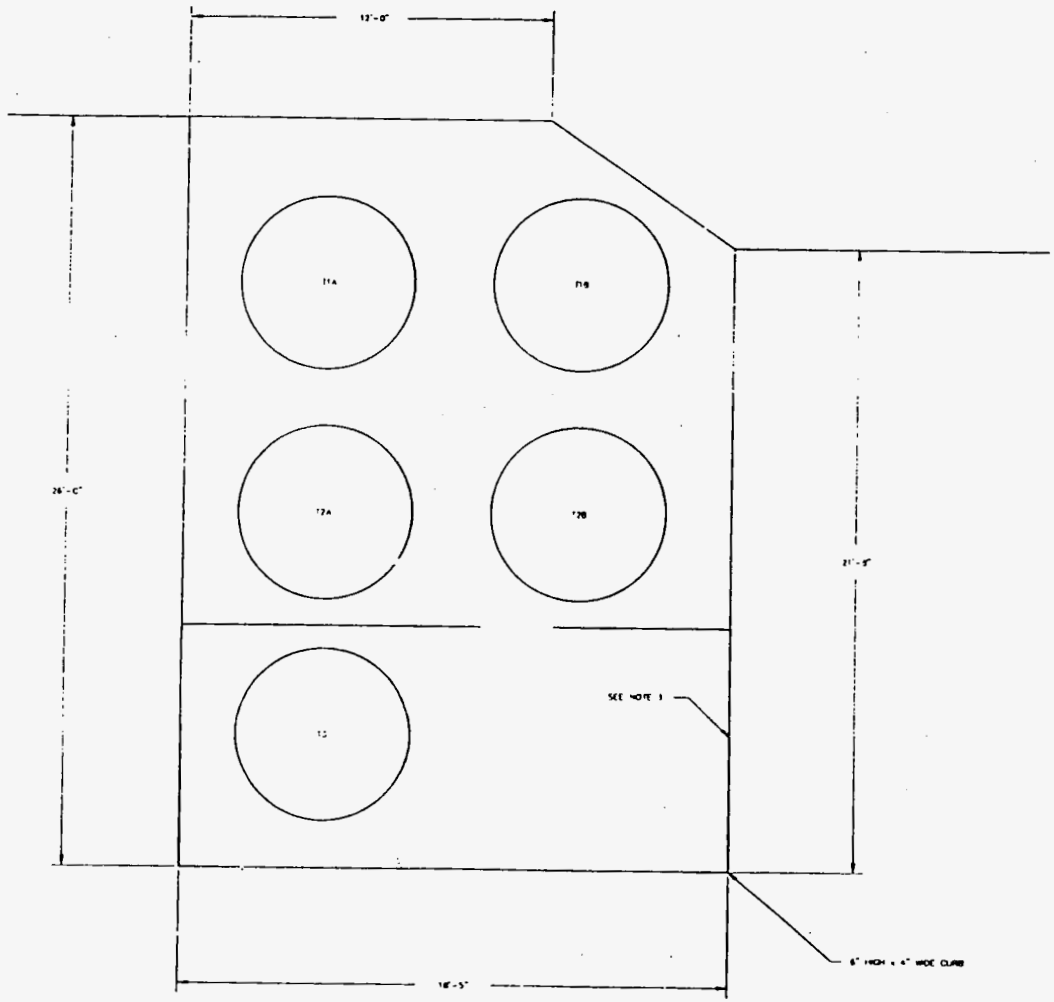
- Aqueous process wastes generated in Building 881 are collected in a series of tanks in Building 887 including T-183 (RCRA Unit 887.2A), T-184 (887.2B), T-185 (887.2C), T-802A (887.2D), T-802B (887.2E), T-802C (887.2F), and T-802D (887.2G). These tanks are located in a below-grade concrete enclosure and are connected to each other in series.

Additional information on all of the identified tanks is provided in the tank information sheets that follow.

TANK UNIT INFORMATION SHEET

a. Unit 776.2

Unit Description:	Aqueous process waste collection and storage
Specific Tanks:	Tanks T-1A (Unit 776.2A), T-1B (Unit 776.2B), T-2A (Unit 776.2C), and T-2B (776.2D)
Tank Type:	Standard
Function:	Storage
Design Capacity:	T-1A and T-1B: 1,300 gallons (each) T-2A and T-2B: 1,630 gallons (each)
Operating Capacity:	T-1A and T-1B: 1,200 gallons (each) T-2A and T-2B: 1,500 gallons (each)
Dimensions:	T-1A and T-1B: inches OD x inches long T-2A and T-2B: 122 inches OD x 64 inches long
EPA Waste Codes:	D001, D002, D004-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005, F007-F009.
Waste Types:	Hazardous, Mixed
Secondary Containment	
Type:	Bermed area with Hypalon liner
Minimum Height:	feet
Emptying:	Manual
Leak Detection:	Visual
Inspection Method:	Visual
Overfill Prevention:	Bypass to empty tank
P&ID Drawing Number:	39094-219-M 51260-004
Special Unit Conditions:	None



NOTES:

1) VOLUME CALCULATION:
VOLUME = FLOOR AREA x DEPTH
FLOOR AREA = (18.4 FT)(26 FT)-(6 x 4 FT)(6 x 3 FT)/2
= 465.50 FT
VOLUME = 465.50 FT x 3 FT
= 232 CUBIC FT
= 1740 GALLONS
LARGEST TANK CAPACITY = 1630 GALLONS

2) MATERIALS OF CONSTRUCTION: EPOXY PAINTED CONCRETE

3) MATERIAL OF CONSTRUCTION:
ANGLE IRON SEALED TO FLOOR AND PAINTED WITH EPOXY PAINT

INFORMATION ONLY

FIGURE D-420

NOTE FOR REFERENCE SEE DRAWING NO 37810-387

MASTER DRAWING
MAINTAIN AS-BUILT PER DES-8
FE GROUP RESPONSIBLE

MERRICK

KEYWORDS	A	ORIGINAL ISSUE	3-27-90
BUILDING 776			
RCRA/CERCLA 127			
MASTER YES ☒ NO ☐	SCALE AS NOTED		

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE

Rocky Flats Plant

BUILDING 776
WASTE TANK LAYOUT
RCRA PHO

D 39094-219-M A

"COMPUTER-GENERATED; NO MANUAL CHANGES ALL

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TANK UNIT INFORMATION SHEET

b. Unit 887.2

Unit Description:	Aqueous process waste collection and storage
Specific Tanks:	Tanks T-183 (Unit 887.2A), T-184 (Unit 887.2B), T-185 (Unit 887.2C), T-802A (Unit 887.2D), T-802B (Unit 887.2E), T-802C (Unit 887.2F), T-802D (Unit 887.2G)
Tank Type:	Standard
Function:	Storage
Design Capacity:	3,000 gallons (each)
Operating Capacity:	2,700 gallons (each)
Dimensions:	96 inches OD x 68 inches long
EPA Waste Codes:	D001, D002, D004-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005, F007-F009.
Waste Types:	Hazardous, Mixed
Secondary Containment	
Type:	Coated concrete vault
Minimum Height:	N/A
Emptying:	Manual
Leak Detection:	Visual
Inspection Method:	Visual
Overfill Prevention:	level sensor on last tank - tanks are hooked in series
P&ID Drawing Number:	37810-454 to 460 SP
Special Unit Conditions:	None

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2. Aqueous Waste Transfer System

Aqueous wastes collected in the tanks identified above are transferred to Building 374 for treatment through the Aqueous Waste Transfer System. This system includes four separate double-walled transfer lines that connect the tanks to Building 374. Each transfer line is made of an outer casing pipe and an inner transfer line. The space between the two pipes serves as secondary containment for the primary transfer lines. Included in the Aqueous Waste Transfer System are 20 valve vaults. These valve vaults are below-grade concrete pits equipped with 1/4-inch polyethylene liners and groundwater collection sumps between the liner and the concrete floor to provide secondary containment. Collection bottles are located at the low end of each section of casing pipe within the valve vaults to collect any leakage that occurs. Each of the valve vaults are equipped with automatic leak detection systems that will alarm in the Building 374 control room if leakage is detected.

The Aqueous Waste Transfer System is a part of the tank system associated with the collection tanks identified previously and the treatment system that is discussed in the next section. Since no collection or storage of waste occurs in the waste transfer system, it is considered ancillary piping. The Aqueous Waste Transfer System is compliant with the applicable regulations and is inspected on a daily basis.

PART V - TREATMENT UNITS

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PART V - TREATMENT UNITS

A. INTRODUCTION

Part V of the permit establishes specific conditions for the treatment of RCRA-regulated hazardous waste in treatment units at the Site in accordance with Part 264 of the Colorado Hazardous Waste Regulations. Section B of Part V contains standard conditions for treatment units while section C contains process-specific information.

The standard conditions are a compilation of applicable regulatory requirements for waste management facilities identified in 6 CCR 1007-3, Part 264. Each treatment unit in this permit is comprised of either a single hazardous waste treatment process or multiple treatment processes which are located within the same physical structure.

B. TREATMENT UNITS: STANDARD CONDITIONS

The following general conditions are applicable to all treatment units subject to this permit. All treatment units which include tank or container storage facilities must meet the applicable requirements found in Part IV.B, Tank Systems: Standard Conditions, and/or Part III.B, Container Storage Units: Standard Conditions, of this permit.

1. <u>Types of Permitted Treatment Units</u>

   The Permittee may treat RCRA-regulated hazardous waste in the following types of treatment processes. Specific treatment processes within each treatment unit are identified in Section C, Treatment Units: Unit Specific Conditions.

   a. Chemical Treatment: treatment processes in which a hazardous waste is chemically treated to result in a non-hazardous or less hazardous waste.

   b. Solidification and Stabilization: treatment processes which employ additives to reduce the mobility of hazardous constituents.

   c. Thermal Treatment: treatment processes in which heat is used to treat hazardous waste by eliminating hazardous characteristics and/or calcining the residual waste material.

   d. Size Reduction: treatment process in which wastes are disassembled, crushed, or otherwise reduced in size for segregation or packaging purposes.

2. <u>Containment and Detection of Releases</u>

   The Permittee will provide secondary containment for all treatment processes included in this permit.

   a. Secondary containment for treatment processes will be provided by one or more of the following.

i. Glovebox: The treatment process will be contained within a glovebox which is capable of containing the entire volume of solution within the treatment process.

A criticality drain designed to prevent the accumulation of greater than one inch of liquid will be in place within the floor of the glovebox for criticality safety purposes.

The glovebox will be maintained in good condition free of any defects that could impair its effectiveness as containment and allow the migration of contaminants to the environment.

Building personnel are required to comply with all operational safety and surveillance requirements for each glovebox in accordance with the building's Facility Safety Analysis Report (FSAR) and Operational Safety Requirements (OSRs). The FSAR and OSRs include surveillance requirements to maintain: negative pressure and exhaust system requirements for each glovebox, HEPA filtration systems, glove changes, and the glovebox overheat system.

ii. Coated Concrete: The area under and around the treatment process will be surrounded by a berm or wall which meets the minimum berm height identified for the unit. The floor and berm or wall of a concrete secondary containment area will be maintained in good condition free of cracks and gaps that could impair its effectiveness as containment and allow the migration of contaminants to the environment. The concrete will be coated with epoxy or another coating which offers equivalent protection. The coating will cover the entire floor and berm or wall up to the minimum berm height. Berms or walls will completely surround the perimeter of the treatment area.

iii. Catch Basin: Primary components of the treatment process will be located within the confines of a catch basin made of metal, plastic, HDPE, fiberglass, stainless steel, or other material compatible with the hazardous waste being treated. The catch basin must have the capacity to contain at least 100 percent of the quantity of hazardous or mixed waste being treated in the primary treatment process. The catch basin will be maintained in good condition free of cracks and gaps which could impair its effectiveness as containment and allow the migration of contaminants to the environment.

iv. Stainless Steel: The floor and berm of the area in which the treatment process is located are made of stainless steel which will be maintained in good condition free of cracks and gaps that could impair its effectiveness as containment and allow the migration of contaminants to the environment. The area will be surrounded by a berm or wall that meets or exceeds the minimum berm height specified for the area or unit.

b. All secondary containment structures will be capable of containing the contents of the largest treatment unit and 100% of the largest tank within the structure. Minimum required berm heights to contain the contents of the largest treatment unit in the structure

are provided in the Treatment Unit: Unit Specific Conditions, if they are applicable.

c. Ancillary equipment consisting of above-ground piping with welded flanges, welded joints, or welded connections that are visually inspected for leaks each operating day do not require secondary containment. "Welded flanges" include flanges which are welded to the pipe, but connected to the abutting flange with bolts. All other ancillary equipment will be provided with secondary containment.

d. Releases into the secondary containment will be detected within 24 hours by visual inspections, liquid sensing instruments, or radiation monitoring instruments. Releases from treatment processes will be removed within 24 hours from detection, or in as timely a manner as possible in accordance with Part VIII of this Permit.

3. Compatibility of Treatment Process and Wastes

The Permittee may introduce only those waste types identified for the respective treatment process in Part V, Section C, Treatment Unit: Unit Specific Conditions. The Permittee will typically use stainless steel, glass or Kynar™ lined units for the treatment of corrosive wastes. Other materials which may be used must provide equivalent protection. The Permittee will not place any new waste type into a treatment unit unless:

a. the compatibility of the new waste type with the prior contents of the treatment unit is determined by testing or documented by the Permittee; or,

b. the treatment unit is cleaned or flushed to the extent necessary to ensure compatibility with the new waste type.

4. Use and Management of Containers

The Permittee will manage any containers used to hold a hazardous waste in the treatment process in the following manner.

a. The Permittee will verify that containers to be used to hold hazardous waste are in good condition prior to use.

b. The Permittee will use only containers which are compatible with the hazardous waste to be contained.

c. The Permittee will verify that containers remain closed unless adding or removing hazardous waste.

d. The Permittee will verify that containers are handled and managed in a manner to minimize damage.

5. Spill and Overfill Prevention

The Permittee will use appropriate controls and practices to prevent spills and overfills from

treatment processes. These will include one or more of the following.

a. Spill prevention: The Permittee will use one or more of the following spill prevention controls or an equivalent.

   i. Containment: The containers are kept inside secondary containment as described above.

   ii. Direct monitoring: The process is monitored continuously to prevent spills.

   iii. Vacuum transfer: A vacuum is applied to the transfer line so that liquids are moved into the line and then into the destination treatment unit as a result of pressure differentials. The vacuum transfer method aids in preventing backflow and spillage of liquids.

b. Overfill prevention: The Permittee will use one or more of the following overfill prevention controls or an equivalent.

   i. Direct monitoring: The transfer is monitored continuously to prevent overfill.

   ii. Automatic feed cutoff: A device is used to stop the flow of hazardous waste into the treatment unit when it is filled to operating capacity or another predetermined level.

   iii. High level alarm: A device is used to detect the level of hazardous waste in treatment process equipment and initiates an audible or visual alarm when the operating capacity level or another predetermined level is reached.

   iv. Level indicator: A device is used to visually display the level of hazardous waste in treatment process equipment; if a level indicator is used for overfill prevention, the indicator must be monitored during liquid transfers, or checked prior to transfers to ensure that sufficient capacity exists in the receiving unit. Level indicators include sight gauges and level meters.

   v. Bypass: A device or plumbing arrangement is used to divert flow of hazardous waste from the treatment process equipment being filled to a tank of sufficient capacity once the operating capacity or other predetermined level within the primary receiving tank has been reached.

6. <u>Feed Mechanism</u>

The Permittee will use one of the following feed mechanisms or an equivalent transfer mechanism for treatment processes.

a. Vacuum transfer: Liquid hazardous waste will be transferred within the treatment process by creating a vacuum in the process equipment. Transfer lines may be permanent or temporary and will be in good condition.

b. Gravity drain: Liquid hazardous waste will be allowed to drain by gravity through permanent or temporary transfer lines or equipment.

c. Operator transfer: Hazardous waste will be manually transferred within the treatment process by process operators.

d. Pump transfer: Liquid hazardous waste will be pumped into the treatment process equipment through permanent or temporary transfer lines.

7. Process Control

Temperature, pressure, or other treatment variables may be used to monitor and/or control a treatment process. The Permittee will monitor the treatment process for any control variable(s) specified in Part V, Section C, Treatment Unit: Unit Specific Conditions.

If a maximum or minimum limit specified for a control variable is reached, the Permittee will either immediately correct the operation to within specified process control variable limits or cease the treatment process operation. The Permittee may restart treatment process operations once the conditions are restored to within the specified limits for the control variables and any system problems are corrected. The Permittee will use one of the following mechanisms to monitor control variables.

a. Continuous monitoring with alarm: A device providing continuous monitoring with an audible or visual alarm set at or within the control variable limits.

b. Instrument monitoring: An instrument with a visual readout that is monitored by a process operator who maintains control variables within specified limits during operations.

c. Visual monitoring: A process operator visually monitors and controls variables such as reaction time within specified limits during treatment process operations.

8. Management of Ignitable or Reactive Wastes

Ignitable or reactive wastes will not be placed into any treatment process unless the process is protected by use of signs prohibiting smoking, open flames, or welding; an inert atmosphere; or enclosed vents isolated from sources of ignition or reaction.

9. Inspections

Treatment units will be inspected once each operating day. If a treatment process within a treatment unit is not operating and all hazardous wastes have been removed, no inspections will be necessary. The treatment unit will be visually inspected in accordance with a unit specific inspection sheet included Part V, Section C. for each unit.

10. Staging Areas

Each treatment process may include a container staging area for the management of waste prior to or following treatment. Containers of waste located within the staging areas are subject to Standard Conditions for management of containers in B.4 of this section Waste capacities for staging areas associated with individual treatment processes will be identified in Part V, Section C, Treatment Units: Unit Specific Conditions.

For recordkeeping purposes, the staging areas will be considered a part of the treatment process and any containers of waste located in the staging areas will be identified in the unit's drawing as being within the treatment process. Staging areas located adjacent to or in the vicinity of the treatment process it is associated with will be designated in the operating record for the unit. Locations of staging areas within gloveboxes need not be specifically identified in the operating record, but must be identified on the Treatment Process Information Sheet at the end of this section.

Containers of waste may be staged for periods of time necessary to support the operation of the treatment process, not to exceed 15 calendar days. If the treatment process becomes non-operational for any reason and will remain so past 15 calendar days, all staged containers of waste will be moved to permitted storage until the treatment process returns to operational status.

11. Repair and Certification of Treatment Units

If a release occurs from a treatment process, the Permittee will repair the treatment process prior to returning it to service. Major repairs for treatment processes which include tank systems will be certified by a qualified, independent, registered Professional Engineer. The certification will be submitted to the Division within seven days after returning the treatment process to service.

C. TREATMENT UNITS: UNIT SPECIFIC CONDITIONS

This section contains specific information regarding the permitted treatment units and the individual treatment processes within them. In addition, flow diagrams of the individual treatment processes, diagrams of the process equipment, and secondary containment calculations are provided at the end of this section. Operating capacities are provided for information purposes and are approximate.

1. Unit 371.3 - Building 371

This unit contains one treatment process; the Caustic Waste Treatment System (CWTS). The CWTS will be used to pre-treat liquid wastes prior to final treatment in other treatment processes at the Site.

a. Unit 371.3A - Caustic Waste Treatment System

Two gloveboxes containing process equipment, four feed receiving tanks, and two filtrate receiving tanks make up this treatment system. Glovebox 18 contains equipment used for the neutralization, precipitation and filtration of the process solutions to remove radionuclide material. Glovebox 2404 contains final filtration equipment for the solutions being treated. All of the gloveboxes involved in the treatment process are stainless steel.

The unit processes solutions characterized as RCRA-regulated for the characteristics of corrosivity, and toxicity due to levels of arsenic, cadmium, lead, and silver above RCRA-regulated thresholds. The process solutions will be fully characterized by analysis in accordance with the Waste Analysis Plan (Part VI of the permit) prior to transfer to the Glovebox 18 for treatment. The Environmental Protection Agency (EPA) hazardous waste codes identified on the Treatment Unit Information sheets represent the RCRA characteristic and constituents identified as being present in the process solutions. It may be determined by analysis that particular process solutions do not contain regulated levels of all of the specified constituents corresponding to the EPA hazardous waste codes. A final characterization will be made and documented in the operating record for each identified population of solution after treatment.

Processing will be conducted on a batch basis within the treatment unit. The solutions to be processed are pumped from the D-2401 tanks into two glass precipitation vessels (clarifiers) in Glovebox 18 and mixed with a calculated weight of $Mg(OH)_2$. The amount of $Mg(OH)_2$ added to each batch of process solution will be based on the calculated amount necessary to raise the pH of the solution from its current value (determined by sampling and analysis) to the optimum pH range for precipitation (pH 6-9) plus a small additional amount to maximize the removal of the radionuclide material. This process results in the formation of a precipitate which is removed from the solution by filtration. The filtrate solution is then captured in two additional glass columns (decanters) in Glovebox 18 before being pumped to Glovebox 2404. Glovebox 2404 contains two sets of three filters each used for the final filtration of the treated solution. Following the final filtration, the treated process solution will be transferred to the D-2402 tanks in Room 1103.

The precipitate, which is not considered a RCRA waste, is allowed to air dry and is then placed on a hot plate in a separate glovebox to complete the drying process. Overall, the treatment

process consists of four glass columns, several filters, a supply vessel for $Mg(OH)_2$, and a pump, all of which are contained in two gloveboxes.

Safety Factors

As a part of normal operations for the treatment process, glovebox safety must be maintained. The Building 371 Operational Safety Requirements (OSR) identify specific criteria for operations in a glovebox. Conditions must be maintained within these safe operating criteria for operations to commence or continue.

Safety criteria include the fissile material content of the gloveboxes relative to the Nuclear Material Safety Limit (NMSL); glovebox vacuum, glove integrity, and criticality drain maintenance.

To ensure that the NMSL for the individual gloveboxes is not exceeded, process operators must be aware of the fissile material content of the process solutions to be introduced into the glovebox and any material currently within the glovebox. Glovebox vacuum must be maintained between 0.25 and 2.0 inches of water of vacuum for operations within the glovebox to continue. The specific value of the glovebox vacuum and the status and condition of glovebox equipment and safety features are identified in the building OSR. Glove integrity checks are completed on a periodic basis as required by the building OSR. In addition, process operators must check the gloves each day at the beginning of daily operations. If defective gloves are discovered, they must be replaced before operations can continue. The criticality drain on each glovebox also must be checked each day prior to initiating operations to ensure that it is filled and that the opening to the drain in the glovebox is clear of obstructions. If either case is not true, the situation must be corrected prior to initiating operations within the glovebox. Overfill prevention equipment will be maintained in accordance with the manufacture's recommendations or other schedule approved by CDPHE.

Waste Analysis

Prior to transferring solutions to the process solution receiver tanks (Tanks D-2401 A-D) non-destructive assay will be completed to establish an estimate of radionuclide concentration. Once the solutions have been transferred to the D-2401 tanks in Room 1103, they will be mixed and isolated from the introduction of additional solutions. Prior to transferring the solutions to Glovebox 18, a sample will be taken, and analyses will be completed in accordance with approved L-procedures.

Specific analyses to be completed before the solutions are processed include pH/normality, chloride content, radionuclide (Plutonium [Pu], Americium [Am] and Uranium [U]) concentration for safeguards accountability, and RCRA toxicity characteristic (TC) metals by either total metals analysis or the toxicity characteristic leaching procedure.

Post treatment sampling will take place at Tank D-2402A or D-2402B following the transfer of the solution from the final filtration portion of the treatment process in Glovebox 2404. Prior to transfer to Tank D-2403, analyses will be completed in accordance with approved L-procedures for radionuclide concentration and pH.

RCRA metals concentration in the filtrate will be determined in two ways. First a relationship between the amount of radionuclide reduction and the RCRA metal reduction will be determined from a theoretical evaluation of the process to be conducted. A series of three process parameter samples will then be withdrawn during the initial processing evolutions. A sample will be taken from the initial batch of filtrate resulting from processing. Two more samples will then be taken within the next nine processing evolutions. These samples will be analyzed and evaluated to determine if they match the theoretical correlation completed prior to processing. If they do, the amount of RCRA metal reduction from processing will be estimated based on the amount of radionuclide reduction which will be determined through post-process analysis. If they do not correlate, sampling and analysis will be conducted on the filtrate solutions to determine their RCRA metals concentration. The theoretical correlation analysis will be maintained as part of the unit's operating record.

Analyses will be conducted in accordance with the following L-procedures:

L-3004 Chain-of-Custody Waste Characterization Projects
L-3101 Concentration Pu, U and Am by X-ray Fluorescence in Building 771
L-3104 Chloride Ion Concentration in Aqueous Process Solutions by Titration
L-3106 Hydrogen and Hydroxyl Ion Concentration in Aqueous Process Solutions by Titration
L-3107 Concentration of Pu by Alpha Scintillation and U235 and Am by Gamma Scintillation
L-3122 Alpha Pulse Height Analysis in the 771 Lab
L-3306 Waste Characterization Sampling Procedure Inside the Protected Area
L-4101 Beryllium in Plutonium Metal Solutions (Atomic Absorption)
L-4105 Titrimetric Determination of Hydrogen Ion (H+) and Chloride Ion (Cl-)
L-4108 Toxicity Characteristic Leaching Procedure (TCLP) for Metals in Waste
L-4145 Trace Metals in Solutions (Atomic Absorption)
L-4151 Waste Analysis by Atomic Absorption Spectroscopy
L-4153 Trace Metals in Solids and Liquids by ICP Spectroscopy

Process Procedure

The Caustic Waste Treatment System will be operated in accordance with the *Operating Procedure for the Caustic Waste Treatment System*.

Treatment Unit Information

Treatment unit information sheets (pages V-10 and V-11), a unit inspection sheet (page V-12), process diagram (page V-13), and unit drawings for gloveboxes 18 and 2404 (pages V-14 and V-15, respectively) are provided in this section.

TREATMENT PROCESS INFORMATION SHEET

Unit 371.3A - Caustic Waste Treatment System

Location:	Building 371, Rooms 1103, 1105, 1115, and 1113
Process Equipment:	Glovebox 18 and 2404, Tanks D-2401A, B, C, and D, and D-2402A & B
Treatment Process:	Chemical Treatment - chemical precipitation of radionuclides and metals from corrosive waste solutions.
Design Capacity	
Tanks:	725 liters
Treatment Process:	50 liters per batch
Operating Capacity	
Tanks:	725 liters
Treatment Process:	200 liters per day
Dimensions	
Tanks:	59.3 inches OD x 7 feet 3 inches T-T x 3 inch annulus
Treatment Process:	GBox 18 - 134 inches long x 36 inches wide GBox 2404 - 140 inches long x 36 inches wide
Waste Codes:	D002, D006, D008
Waste Description:	Mixed
Secondary Containment:	
Type	
Tanks:	Coated Concrete
Treatment Process:	Glovebox
Minimum Berm Height	
Tanks:	0.12 inch
Treatment Process:	0.7 inch
Drawing Number	
Tanks:	39650-100
Treatment Process:	25157-225 and 50407-501
Inspection Method:	Visual
Process Control Variables:	pH
Maximum:	None
Minimum:	final minimum pH of 6
Overfill Prevention	
Tanks:	Level Indicator and/or High Level Alarm
Treatment Process:	Automatic Feed Cutoff and/or High Level Alarm

P&ID Drawing Number

Tanks:	39650-001
Treatment Unit:	39650-002

Process-specific Conditions:

1) These tanks will be labeled with the following specific gravity and fill height limitation. Limit specific gravity to 1.5 or fill only to 79 inches for specific gravity of 1.6.

CAUSTIC WASTE TREATMENT SYSTEM DAILY INSPECTION LOGSHEET

ROOM					
UNIT ID NO.					
DATE					
TIME					
SIGNATURE OF INSPECTOR					
SIGNATURE OF SUPERVISOR (WEEKLY)					

The following logsheet must be filled out completely and accurately. The only acceptable responses are "Yes", "No", or "NA". Inspections must be performed each operating day.

1. Are all unit signs present, correct, and visible at each entrance					
2. Is the waste compatible with the unit?*					
3. Is adequate aisle space present around each glovebox and clear of obstruction?					
4. Is the secondary containment free of cracks, gaps, erosion, or corrosion?					
5. Is the secondary containment free of liquids?					
6. Lack of evidence of leakage from process containers?					
7. Are any wastes present in the glovebox which the unit is not approved for?					
8. Is process equipment (i.e., precip. vessels, clarifiers, decanters) in good condition?					
9. Criticality drains in good condition and negative pressure within operating limits?					
10. Is overfill prevention equipment present and operable?**					
11. Is process monitoring equipment present and operable?***					
12. Is monitoring data documented and within acceptable operating limits?					
13. Is spill response equipment adequate, accessible, and in good working condition?					

* Signs of incompatibility include; bulging, blistering, fuming, or temperature increases.

** Overfill controls include; level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank.

*** Operability will be verified by either physical inspection or documentation review.

REMEDIAL ACTIONS

- Always notify Supervisor of any problems
- "NO" answers require explanation and/or corrective action in the comments section.
- All RCRA findings that cannot be corrected within 24 hours must be reported to DOE per 1-15200-ADM-16.02.

COMMENTS and CORRECTIVE ACTIONS (The reverse side of this logsheet can be used for comments)

_____ DATE _____

_____ DATE _____

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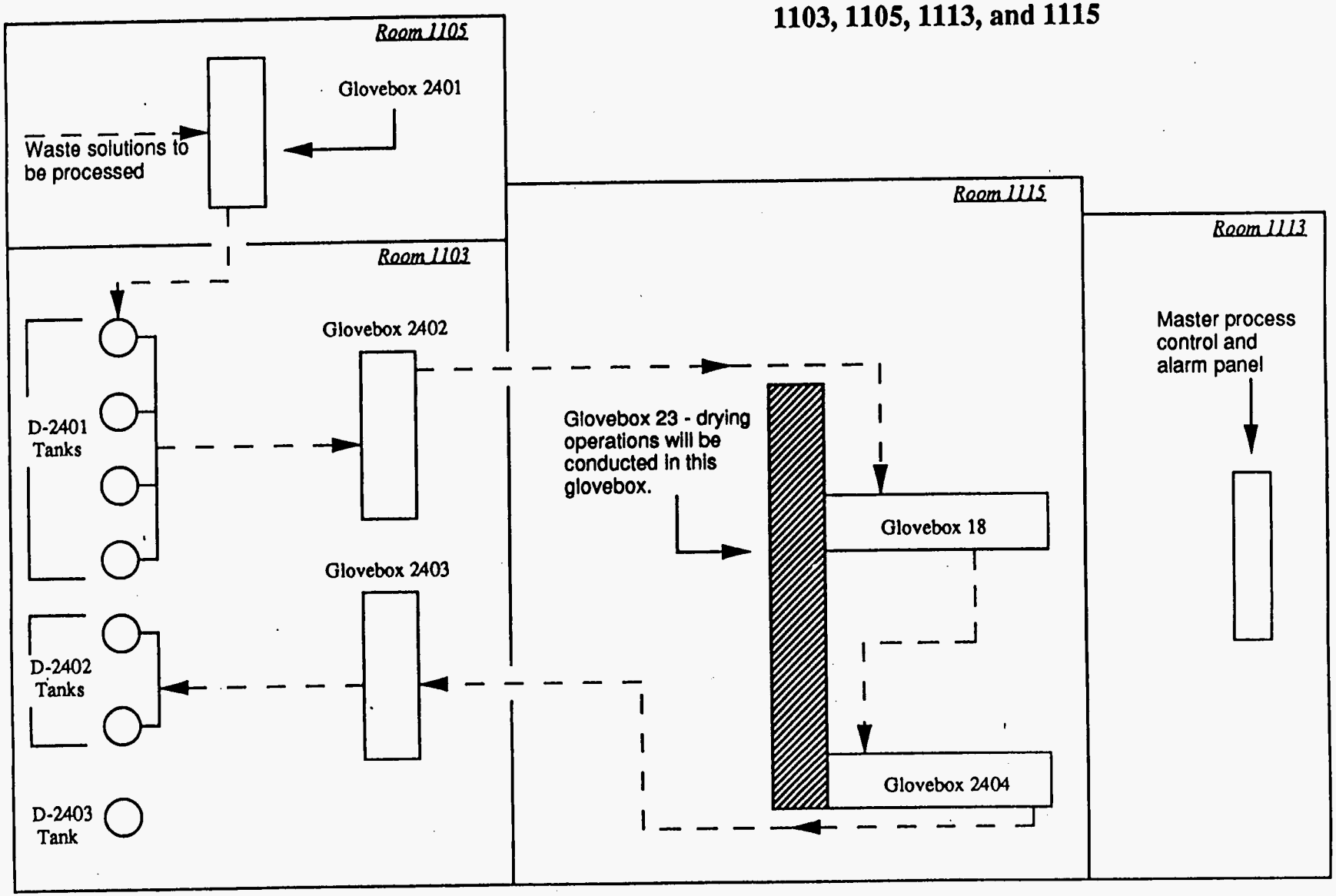
UNIT 371.3A - CAUSTIC WASTE TREATMENT SYSTEM, BUILDING 371, ROOMS 1103, 1105, 1113, and 1115



NOTES:
1) This drawing is not to scale and does not depict process equipment in its actual location.

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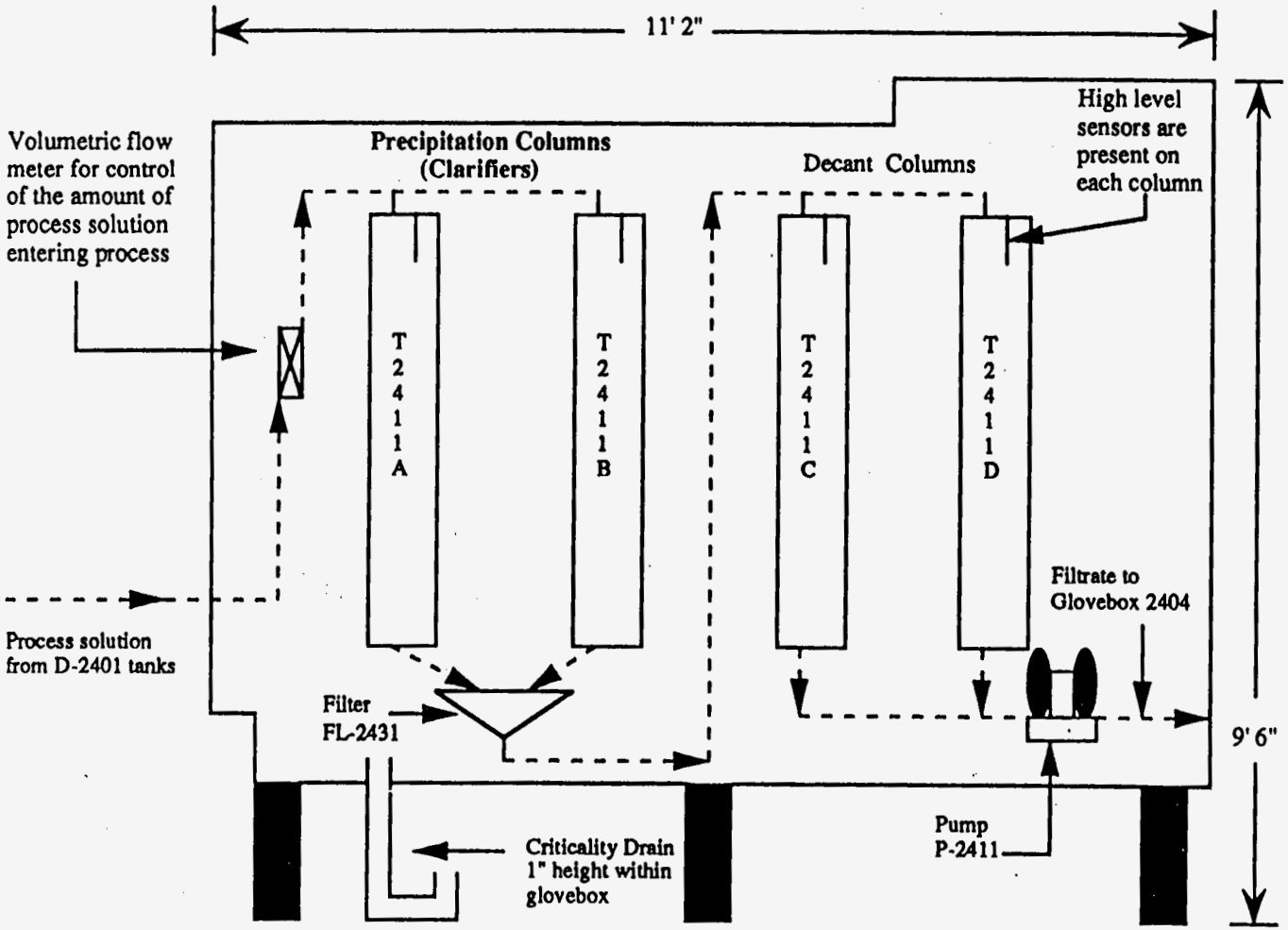
RCRA Unit 371.3A -CAUSTIC WASTE TREATMENT SYSTEM
PRECIPITATION/FILTRATION, GLOVEBOX 18



Secondary Containment Calculations:

1) Containment surface area
   134" x 36" x 90% coverage =
   4342 sq in
2) Containment volume =
   71 liters
3) Maximum volume present =
   50 liters
4) Minimum berm height =
   0.7 inches

Notes:

1) Precipitation columns T-2411A and T-2411B are filled through volumetric flow meters which allow only a preset volume of process solution to be transferred to the precipitation columns. In addition, both the precipitation and clarifier columns are equipped with high level sensors.
2) In the unlikely event that a criticality drain were to overflow, it would drain to the floor of the room.
3) This drawing is not to scale and may not depict the process equipment in its actual location.

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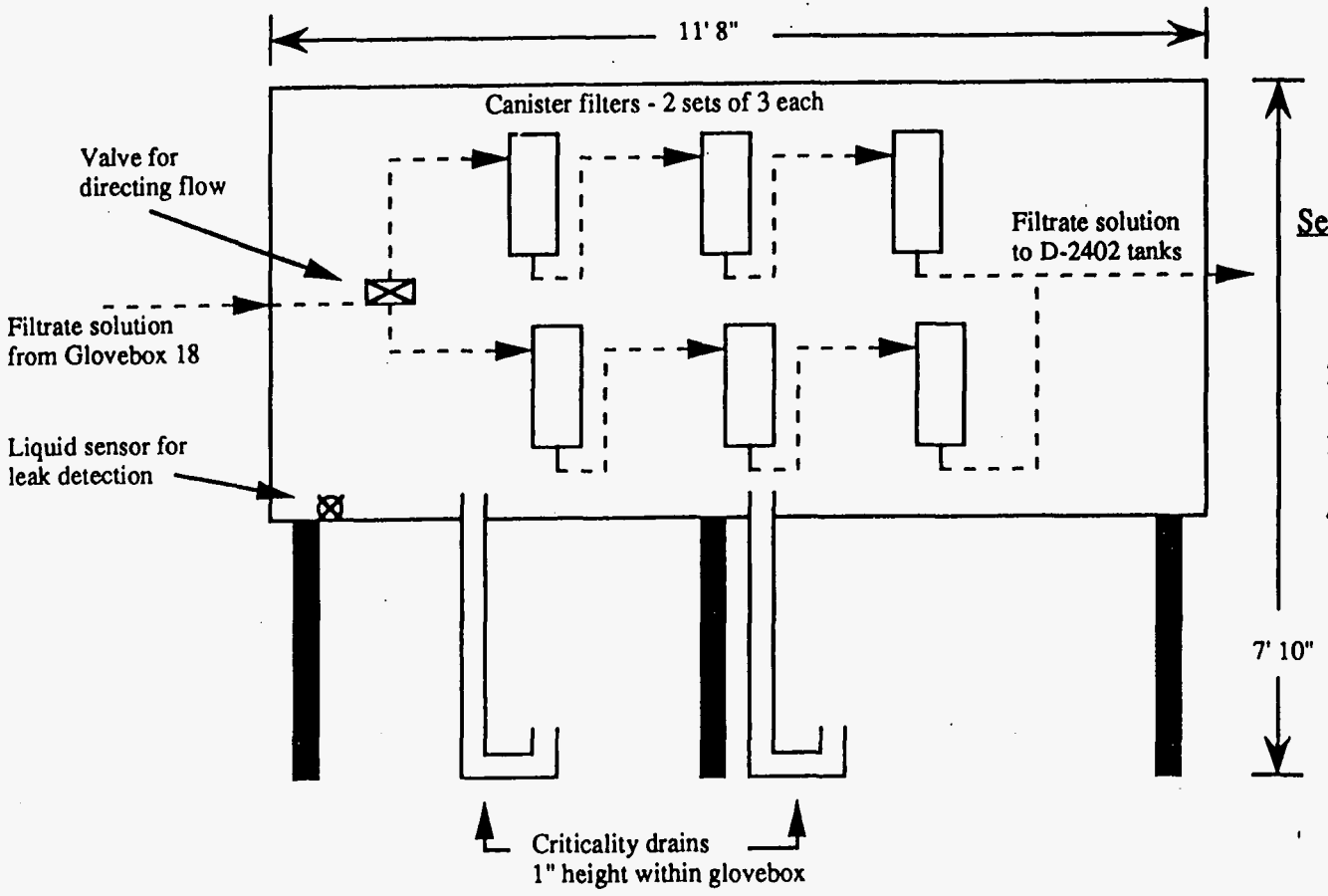
FIGURE V-3

RCRA Unit 371.3A - CAUSTIC WASTE TREATMENT SYSTEM PRECIPITATION/FILTRATION, GLOVEBOX 2404



Secondary Containment Calculations:

1) Containment surface area
   140" x 36" x 90% coverage =
   4536 sq. in.
2) Containment volume =
   74 liters
3) Maximum volume present =
   50 liters
4) Minimum berm height =
   0.68 inches

NOTES:

1) Glovebox 2404 is equipped with a liquid sensor which will detect the presence of liquids on the floor of the glovebox and alert process operators by both audible and visual alarms.
2) In the unlikely event that a criticality drain were to overflow, it would drain to the floor of the room.
3) This drawing is not to scale and may not depict the process equipment in its actual location.

2. Unit 707.3 - Building 707

The treatment process for mixed residues located within this unit consist of Salt Stabilization (Unit 707.3A). Specific information about this treatment process is provided below. In addition a treatment process information sheet, process flow diagram, and equipment location diagram are provided.

a. Unit 707.3A - Salt Stabilization

The salt stabilization process is a thermal treatment process that will be used to treat certain types of salt residues that contain elemental calcium, cerium, magnesium, sodium, and/or potassium metals. By treating the salt residues in the salt stabilization process, the plutonium and the reactive metals they contain are oxidized and stabilized. The treated salt residues will then be packaged for interim storage and long term disposal.

This treatment unit is located in several interconnected gloveboxes in Module A of Building 707. A chainveyor system is in place within the interconnected gloveboxes to provide a means of transport between gloveboxes. Therefore, once the salt residue is introduced into the glovebox, all further transfers of the material between gloveboxes occurs within the glovebox system. Process equipment includes various materials handling devices (e.g., balances, chainveyor, carts, assay equipment), furnaces, and crucibles.

Pre- and post-treatment evaluations and analysis will be conducted in accordance with approved process procedures. Pre-treatment evaluation of the materials candidate for treatment will include plutonium content by segmented gamma scanner (SGS) and verification that the item description code (IDC) is accurate for the contents of the waste container. Post-treatment evaluation will include bulk weight, plutonium content (by appropriate non-destructive technique), reactivity analysis using differential thermal analysis (DTA), and RCRA toxicity characteristic (TC) metals analysis (either total analysis or TCLP).

Salt residues candidate for treatment in this unit are removed from the drum within which they are packaged in the contamination control cell (C-cell). The individual waste packages are then transferred into Glovebox A-120 through a "bag-in" procedure whereby the package is placed into the glovebox while maintaining separation of the atmospheres inside the glovebox and outside. The waste packages are then transferred to Glovebox A-90 or A-125 for batching into approximately 2.5 kilogram "loads." Each load is assayed in the SGS to determine the proper amount of oxidant related to the amount of plutonium. The salt is then placed into a crucible with the appropriate amount of sodium carbonate that is used as the oxidant (the amount of oxidant is dependent on the type of salt being treated). The crucible is placed into a tantalum outer can and a stainless steel pull can (furnace charge) and transferred to Glovebox A-85 (furnace charge staging area).

The furnace charge is then transferred to a furnace glovebox (Glovebox A-70, A-80, or A-110) and inserted into a furnace with a remotely driven stirring rod to provide agitation during treatment. A continuous blanket of argon is supplied to the furnace as it is heated to a process temperature of 800 - 1000°C. Once the charge has become molten, the stirring

assembly is activated to provide uniform mixing of the molten material and ensure its exposure to the oxidant.

The process temperature is maintained for a period of two hours after which the furnace is shut off. During the last 15 minutes of stirring, air is added to the argon flow to enable oxidation of the plutonium to occur under controlled conditions and to oxidize any sodium metal that has deposited on the furnace lid during treatment. After the required amount of time, the stirrer is shut off, the air flow is discontinued as the argon flow continues, and the furnace and its contents are allowed to cool. After the furnace has cooled (typically 4 - 5 hours), the argon flow is discontinued and the furnace charge is removed from the furnace for disassembly. During the treatment of the salts, off-gases from the furnace are passed through glass wool to remove particulates and any water vapor generated from the treatment process.

The furnace charge is transferred to Glovebox A-75 for placement into a tin alloy container that is removed from the glovebox system via a "bag-out" procedure (the reverse of the "bag-in" procedure). The treated waste is then transferred for assay in an appropriate non-destructive assay area after which it is placed in storage as a non-regulated waste.

Analyses will be conducted in accordance with the following L-procedures:

L-3004 Chain-of-Custody Waste Characterization Projects
L-4191 Calorimetry
L-4192 Handling Liquid Nitrogen
L-4193 Gamma Spectroscopy
L-4194 Transfer and Staging of Material
L-3007 Calculations and Report of Date from Calorimetry/Gamma Spectroscopy
L-3000 Sample Handling in 771 Labs
L-5010 Waste Characterization, Data Handling and Reporting
L-4108 Toxicity Characteristic Leaching Procedure (TCLP) for Metals in Waste
L-4151 Waste Analysis by Atomic Absorption Spectroscopy
L-4153 Trace Metals in Solids and Liquids by ICP Spectroscopy
L-4177A Analysis of Residues by Differential Thermal Analysis

TREATMENT PROCESS INFORMATION SHEET

2. Unit 707.3A - Salt Stabilization Process

Location: Building 707, Module A
Process Equipment: Gloveboxes A-70, A-75, A-80, A-85, A-90, A-100, A-120, A-125, and furnaces
Treatment Process: Thermal treatment
Design Capacity
Treatment Process: 30 batches/day

Operating Capacity
Treatment Process: Up to 5 kilograms mass/batch/furnace

Dimensions:
Treatment Process: 61 feet long x 43.5 feet wide

Waste Codes: D003
Waste Description: Mixed residues

Secondary Containment:
Type
Treatment Process: N/A
Minimum Berm Height
Treatment Process: N/A
Drawing Number
Treatment Process: N/A

Inspection Method: Visual

Process Control Variables: Oxidation temperature: 800-1000 C.
Stirring rate: 290-310 rpm for a minimum of two hours.
Oxidant content:
1.1 grams of oxidant per gram of Pu for ER salts.
2.2 grams of oxidant per gram of Pu for MSE salts.
2.2 grams of oxidant per gram of Pu or 50 grams of oxidant per kilogram of salt for DOR salts (whichever is greater).

Overfill Prevention
Treatment Process: N/A

Special Unit Conditions:

1) At least 30 calendar days prior to operation, the Permittee shall submit the approved operating procedure for salt stabilization, to include L-Procedures, to CDPHE, in addition to the unit's inspection log sheet.

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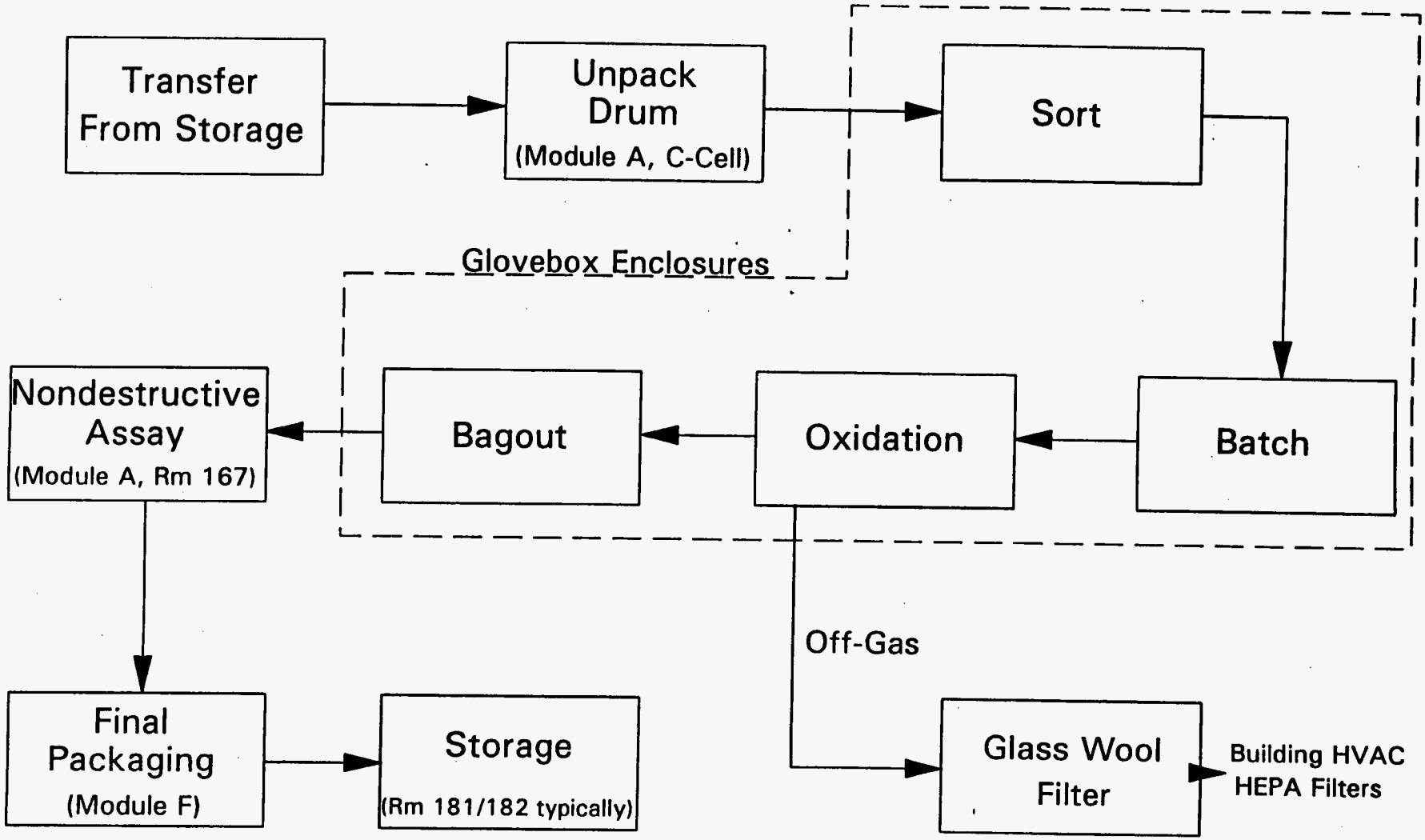
Pages V-19 through V-21 Reserved



Block Flow Diagram - Treatment of Salt Residues

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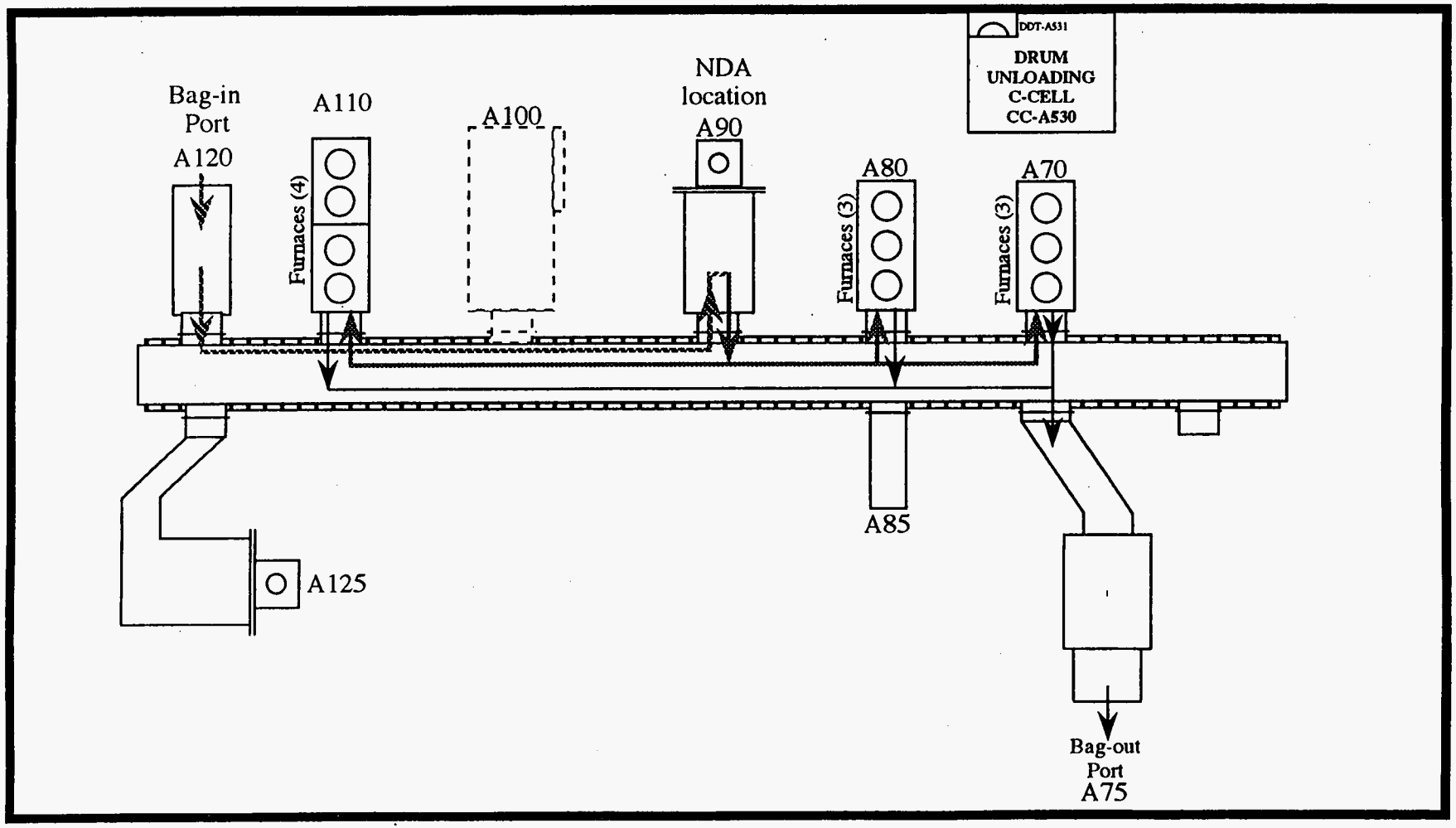
RCRA UNIT 707.3A
SALT STABILIZATION PROCESS
BUILDING 707 MODULE A



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3. Unit 771.3 - Building 771

This RCRA Treatment Unit includes two treatment processes; Hydroxide Precipitation and Oxalate Precipitation. Both of these treatment processes are used to conduct treatment of hazardous waste by chemical precipitation and filtration. Chemical precipitation is a process by which a soluble substance is converted to an insoluble form either by a chemical reaction or by changes in the composition of the solution to diminish solubility of the substance in it. In the case of the two processes within this unit, chemical precipitation is conducted to neutralize the process solution and to remove radionuclide material and RCRA-regulated TC metals. Specific information about each of these treatment processes is provided below.

a. Unit 771.3A - Hydroxide Precipitation

The hydroxide precipitation treatment process is located in Room 180D, Glovebox D2 in Building 771. Hydroxide precipitation is used to treat process solutions characterized as RCRA-regulated for the characteristics of ignitability, corrosivity and toxicity due to levels of RCRA-regulated metals above characteristic threshold levels. Pre- and post-treatment analysis will be conducted in accordance with approved process procedures. Pre-treatment analyses will include pH/normality, chloride content, radionuclide concentration, and RCRA TC metals concentration. Post-treatment analyses will include pH, chloride content, radionuclide concentration, and RCRA TC metals concentration to meet waste acceptance criteria for the treatment process the filtrate solution is to be transferred to.

Processing will be conducted on a batch basis in up to three 4-liter precipitation vessels at a time within Glovebox D2. All process solutions will be managed in containers. The solutions to be processed are introduced into a precipitation vessel and, if necessary, a calculated weight of Na(OH) is added to decrease the acid concentration to approximately 1.5M. Next, a calculated weight of Mg(OH)2 is added to each batch of process solution based on the amount necessary to raise the pH of the solution from its current value (determined by sampling and analysis), or from the adjusted value after addition of Na(OH), to the minimum pH for precipitation (pH 6) with an additional excess added to maximize the removal of the radionuclide material. This process results in the formation of a precipitate which is removed from the solution by decanting off the liquid and then filtering the precipitate slurry through a 25 micron pore size filter (or an equivalent to achieve acceptable precipitate removal). The precipitate, which is not considered a RCRA waste, is allowed to air dry and is then placed on a hot plate to complete the drying process.

Bottled process solutions which have not been placed into precipitation vessels will be present within the glovebox. Administrative limits have been incorporated into process procedures to control the amount of liquid in the glovebox (51 liters of solution) to verify that the secondary containment capacity of the glovebox is not reached or exceeded. The secondary containment volume has been calculated based on the presence of a criticality drain within the glovebox which would allow for the accumulation of one inch of liquid within the glovebox before the liquid overflowed to the coated floor of the room. Specific information about the process and the equipment within it is included on the Treatment Unit Information Sheet at the end of this section as Figure V-4.

Safety Factors

As a part of normal operations for the treatment process, glovebox safety shall be maintained. The Building 771 Operational Safety Requirements (OSR) identify specific criteria for operations in a glovebox which must be within acceptable limits or meet safe operating criteria for glovebox operations to commence or continue. Included are the fissile material content of the glovebox relative to the NMSL, the glovebox vacuum, glovebox glove integrity, and glovebox criticality drain maintenance.

Process operators must be aware of the fissile material content of the process solutions to be introduced into the glovebox and any fissile material currently within the glovebox to ensure that the NMSL for the glovebox is not exceeded. Glovebox vacuum must be maintained within .25 and 1.25 inches of water of vacuum for operations within the glovebox to continue. The specific values and the associated operability status of the glovebox relative to the NMSLs are identified in the building OSR. Glove integrity checks are completed on a periodic basis (typically monthly) as required by the building OSR. In addition, process operators must check the gloves each day at the beginning of daily operations. If defective gloves are discovered they must be replaced before operations can continue. The criticality drain on the glovebox must be checked each day prior to initiating operations to ensure that it is filled and that the opening to the drain in the glovebox is clear of obstructions. If either case is not true, the situation must be corrected prior to initiating operations within the glovebox.

Waste Analysis

Sampling of the bottled process solutions will be completed in either the glovebox used for staging of the solutions or in the glovebox in which they are currently stored. Analyses will then be completed in accordance with approved L-procedures prior to the introduction of the bottled solutions into the treatment process glovebox. Specific analyses to be completed includes pH/normality, chloride content, actinide (Plutonium [Pu], Americium [Am] and Uranium [U]) concentration for safeguards accountability, and RCRA toxicity characteristic (TC) metals by either totals analysis or the toxicity characteristic leaching procedure. Post process sampling will be done in the glovebox used for the staging of the filtrate prior to transfer to Building 774. Analyses will then be completed in accordance with approved L-procedures for RCRA TC metals, actinide concentration, pH, and chloride content. For process solutions which were contained in individual tanks, sampling will be conducted on an appropriate number of bottles into which the tank's contents have been drained in order to adequately characterize the material from the tank system. For bottled solutions, populations for sampling will be identified based on the item description code of the solutions. Item description codes are used to classify and segregate materials based on the generating process and their current status in processing. The identified populations will then be sampled in the same manner as the solutions drained from tanks.

L-procedures which will be used for the analyses to be conducted include the following:

L-3004	Chain-of-Custody Waste Characterization Projects
L-3101	Concentration Pu, U and Am by X-ray Fluorescence in Building 771
L-3104	Chloride Ion Concentration in Aqueous Process Solutions by Titration

L-3106 Hydrogen and Hydroxyl Ion Concentration in Aqueous Process Solutions by Titration
L-3107 Concentration of Pu by Alpha Scintillation and U235 and Am by Gamma Scintillation
L-3122 Alpha Pulse Height Analysis in the 771 Lab
L-3306 Waste Characterization Sampling Procedure Inside the Protected Area
L-4101 Beryllium in Plutonium Metal Solutions (Atomic Absorption)
L-4105 Titrimetric Determination of Hydrogen Ion (H+) and Chloride Ion (Cl-)
L-4108 Toxicity Characteristic Leaching Procedure (TCLP) for Metals in Waste
L-4145 Trace Metals in Solutions (Atomic Absorption)
L-4151 Waste Analysis by Atomic Absorption Spectroscopy
L-4153 Trace Metals in Solids and Liquids by ICP Spectroscopy

Process Procedure

The Hydroxide Precipitation treatment process will be operated in accordance with an approved hydroxide precipitation and calcination procedure.

Treatment Unit Information

A treatment unit information sheet (page V-25), a unit inspection sheet (page V-26), a process flow diagram (page V-27), and a drawing of glovebox D-2 (page V-28) are provided in this section.

TREATMENT PROCESS INFORMATION SHEET

Unit 771.3A - Hydroxide Precipitation

Location:	Building 771, Room 180D
Process Equipment:	Glovebox D-2
Treatment Process:	Chemical Treatment - chemical precipitation of radionuclides and metals from corrosive waste solutions.
Design Capacity	
Treatment Process:	12 liters per batch
Operating Capacity	
Treatment Process:	51 liters per day
Dimensions	
Treatment Process:	GBox D2 - 12 feet long x 2 feet 6 inches deep x 6 feet 3 inches high
Waste Codes:	D001, D002, D004, D005, D006, D008, D009, D010, and D011
Waste Description:	Mixed
Secondary Containment:	
Type	
Treatment Process:	Glovebox
Minimum Berm Height	
Treatment Process:	Not Applicable
Drawing Number	
Treatment Process:	D26025-1 Rev. C
Inspection Method:	Visual
Process Control Variables:	pH, temperature
Maximum:	Maximum temperature of 80°C
Minimum:	Temperature - none, pH - final minimum of 6
Overfill Prevention	
Treatment Process:	None
P&ID Drawing Number	
Treatment Unit:	39650-302A

Process-specific Conditions:

1) Containers holding waste solutions to be treated in this process may be staged anywhere in Room 180D. The staging area for this process has a volume limit of 568 liters (approximately 150 gallons).

HYDROXIDE PRECIPITATION DAILY INSPECTION LOGSHEET

ROOM					
UNIT ID NO.					
DATE					
TIME					
SIGNATURE OF INSPECTOR					
SIGNATURE OF SUPERVISOR (WEEKLY)					

The following logsheet must be filled out completely and accurately. The only acceptable responses are "Yes", "No", or "NA". Inspections must be performed so that no more than 24 hours elapse between inspections.

1. Are unit signs present, correct, and visible at each entrance to Room 180D?					
*2. Is process solution or filtrate solution present within the treatment unit?					
3. Is adequate aisle space present around treatment unit and clear of obstruction?					
4. Is the secondary containment free of cracks, gaps, erosion, or corrosion?					
5. Is the secondary containment free of liquids?					
6. Is the secondary containment free of unnecessary debris and trash?					
7. Are any wastes present in the unit which it is not approved for?					
8. Is process equipment (i.e., precipitation vessels) in good condition?					
9. Lack of evidence of leakage from process containers?					
10. Is each bottle present in the treatment unit in good condition and clear of obstruction?					
11. Criticality drain in good condition and is the opening clear of obstruction?					
12. Is process monitoring equipment present and operable?					
13. Is spill response equipment adequate, accessible, and in good working condition?					

* If the response to this question is "No", the inspector must note in the comment section that inspections are not required if process or filtrate solutions are not present in the treatment unit.

REMEDIAL ACTIONS

- Always notify Supervisor of any problems
- "NO" answers require explanation and/or corrective action in the comments section.
- All RCRA findings that cannot be corrected within 24 hours must be reported to DOE per 1-15200-ADM-16.02.

COMMENTS and CORRECTIVE ACTIONS (If additional space is required the reverse side of this logsheet may be used for comments)

_____ DATE _____

_____ DATE _____

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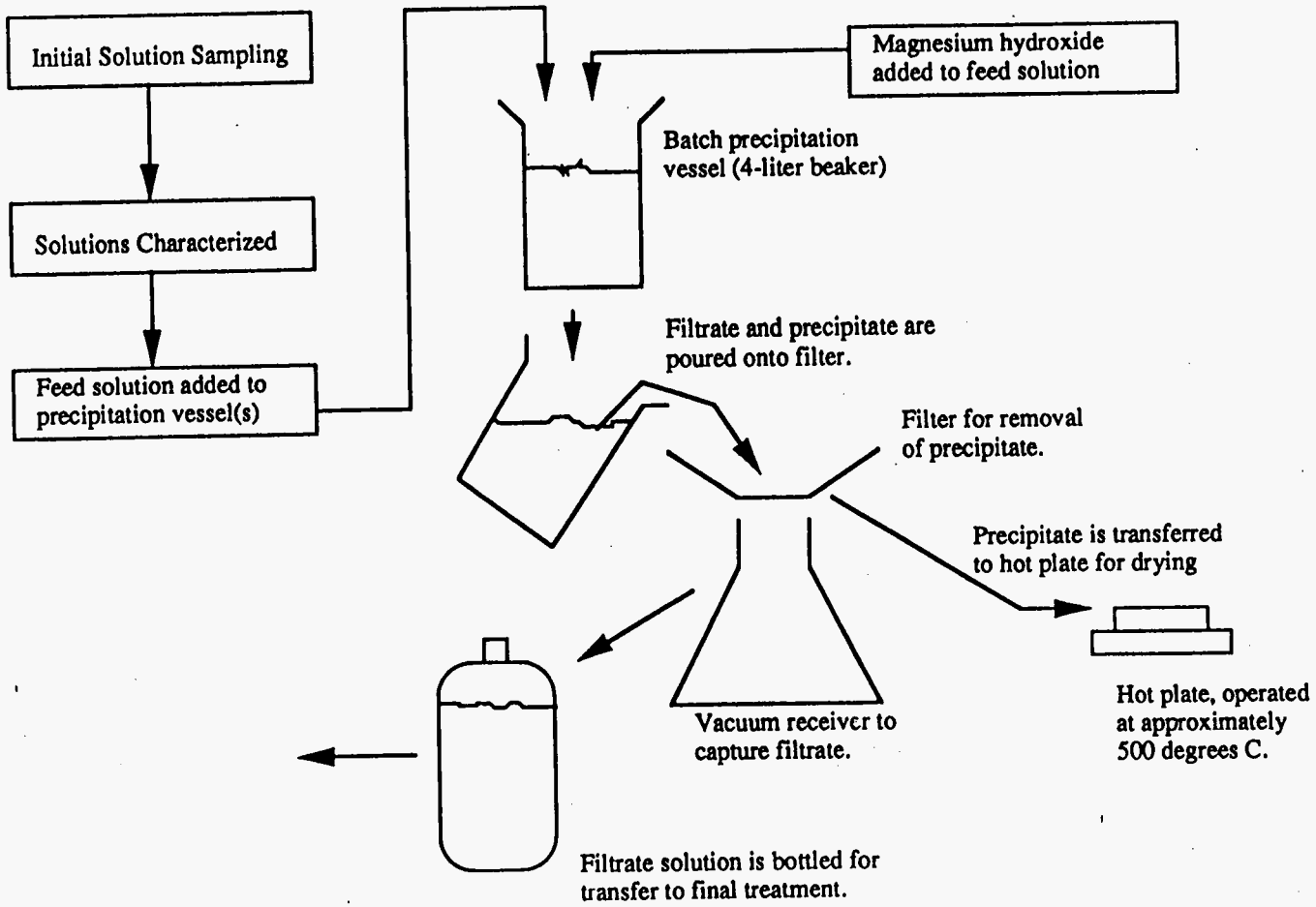
HYDROXIDE PRECIPITATION PROCESS FLOW



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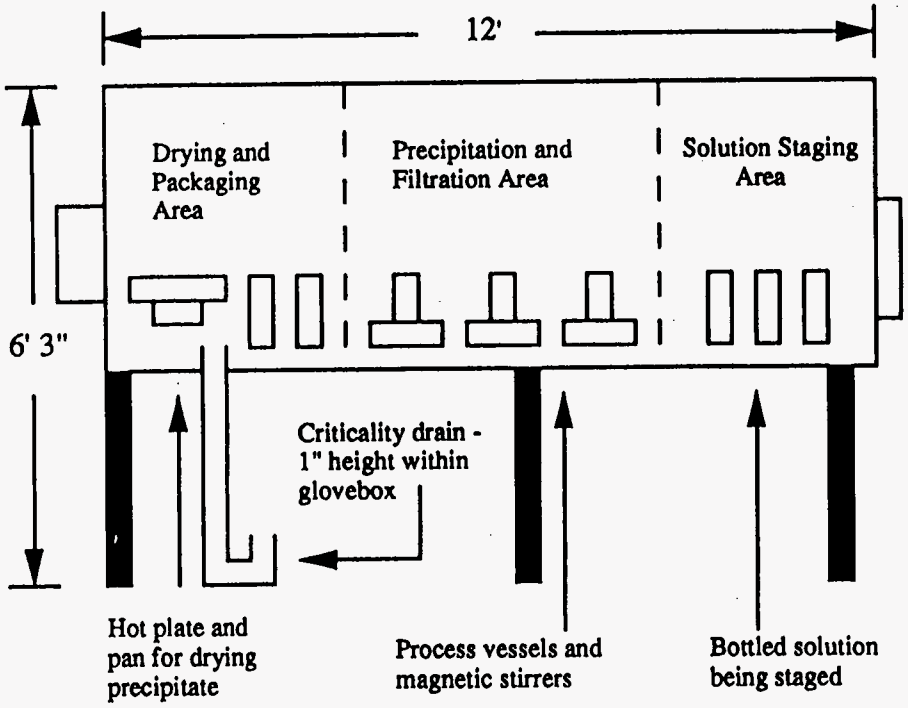
UNIT 771.3A - HYDROXIDE PRECIPITATION
GLOVEBOX D2, ROOM 180D



Secondary Containment Calculations:

1) Maximum process liquid capacity = 51 liters
2) Secondary containment area available = 4190 square inches
3) Total secondary containment volume = 68.7 liters
4) Minimum containment height necessary = 0.75 inch

NOTES:
1) This drawing is not to scale and may not depict process equipment in its actual location.
2) In the unlikely event the criticality prevention drain were to overflow, it would drain to the floor of the room.

2/6

4. Unit 774.3 - Building 774

This RCRA treatment unit contains the Miscellaneous Waste Handling and Solidification process (Bottle box) and the Aqueous Waste Treatment process. The Bottle box is a solidification process for liquid and solid waste forms. The Aqueous Waste Treatment process is a multi-stage treatment process that is conducted to remove radioactive and chemical contaminants from aqueous wastes. Specific information about each of these treatment processes is provided below.

a. Unit 774.3A - Miscellaneous Waste Handling and Solidification

The Bottle box is located in Glovebox 4 in Room 210 of Building 774. This treatment process is used to process aqueous and solid wastes with cement to result in an immobilized final waste form. Specific wastes to be treated in this process include complex aqueous wastes that: do not meet land disposal requirements; are incompatible with other wastes; are high in chloride concentration; or are otherwise not suitable for treatment in the aqueous waste treatment process.

Pre- and post-treatment analysis will be conducted in accordance with Miscellaneous Waste Handling and Solidification Procedure 4-A73-POPM-774-WO-2005 and Glovebox Upkeep Building 774 Procedure 4-F52-774-GU-001. Pre-treatment analyses will include pH, radionuclide concentration, RCRA TC metals concentration, and (if necessary) volatile organic compound (VOC) and semi-VOC concentration. Post-treatment analyses will include RCRA TC metals concentration and (if necessary) VOC and semi-VOC concentration in the final solidified waste form to determine if the waste has been successfully treated. The final waste form will also be evaluated to determine if 100% solidification has occurred.

Wastes subject to treatment in the Bottle box are introduced into Glovebox 4 in bottles or other small containers. Solutions intended for processing with a pH of 7 or greater are introduced directly into the drum attached to the glovebox for mixing with cement, while solutions with a pH of less than 7 are neutralized in Mixing Vessel T-7 before being introduced into the drum. If solids are to be processed, they are introduced directly into the drum. The waste is then mixed with cement and allowed to harden. Process equipment for the Bottle box includes a glovebox, a mixing vessel, and a drum to hold the treated waste.

General Safety Features

Unit 774.3A shall be maintained in accordance with the Nuclear Material Safety Limits (NMSLs) and Building 774 Operational Safety Requirements (OSRs). NMSLs, which are posted on each glovebox, serve as a control for the amount of fissile material (i.e., plutonium, americium and uranium) which may be present in the glovebox.

Glovebox safety must be maintained as a part of normal operations. The OSRs identify specific criteria for operations in a glovebox, which must be within acceptable limits for glovebox operations to commence or continue. These criteria include fissile material content of the glovebox relative to the NMSLs, glovebox vacuum and glove integrity.

Specific values and the associated operability status of the glovebox relative to the

NMSLs are identified in the Building 774 OSRs. Glove integrity inspections are typically completed in accordance with the OSRs. Defective gloves are replaced before operations can commence.

Waste Analysis

Sampling, analysis and characterization of new waste forms will be completed prior to treatment in Unit 774.3A. Waste forms related to those previously treated at Unit 774.3A will be characterized by process knowledge. Analysis will be completed in accordance with approved L-procedures.

L-procedures which will be used for the analyses to be conducted include the following:

L-6294A	Sampling in the Radiological Buffer Area
L-4143	GC/MS Analysis of Extracts of Mixed Waste Samples for Measurement of EPA-Digested Semi-Volatile Organics
L-4111	GC/MS Determination of Volative Organics - Waste Characterization
L-4153	Trace Metals by ICP Spectroscopy
L-4152	Mercury Analysis in Waste (Cold Vapor Techniques)
L-4150	Total Metals Digestion Procedure for Radioactively Contaminated Aqueous Samples and TCLP Extracts
L-4108	Toxicity Characteristic Leaching Procedure for Metals in Waste
L-4172	Extraction of Semi-Volatile Organics for GC/MS Analysis
L-4199	Extraction of Semi-Volatile Organics in Aqueous Samples by EPA SW-846 Method 3526 for Analysis by GC/MS

Pre-treatment sampling parameters include:

EPA Hazardous Waste Code and Waste Type: The permit limits the wastes which can be accepted into this unit to the waste descriptions and EPA codes listed in the Unit Specific Conditions Sheet for Unit 774.3A.

Radionuclide Concentration: Solutions intended for processing will be sampled to determine actinide concentrations (plutonium, americium and uranium). Acceptable levels for treatment shall not exceed those listed in the posted NMSLs.

pH/Normality: All values of pH are acceptable. The pH value is used to determine the amount of base to add for neutralization. Process controls also exist to limit the total volume of neutralized solution to 70 liters maximum.

LDR Constituents: Confirmation that LDR requirements of 6 CCR 1007-3, Part 268 will be met will be based on the results of surrogate testing of each new waste type for the applicable metals and organics, as described in the Sampling and Analysis Plan.

Post-treatment sampling parameters include:

LDR Constituents: Confirmation that LDR requirements of 6 CCR 1007-3, Part 268 have been met for each hazardous waste in the container will be made based on process knowledge from surrogate testing or sample results.

Absence of Free Liquids: Confirmation that drums do not contain free liquids will made using Real Time Radiography or process knowledge.

Treatment Unit Information

A treatment unit information sheet (page V-32), a unit inspection sheet (page V-33), a process flow diagram (page V-34), and a drawing of room 210 (page V-35), and a valve lineup diagram (page V-36) are provided in this section.

TREATMENT PROCESS INFORMATION SHEET

Unit 774.3A - Miscellaneous Waste Handling and Solidification

Location: Building 774, Room 210

Process Equipment: Glovebox 4, Mixing Vessel T-7

Treatment Process: Solidification and Stabilization - immobilization of waste by mixing with cement.

Design Capacity
- Treatment Process: 110 gallons per day
- Operating Capacity
- Treatment Process: 55 gallons per batch
- Dimensions
- Treatment Process: Glovebox 4 - 2 feet 7 inches high x 1 foot 11inches deep

Waste Codes: D001, D002, D004-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005, F007-F009.

Waste Description: Mixed

Secondary Containment:
- Type
  - Mixing Vessel: Coated concrete
  - Treatment Process: Glovebox
- Minimum Berm Height
  - Mixing Vessel: 0.1 inch
  - Treatment Process: Not Applicable
- Drawing Number
  - Mixing Vessel: P&C 0004
  - Treatment Process: P&C 0004

Inspection Method: Visual

Process Control Variables: Solid to liquid ratio, pH
- Maximum: 70 liters of neutralized solution in T-7
  430 lb. cement to 80 liters waste, and pH 7 prior to cementation
- Minimum: 430 lb. cement to 60 liters waste

Overfill Prevention
- Mixing Vessel: Direct monitoring
- Treatment Process: Containment
- P&ID Drawing Number: Not Applicable

Process-specific Conditions:

1) Containers holding wastes to be treated in this process may be staged adjacent to Gb 4 in Room 210. The staging area for this process has a volume limit of 220 gallons.

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MISCELLANEOUS SOLIDIFCATION INSPECTION SHEET

BUILDING					
ROOM					
UNIT ID NO.					
DATE					
TIME					
INSPECTOR SIGNATURE					

The following log sheet must be filled out completely and accurately. The only acceptable responses are "Yes, "No", or "NA".

1. Are unit signs present, correct, and visible at each entrance to Room 210?					
* 2. Are hazardous wastes present within the treatment unit?					
3. Is adequate aisle space present around treatment unit and clear of obstruction?					
4. Is the secondary containment free of cracks, gaps, erosion, or corrosion?					
5. Is the secondary containment free of liquids?					
6. Is the secondary containment free of unnecessary debris and trash?					
7. Are any wastes present in the unit which it is not approved for?					
8. Is process equipment (i.e., glovebox and mixing vessel) in good condition?					
9. Lack of evidence of leakage from process containers?					
10. Is spill response equipment accessible and in good working condition?					

* If the response to this question is "No", the inspector must note in the comment section that inspections are not required if process or filtrate solutions are not present in the treatment unit.

REMEDIAL ACTIONS
- Always notify Supervision of any problems.
- "No" answers require explanation and/or corrective action in the comments section.

COMMENTS AND CORRECTIVE ACTIONS (The reverse side can be used if additional space is needed for comments).

_____ DATE _____

_____ DATE _____

_____ DATE _____

_____ DATE _____

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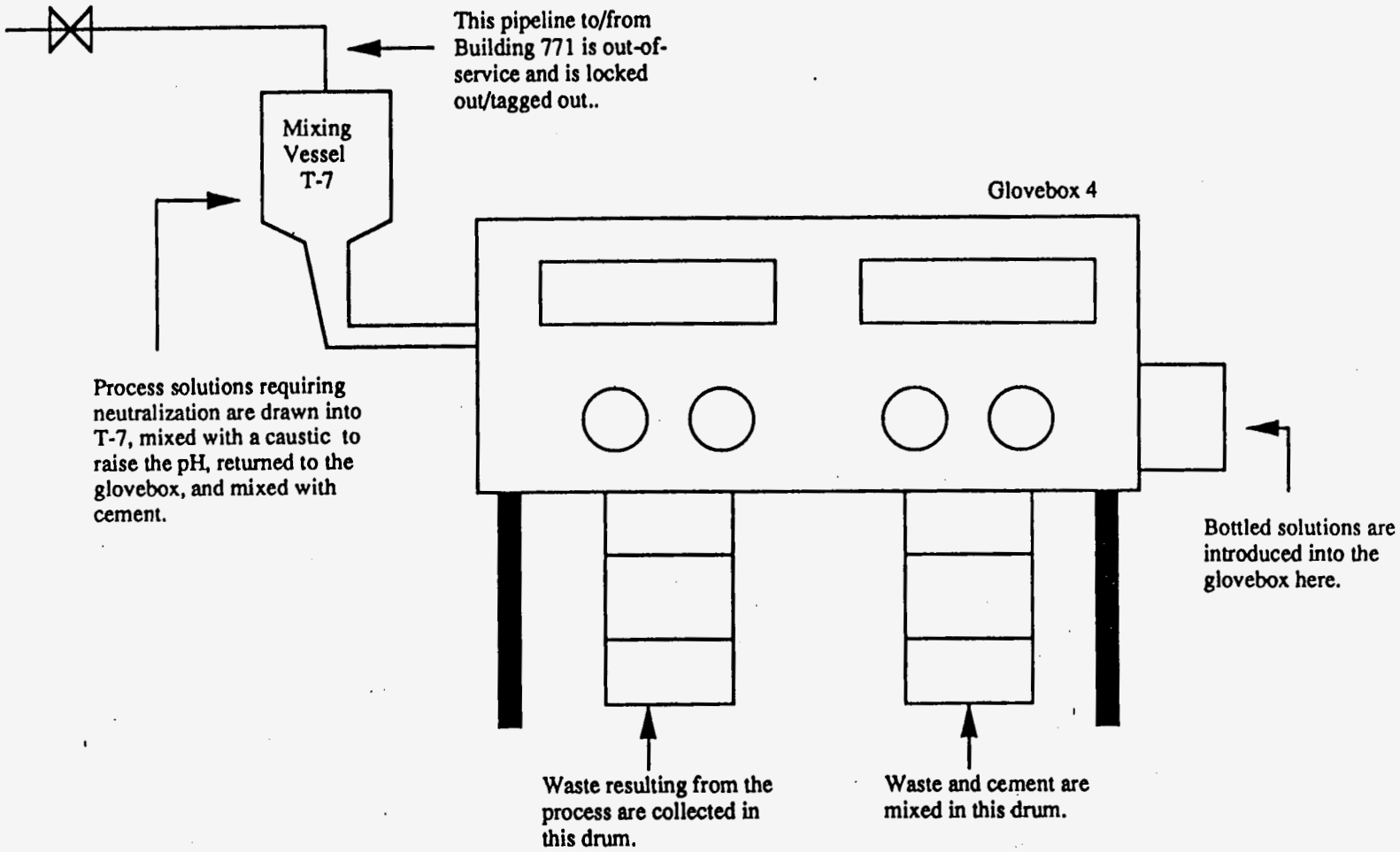
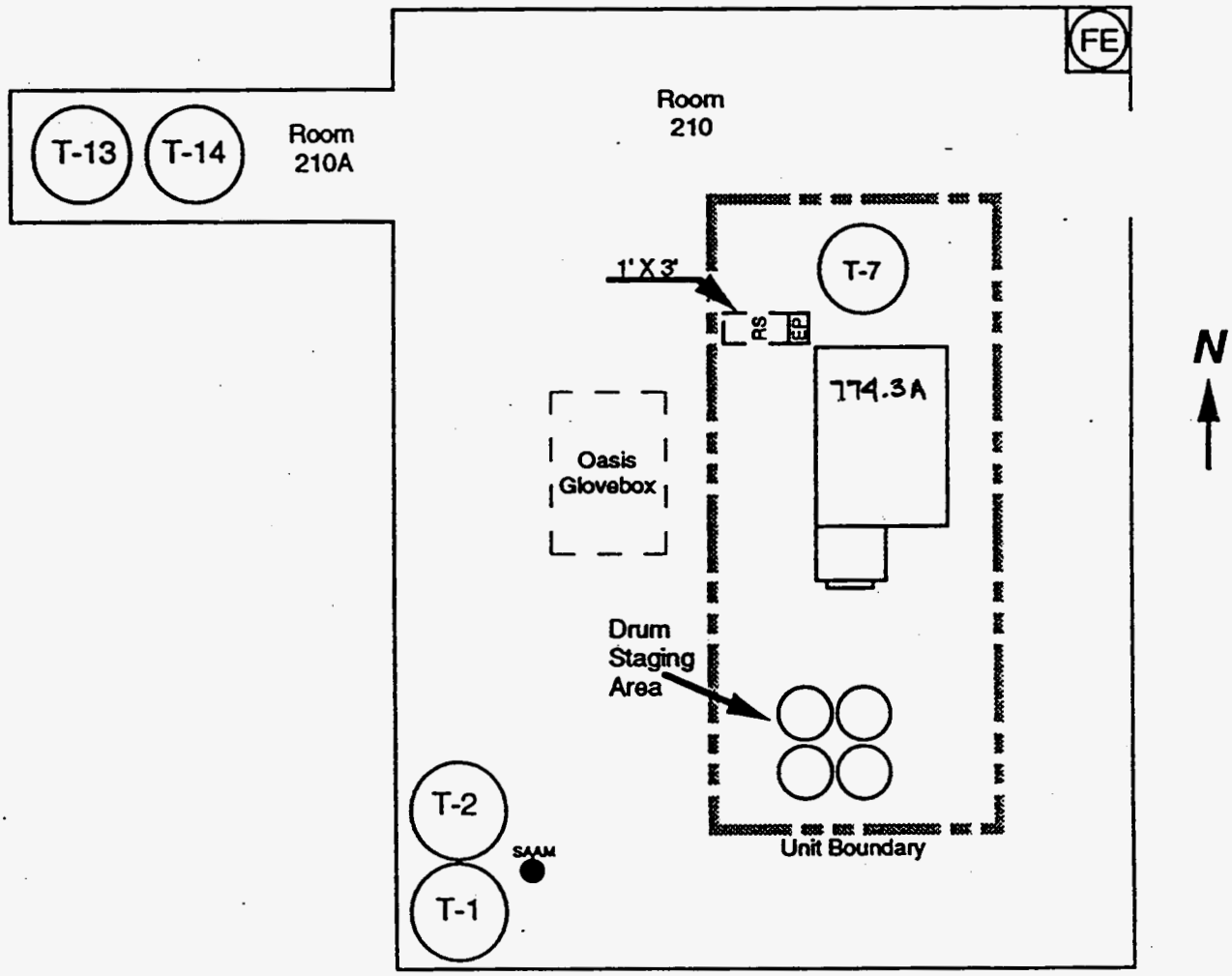
UNIT 774.3A - MISCELLANEOUS WASTE HANDLING AND SOLIDIFICATION, ROOM 210, BUILDING 774



NOTES:

1) Drawing is not to scale and may not depict the actual size or location of equipment.

222



Note:
Drawing shows a typical container layout. Actual arrangement and combination of container types may vary.

Rocky Flats Environmental Technology Site
UNIT ID 774.3A
Building 774, Rm 210/210A
Drawing No. P&C 0004, Rev. 0
November 15, 1995

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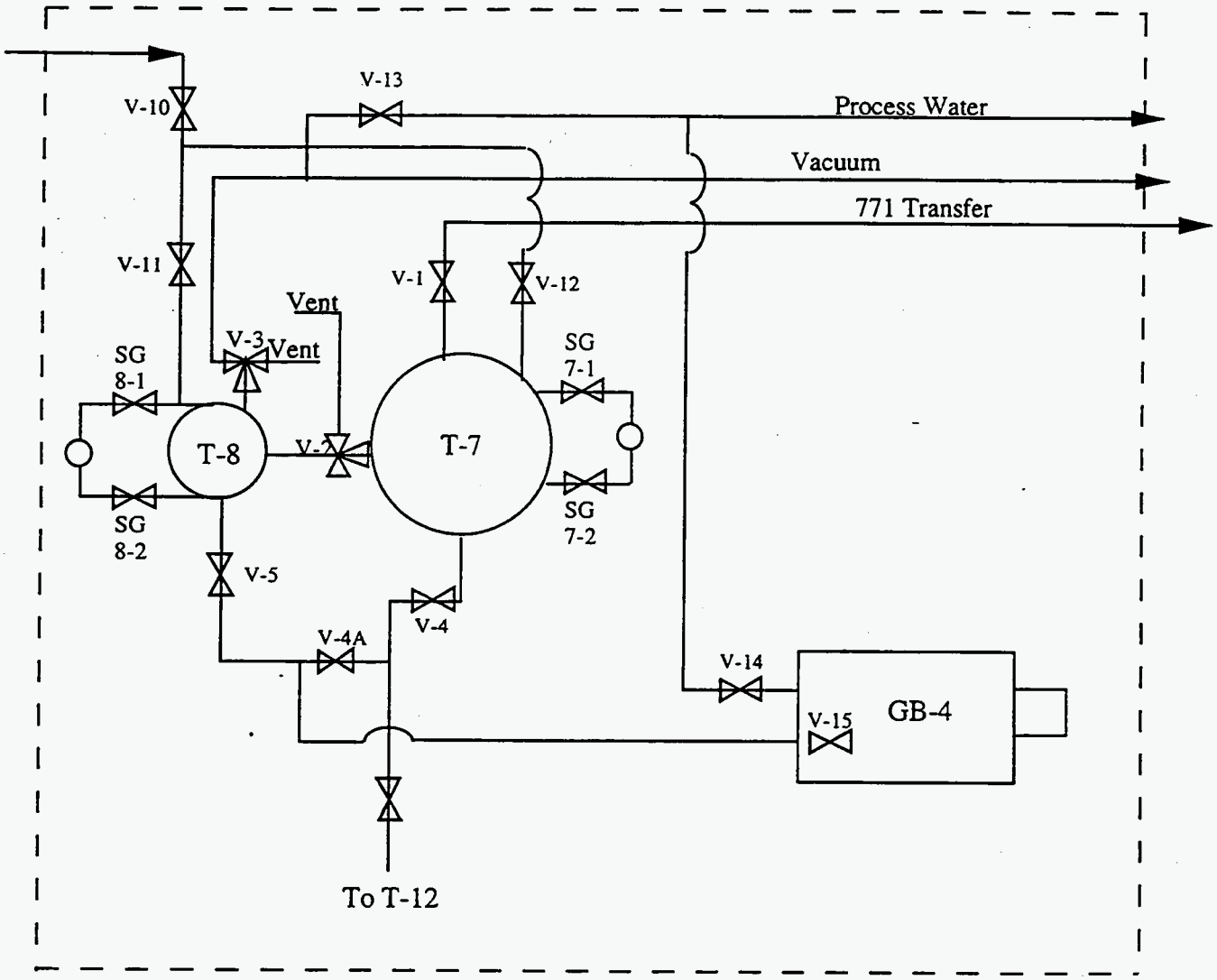

Rocky Flats Environmental
Technology Site
Valve Lineup - Unit 774.3A
Building 774, Room 210

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4. Unit 774.3B - Aqueous Waste Treatment

The aqueous waste treatment process is located in Rooms 103 and 241 of Building 774. This treatment process is capable of handling either acidic or caustic aqueous waste. Acidic wastes are neutralized prior to chemical precipitation. Caustic wastes are treated in a precipitation process to remove radioactive contaminants. The treatment process is supported by several tanks that are used for treatment and/or storage of wastes. These include Tanks T-201, T-202, T-203, T-204, and T-40.

Waste Analysis

Pre- and post-treatment analysis will be conducted in accordance with Liquid Waste Processing Second Stage Procedure - Building 774 (WO-2009) and Waste Receiving and Transferring Second Stage Procedure - Building 774 (WO-2026). Pre-treatment analyses conducted prior to the transfer of waste solutions to this process typically includes pH and radionuclide concentration, and may also include chloride concentration, RCRA TC metals concentration, and (if necessary) volatile organic compound (VOC) and semi-VOC concentration depending on the type of waste and the point of generation. Post-treatment analyses will typically include radionuclide concentration and RCRA TC metals concentration, and (if necessary) VOC and semi-VOC concentration in the treated waste form to determine if the waste has been successfully treated.

This process is conducted on a batch basis in Tanks T-201 and/or T-202. Wastes are transferred into these tanks from Tanks 309E and 309W, building sumps, and/or the groundwater sump. Each tank is capable of holding 12,000 gallons of waste for treatment. Once a batch of waste is designated for treatment, ferric sulfate, calcium chloride, and magnesium sulfate are added to the tank. Following the addition of these chemicals, the tank contents are recirculated for approximately 1 hour. The pH of the waste is then checked with pH paper to determine the status of the waste. If the pH of the waste is less than 11, sodium hydroxide is added to adjust the pH as necessary. Following the circulation of the waste and the evaluation of the pH, a coagulating agent (polyelectrolyte flocculent) is added to accomplish the precipitation. The waste is then allowed to settle undisturbed for a minimum of 8 hours.

After the settling period for each batch, the waste is decanted to Tank T-203. During the decanting operation, a sample is withdrawn to determine if further precipitation is necessary. If analysis indicates that the waste is at or below the acceptable waste transfer levels set for total alpha activity, the waste is transferred to Building 374 or Building 910 for further treatment. If the analysis indicates that the waste is above the acceptable transfer levels, the pH of the waste is checked and, if necessary, adjusted to greater than 11. The waste is then retreated, resampled, and transferred to Tank T-204. The contents of Tank T-204 is then sampled prior to shipment to Building 374 or 910 for final treatment. Settled sludge from the treatment process in Tanks T-201, T-202, and T-203 is transferred to Tank T-40.

L-procedures which will be used for the analyses to be conducted include the following:

L-4175 Electronic Determination of pH by the 559 Radiochemistry Laboratory
L-4182 Analysis of Discard Solutions for Plutonium, Americium, Uranium and Specific Gravity

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Treatment Unit Information

A treatment unit information sheet (page V-39), a unit inspection sheet (page V-40), a drawing of room 241 (page V-42), and a drawing of room 102 and 103 (page V-43), and a drawing of tank systems T-201, T-202, T-203, and T-204 (page 44) are provided in this section.

TREATMENT PROCESS INFORMATION SHEET

Unit 774.3B - Aqueous Waste Treatment

Location:	Building 774, Room 241 and Room 103
Process Equipment:	Tanks T-201, T-202, T-203, T-204, and T-40
Treatment Process:	Chemical treatment - chemical precipitation of radionuclides (and metals) from aqueous waste solutions.
Design Capacity	
Tanks:	15,000 gallons each (T-201, T-202, T-203, T-204) 7,240 gallons (T-40)
Operating Capacity	
Tanks:	12,500 gallons each (T-201, T-202, T-203, T-204) 6,154 gallons (T-40)
Dimensions	
Tanks:	33 feet long x 9 feet deep (T-201, T-202, T-203, T-204) 28 feet x 6.5 feet deep (T-40)
Waste Codes:	D001, D002, D004-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005, F007-F009.
Waste Description:	Mixed
Secondary Containment	
Type:	Coated concrete
Minimum Berm Height:	8.1 inches (based on required containment for T-201, T-202, T-203, T-204)
Drawing Number:	39650-2353 (T-201, T-202, T-203, T-204) 39650-2352 (T-40)
Inspection Method:	Visual
Process Control Variables:	Quantity of reagent, residence time, batch size
Maximum:	To be determined
Minimum:	To be determined
Overfill Prevention:	Level indicator (T-201, T-202, T-203, T-204) High level alarm (T-40)
P&ID Drawing Number:	39650-2078 (T-201, T-202, T-203, T-204) 39650-2081, 39650-2082 (T-40)

Process-specific Conditions:

1) Applicable maximum and minimum process control variables will be added to the unit's operating record and included in the operating procedure for the Aqueous Waste Treatment System to be submitted to CDPHE along with the inspection log sheet at least 30 calendar days prior to commencement of operations.

Storage/Treatment Tank Daily Inspection Logsheet

Building 774

Only yes or no answers are acceptable.

Date							
Time							
Signature of Inspector							
Signature of Supervisor							
Signature of Ops Manager							
1. Was the last inspection within 24 hours?							
2. Are area signs present, correct, & visible?							
3. Are the tanks in good condition & not leaking?							
4. Is ancillary equipment in good condition and not leaking?							
5. Is hazardous waste compatible with tanks?							
6. Is the aisle space adequate?							
7. Where necessary, is monitoring equipment operable							
8. Is the overfill prevention equipment operable?							
9. Is secondary containment free of chips, cracks, gaps, corrosion?							
10. Is secondary containment free of liquids?							
11. Is incidental release response equipment present, accessible, and adequate?							

This check list is the documentation for inspection of the following RCRA Units: 41.01, 41.02, 55.01 to 55.05, 55.07 to 55.20, 55.23 to 55.25, 55.27, 56.01 to 56.05, 56.07, and 57 as well as all secondary containment, spill response cabinets, and sump SP-210. By signature, I verify that I have inspected all of these features.

The quantity of hazardous waste and the accumulation start date for each period of accumulation in the tanks is maintained on the Waste Tank Status Sheets.

Note 1 Supervision and RCRA Custodian are to be notified of any problems.

Note 2 Questions answered "no" require:
1) Explanation in the comments section (page 2)
2) Corrective actions listed in the corrective actions section (page 2)
3) Signature of Ops Manager

Note 3 Any change in response from the previous inspection requires a comment

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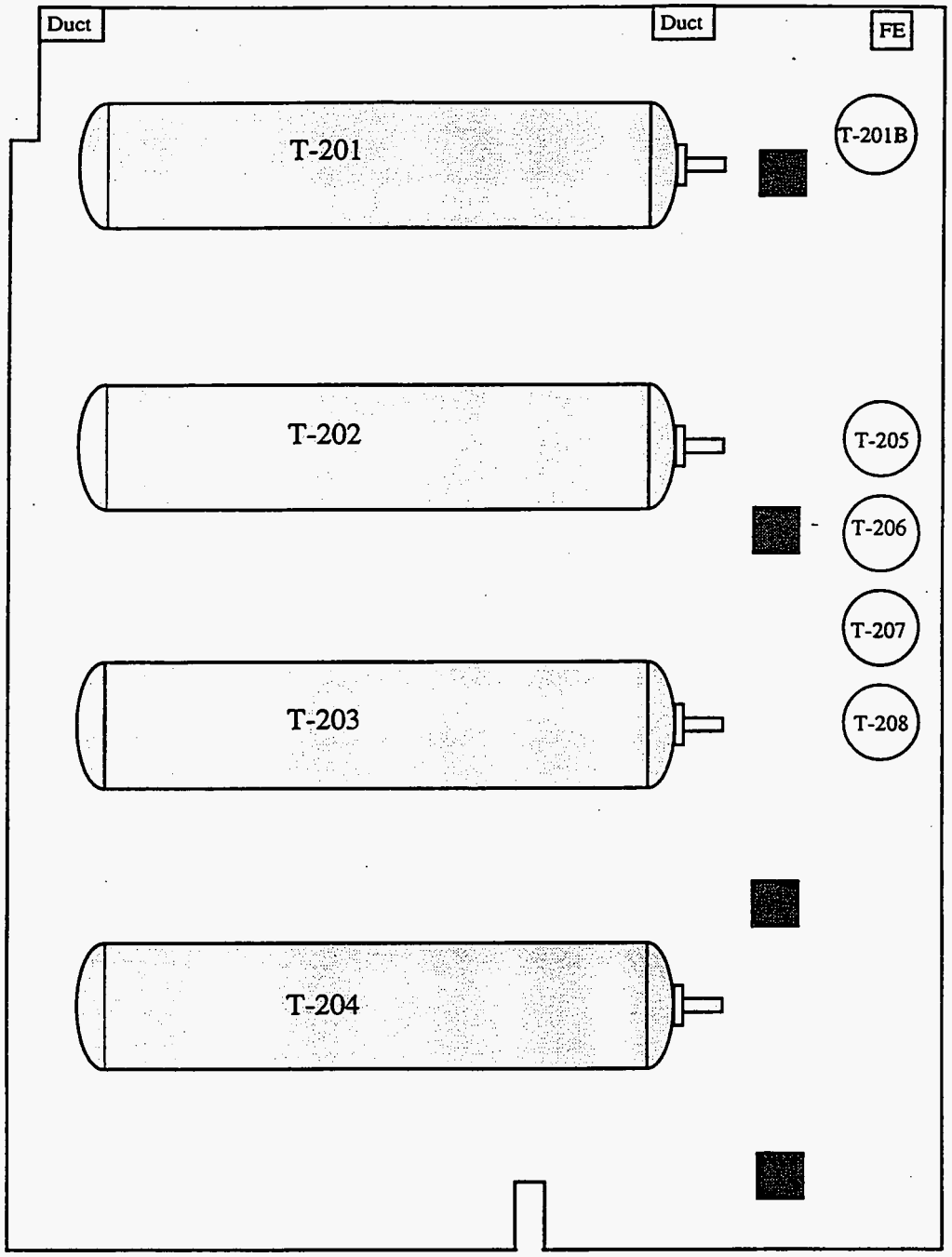

Legend:

Column

FE Fire Extinguisher

Rocky Flats Environmental Technology Site
RCRA Unit 774.23
Building 774, Room 241

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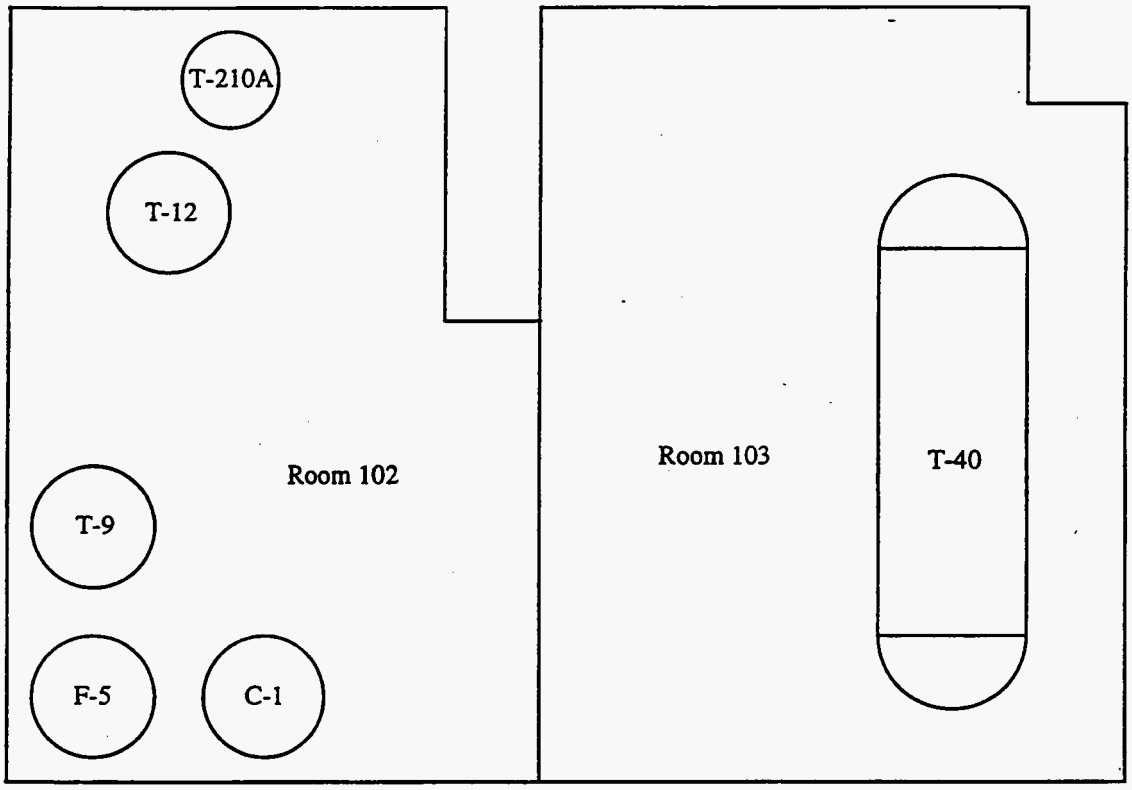
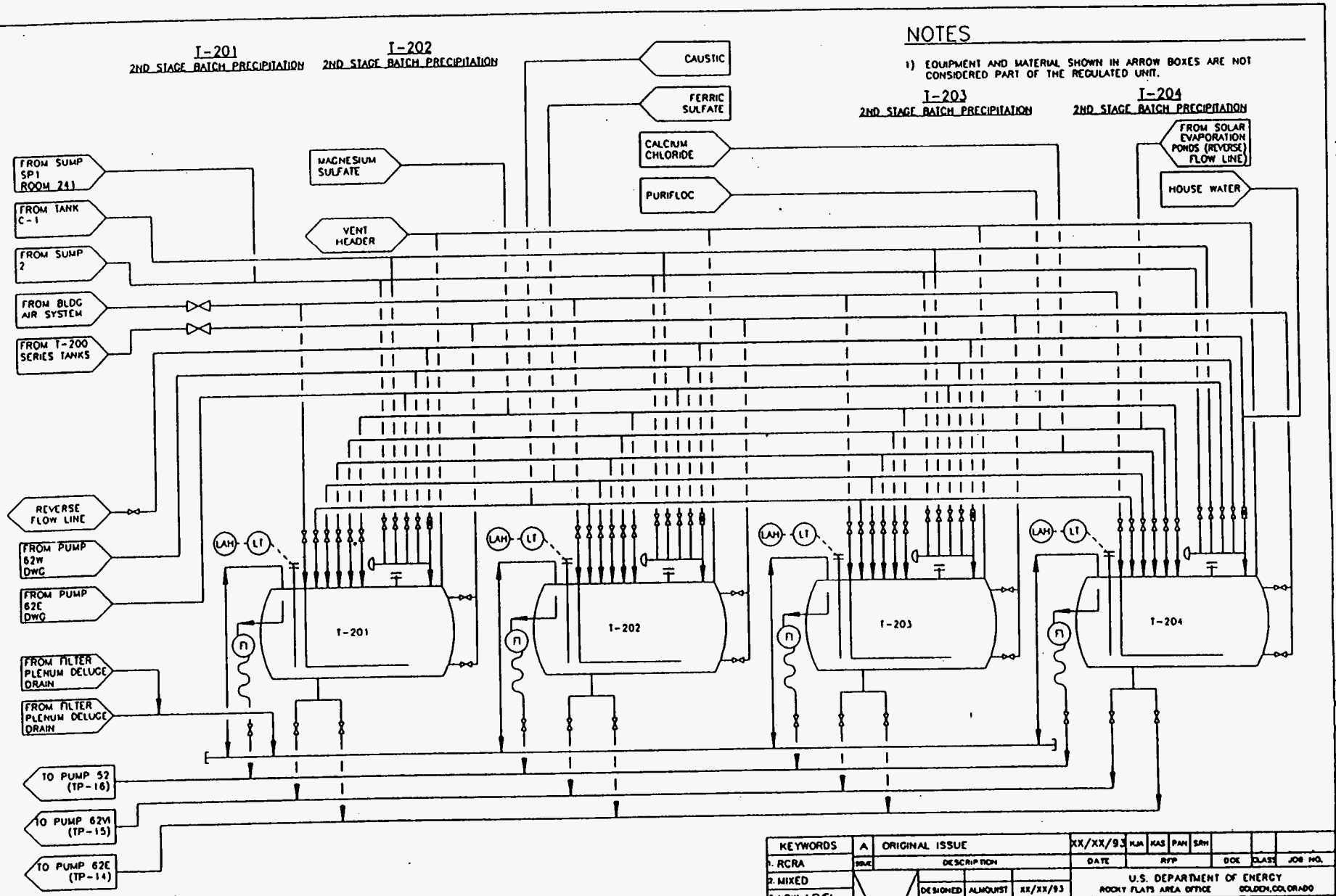
RCRA Unit 774.3B
Room 102 and 103



NOTE:
1) Floor drains in rooms 102, and 103 drain to sump tank SP-202.

230



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	KJA	KAS	PAN	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP				DOC	CLASS	JOB NO.
2. MIXED										
3. LOW LEVEL										
4. TRU										
5. P&ID										
BLDG./FACILITY 774										
ROOM/AREA 241										
CMD CODE/CCL NO										
MASTER	DATE									

DESIGNED	ALMQUIST	XX/XX/93
DRAWN	SCHACKLIN	XX/XX/93
CHECKED	HAZARYK	XX/XX/93
APPROVED	HUGHES	XX/XX/93
DRAWING APPROVAL	BERNHAM	XX/XX/93

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant

GOLDEN, COLORADO 80401

MIXED LL/TRU RCRA PERMIT MODIFICATION

TANKS T-201, T-202, T-203, T-204

SIZE | DRAWING NUMBER | ISSUE | SHEET

RCRA Unit 774.3B

774
241

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14

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5. Unit 776.3 - Building 776

This RCRA treatment unit contains the Advanced Size Reduction Facility (ASRF). The ASRF is located in Room 134 of Building 776 and is used to repackage, and wash various types of waste (both mixed and non-mixed). Wastes subject to processing in the ASRF will be characterized as necessary in accordance with the Waste Analysis Plan (Part VI of this permit) and approved process procedures.

The ASRF is a structure within Building 776 equipped with heat, ventilation, air conditioning, and exhaust systems that are independent of the building. Wastes subject to treatment in the ASRF are introduced into the facility and treated as necessary using any or all of the available treatment processes. Wastes may be steam cleaned or washed to remove external contamination prior to packaging. Another form of treatment that occurs in the ASRF is liquid removal or solidification. These treatment processes include the addition of absorbants or cement to waste to remove or immobilize liquids. Wastes subject to treatment in the ASRF include contaminated solid wastes, gloveboxes, combustibles, high efficiency particulate air (HEPA) filters, machine tools, hazardous debris, processing equipment, plastic, insulation, sludge, filter socks, blacktop, concrete, soil, and spill clean up materials such as wipes, booms, and oil dry.

Following treatment in the ASRF, wastes are packaged in appropriate waste containers. Waste liquids and solids resulting from the processes are either transferred for treatment in other facilities at the Site or packaged for storage and disposal.

General Safety Features

Unit 776.3 shall be maintained in accordance with the Nuclear Material Safety Limits (NMSLs) and Building 776 Operational Safety Requirements (OSRs). NMSLs serve as a control for the amount of fissile material (i.e., plutonium, americium and uranium) which may be present in the facility, for criticality safety purposes.

Containment safety must be maintained as a part of normal operations. The OSRs and procedures identify specific criteria for operations in the ASRF including nuclear material limits, ventillation requirements, and fire protection.

Waste Analysis

Analysis will be completed in accordance with approved L-procedures and in accordance with Part VI of the Permit.

Pre-treatment sampling parameters are as follows:

EPA Hazardous Waste Code and Waste Type: The permit limits the wastes which can be accepted into this unit to the waste descriptions and EPA codes listed in the Unit Specific Conditions Sheet for Unit 776.3.

Radionuclide Concentration: Radionuclide concentration of all wastes intended for processing shall conform to the posted NMSLs.

Free Liquids in Containers: Packages containing free liquids may be segregated from solid wastes and characterized. Alternatively, cement or absorbents may be added to

containers to immobilize free liquids. A determination will be made as to whether to treat at ASRF or send to another facility.

Unknown Components in Containers: Unknowns will be identified prior to treatment to assure that treatment at the ASRF is feasible. Components not acceptable by the ASRF will be transferred to another unit for storage or treatment.

Batches of similar materials are size reduced and packaged together to ensure compatibility.

Sampling and analysis following treatment in Unit 776.3 is described by the following parameters:

Radionuclide Concentration (Applicable to Wash Solutions): Wash solutions will be sampled in-process to determine actinide concentrations (plutonium, americium and uranium). These solutions are considered saturated and no longer usable at 6 g/l.

pH/Normality (Applicable to Wash Solutions): Wash solutions will be sampled for pH prior to neutralization (if necessary) and solidification. There are no limiting conditions for acceptance. This parameter is necessary for the determination of the amount of base necessary to neutralize the solution prior to cementation.

LDR Constituents: Confirmation that LDR requirements have been met for each hazardous waste in the container will be made based on process knowledge from surrogate testing or sample results.

Any other incidental waste generated as a result of treatment in Unit 776.3 (e.g. wipes) will also be characterized in accordance with Part VI of the Permit.

Treatment Unit Information

A treatment unit information sheet (pages V-47 and V-48), a unit inspection sheet (page V-49), and a drawing of room 134 (page V-50) are provided in this section.

TREATMENT PROCESS INFORMATION SHEET

Unit 776.3 - Advanced Size Reduction Facility

Location: Building 776, Room 134

Process Equipment: Gloveboxes, steam cleaner, remote manipulators.

Treatment Process:
(1) Chemical treatment using cleaning and washing equipment and processes; and
(2) Stabilization and Solidification using absorbants and cement.

Design Capacity
Treatment Process: 25 cubic yards per week

Operating Capacity
Treatment Process: Not applicable

Dimensions
Treatment Process: 40 feet wide x 100 feet long (approximately)

Waste Codes: D001-D011, D018, D019, D028, D029, D035, D038, D040, D043, F001-F003, F005-F009, F027, P011, P012, P014, P015, P022, P028-P030, P045, P062, P076, P087, P098, P101, P104-P106, P113, P116, P119-P121, U002-U004, U019, U031, U037, U041-U044, U055-U057, U067, U071, U074, U075, U077, U079, U080, U084, U098, U102, U107, U108, U112, U120-U123, U127, U131, U133, U134, U138, U144, U148, U151, U154, U158, U159, U161, U162, U165, U167, U169, U170, U188, U190, U191, U196, U201, U204, U207, U209-U211, U213-U220, U225-U228, U236, U239, U246, U328, U353, U359.

Waste Description: Mixed

Secondary Containment:
Type
Treatment Process: Catch basins or stainless steel
Minimum Berm Height
Treatment Process: Not applicable, see Process-specific Condition #2.
Drawing Number
Treatment Process: P&C 0006

Inspection Method: Visual

Process Control Variables
Maximum: None
Minimum: None

Overfill Prevention
Treatment Process: None

P&ID Drawing Number
Treatment Unit: None

Process-specific Conditions:

1) Documentation of the determination of any specific hazards for each waste and special conditions for management will be made available upon request.

2) Each catch basin will have an integral berm of sufficient capacity to meet secondary containment requirements.

3) Cementation may be conducted on characteristic hazardous wastes allowed in this unit. Surrogate testing will be performed on each new waste form prior to cementation of the actual waste.

4) At least 30 days prior to conducting steam cleaning, water washing, or cementation activities, RFETS must submit activity specific standard operating procedures (SOPs) for review and approval by the Director. The SOPs will identify, at a minimum, applicable process parameters, control variables, quantities of waste, and performance objectives and verification.

ADVANCED SIZE REDUCTION FACILITY INSPECTION SHEET

BUILDING					
ROOM					
UNIT ID NO.					
DATE					
TIME					
INSPECTOR SIGNATURE					

The following log sheet must be filled out completely and accurately. The only acceptable responses are "Yes, "No", or "NA".

1. Are unit signs present, correct, and visible at each entrance to the ASRF?					
* 2. Are hazardous wastes present within the treatment unit?					
3. Is adequate aisle space present around treatment unit and clear of obstruction?					
4. Is the secondary containment free of cracks, gaps, erosion, or corrosion?					
5. Is the secondary containment free of liquids?					
6. Is the secondary containment free of unnecessary debris and trash?					
7. Are any wastes present in the unit which it is not approved for?					
8. Is process equipment in good condition?					
9. Lack of evidence of leakage from process containers?					
10. Is spill response equipment accessible and in good working condition?					

* If the response to this question is "No", the inspector must note in the comment section that inspections are not required if process or filtrate solutions are not present in the treatment unit.

REMEDIAL ACTIONS
- Always notify Supervision of any problems.
- "No" answers require explanation and/or corrective action in the comments section.

COMMENTS AND CORRECTIVE ACTIONS (The reverse side can be used if additional space is needed for comments).

_____ DATE _____

_____ DATE _____

_____ DATE _____

_____ DATE _____

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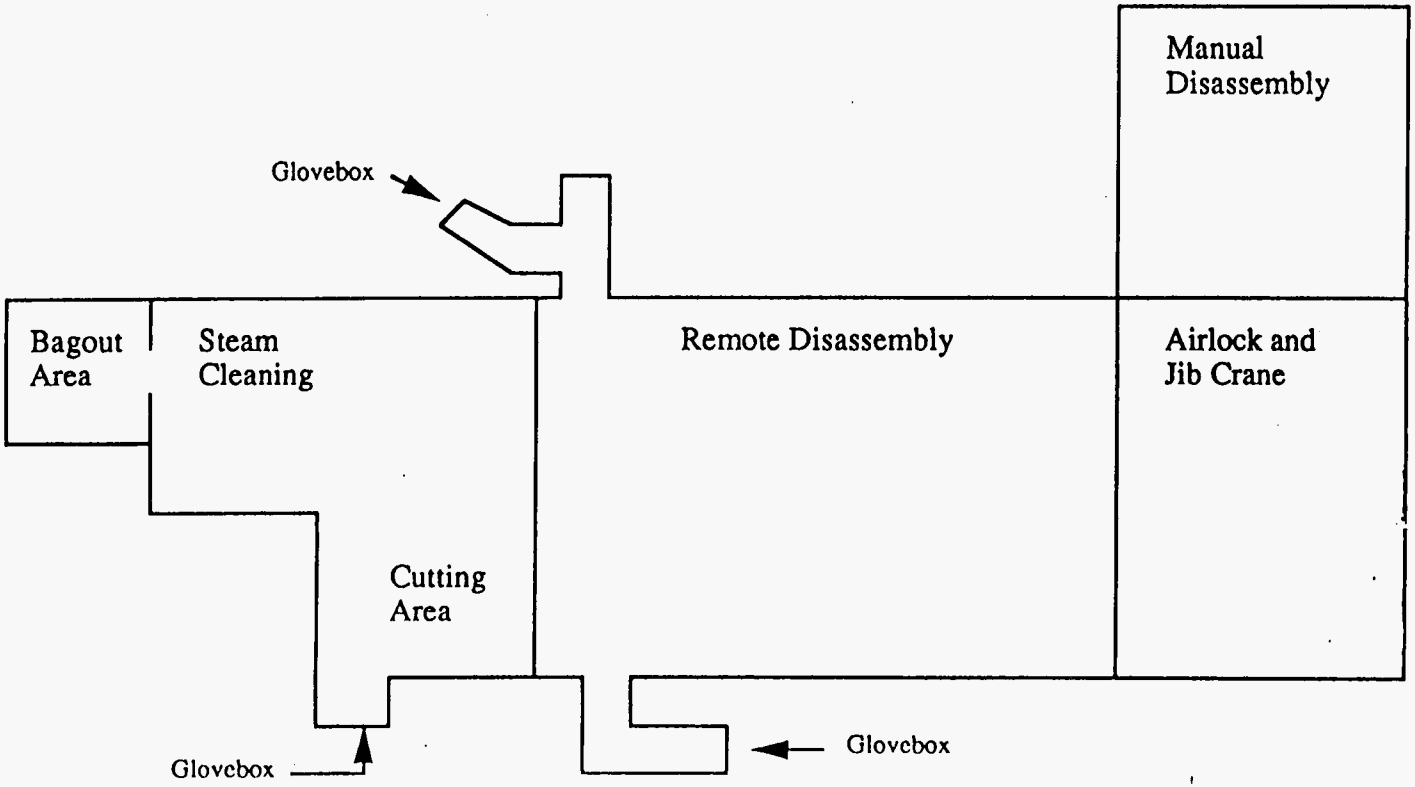
UNIT 776.3 - ADVANCED SIZE REDUCTION FACILITY
ROOM 134, BUILDING 776



NOTES:
1) This drawing is not to scale and does not depict the actual location of equipment.
2) The container layout shown is typical and may not depict the actual container arrangement.

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6. Unit 881.3 - Building 881

This RCRA treatment unit includes two treatment processes: Electrochemical Chlorination and Bench-Scale Treatment of Hazardous Chemicals. Both of the treatment units are discussed in the following.

a. Unit 881.3A - Electrochemical Chlorination

The Electrochemical Chlorination treatment process is located in Room 245 of Building 881 and is used to treat reactive cyanide waste consisting of solutions and/or solids. Wastes subject to treatment in this process are characterized by sampling and analysis conducted in accordance with the Waste Analysis Plan (Part VI of this permit) and approved process procedures. Post-treatment sampling and analysis is also conducted to ensure the treatment has been successful. The electrochemical chlorination process is used to destroy the cyanide complex by generating chlorine.

Wastes which are to be treated in this process must be in liquid form. If solid wastes require processing they must first be dissolved in an appropriate solvent. The solution is pumped from the reaction container to the flow-through electrochemical cell, which provides the initial reaction with electrical energy. Chlorine gas results from this reaction and becomes the primary oxidizer for subsequent reactions. In the next reaction, cyanide is converted into cyanate ions, which are ultimately converted to carbon dioxide and nitrogen.

Process equipment includes a 55-gallon reaction vessel with a mixer,a recirculation pump, a flow-through electrochemical cell, a fume hood used to capture fumes resulting from the processing, and a fume scrubber. For the protection of the process operators, the treatment process is also equipped with various gas detection equipment.

Waste Analysis

The spent plating bath wastes and excess chemical products to be treated by this process will be analyzed and characterized. The following analyses will be performed in the Building 559 laboratory: pH/normality, RCRA Toxicity Characteristic (TC) metals, and total and amenable cyanide.

Treatment parameters are as follows:

EPA Hazardous Waste Code and Waste Type: The permit limits the waste which can be accepted in this unit to the waste description and EPA codes listed in the Unit Information Sheet for Unit 881.3A.

Solubility: The system will not be capable of treating waste that is insoluble in a caustic aqueous solution.

Iron Cyanide Content: Iron Cyanide-bearing products are not allowed in this system because they are too stable for treatment.

While the treatment process is operating, "tracking" samples of the homogeneous mixture in the container will be taken. Ongoing analysis will measure the efficiency of the process, and assist in determining the point at which the solution's hazardous waste constituents are

compliant with Land Disposal Restriction (LDR) standards. Final sampling or process knowledge will be used to verify compliance.

Final sampling and analysis of the treated solution for total RCRA TC metals and total and amenable cyanide content will be conducted in the Building 559 laboratories, per Contract Laboratory Procedure (CLP). If final sampling indicates failure to meet acceptable standards, the solution will undergo additional treatment.

The generation of hydrogen gas by this process presents the possibility of an explosion. Potential ignition sources such as welding shall be prohibited in the immediate vicinity of the unit. Signage stating "No Smoking" will be posted in the area of the Unit 80.1. Specific measures to mitigate explosion and other hazards associated with this process are identified in the "Engineering Readiness and Safety Review of the Cyanide Destruction Process in Building 881."

Treatment Unit Information

A treatment unit specific conditions sheet (page V-53), a typical unit inspection sheet (page V-54), and a process schematic (page V-55) are provided in this section.

TREATMENT PROCESS INFORMATION SHEET

Unit 881.3A - Electrochemical Chlorination

Location:	Building 881, Room 245
Process Equipment:	Reaction vessel, recirculation pump, electrochemical cell, fume hood, and fume scrubber.
Treatment Process:	Chemical treatment - electrochemical chlorination; cyanide destruction
Design Capacity	
Treatment Process:	55 gallons
Operating Capacity	
Treatment Process:	30 gallons (approximate) per batch
Dimensions	
Treatment Process:	Approximately 18 feet x 11 feet
Waste Codes:	D002, D003, D006-D008, D011, F007, P029-P031, P074, P098, P104, P106, P121.
Waste Description:	Mixed, hazardous
Secondary Containment:	
Type	
Treatment Process:	Catch basin
Minimum Berm Height	
Treatment Process:	Not Applicable, see Process-specific Condition #1.
Drawing Number	
Treatment Process:	42044-500
Inspection Method:	Visual
Process Control Variables:	pH, concentration of salts
Maximum:	Not Applicable
Minimum:	pH for Scrubber - >12

pH for Reaction vessel - >10
Concentration of salts - approximately 5% salt (weight)
Electrical current - approximately 40 amperes

Overfill Prevention	
Treatment Process:	Direct monitoring
P&ID Drawing Number	
Treatment Process:	42044-500

Process-specific Conditions:

1) The catch basin for the process must be capable of containing 100% of the waste present within the treatment process.

REACTIVE CYANIDE INSPECTION SHEET

ROOM					
UNIT ID NO.					
DATE					
TIME					
SIGNATURE OF INSPECTOR					
SIGNATURE OF SUPERVISOR (WEEKLY)					

The following logsheet must be filled out completely and accurately. The only acceptable responses are "Yes", "No", or "NA". Inspections must be performed so that no more than 24 hours elapse between inspections.

1.	Are unit signs present, correct, and visible at each entrance to Room 245?				
*2.	Is the process solution or filtrate solution present within the treatment unit?				
3.	Is adequate aisle space present around treatment unit and clear of obstruction?				
4.	Is the plactic catch basin in good condition and free of cracks or gaps that could impair the effectiveness of containment?				
5.	Is the secondary containment free of liquids?				
6.	Is the secondary containment free of unnecessary debris and trash?				
7.	Are any wastes present in the unit which it is not approved for?				
8.	Is process equipment in good condition?				
9.	Lack of evidence of leakage from process containers?				
10.	Is process monitoring equipment present and operable?				
11.	Is spill response equipment accessible and in good working condition?				

*If the response to this question is "No", the inspector must note in the comment section that inspections are not required if process or filtrate solutions are not present in the treatment unit.

REMEDIAL ACTIONS

-Always notify Supervisor of any problems

-"NO" answers require explanation and/or corrective action in the comments section.

COMMENTS and CORRECTIVE ACTIONS (The reverse side of this logsheet can be used if additional space is needed for comments).

TREATMENT PROCESS INFORMATION SHEET

Unit 881.3B - Bench-Scale Treatment of Hazardous Waste Chemicals

Location:	Building 881, Room 267, Fume hoods FH-4 and 5
Process Equipment:	
Treatment Process:	Organic treatment
Design Capacity	
Treatment Process:	5 liters per day
Operating Capacity	
Treatment Process:	5 liters per batch (maximum)
Dimensions:	
Treatment Process:	Approximately 3 feet x 4 feet
Waste Codes:	D001, D003, D012, D018, D019, D021, D022, D024-D026, D028, D029, D035, D036, D038, D040-D042, P014, P016, P022, P027, P028, P077, P093, P116, P123, U002, U003, U009, U012, U018, U019, U027, U028, U031, U037, U041, U042, U044, U052, U053, U055-U057, U067-U072, U077-U081, U083, U098, U102, U103, U106-U108, U112, U113, U116, U118, U120, U122, U123, U127, U131, U134, U137, U138, U147, U148, U151, U154, U159-U162, U165, U166, U169, U170, U188, U190, U191, U196, U197, U201, U204, U207, U209-U211, U218-U222, U225, U226, U228, U234, U238-U240, U328, U353.
Waste Description:	Mixed, hazardous
Secondary Containment:	
Type	
Treatment Process:	Steel or plastic catch basin
Minimum Berm Height	
Treatment Process:	Minimum volume to contain 100% of the waste being treated
Drawing Number	
Treatment Process:	
Inspection Method:	Visual
Process Control Variables:	None
Maximum:	N/A
Minimum:	N/A
Overfill Prevention	
Treatment Process:	N/A
P&ID Drawing Number	
Treatment Unit:	
Special Unit Conditions:	None

TREATMENT PROCESS INFORMATION SHEET

Unit 881.3B - Bench-Scale Treatment of Hazardous Waste Chemicals

Location: Various locations on-site (case-by-case determination)

Process Description: In-Situ treatment of peroxide-forming compounds

Capacity: 4 liters per batch, 10 batches per day

Dimensions: N/A

Waste Codes: D001, D003, U009, U159, U160, U161

Waste Description: Liquid and solid hazardous and mixed waste

Secondary Containment:

Type: Steel or plastic catch basins

Minimum Berm Height: Minimum volume to contain 100% of the waste being treated

Inspection Method: Visual

Process Control Variables:

Peroxide Concentration

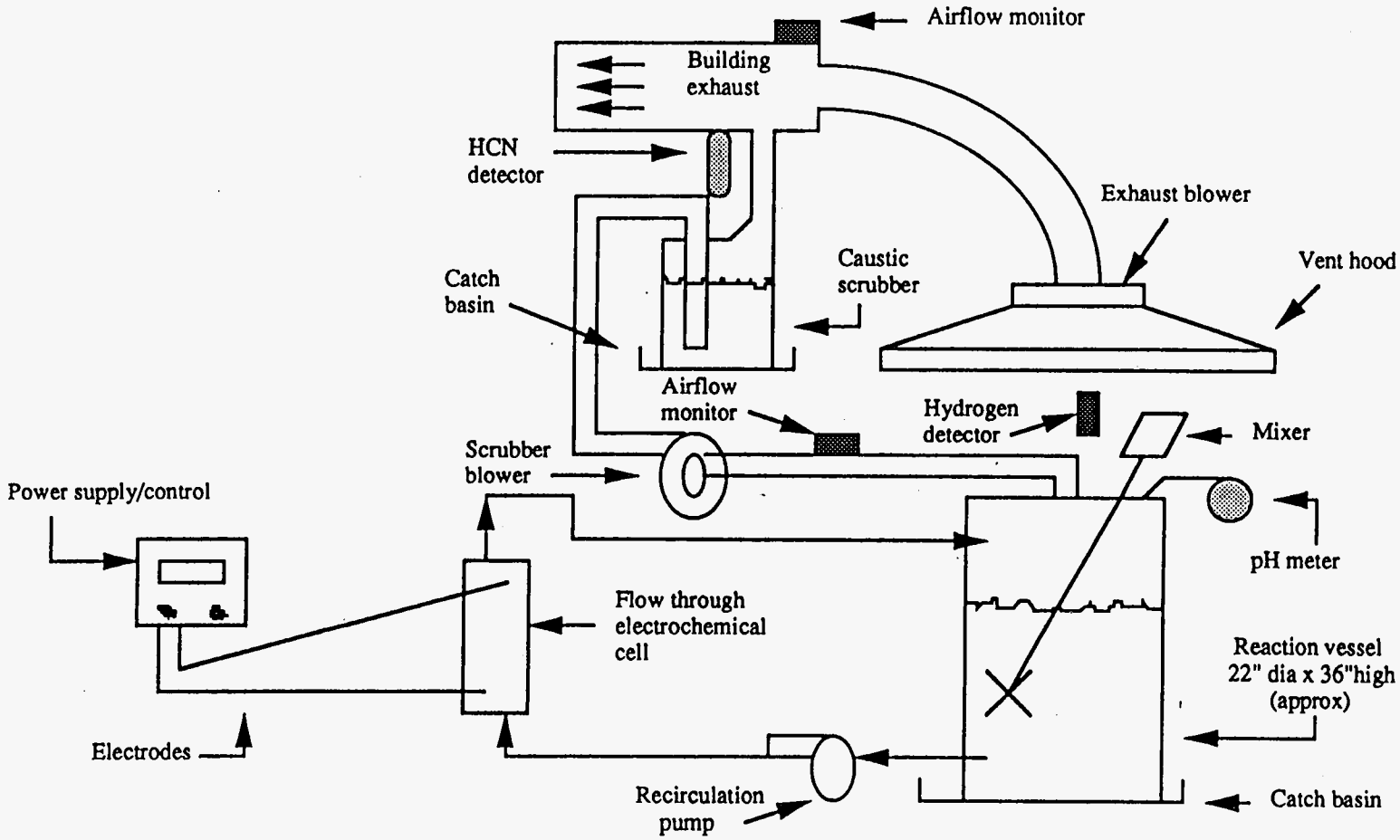
Range: When peroxides are no longer detected using test strips, more reducing agent and an inhibitor will be added to the solution to complete treatment.

Drawing Number: N/A

Unit Specific Conditions:

1. Plastic Shielding and use of blast suit or other appropriate bunker gear with hoods and gloves are typically required. Personal protective equipment for those involved in the treatment of the chemicals will be determined prior to the treatment occurring.

RCRA Unit 881.3A - ELECTROCHEMICAL CHLORINATION
BUILDING 881, ROOM 245



NOTES:
1) Drawing is not to scale and may not depict the actual size or location of equipment.

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b. Unit 881.3B - Bench-Scale Hazardous Waste Chemical Treatment

This bench-scale unit includes five treatment processes (i.e., ultraviolet oxidation, hydrolysis, cementation, organic treatment, and in-situ treatment). Wastes proposed for treatment are expired and off-specification chemicals, chemicals which are no longer needed and laboratory reference standards, as well as wastes derived from treatment of those materials. Wastes other than expired and off-specification chemicals and reference standards may be treated in this unit; however, prior to treatment, the on-duty chemist must develop additional pre- and post-treatment waste acceptance criteria for those wastes since they may contain constituents which could impair the effectiveness of treatment. This waste acceptance criteria must meet the requirements of 6 CCR 1007-3, Section 264.13 to ensure that treatment will produce an acceptable waste form. Additional waste acceptance criteria must be documented and made a part of the operating record prior to treatment being initiated. In addition, chemical wastes to be treated which may contain radioactive material will be sampled and analyzed for radionuclides prior to or immediately following treatment in order to determine proper disposition of the waste. Wastes which are known to be radioactive either by previous analysis or survey, as well as wastes which cannot be analyzed sufficiently to meet DOE's radiological release criteria, are excluded from this requirement.

Unit 881.3B is authorized for the treatment of identified hazardous waste chemicals only, defined as any chemical waste whose identity is accurately labeled and contents known. Unidentified hazardous waste chemicals, defined as any chemical waste whose identity is not accurately labeled and/or contents unknown, must be sampled and analyzed prior to treatment in accordance with Part VI (Waste Analysis Plan) of this Permit.

Excluding backlog excess chemicals, once a hazardous waste chemical has been discovered, the Permittee has 90 days to treat (if necessary) and transport the waste off-site with the exception of waste rendered non-hazardous as a result of treatment or waste which has been verified as radioactive. If the total time necessary to transfer the waste off-site will exceed 90 days, the Permittee may request an extension to the Colorado Department of Public Health and Environment (CDPHE) prior to expiration of the 90 days.

Shock sensitive hazardous or mixed waste chemicals (i.e., chemicals capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement) will be destroyed and/or transferred off-site within 14 calendar days from discovery. Verbal requests for extensions to the 14 calendar days requirement may be approved verbally by the Division. Prior to treatment, shock sensitive chemicals will be managed in accordance with the Hazardous Waste Chemical Management Plan.

For the treatment of reactive chemicals, the amount of waste treated during each run must be small enough to preclude violent or uncontrolled reactions. Additionally, the treatment must be conducted to prevent the generation of hydrogen gas in amounts sufficient to pose a fire or explosion hazard.

One or more of the treatment processes may be applied to a waste. The following table provides guidelines for identifying the optimal treatment processes for the various types of wastes to be treated.

	Treatment Process				
Waste Description	UV Oxidation	Hydrolysis	Cementation	Organic Treatment	In-Situ
Organic chemicals that are readily oxidized (including peroxide forming compounds that have been stabilized by the in-situ treatment process)	X				
Water reactive metals and metal hydrides, oxides, sulfites, and carbides		X			
Insoluble inorganic and organic salts, metal fines, metal powders, and bases. Also, waste water derived from the other treatment processes in Unit 881.3B			X		
Organic chemicals that are ignitable, toxic, or reactive				X	
Peroxides or peroxide-forming organic compounds	X				X

Except for in-situ treatment, hazardous waste chemicals will be treated in Building 881, Room 267. Container staging not to exceed 90 days is allowed in Room 267 up to the capacity of six 55-gallon drums for the EPA waste codes and waste descriptions allowed in Unit 881.3B. In-situ treatment will be performed at the location where the hazardous waste chemical is discovered or at an alternate location, if deemed appropriate by Site personnel. The treatment processes in Unit 881.3B may also be performed at alternate locations provided CDPHE is notified at least 7 days prior to treatment being initiated. A copy of the notice will be filed in the Site's operating record.

The on-duty chemist may perform or supervise any of the treatment processes. The on-duty chemist will have a minimum of a Bachelor of Science degree in chemistry and a minimum of 3 years related experience for each applicable treatment process. All treatment, with the exception of in-situ treatment, may be performed by trained, qualified personnel under the direct supervision of the on-duty chemist. In-situ treatment may only be performed by an on-duty chemist possessing a minimum of five years experience in organic chemistry including direct experience stabilizing peroxide forming chemicals/compounds.

A Site-approved Job Safety Analysis (JSA), which addresses special hazards and precautions for each treatment process will be prepared and filed in the Site's operating record. Minimum personnel protective equipment (PPE) for this unit will include safety glasses and chemical-resistant gloves. The on-duty chemist or industrial hygienist may require additional PPE, modify the treatment processes, or add other precautionary measures to assure safe and effective treatment. Detailed treatment records will be kept and filed as part of the Site's operating record.

Following is a detailed description of the specific permit conditions for each process shown in the previous table.

Ultraviolet (UV) Oxidation

This treatment process uses hydrogen peroxide (H_20_2) and UV light to destroy organic chemicals. Organic chemicals, such as trichloroethane, tetrachloroethane, vinyl chloride, and aromatic compounds, such as phenol, toluene, benzene, and xylene, are particularly amenable to this treatment process since they are readily oxidized. Chemicals capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement may also be treated via UV oxidation.

The UV oxidation equipment is built on a portable cart that can be locked into position during treatment. The organic chemicals are dissolved in water and placed into a 5-gallon holding tank. Hydrogen peroxide is added to the solution. The solution is pumped out of the tank and through the UV reaction chamber.

Inside the UV chamber, hydroxyl radicals are generated through UV photolysis of the H_20_2. The hydroxyl radicals attack organic compounds and oxidize them. The solution is then returned to the holding tank. This process continues until the organic compounds are eventually destroyed. The process flow diagram for this process is shown on page 53.

The chemist will control certain parameters during the treatment process to optimize treatment and destruction efficiency. Such parameters include retention time, hydrogen peroxide dose, influent pH level, UV meter calibration, and temperature of the solution. These parameters will be included in the operating record for Unit 881.3B.

A containment structure is placed around the equipment on the cart to capture the emission of organic vapors. This containment is vented to the Building 881 exhaust system. Because heat is liberated during the exothermic organic destruction process, the holding tank is cooled with an immersion chiller. This prevents excessive loss of organic compounds through evaporation. The UV oxidation system has a UV meter to assist the on-duty chemist in determining when the reaction is complete. Protection from UV radiation is provided by the design of the equipment.

<u>Pre-treatment waste acceptance criteria for UV oxidation are as follows:</u>

EPA Hazardous Waste Codes and Waste Description: Must be a hazardous waste chemical, and must meet the EPA Waste Codes and Waste Description listed on the Unit Specific Conditions Sheet for Unit 881.3B

Solubility: The chemicals to be treated must be soluble in water.

<u>Post-treatment waste acceptance criteria for UV oxidation to verify that the waste is suitable for disposal or further treatment are as follows:</u>

Storage Requirements: The treated waste must meet the waste acceptance criteria identified in Part III of this Permit for the intended storage unit.

Disposal Requirements: The treated waste must meet LDR requirements of 6 CCR 1007-3, Part 268 based on process knowledge from previous treatability studies and/or surrogate testing or analytical sample results if the waste will be transferred to a disposal facility. In addition, the treated waste must meet the waste acceptance criteria for the intended disposal facility.

Further Treatment Requirements: The treated waste must meet the waste acceptance criteria for the unit(s) that the waste will be transferred to if the process is considered pretreatment for final treatment.

Hydrolysis

This treatment process uses water to hydrolyze reactive metals and metal hydrides, oxides, sulfites, and carbides. Chemicals which react violently with water, form potentially explosive mixtures with water, and/or when mixed with water, generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment may be treated via hydrolysis. After hydrolysis, these chemicals become stable, non-reactive compounds.

Hydrolysis is performed in small laboratory containers located in a fume hood. Reactive chemicals will be added to water in a controlled manner to minimize splattering of the chemicals. A protective barrier for splash protection will be also be used. An exothermic reaction will occur, liberating heat and small amounts of hydrogen. The liquid generated will be adjusted with an appropriate acidic or basic material to a pH between 2 and 12.

Waste Analysis

Pre-treatment waste acceptance criteria for hydrolysis are as follows:

EPA Hazardous Waste Codes and Waste Description: Must be a water reactive metal or compound, and must meet the EPA Waste Codes and Waste Description listed on the Unit Specific Conditions Sheet for Unit 881.3B.

Wastes resulting from the hydrolysis treatment process typically will be suitable for final treatment in the Building 374 waste water treatment facility.

Post-treatment waste acceptance criteria to verify that the waste is suitable for disposal or further treatment are as follows:

Reactivity: The waste will no longer exhibit the characteristic of reactivity as defined in 6 CCR 1007-3, Part 261. Specifically, the chemist will verify that the waste is no longer reacting in water, indicating that the reaction has gone to completion.

Storage Requirements: The treated waste must meet the waste acceptance criteria identified in Part III of this Permit for the intended storage unit.

Further Treatment or Disposal Requirements: If the waste is destined for treatment in Building 374, no further action is required to meet Building 374's waste acceptance criteria. If the treated waste is destined for treatment or disposal at a facility other than Building 374, it must meet the acceptance criteria for the receiving facility.

Cementation

This treatment process immobilizes hazardous waste chemicals or waste water derived from other Unit 881.3B treatment processes. Wastes to be treated can be liquid or solid; however, the best candidates for cementation are insoluble inorganic and organic salts, metal fines, metal powders, and liquids that are basic and non-reactive with cement. Cyanide or sulfide bearing waste, which, when

exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment may be introduced into this treatment process.

Waste Analysis

The following pretreatment activities are allowed within the unit as part of the treatment process:

- pH adjustment of corrosive wastes
- eH adjustment of oxidizers (e.g. addition of ferrous sulfate)
- destruction of cyanide or sulfide reactive wastes (e.g. alkaline chlorination)
- addition of hydroxides, sulfates, carbonates, chlorides and/or other compounds to form insoluble salts

Waste is cemented in batches in a 5-liter capacity mixer located in a fume-hood. The pH of liquid wastes will be adjusted, if necessary, to a minimum pH of 7 before cementation. The hazardous waste chemicals are mixed with cement and/or fly ash at a predetermined ratio into a homogenous waste form. Then the waste is poured from the mixer to a container and allowed to cure and solidify.

Pre-treatment waste acceptance criteria for cementation are as follows:

EPA Hazardous Waste Codes and Waste Description: Must be either a hazardous waste chemical or a waste water derived from other Unit 881.3B treatment processes, and must meet the EPA Waste Codes and Waste Description listed on the Unit Specific Conditions Sheet for Unit 881.3B.

pH/Normality: Liquids will be adjusted to a minimum pH of 7 prior to cementation.

Disposal Requirements: The on-duty chemist will confirm and document that LDR requirements of 6 CCR 1007-3, Part 268 and the waste acceptance criteria of the intended disposal facility are achievable based on previous test results or process knowledge. Test results or process knowledge will be used to determine appropriate process controls and formulas for each waste type to ensure compliance with disposal requirements.

Post-treatment waste acceptance criteria for cementation to verify that the waste is suitable for disposal are as follows:

Storage Requirements: The treated waste must meet the waste acceptance criteria identified in Part III of this Permit for the intended storage unit.

Disposal Requirements: The treated waste must meet LDR requirements of 6 CCR 1007-3, Part 268 based on process knowledge from surrogate testing or analytical sample results. In addition, the treated waste must meet the waste acceptance criteria for the intended disposal facility (e.g., compressive strength, hardness, concentration of radionuclides or dispersable fines).

Absence of Free Liquids: The treated waste must be visually inspected to verify the absence of free liquids.

Organic Treatment

This treatment process uses controlled chemical reactions for the treatment of organic hazardous waste chemicals. The organic compounds in these chemicals are broken down into non-toxic compounds such as carbon dioxide, hydrogen, and water. The hazardous waste chemicals to be treated may be ignitable or toxic. Normally unstable reactive organic compounds which readily undergo violent change without detonating, compounds capable of detonation or explosive decomposition or reaction at standard temperature and pressure, and/or a forbidden explosive as defined in 49 CFR Section 173.51, or a Class A explosive as defined in 49 CFR Section 173.53 or a Class B explosive as defined in 49 CFR Section 173.88 may also be treated provided CDPHE has been notified and has provided verbal or written concurrence.

Wastes are treated in batches of 5 liters or less in laboratory containers located in a fume hood. Due to the potentially reactive nature of some of the hazardous waste chemicals being treated, the process will be carried out using small quantities of chemicals to maintain control of the chemical reactions. The chemical reactions will also be carried out in dilute solutions, when necessary, to minimize the rate at which the chemical reactions occur.

Waste Analysis

Pre-treatment waste acceptance criteria for organic treatment are as follows:

EPA Hazardous Waste Codes and Waste Description: Must be a hazardous waste chemical, and must meet the EPA Waste Codes and Waste Description listed on the Unit Specific Conditions Sheet for Unit 881.3B.

Post-treatment waste acceptance criteria for organic treatment to verify that the waste is suitable for disposal or further treatment are as follows:

Storage Requirements: The treated waste must meet the waste acceptance criteria identified in Part III of this Permit for the intended storage unit.

Disposal Requirements: The treated waste must meet LDR requirements of 6 CCR 1007-3, Part 268 based on process knowledge or analytical sample results if the waste will be transferred to a disposal facility. In addition, the treated waste must meet the waste acceptance criteria for the intended disposal facility.

Further Treatment Requirements: The treated waste must meet the waste acceptance criteria for the unit(s) that the waste will be transferred to if the process is considered pretreatment for final treatment.

In-Situ Treatment of Peroxides and Peroxide-Forming Compounds

The in-situ treatment process destroys peroxides and peroxide-forming organic compounds. This is accomplished by addition of chemicals that reduce and inhibit formation of peroxides. Chemicals capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement may be introduced into this treatment process.

Due to the unstable nature of peroxides, in-situ treatment will be done at the location where the hazardous waste chemical is discovered or at an alternate location, if deemed appropriate by

authorized site personnel. CDPHE will be verbally notified prior to in-situ treatment. A work plan will be developed and implemented prior to performing in-situ treatment. This will include development of a Job Safety Analysis, verification of appropriate work authorization, and specification of appropriate PPE, such as blast suits with hoods and gloves. A restricted area will be established to protect personnel and facilities at the Site.

Peroxide-forming compounds may vaporize at temperatures greater than 90°F and condense as unstable crystals (especially on the inside of a container lid). Opening these containers poses a risk of detonation.

If any crystals are visually present inside the container, personnel must stop operations in the area and notify their supervisor. Once the area has been isolated, Site personnel should immediately contact the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division to help determine appropriate management of the container. If deemed necessary, the Permittee shall request an emergency permit within 7 calendar days.

For containers without formed crystals present, the containers will be carefully inverted for at least 24 hours before opening to dissolve any peroxide crystals that may have formed. After the container is opened, an appropriate reducing agent (e.g., ferrous ammonium sulfate) will be added to the peroxide-forming compound to reduce the concentration of peroxide.

Tests strips, used to detect the presence of peroxides, will be used intermittently during the addition of the reducing agent until peroxides are no longer detected. More reducing agent and an appropriate inhibitor (e.g., 2,6-Di-tert-butyl-4-methylphenol) will then be added to minimize additional peroxide formation.

Treated chemicals will be removed from the restricted area and repackaged into the original container, if possible, in accordance with applicable waste packaging procedures. The treated waste will be sent to the UV oxidation process for final destruction of peroxide forming organic compounds or packaged for off-site shipment for additional treatment and disposal.

In case of an emergency, the Site maintains a dedicated Hazardous Material Response Team (as described in the Contingency Plan Section of the Rocky Flats Part B RCRA permit). This team is on call 24 hours a day to assist the chemists if necessary.

Waste Analysis

Pre-treatment waste acceptance criteria for in-situ treatment are as follows:

EPA Hazardous Waste Codes and Waste Description: Must be a peroxide or peroxide-forming compound, and must meet the EPA Waste Codes and Waste Description listed on the Unit Specific Conditions Sheet for Unit 881.3B.

Post-treatment waste acceptance criteria for in-situ treatment are as follows:

Peroxide Concentration: Peroxides must not be detected based on results from test strips.

Presence of Inhibitor: The treated waste must contain an inhibitor to minimize additional peroxide formation.

Further Treatment Requirements: The treated waste may be sent to the UV oxidation process for further treatment. If this is the case, the waste must meet the waste acceptance criteria for the UV oxidation process.

Storage Requirements: Prior to storage, the treated waste must be sent to the UV oxidation process for final destruction of peroxide forming compounds. In addition, the treated waste must meet the waste acceptance criteria identified in Part III of this Permit for the intended storage unit.

Off-Site Shipment Requirements: If the treated waste is sent off-site, it must meet the Waste Acceptance Criteria for the receiving facility.

The Unit Specific Conditions sheets (pages V-64 through V-69), process flow diagrams (pages V-71 and V-72), and typical unit inspection sheets (page V-70) for Unit 881.3B are provided in the following section.

TREATMENT PROCESS INFORMATION SHEET

Unit 881.3B - Bench-Scale Treatment of Hazardous Waste Chemicals

Location:	Building 881, Room 267
Process Equipment:	Holding tank, immersion chiller, UV chamber, flow meter, static mixer, and pumps
Treatment Process:	UV Oxidation
Design Capacity	
Treatment Process:	1 liter per day
Operating Capacity	
Treatment Process:	1 liter per day
Dimensions	
Treatment Process:	Approximately 4 feet x 4 feet
Waste Codes:	D001, D003, D022, D029, D035, P016, U002, U003, U009, U027, U031, U044, U077-U080, U108, U112, U113, U123, U154, U159-U161, U188.
Waste Description:	Mixed, hazardous
Secondary Containment:	
Type	
Treatment Process:	Catch basin formed as part of portable cart base
Minimum Berm Height	
Treatment Process:	Minimum volume to contain 100% of the waste being treated
Drawing Number	
Treatment Process:	P&C 0008 and 0009
Inspection Method:	Visual

Process Control Variables

UV transmission - UV lamp on or off

Maximum: 30,000 microwatt per cm^2

Minimum: N/A

Peroxide feed rate - Peristaltic pump

Maximum: 20 milliliters per minute (or 30% by weight)

Minimum: N/A

Overfill Prevention	
Treatment Process:	N/A
P&ID Drawing Number	
Treatment Unit:	N/A

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Special Unit Conditions:

1) Staging of chemicals to be treated may occur in fume hood FH-3 for a period of up to 90 days. Volume of the staging area is limited to the volume the hood can secondarily contain.

2) Retention time, temperature, waste influent percentage and concentration maximum will be identified in the operating record for each treated waste stream

TREATMENT PROCESS INFORMATION SHEET

Unit 881.3B - Bench-Scale Treatment of Hazardous Waste Chemicals

Location:	Building 881, Room 267, Fume hoods FH-4 and 5
Process Equipment:	
Treatment Process:	Hydrolysis
Design Capacity	
Treatment Process:	5 liters per day
Operating Capacity	
Treatment Process:	5 liters per day
Dimensions	
Treatment Process:	Approximately 3 feet x 4 feet
Waste Codes:	D001, D003, D005
Waste Description:	Mixed, hazardous
Secondary Containment:	
Type	
Treatment Process:	Steel or plastic catch basin
Minimum Berm Height	
Treatment Process:	Minimum volume to contain 100% of the waste being treated
Drawing Number	
Treatment Process:	
Inspection Method:	Visual
Process Control Variables:	Temperature - treatment will continue until no additional rise in temperature occurs in the solution
Maximum:	pH 12
Minimum:	pH 2
Overfill Prevention	
Treatment Process:	N/A
P&ID Drawing Number	
Treatment Unit:	N/A

Special Unit Conditions:

1) Personal splash protection will be used at all times during operation of the treatment process.

TREATMENT PROCESS INFORMATION SHEET

Unit 881.3B - Bench-Scale Treatment of Hazardous Waste Chemicals

Location:	Building 881, Room 267, Fume hoods FH-4 and 5
Treatment Process:	Cementation
Design Capacity Treatment Process:	25 liters per day
Operating Capacity Treatment Process:	5 liters per batch
Dimensions Treatment Process:	Approximately 3 feet x 4 feet
Waste Codes:	D001-D011, P011, P012, P015, P022, P087, P113, P119, P120, U123, U144, U145, U151, U204, U214-U217.
Waste Description:	Mixed, hazardous
Secondary Containment: Type Treatment Process:	Steel or plastic catch basin
Minimum Berm Height Treatment Process:	Minimum volume to contain 100% of the waste being treated
Drawing Number Treatment Process:	
Inspection Method:	Visual
Process Control Variables:	Solid to liquid ratio, pH
Maximum:	25% waste loading by weight
Minimum:	pH 7
Overfill Prevention Treatment Process:	N/A
P&ID Drawing Number Treatment Unit:	N/A

Special Unit Conditions:

1) Up to 5 liters may be mixed per batch due to the capacity limit of the mixer.

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BENCH-SCALE HAZARDOUS WASTE CHEMICAL TREATMENT INSPECTION SHEET

BUILDING				
ROOM				
UNIT ID NO.				
DATE				
TIME				
INSPECTOR				
SIGNATURE				

The following log sheet must be filled out completely and accurately. The only acceptable responses are "Yes," "No," or "NA."

1. Are unit signs present, correct, and visible at each entrance to Room 267?				
* 2. Is hazardous waste present in the treatment unit?				
3. Is adequate aisle space present around treatment unit and clear of obstruction?				
4. Is the catch basin in good condition and free of cracks or gaps that could impair the effectiveness of the containment?				
5. Are wastes authorized for storage within the unit?				
6. Is process equipment in good condition?				
7. Lack of evidence of leakage from process equipment?				
8. Is spill response equipment accessible and in good working condition?				
**9. Operating record available and accurate?				

* If the response to this question is "No", the inspector is not required to complete #3 - 9.

** The operating record will include at a minimum, the amount and type of waste in the unit, the date and time of treatment, the operator's name and title, and applicable operating parameters identified in the treatment specific information sheets for Unit 80.2.

REMEDIAL ACTIONS
- Always notify Supervision of any problems.
- "No" answers require explanation and/or corrective action in the comments section.

COMMENTS AND CORRECTIVE ACTIONS (The reverse side can be used if additional space is needed for comments).

_____

_____

_____ Date _____

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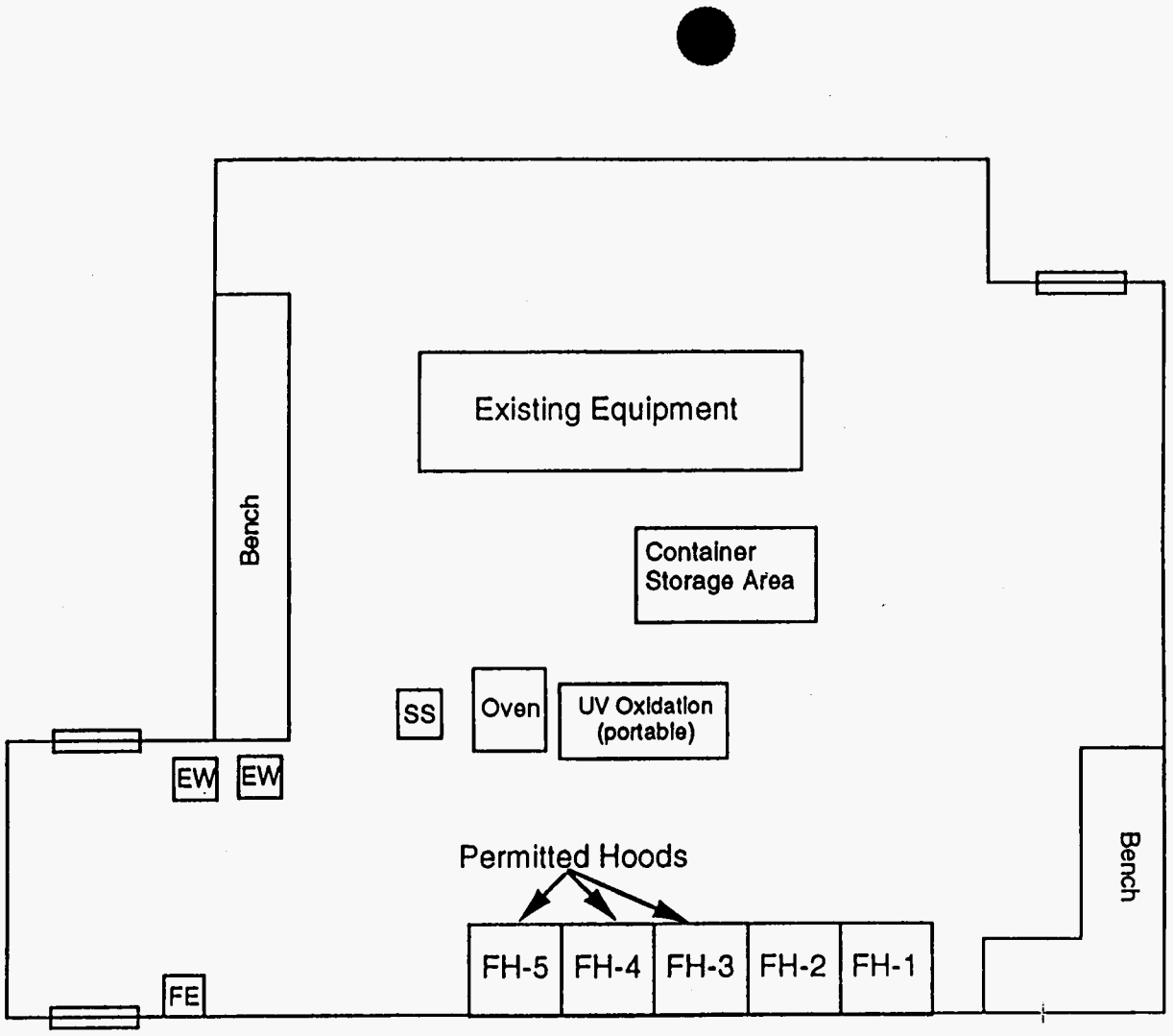

Note: Containers may be stored up to the capacity of six 55-gallon drums for EPA Waste Codes and Waste Descriptions allowed in Units ~~80.1~~ 881.3A and ~~80.2~~ 881.3B.

Rocky Flats Environmental Technology Site
Unit ~~80.3B~~ 881.3B Layout, Building 881, Room 267
Drawing No. P&C 0008, Rev.0
April 17, 1996

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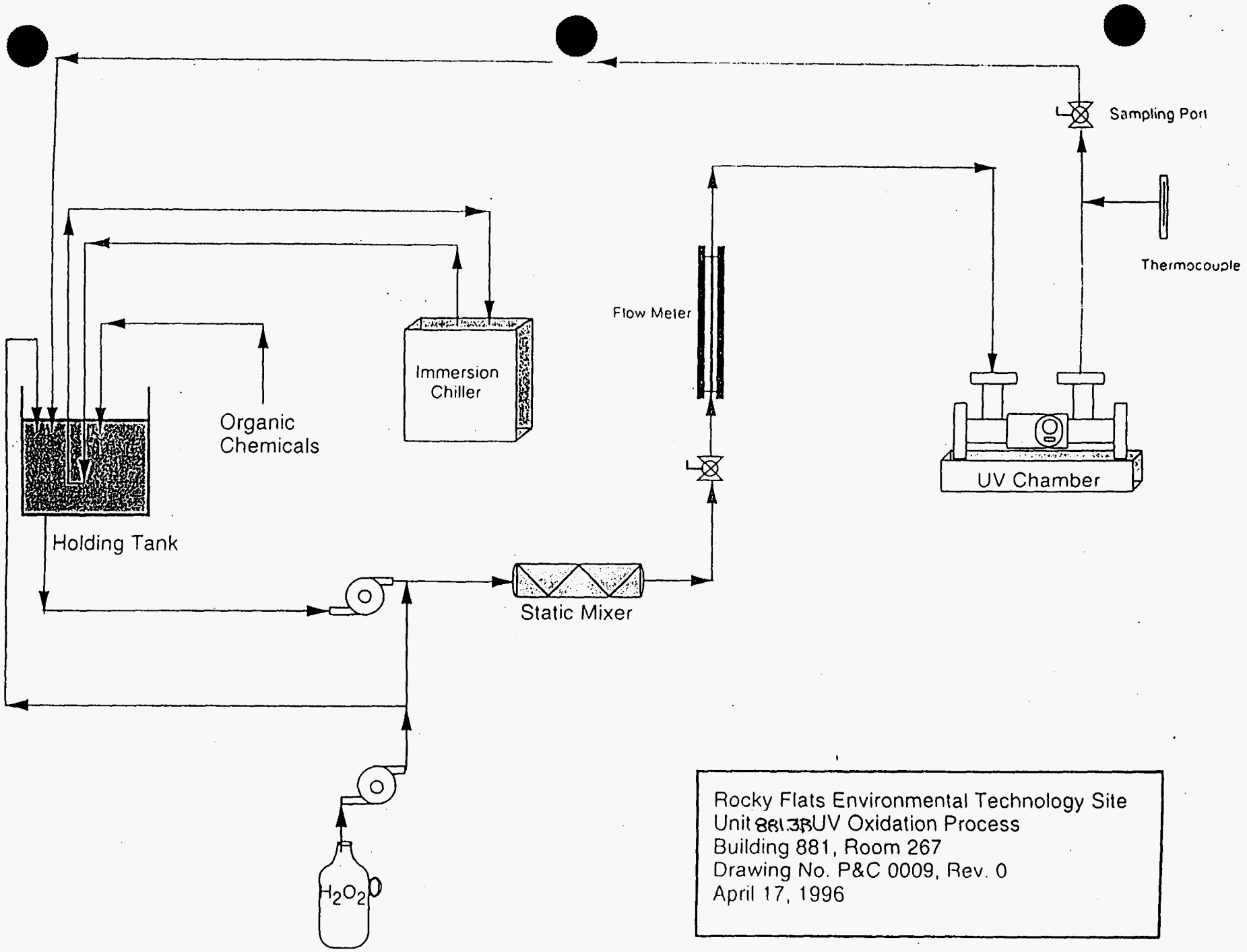

Rocky Flats Environmental Technology Site
Unit 881.3B UV Oxidation Process
Building 881, Room 267
Drawing No. P&C 0009, Rev. 0
April 17, 1996

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7. Unit 374.3 - Building 374

A. Aqueous Waste Transfer System

Aqueous wastes collected in the tanks identified above are transferred to Building 374 for treatment through the Aqueous Waste Transfer System. This system includes four separate double-walled transfer lines that connect the tanks to Building 374. Each transfer line is made of an outer casing pipe and an inner transfer line. The space between the two pipes serves as secondary containment for the primary transfer lines. Included in the Aqueous Waste Transfer System are 20 valve vaults. These valve vaults are below-grade concrete pits equipped with 1/4-inch polyethylene liners and groundwater collection sumps between the liner and the concrete floor to provide secondary containment. Collection bottles are located at the low end of each section of casing pipe within the valve vaults to collect any leakage that occurs. Each of the valve vaults are equipped with automatic leak detection systems that will alarm in the Building 374 control room if leakage is detected.

The Aqueous Waste Transfer System is a part of the tank system associated with the collection tanks identified in Part IV and the 374.3 treatment system. Since no collection or storage of waste occurs in the waste transfer system, it is considered ancillary piping. The Aqueous Waste Transfer System is compliant with the applicable regulations and is inspected on a daily basis.

B. Unit 374.3 - Aqueous Process Waste Treatment

There are several hazardous waste treatment processes in Building 374 used for the treatment of Low-level mixed aqueous wastes collected from various locations and buildings at the Site. The treatment processes present in Building 374 are used to neutralize, precipitate, filter, evaporate, and solidify the wastes received. The treatment processes are used to remove radioactive and chemical contaminants, to produce a cemented sludge, saltcrete, and to produce recovered product water. The treatment processes are briefly discussed below.

1. Waste Receiving and Neutralization

In this portion of the treatment system, Low-level mixed aqueous wastes are received and are pH adjusted as necessary.

Incoming wastes are received in a series of holding tanks or containers. Tanks used for the receipt of the regulated mixed aqueous waste include: Tanks D-801A, B, and C; D-802A, B, and C; D-804A, B, C, and D; D-806; D-807A and B; D-808; D-811A and B; D-843;and D-875. Tanks D-231A and B are also included in this system as buffer tanks to be used when the generation of waste requiring processing through Building 374 exceeds the capacity of the tanks identified previously.

Following receipt and pH adjustment (if required), aqueous wastes are transferred to the radioactive decontamination process or to the multiple effect evaporators.

2. Radioactive Decontamination

This process is used to remove radioactive material from aqueous wastes by chemical precipitation. The process consists of three-stage precipitation, flocculation, and clarification. The number of stages of radioactive decontamination the waste will be subjected to depends

on the level of alpha activity in the waste. This waste parameter is checked following collection in the previously identified tanks.

Wastes to be processed through this part of the treatment system are received from any of the following sources: Tanks D-825A and B (filtrate being returned for processing from the sludge filtration process); Tanks D-824A and B (pH adjusted waste from waste receiving and neutralization, and solution decanted from the clarifier in first-stage radioactive decontamination); and Tanks D-811A and B (pH adjusted waste from waste receiving and neutralization). Wastes subject to three-stage precipitation are collected in Tank D-812. Waste solutions from D-812 are continuously pumped to the first stage reactor, Tank D-813. Reagents are added to precipitate radioactive material and to adjust the pH of the solution. The contents of the reactor flow continuously by gravity to the First Stage Flocculator, Tank D-814.

A flocculent is added continuously in D-814 to aid in the agglomeration of the precipitate. The tank contents overflow continuously to the First Stage Clarifier, Tank D-815. Precipitate slurry is drawn off the bottom of the clarifier to Tanks D-824A and B. The clear supernatant liquid is pumped to the Second Stage Feed Tank, D-816.

The second and third stage feed tanks, D-816 and D-820, receive feed from the preceding clarifier (D-815 and D-819, respectively) and from the Second and Third Stage Feed Storage Tanks D-804A, B, C, and D. The second and third stage reactors, flocculators, and clarifiers function exactly as described previously for the first stage. Clear effluent from the second or third stage clarifier is transferred to clarifier effluent holding tanks D-826A and B. The effluent may pass through a precoat filter, FL-831, which accomplishes a final solids separation, when necessary.

3. Multiple Effect Evaporation

This is a four-stage evaporation system that results in the production of a concentrated salt solution and evaporator condensate (recovered product water). The evaporator condensate is discharged to cooling towers and then to the Steam Plant as a non-hazardous waste.

The Evaporator Feed Tank, D-827, receives waste from Tanks D-231A and B (buffer tanks); D-801A, B, and C (pH adjusted waste from waste receiving and neutralization); D-802A, B, and C (waste receiving and neutralization); and D-826A and B (decontamination waste from radioactive decontamination). From the feed tank, the solution is pumped into the first effect of the evaporator, T-802. A circulation pump continuously circulates the liquid in the first effect by drawing liquid from the bottom of the first effect vapor body (T-802), pumping it through the first effect heat exchangers (E-806A or B), and discharging it near the liquid level in the first effect vapor body. Water that evaporates in the first effect passes through the second effect heat exchanger (E-807) to heat that effect and is collected in Flash Tank D-830. The partially concentrated liquid remaining in the first effect continuously feeds to the second effect.

The liquid in the second effect circulates in the same manner as in the first effect. The evaporated water from the second effect passes through the third effect heat exchanger to heat that effect and collects in Flash Tank D-832. The second effect concentrate continuously feeds the third effect.

The third and fourth effects operate in the same manner. Water that evaporates in the fourth effect condenses in the main surface condenser (E-810) and collects in Condensate Tank D-834. The concentrated liquid remaining in the fourth effect is pumped to Tanks D-826C or D-878. The liquid in Tank D-826C can be transferred either to Tank D-878 or to the saltcrete mixing station. Tank D-878 feeds the spray dryer in the salt immobilization system. The condensate water from the flush tanks and the condensate tank is sent to utilities for disposition to either the boiler plant or the cooling tower.

4. Salt Solidification Process

In this process, dried salt received from the spray dryer is mixed with cement and water. The mixture is placed into crates and allowed to cure. The concentrated salt solution (approximately 38% dissolved salts) is pumped from Tank D-826C into D-878, the spray dryer feed tank. From there, the material is pumped to the spray dryer, W-803, where it is dried in a hot air stream.

From the spray dryer, salt-laden air passes into the baghouse filter, where a series of cloth filter bags separate salt from the air stream. The accumulated salt is collected is collected in Tank T-884 and then transferred into two saltcrete mixing tanks, T-883A and B. Dry salt product is mixed in T-883A and B with Portland cement and a portion of the concentrated salt solution from Tank D-826C, domestic water, raw water, or Building 374 recovered product water. This cemented product, called saltcrete, is allowed to set up in plywood half-boxes lined with plastic. It is then transferred for storage in a regulated storage unit pending shipment and disposal.

5. Sludge Solidification Process

This process receives sludge generated from the operation of the radioactive decontamination process and from the acid neutralization system (not currently operating). The sludge is dewatered, collected in a drum, and solidified through the introduction of absorbants and cement.

Filter Feed Tanks D-824A and B receive waste from D-808 and clarifier bottoms from the three stage radioactive decontamination process. These tanks also may receive packaged waste from the Building 374 dock and acid descaling waste from Tank D-845. The liquid in the filter feed tanks is decanted to the first stage precipitation feed tank, D-812, and the sludge is piped to either of the rotary drum vacuum filters, FL-802A and B, which are located inside a large glovebox. The filter drum is coated with a mixture of diatomite and either water or filtrate, which is prepared in precoat tank D-848. The concentrated slurry from the filter feed tanks, D-824A and B, is fed to the rotary drum filter, and the filtrate is drawn through the precoat by vacuum, leaving a sludge of precipitated solids on the surface of the filter media. An advancing blade (scraper) on the rotary drum filter continuously removes the sludge and a thin layer of the precoat.

Tanks D-825A and B collect filter effluent from the rotary drum filters and transfer it to the first stage of the radioactive decontamination process. The wet sludge from the vacuum filter is transferred by conveyor directly into a 55-gallon drum. Cement and absorbants are metered into the drum with the sludge to absorb free liquids. Exhaust air from the glovebox enclosing the vacuum filters and cementation equipment is vented to the building scrubber, T-807.

TREATMENT PROCESS INFORMATION SHEET

1. Unit 374.3 - Aqueous Waste Receiving and Neutralization

Location: Building 374, Room 2804 and 3801

Process Equipment: Tanks D-801A, B, and C; D-802A, B, and C; D-804A, B, C, and D; D-806; D-807A and B; D-808; D-811A and B; D-843; and D-875.

Treatment Process: Chemical Treatment - neutralization or adjustment of pH

Tanks	Design Capacity (gallons)	Operating Capacity (gallons)	Dimensions
D-801A, B, C	33,000	28,050	16 feet T-T x 18 feet D
D-802A, B, C	23,000	19,550	16 feet T-T x 15 feet D
D-804A, B, C, D	10,000	8,500	14 feet high x 11 feet D
D-806	1,100	935	7 feet T-T x 5 feet D
D-807A, B	2,200	1,870	8 feet T-T x 7 feet D
D-808	200	170	4 feet T-T x 3 feet D
D-811A, B	12,000	10,200	14 feet high x 12 feet D
D-843	640	544	4.5 feet T-T x 4.5 feet D
D-875	500	425	5 feet T-T x 4 feet D

Waste Codes: D001, D002, D004-D011, F001-F003, F005-F009, P-Series, and U-series

Waste Description: Mixed

Secondary Containment
Type: Coated Concrete
Minimum Berm Height: 10.6 inches

Inspection Method: Visual

Process Control Variables: pH
Maximum:
Minimum:

Overfill Prevention: High level alarm

P&ID Drawing Number

Tanks:	D-801A, B, C	39650-2010
	D-802A, B, C	39650-2011
	D-804A, B, C, D	39650-2024
	D-806	39650-2032
	D-807A, B	39650-2031
	D-808	39650-2034
	D-811A, B	39650-2025
	D-843	39650-2033
	D-875	39650-2024

Special Unit Conditions: None

TREATMENT PROCESS INFORMATION SHEET

2. Unit 374.3 - Radioactive Decontamination

Location: Building 374, Room 3801
Process Equipment: Tanks D-812 through D-823, D-826A, B
Treatment Process: Chemical Treatment - chemical precipitation of radionuclides.

Tanks	Design Capacity (gallons)	Operating Capacity (gallons)	Dimensions
D-812	2,600	2,210	9 feet T-T x 7 feet OD
D-813	250	213	4 feet T-T x 3 feet OD
D-814	750	638	6 feet T-T x 5.3 feet OD
D-815	3,100	2,635	9 feet T-T x 11 feet OD
D-816	3,600	3,060	10 feet T-T x 8 feet OD
D-817	300	225	4.5 feet T-T x 3.5 ft OD
D-818	900	765	6 feet high x 5 feet D
D-819	4,400	3,740	7 feet high x 13 feet D
D-820	5,100	4,335	11 feet T-T x 9 feet OD
D-821	520	442	5 feet T-T x 4 feet OD
D-822	1,500	1,275	7.5 feet high x 6 feet D
D-823	6,300	5,355	9 feet T-T x 16 feet OD
D-826A, B	20,000	17,000	13.8 feet T-T x 15 ft D

Waste Codes: D001, D002, D004-D011, F001-F003, F005-F009, P-series, U-series
Waste Description: Mixed

Secondary Containment
Type: Coated concrete
Minimum Berm Height: 10.6 inches
Drawing Number:
Inspection Method: Visual

Process Control Variables: Sludge quantity
Maximum: 2/3 full
Minimum: 1/2 full

Overfill Prevention: High level alarm

P&ID Drawing Number
Tanks: D-812 - 39650-2026
D-813 - 39650-2026
D-814 - 39650-2026
D-815 - 39650-2026
D-816 - 39650-2027
D-817 - 39650-2027
D-818 - 39650-2027
D-819 - 39650-2027
D-820 - 39650-2028
D-821 - 39650-2028
D-822 - 39650-2028
D-823 - 39650-2028
D-826A, B- 39650-2012

Special Unit Conditions: None

TREATMENT PROCESS INFORMATION SHEET

3. Unit 374.3 - Multiple Effect Evaporation

Location: Building 374, Rooms 3810, 4814, and Outside
Process Equipment: Tanks T-802, T-803, T-804, T-805, D-827, D-830, D-832, D-834, D-876, heat exchangers, and pumps.
Treatment Process: Thermal treatment - evaporation of process waste to separate waste from product and concentrate waste portion for further treatment.

Tanks	Design Capacity (gallons)	Operating Capacity (gallons)	Dimensions
D-827	8,000	6,800	11 feet T-T x 11 feet D
D-830	122	104	5 feet T-T x 2 feet OD
D-832	122	104	5 feet T-T x 2 feet OD
D-834	765	651	6 feet T-T x 4.4 feet OD
D-876	122	104	5 feet H X 2 feet D
T-802	3,606	To be determined	16 feet T-T x 6 feet D
T-803	4,645	To be determined	15 feet T-T x 7 feet D
T-804	5,553	To be determined	14 feet T-T x 8 feet D
T-805	33,013	To be determined	32 feet H x 13 feet D

Waste Codes: D001, D002, D004-D011, F001-F003, F005-F009, P-series, U-series
Waste Description: Mixed

Secondary Containment:
Type
Tanks: Coated concrete (Rooms 3810 and 4814) or Flexible membrane liner (outside)

Minimum Berm Height
Tanks: Rooms 3810 and 4814 - 2.4 inches
Outside - 3.1 feet

Drawing Number:
Tanks: D-827 - 39650-2310
D-832 - 39650-2310
D-876 - 39650-2310
T-803 - 39650-2311
T-805 - 39650-2311
D-830 - 39650-2310
D-834 - 39650-2310
T-802 - 39650-2311
T-804 - 39650-2311

Inspection Method: Visual

Process Control Variables:		Pressure / temperature
Maximum:	T-802	14.2 psig / 112°C
	T-803	7.1 psig / 97°C

Process Control Variables:		Pressure / temperature
Maximum	T-804	N/A / 87°C
	T-805	N/A / To be determined

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Minimum:	T-802	N/A / 90°C
	T-803	N/A / 60°C
	T-804	-1.9 psig / 60°C
	T-805	-8.7 psig / To be determined

Overfill Prevention
Tanks: High level alarms

P&ID Drawing Number

Tanks:	D-827 - 39650-2013	D-830 - 39650-2014
	D-832 - 39650-2015	D-834 - 39650-2016
	D-876 - 39650-2017	T-802 - 39650-2021
	T-803 - 39650-2014	T-804 - 39650-2015
	T-805 - 39650-2016	

Special Unit Conditions: None

TREATMENT PROCESS INFORMATION SHEET

4. Unit 374.3 - Salt Solidification

Location: Building 374, Rooms 3801, 3809, and 4802
Process Equipment: Tanks D-826C, D-878, D-883 A and B, D-884, Spray Dryer, Bag Filter, and Pumps
Treatment Process: Solidification and Stabilization - salt solution is dried and then mixed with cement.

Tanks	Design Capacity (gallons)	Operating Capacity (gallons)	Dimensions
D-826C	20,000	17,000	13.8 feet T-T x 15 ft D
D-878	1,391	1,183	6 feet T-T x 6 feet D
D-883A and B	200	170	4.5 feet L x 2.8 feet D
D-884	370	315	3.5 feet H x 4 feet D

Waste Codes: D001, D002, D004-D011, F001-F003, F005-F009, P-series, U-series
Waste Description: Mixed

Secondary Containment:
Type
Tanks: Coated concrete (Rooms 3801 and 3809)
Minimum Berm Height
Tanks: Room 3801 - 10.6 inches
Room 3809 - 2.4 inches
Drawing Number:
Tanks:
D-826C - 39650-2312
D-878 - 39650-2310
D-883A and B - 39650-2310
D-884 - N/A

Inspection Method: Visual

Process Control Variables: Reagent addition (D-883A and B)
Maximum: To be determined
Minimum: To be determined

Overfill Prevention
Tanks: High level alarm (D-826C and D-878)

P&ID Drawing Number
Tanks: D-826C - 39650-2012
D-878 - 39650-2019
D-883A and B - 39650-2023
D-884 - 39650-2023

Special Unit Conditions: None

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TREATMENT PROCESS INFORMATION SHEET

5. Unit 374.3 - Sludge Solidification

Location: Building 374, Rooms 2804 and 4805
Process Equipment: Tanks D-824A and B, D-825A and B, D-848 (non-regulated, product mixing tank), and rotary drum filters
Treatment Process: Solidification and Stabilization - sludge is dewatered and then mixed with cement.

Design Capacity:
Tanks: D-824A and B - 5,650 gallons (each)
D-825A and B - 100 gallons (each)

Operating Capacity:
Tanks: D-824A and B - 5,368 gallons (each)
D-825A and B - 85 gallons (each)

Dimensions:
Tanks: D-824A and B - 10 feet T-T x 9 feet D
D-825A and B - 3 feet T-T x 2.5 feet D

Waste Codes: D001, D002, D004-D011, F001-F003, F005-F009, P-series, U-series
Waste Description: Mixed

Secondary Containment:
Type
Tanks: Coated concrete

Minimum Berm Height
Tanks: Room 2804 - 10.6 inches
Room 4805 - 0.2 inches

Drawing Number:
Tanks: D-824A and B - 39650-2312
D-825A and B - 39650-2314

Inspection Method: Visual

Process Control Variables:
Maximum:
Minimum:

Overfill Prevention
Tanks: High level alarm
P&ID Drawing Number
Tanks: D-824A and B - 39650-2035
D-825A and B - 39650-2037

Special Unit Conditions: None

HAZARDOUS WASTE MANAGEMENT DAILY INSPECTION LOGSHEET FOR ALL RCRA REGULATED STORAGE/TREATMENT TANKS AND SYSTEMS IN BLDG. 374

DATE							
TIME							
SIGNATURE OF 1st INSPECTOR							
SIGNATURE OF 2nd INSPECTOR, If required							
SUPERVISION SIGNATURE							
FOR DEFICIENCIES, MANAGER OR DESIGNEE SIGNATURE							

Only Yes or No answers are acceptable

1) Was the last inspection within 24 hours?							
2) Are area signs present, correct, & visible?							
3) Is ancillary equipment (including piping & drains) in good condition and not leaking?							
4) Are tanks in good condition & not leaking?							
5) Is hazardous waste compatible with the tanks?							
6) Is aisle space adequate?							
7) Where available, is monitoring equipment operable?							
8) Where available, is overfill prevention equipment operable?							
9) Is incidental release response equipment accessible, adequate, & in working order?							
10) Are secondary containments free of chips, cracks, gaps, and corrosion?							
12) Are secondary containments free of liquids?							

This logsheet is the documentation for inspection of the following RCRA Units: 42.01 thru 42.13, 42.16 42.29, 42.50 thru 42.87, as well as all secondary containment and ancillary equipment including piping and drains. By signature, the inspector verifies that the inspections were performed and completed.

NOTE 1 SUPERVISION AND RCRA CUSTODIAN ARE TO BE NOTIFIED OF ANY PROBLEMS.

NOTE 2 QUESTIONS ANSWERED NO REQUIRE:

1) EXPLANATION IN THE COMMENTS SECTION (Page 2),
2) CORRECTIVE ACTIONS LISTED IN THE CORRECTIVE ACTIONS SECTION (Page 2).

NOTE 3 ANY CHANGE IN RESPONSE FROM THE PREVIOUS INSPECTION REQUIRES A COMMENT.

NOTE 4 BLDG. 374 WASTE TANK STATUS SHEETS ARE MAINTAINED WITH TANK VOLUMES AND ACCUMULATION START DATES FOR EACH PERIOD OF ACCUMULATION.

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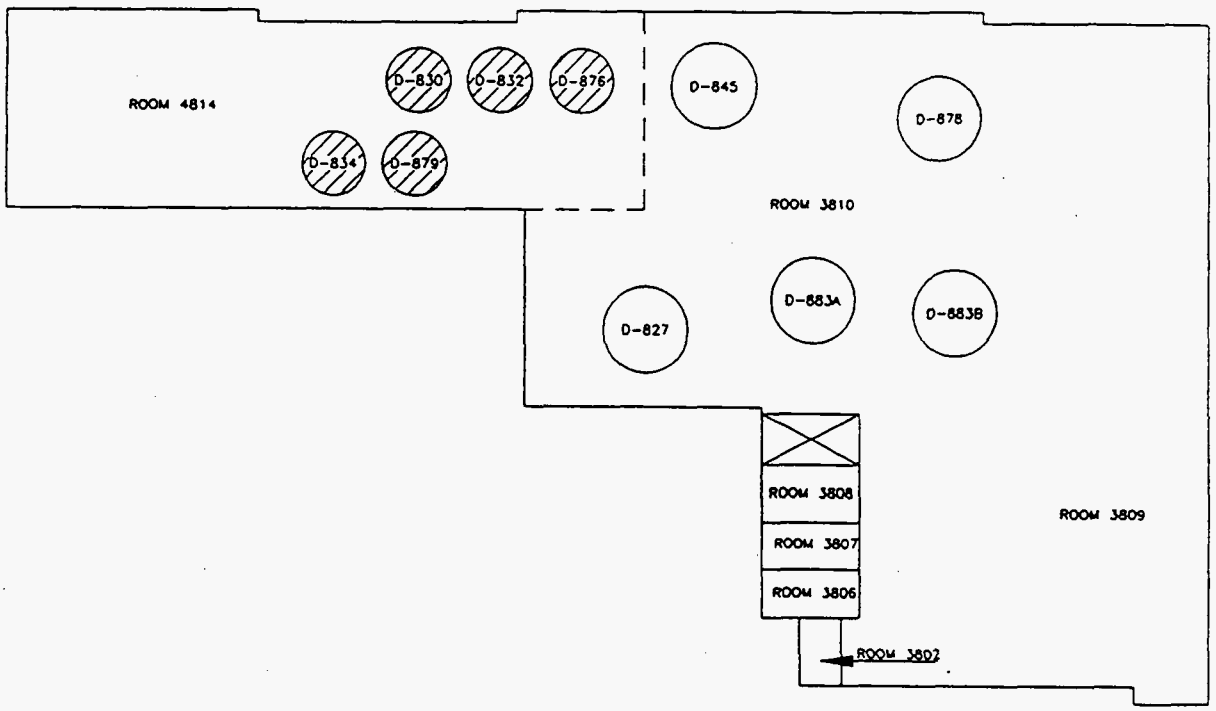
NOTES

1) HATCHING INDICATES TANKS THAT ARE ON THE MEZZANINE LEVEL.

2) FLOOR DRAINS IN ROOMS 3809, AND 3810 DRAIN TO TANK D-852 IN ROOM 2804.



SECONDARY CONTAINMENT CALCULATIONS

1) VOLUME OF LARGEST TANK (Vt):	8000	gal
2) FLOOR AREA (Af):	5393	sf
3) AREA OF OBSTRUCTIONS (Ao):	0	sf
4) NET AREA (An): (An)=(Af)-(Ao)	5393	sf
5) MINIMUM BERM (Hb): (Hb)=((Vt)/((An) x 7.48 gal./cf)) X 12 in/ft	2.4	in

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	DCG	SRL	JCH	SRH
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP		DOE	CLASS	JOB NO.
2. MIXED							
3. LOW LEVEL		DESIGNED GELSTON XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
4. TRU		DRAWN LEHNE XX/XX/93	Rocky Flats Plant				
5. SCND CONTAIN		CHECKED HRANAC XX/XX/93	GOLDEN, COLORADO 80401				
BLDG./FACILITY 374		APPROVED HUGHES XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION				
ROOM/AREA MULTI			ROOMS 3809/3810/4814				
GRID COOR./COL. NO.		SUBMITTED BIERBAUM XX/XX/93	SIZE	DRAWING NUMBER	ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: NONE	APPROVED RFP APPROVED DOE	B	39650-2310	A	of	

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

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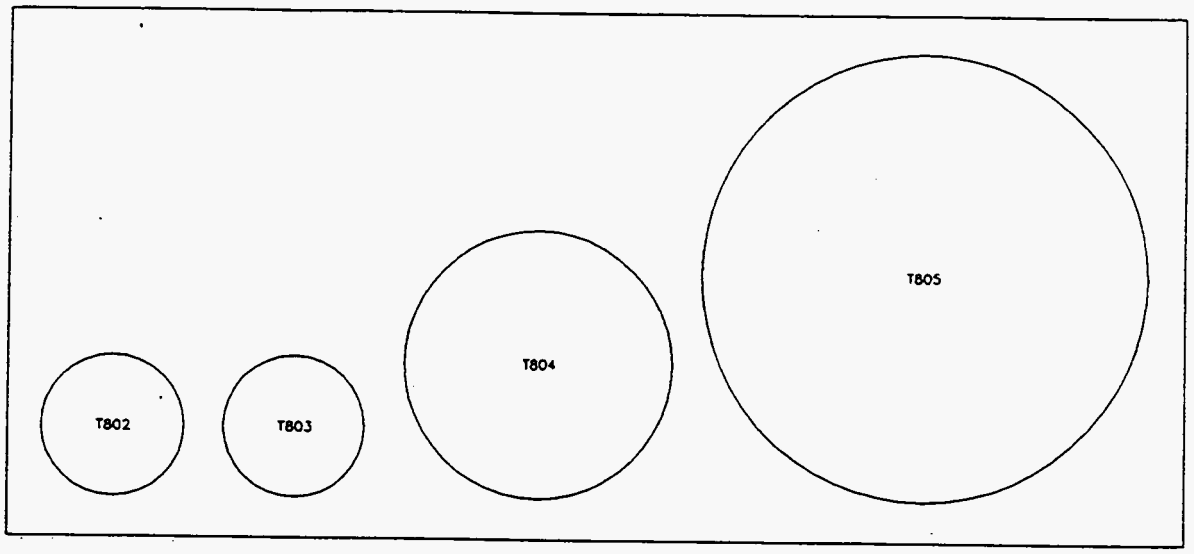
NOTES

1) MINIMUM BERM HEIGHT INCLUDES 5.4" FOR PRECIPITATION FROM 25 YEAR, 24-HOUR STORM EVENT.



SECONDARY CONTAINMENT CALCULATIONS

1) VOLUME OF LARGEST TANK (Vt):	33013	gal
2) FLOOR AREA (Af):	1680	sf
3) AREA OF OBSTRUCTIONS (Ao):	0	sf
4) NET AREA (An): (An)=(Af)-(Ao)	1680	sf
5) MINIMUM BERM (Hb): (Hb)=(Vt)/((An) x 7.48 gal./cf)	3.1	ft

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	OCC	SRL	JCH	SRH		
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED											
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
4. TRU			DRAWN	LENNE	XX/XX/93	Rocky Flats Plant					
5. SCND CONTAIN			CHECKED	MRANAC	XX/XX/93						
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401					
ROOM/AREA OUTSIDE						MIXED LL/TRU RCRA PERMIT MODIFICATION					
GRID COOR./COL. NO.						OUTSIDE BLDG 374					
			SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: NONE		APPROVED RFP			B	39650-2311		A	OF	
			APPROVED DOE								

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

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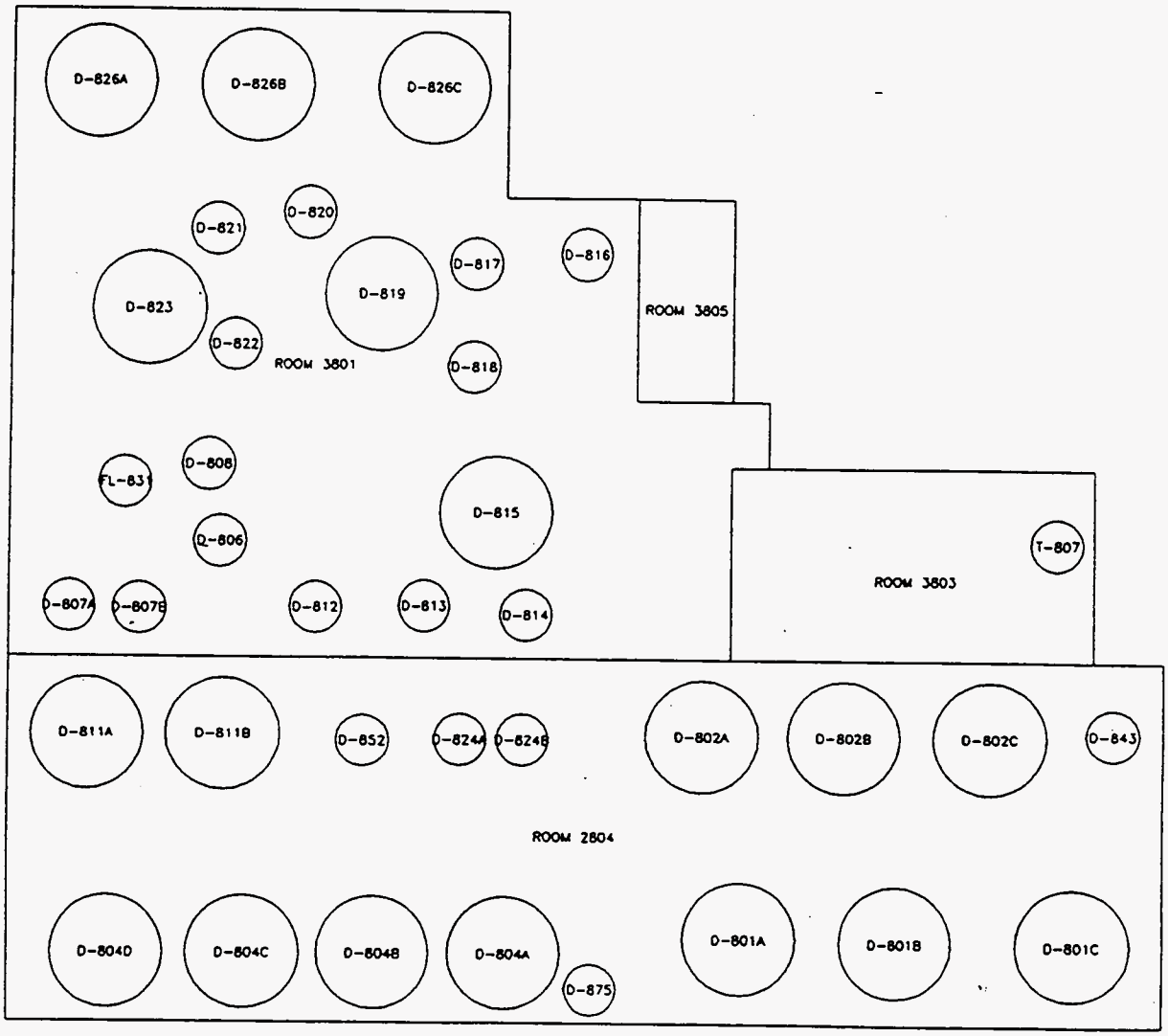
NOTES

1) FLOOR DRAINS IN ROOMS 3801, AND 3803 DRAIN TO TANK D-852, ROOM 2804.

2) ROOM 2804 PROVIDES SECONDARY CONTAINMENT FOR ROOMS 3801, 3803, 3805, AND THE TANKS IN ROOM 2804.

3) BERM HEIGHT IS BASED ON THE FLOOR AREA OF ROOM 2804 ONLY.



SECONDARY CONTAINMENT CALCULATIONS

1) VOLUME OF LARGEST TANK (Vt):	33,000	gal
2) FLOOR AREA (Af):	5,040	sf
3) AREA OF OBSTRUCTIONS (Ao):	0	sf
4) NET AREA (An): (An)=(Af)−(Ao)	5,040	sf
5) MINIMUM BERM (Hb): (Hb)=((Vt)/((An) x 7.48 gal./cf)) X 12 in/ft	10.6	in

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	DCG	SRL	JCH	SRH
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP		DOE	CLASS	JOB NO.
2. MIXED							
3. LOW LEVEL		DESIGNED GELSTON XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
4. TRU		DRAWN LENNIE XX/XX/93					
5. SCND CONTAIN		CHECKED HRANAC XX/XX/93	Rocky Flats Plant GOLDEN, COLORADO 80401				
BLDG./FACILITY 374		APPROVED HUGHES XX/XX/93					
ROOM/AREA 3801/2804			MIXED LL/TRU RCRA PERMIT MODIFICATION				
GRID COOR./COL. NO.			ROOMS 3801/2804				
MASTER YES ☐ NO ☒	SCALE: NONE	SUBMITTED BIERBAUM XX/XX/93 APPROVED RFP APPROVED DOE	SIZE B	DRAWING NUMBER 39650-2312	ISSUE A	SHEET OF	

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

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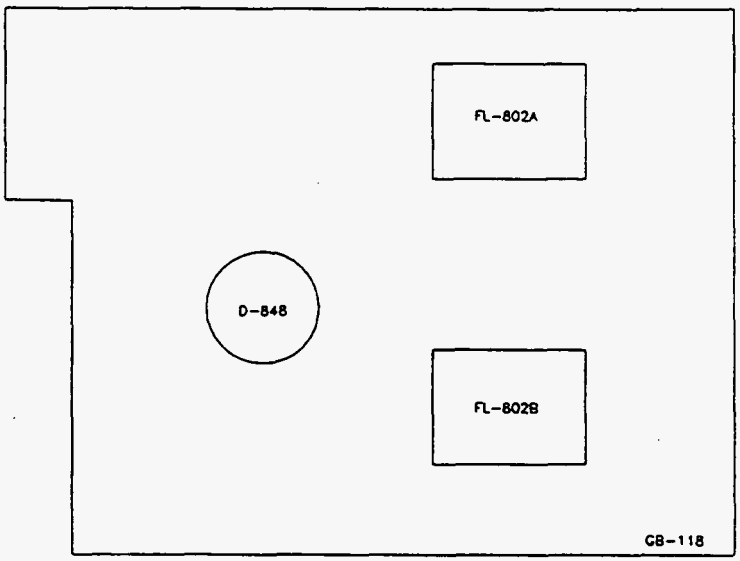
NOTES

1) DRAIN IN FLOOR OF GLOVEBOX DRAINS TO TANK D-852 IN ROOM 2804.



SECONDARY CONTAINMENT CALCULATIONS

1) VOLUME OF LARGEST TANK (Vt):	340	gal
2) FLOOR AREA (Af):	254	sf
3) AREA OF OBSTRUCTIONS (Ao):	0	sf
4) NET AREA (An): (An)=(Af)−(Ao)	254	sf
5) MINIMUM BERM (Hb): (Hb)=((Vt)/((An) x 7.48 gal./cf)) X 12 in/ft	2.2	in

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	DCG	SRL	JCH	SRH
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP		DOC	CLASS	JOB NO.
2. MIXED							
3. LOW LEVEL		DESIGNED GELSTON XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
4. TRU		DRAWN LEMME XX/XX/93	Rocky Flats Plant				
5. SCND CONTAIN		CHECKED MRAMAC XX/XX/93					
BLDG./FACILITY 374		APPROVED HUGHES XX/XX/93	GOLDEN, COLORADO 80401				
ROOM/AREA 3803/GB-118			MIXED LL/TRU RCRA PERMIT MODIFICATION				
DRD COOR./CCL NO.			ROOM 3803/GB-118				
		SUBMITTED BIERBAUM XX/XX/93	SIZE	DRAWING NUMBER	ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: NONE	APPROVED RFP APPROVED DOE	B	39650-2313	A	OF	

"COMPUTER-GENERATED: NO MANUAL CHANGES ALLOWED"

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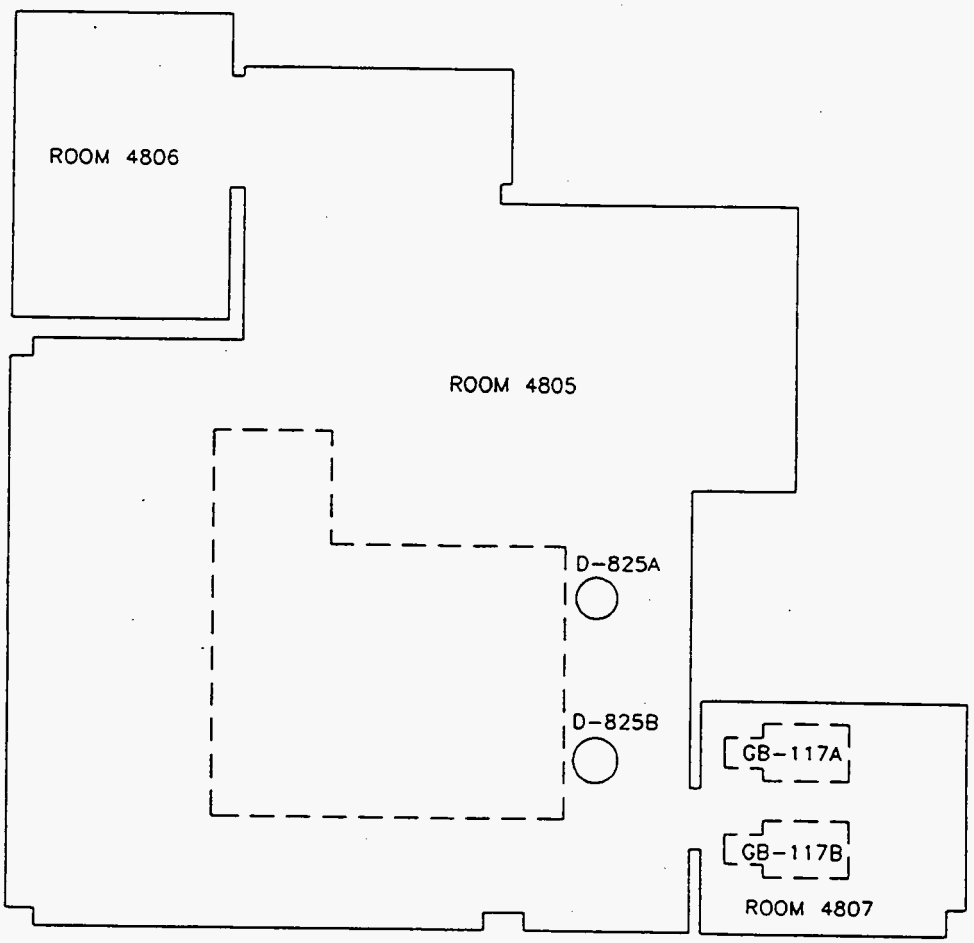
NOTES

1) FLOOR DRAINS IN ROOMS 4805, 4806, AND 4807 DRAIN TO TANK D-852 ROOM 2804.



SECONDARY CONTAINMENT CALCULATIONS

1) VOLUME OF LARGEST TANK (Vt):	100	gal
2) FLOOR AREA (Af):	1797	sf
3) AREA OF OBSTRUCTIONS (Ao):	311.5	sf
4) NET AREA (An): (An)=(Af)−(Ao)	1485.5	sf
5) MINIMUM BERM (Hb): (Hb)=((Vt)/((An) x 7.48 gal./cf)) X 12 in/ft	0.2	in

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	DCC	SRL	JCH	SRH
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP	DOC	CLASS	JOB NO.
2. MIXED							
3. LOW LEVEL							
4. TRU							
5. SCND CONTAIN							
BLDG./FACILITY 374							
ROOM/AREA 4805							
GRID COORD./COL NO.							
MASTER YES ☐ NO ☒	SCALE: NONE						

DESIGNED	GELSTON	XX/XX/93
DRAWN	LENNIE	XX/XX/93
CHECKED	HRANAC	XX/XX/93
APPROVED	HUGHES	XX/XX/93
SUBMITTED	BERBAUM	XX/XX/93
APPROVED RFP		
APPROVED DOC		

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant
GOLDEN, COLORADO 80401

MIXED LL/TRU RCRA PERMIT MODIFICATION

ROOM 4805

SIZE	DRAWING NUMBER	ISSUE	SHEET
B	39650-2314	A	OF

374
4805

"COMPUTER-GENERATED: NO MANUAL CHANGES ALLOWED"

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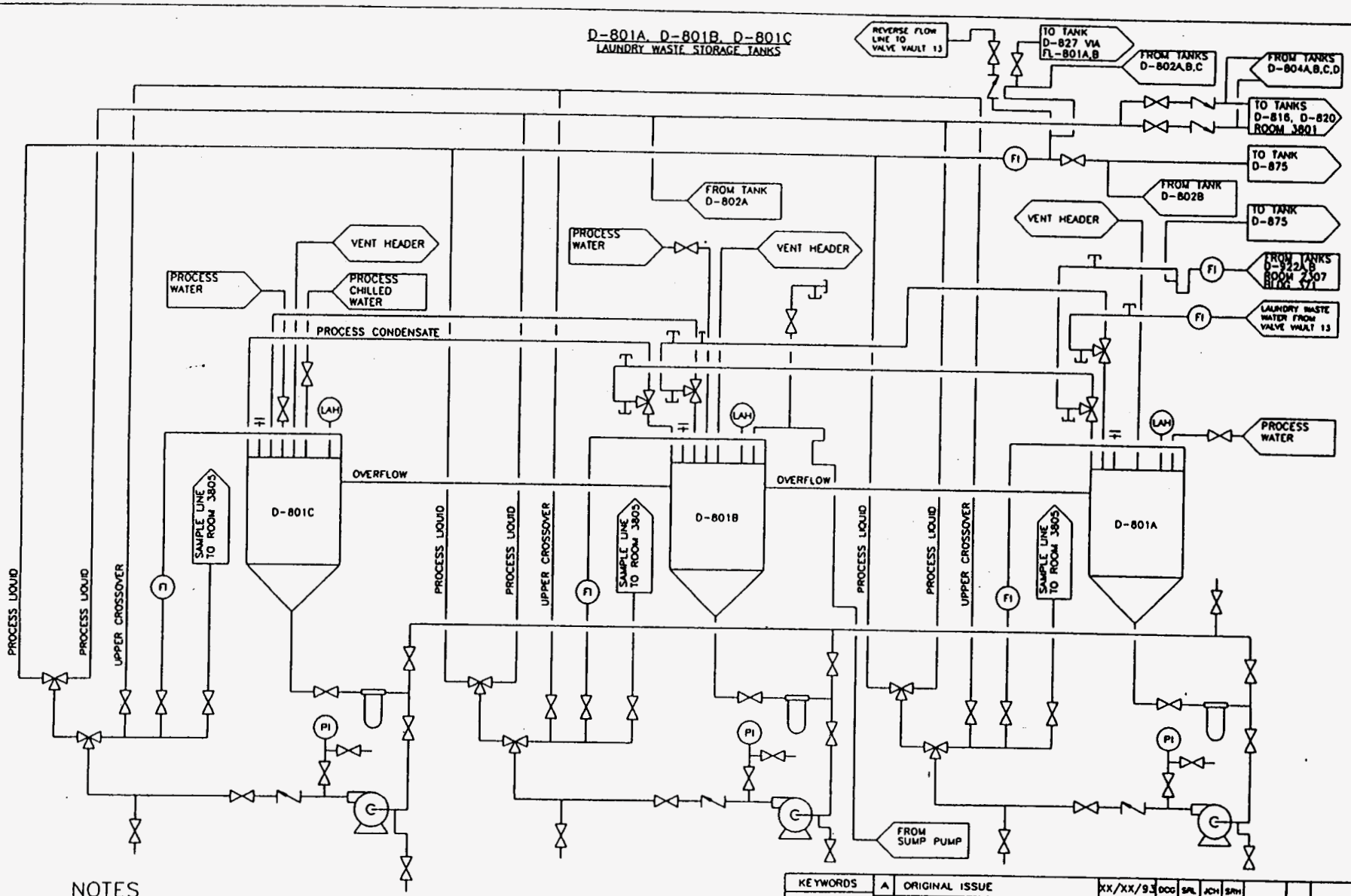


NOTES

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

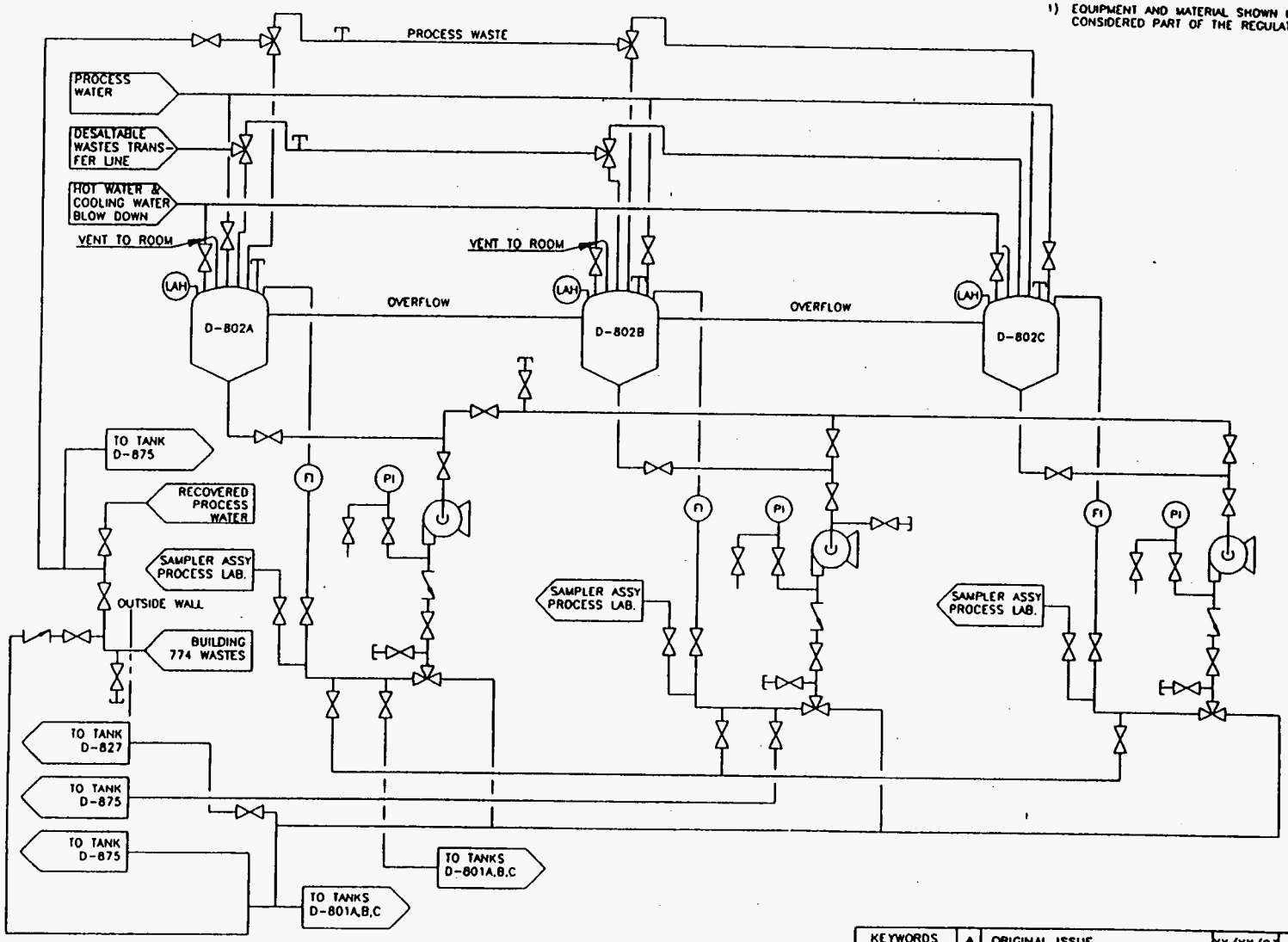
KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRH		
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP			DOE	CLASS	JOB NO.
2. MIXED			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
3. LOW LEVEL			DRAWN	LENNIE	XX/XX/93						
4. TRU			CHECKED	HRANAC	XX/XX/93	Rocky Flats Plant					
5. P&ID			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401					
BLDG./FACILITY 374						MIXED LL/TRU RCRA PERMIT MODIFICATION					
ROOM/AREA 2804						TANKS D-801A, B, C					
GRID COOR./COL NO.			SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: AS NOTED		APPROVED RFP			B	39650-2010		A	OF	
			APPROVED DOE								

374
2804

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

D-802A, D-802B, D-802C
EVAPORATOR FEED STORAGE TANKS



NOTES

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

KEYWORDS	ISSUE	DESCRIPTION	DATE	RFP	DOE	CLASS	JOB NO.
1. RCRA	A	ORIGINAL ISSUE	XX/XX/93	JCH SAL DCG SRH			
2. MIXED							
3. LOW LEVEL							
4. TRU							
5. P&ID							

DESIGNED	HRANAC	XX/XX/93
DRAWN	LENNIE	XX/XX/93
CHECKED	GELSTON	XX/XX/93
APPROVED	HUGHES	XX/XX/93
SUBMITTED	BIORBAUM	XX/XX/93
APPROVED RFP		
APPROVED DOE		

BLDG./FACILITY 374
ROOM/AREA 2804
GRID COOR./COL NO

MASTER YES ☐ NO ☒

SCALE: AS NOTED

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant
GOLDEN, COLORADO 80401

MIXED LL/TRU RCRA PERMIT MODIFICATION

TANKS D-802A, B, C

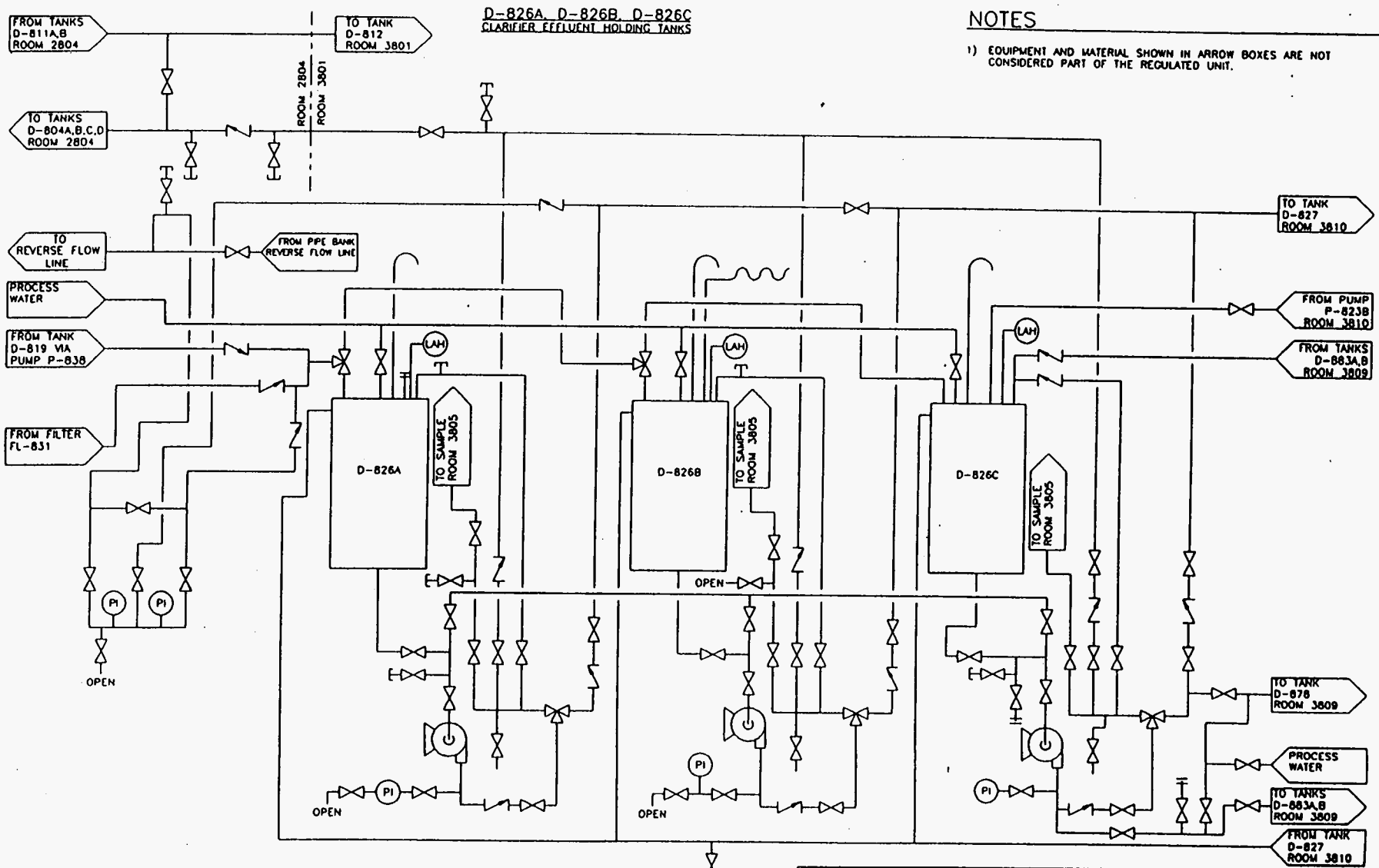
SIZE	DRAWING NUMBER	ISSUE	SHEET
B	39650-2011	A	OF

374
2804

"COMPUTER-GENERATED: NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Modification Request # 14
Draft Mixed LL/TRU 3/1/93 Rev 1

276



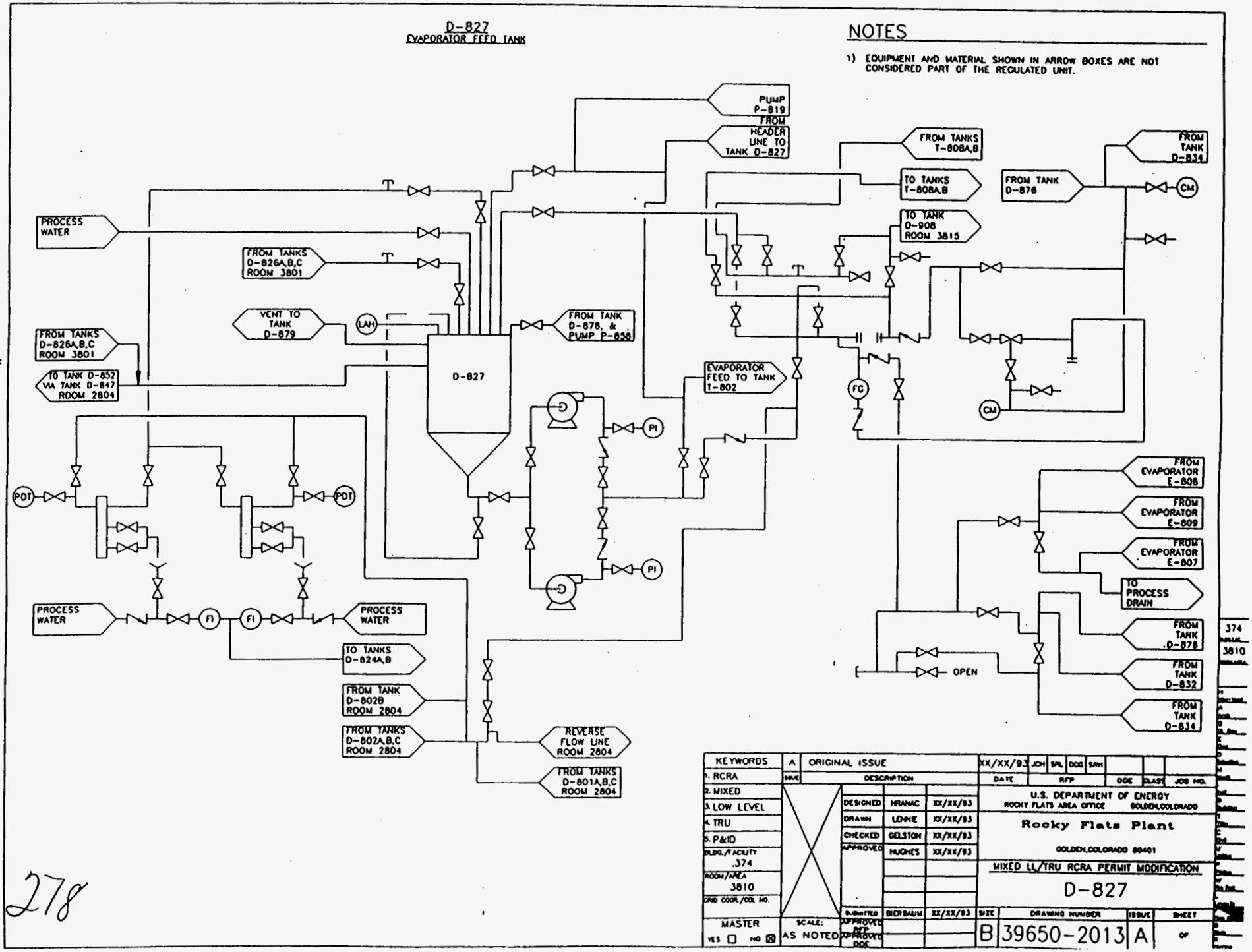
KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRH		
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP			DOE	CLASS	JOB NO.
2. MIXED					U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO						
3. LOW LEVEL		DESIGNED	GELSTON	XX/XX/93							
4. TRU		DRAWN	LONNIE	XX/XX/93	Rocky Flats Plant						
5. P&ID		CHECKED	HRANAC	XX/XX/93	GOLDEN, COLORADO 80401						
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION						
ROOM/AREA 3801					TANKS D-826A,B,C						
GRID COOR./COL NO.		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: AS NOTED	APPROVED RFP / APPROVED DOE			B	39650-2012			A	OF	

374
3801

277

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

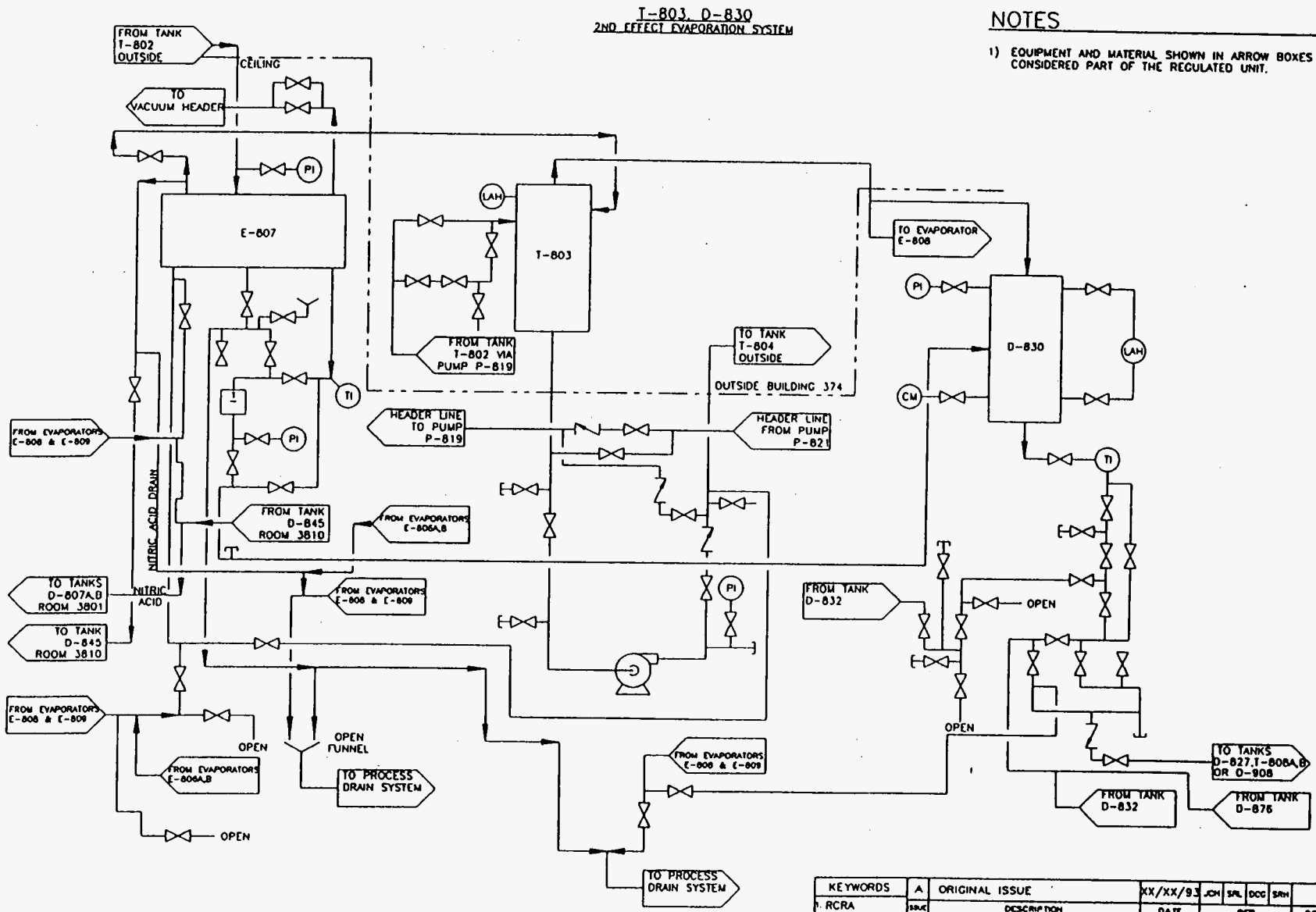
RFP RCRA Permit Modification Request # 14
Draft Mixed LL/TRU 3/1/93 Rev 1



"COMPUTER-GENERATED: NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU 3/1/93 Rev. 1

278



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	JCH	SRL	DCG	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP			DOE	CLASS	JOB NO.	
2. MIXED										
3. LOW LEVEL		DESIGNED HRANAC XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
4. TRU		DRAWN LENNIE XX/XX/93								
5. P&ID		CHECKED GELSTON XX/XX/93	Rocky Flats Plant							
BLDG./FACILITY 374		APPROVED HUGHES XX/XX/93	GOLDEN, COLORADO 80401							
ROOM/AREA 4B14			MIXED LL/TRU RCRA PERMIT MODIFICATION							
GRID COOR./COL NO.			TANKS T-803, D-830							
		SUBMITTED BIERBAUM XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET		
MASTER YES ☐ NO ☒	SCALE: AS NOTED	APPROVED RFP APPROVED DOE	B	39650-2014			A	OF		

374
4B14

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

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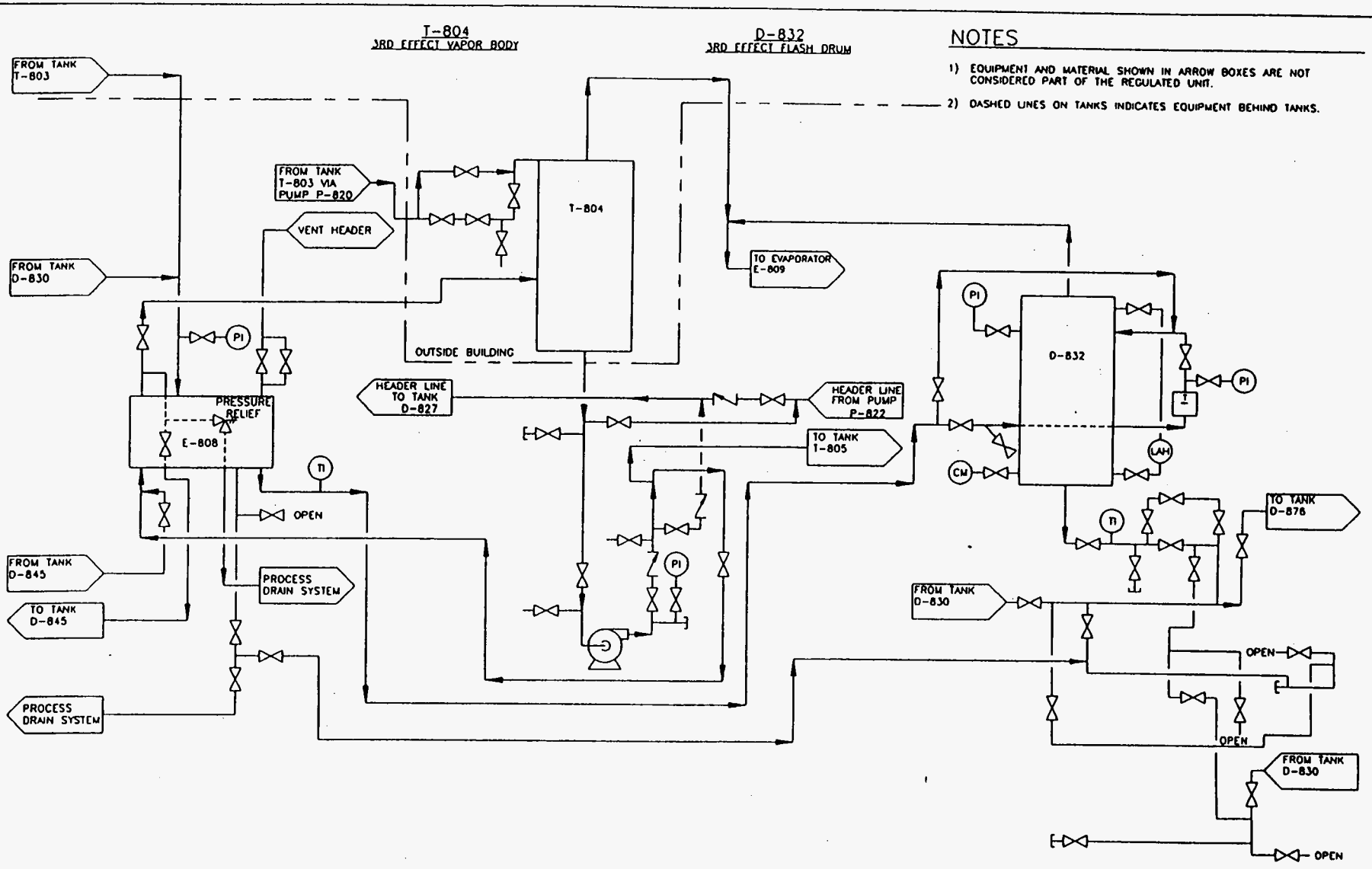

NOTES

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

2) DASHED LINES ON TANKS INDICATES EQUIPMENT BEHIND TANKS.

KEYWORDS											
1. RCRA	A	ORIGINAL ISSUE			XX/XX/93	JCH	SRL	KJA	SRH		
2. MIXED	ISSUE	DESCRIPTION			DATE	RFP				DOE CLASS	JOB NO.
3. LOW LEVEL			DESIGNED	HRAMAC	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
4. TRU			DRAWN	LENNE	XX/XX/93	Rocky Flats Plant					
5. P&ID			CHECKED	ALMQUIST	XX/XX/93	GOLDEN, COLORADO 80401					
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION					
ROOM/AREA 3810/4814						TANKS T-804, D-832,					
GRID COOR./COL NO.			SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: AS NOTED		APPROVED RFP APPROVED DOE			B	39650-2015		A	OF	

374
3810

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"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

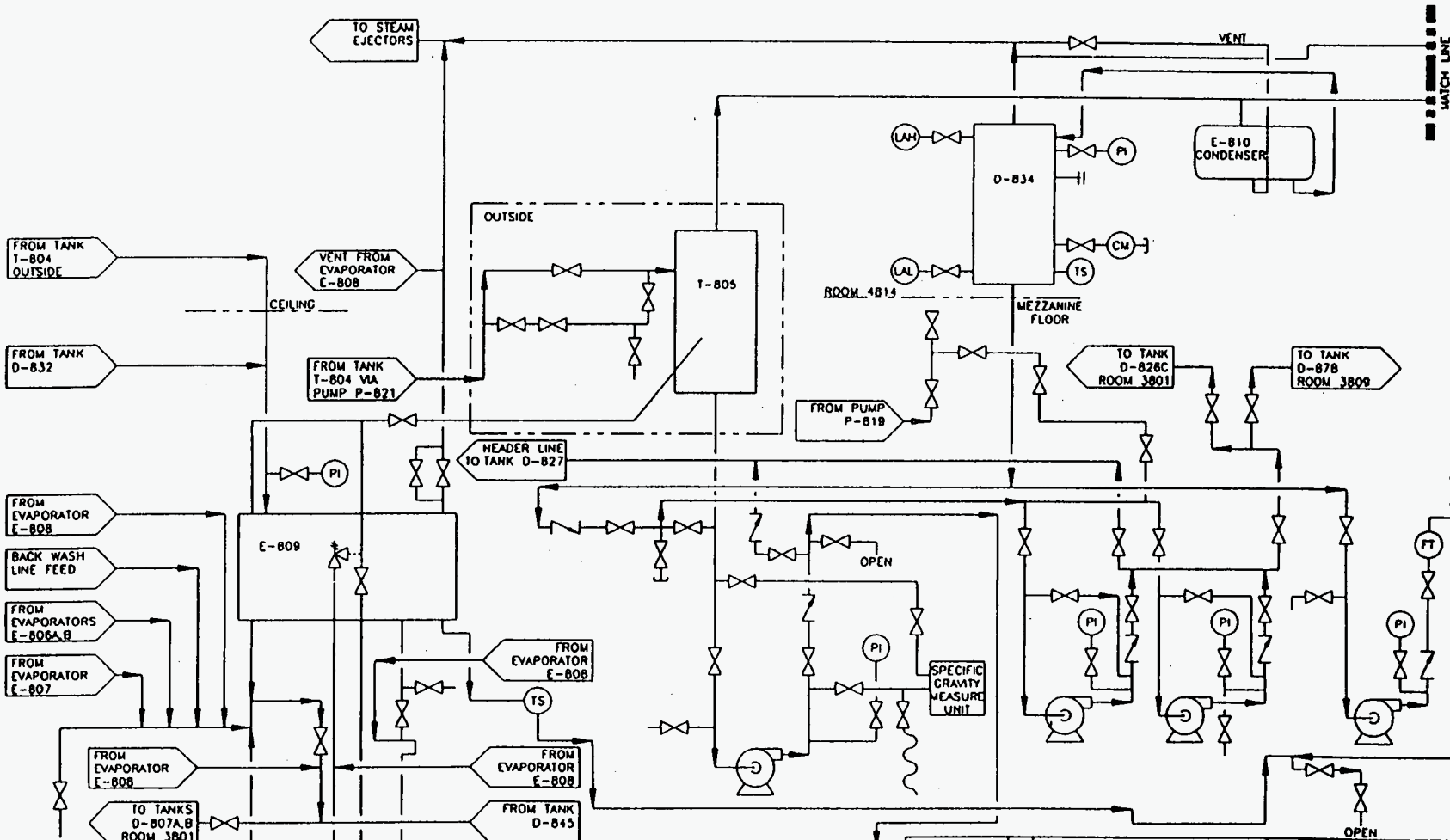
RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

T-805
4TH EFFECT VAPOR BODY TANK

D-834
CONDENSATE RECEIVER TANK

NOTES

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



KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	JCH	SRL	DOO	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE		RFP			DOE	CLASS	JOB NO.
2. MIXED										
3. LOW LEVEL										
4. TRU										
5. P&ID										
BLDG./FACILITY 374										
ROOM/AREA 3810/4814										
GRID COOR./COL NO.										
MASTER YES ☐ NO ☒	SCALE: AS NOTED									

DESIGNED	HRANAC	XX/XX/93
DRAWN	LENNE	XX/XX/93
CHECKED	GOLSTON	XX/XX/93
APPROVED	HUGHES	XX/XX/93
SUBMITTED	BIERBALM	XX/XX/93
APPROVED RFP		
APPROVED DOE		

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant
GOLDEN, COLORADO 80401

MIXED LL/TRU RCRA PERMIT MODIFICATION

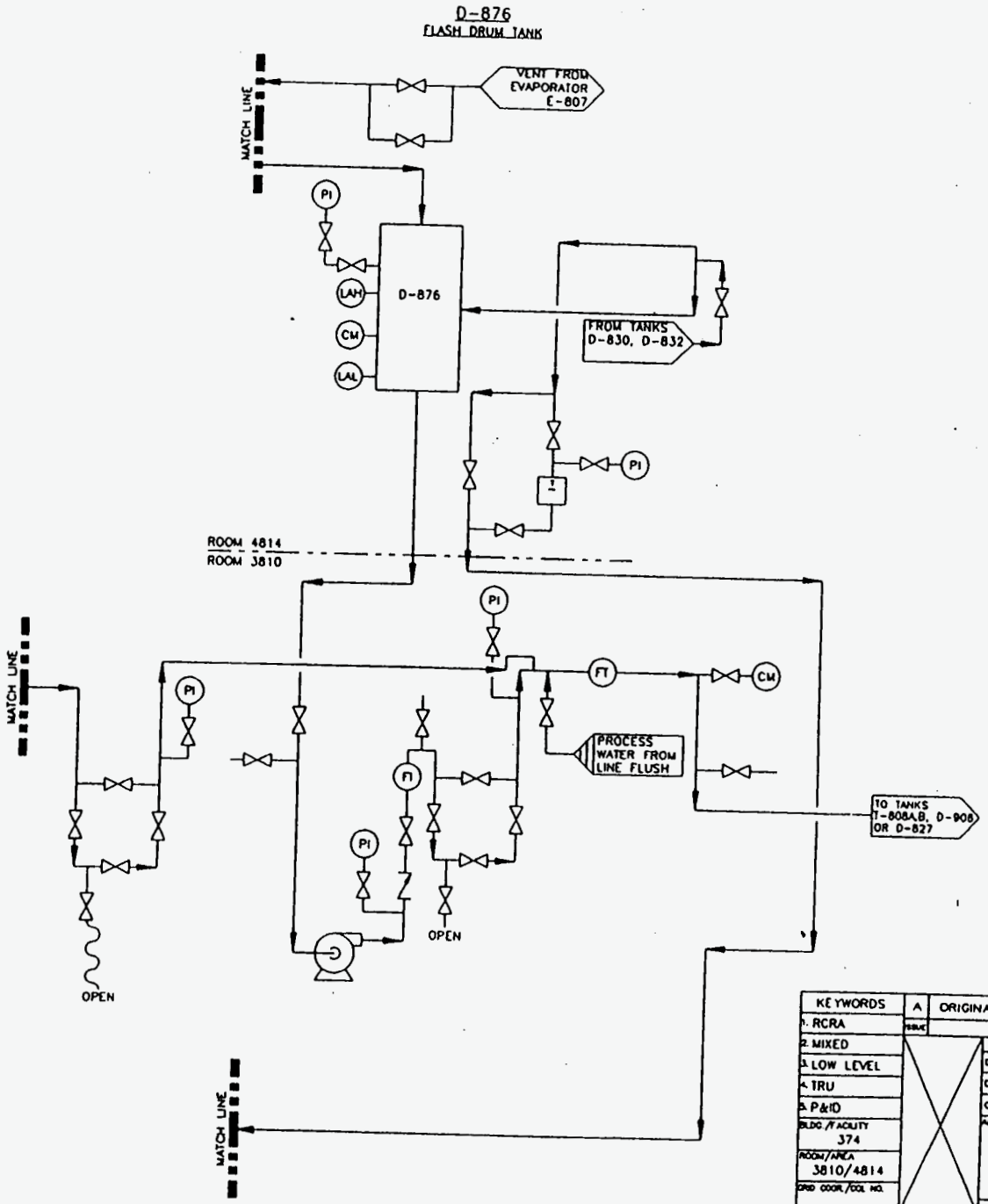
TANKS T-805, D-834

SIZE	DRAWING NUMBER	ISSUE	SHEET
B	39650-2016	A	OF

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

281



NOTES

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

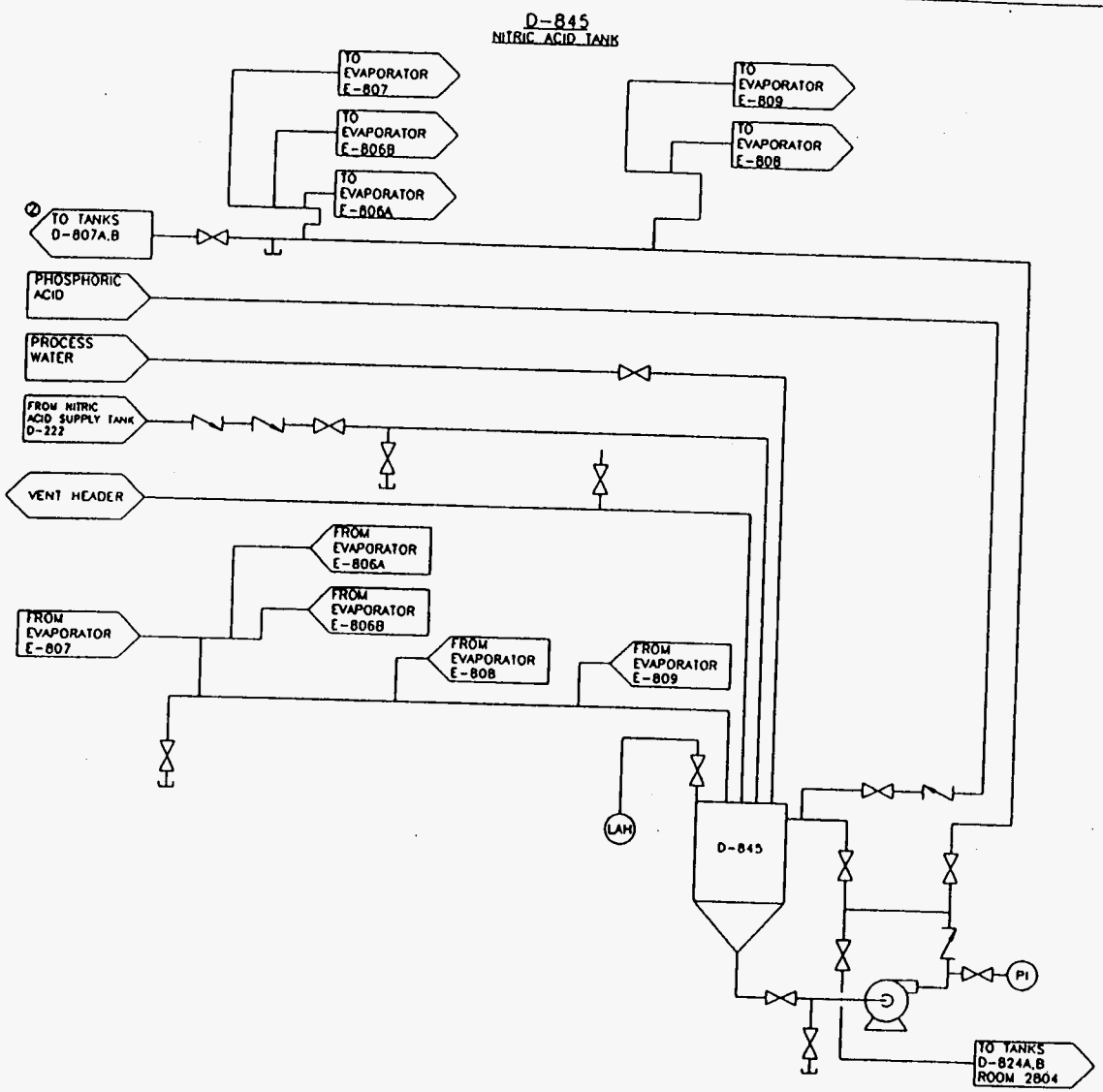
KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	JCH	SRL	DCG	SRH	
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP			DOE	CLASS	JOB NO.
2. MIXED											
3. LOW LEVEL			DESIGNED	HRAMAC	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
4. TRU			DRAWN	LENNE	XX/XX/93					
5. P&ID			CHECKED	GOLSTON	XX/XX/93	Rocky Flats Plant				
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401				
ROOM/AREA 3810/4814						MIXED LL/TRU RCRA PERMIT MODIFICATION				
GRID COOR./COL NO.						TANK D-876				
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET
			APPROVED ARP			B	39650-2017		A	of
			APPROVED DOE							

374
3810

282

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1



NOTES

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

2) THIS LINE IS NOT CURRENTLY USED.

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRH		
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED											
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
4. TRU			DRAWN	LENNE	XX/XX/93						
5. P&ID			CHECKED	HRANAC	XX/XX/93	Rocky Flats Plant					
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401					
ROOM/AREA 3810						MIXED LL/TRU RCRA PERMIT MODIFICATION					
CRID COOR./COL NO.						TANK D-845					
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET
			APPROVED RFP			B	39650-2018			A	OF
			APPROVED DOE								

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3810

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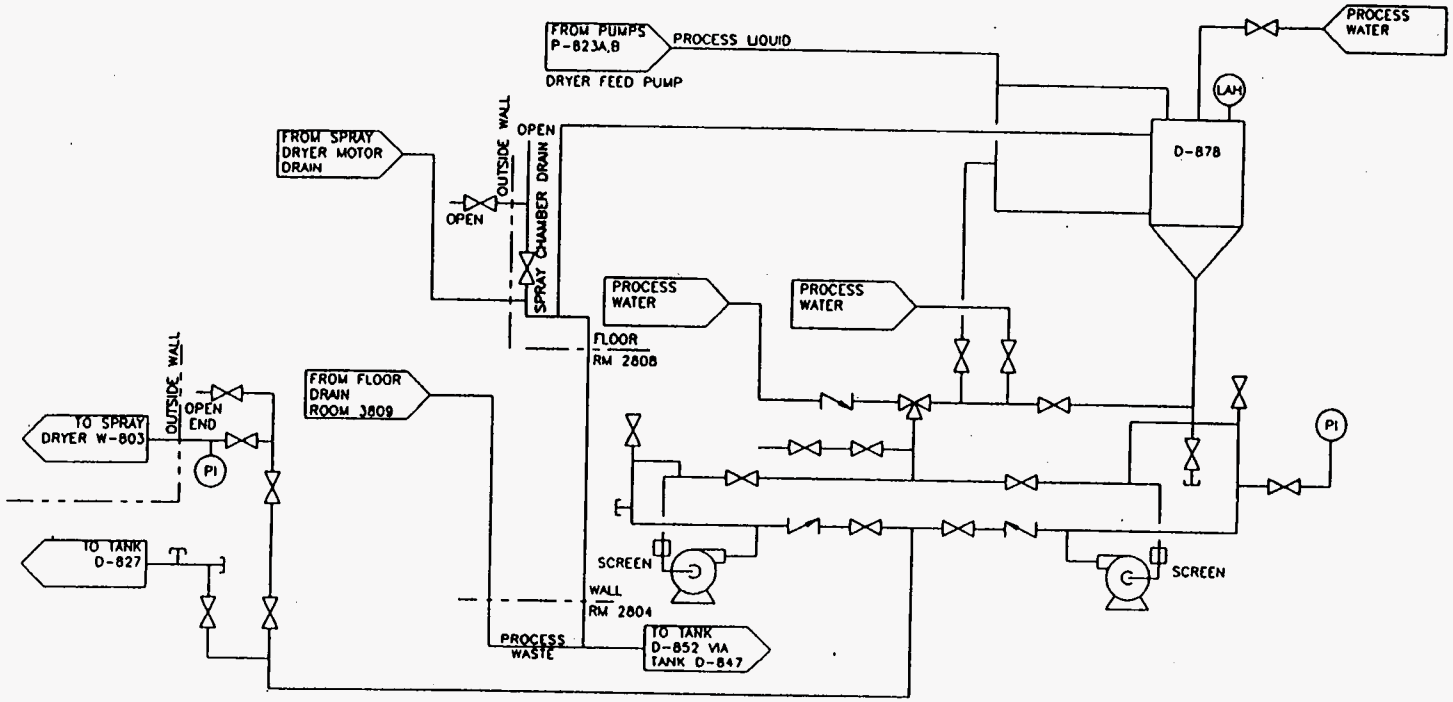
"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Modification Request # 14
Draft Mixed LL/TRU 3/1/93 Rev 1

D-878
SPRAYER DRYER FEED TANK

NOTES

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



KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	JCH	SRL	DCG	SRH			
1. RCRA	ISSUE	DESCRIPTION			DATE		RFP		DOE	CLASS	JOB NO.	
2. MIXED					U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
3. LOW LEVEL			DESIGNED	HRANAC	XX/XX/93							
4. TRU			DRAWN	LENNE	XX/XX/93							
5. P&ID			CHECKED	GELSTON	XX/XX/93							
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93							
ROOM/AREA 3810												
GRID COOR./COL NO.												
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93							
			APPROVED RFP									
			APPROVED DOE									

Rocky Flats Plant
GOLDEN, COLORADO 80401
MIXED LL/TRU RCRA PERMIT MODIFICATION
TANK D-878

SIZE	DRAWING NUMBER	ISSUE	SHEET
B	39650-2019	A	of

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3810

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

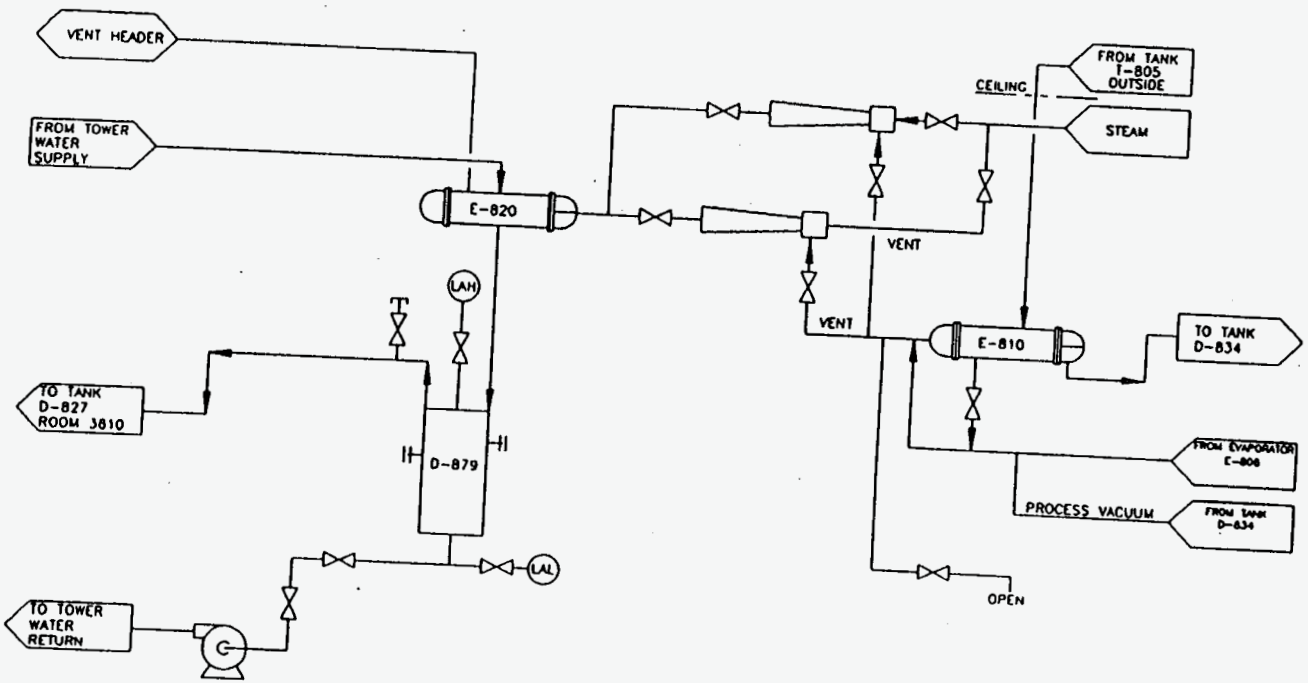
RFP RCRA Permit Modification Request # 14
Draft Mixed LL/TRU 3/1/93 Rev 1

284

D-879
MAKE UP WATER HOLDING TANK

NOTES

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



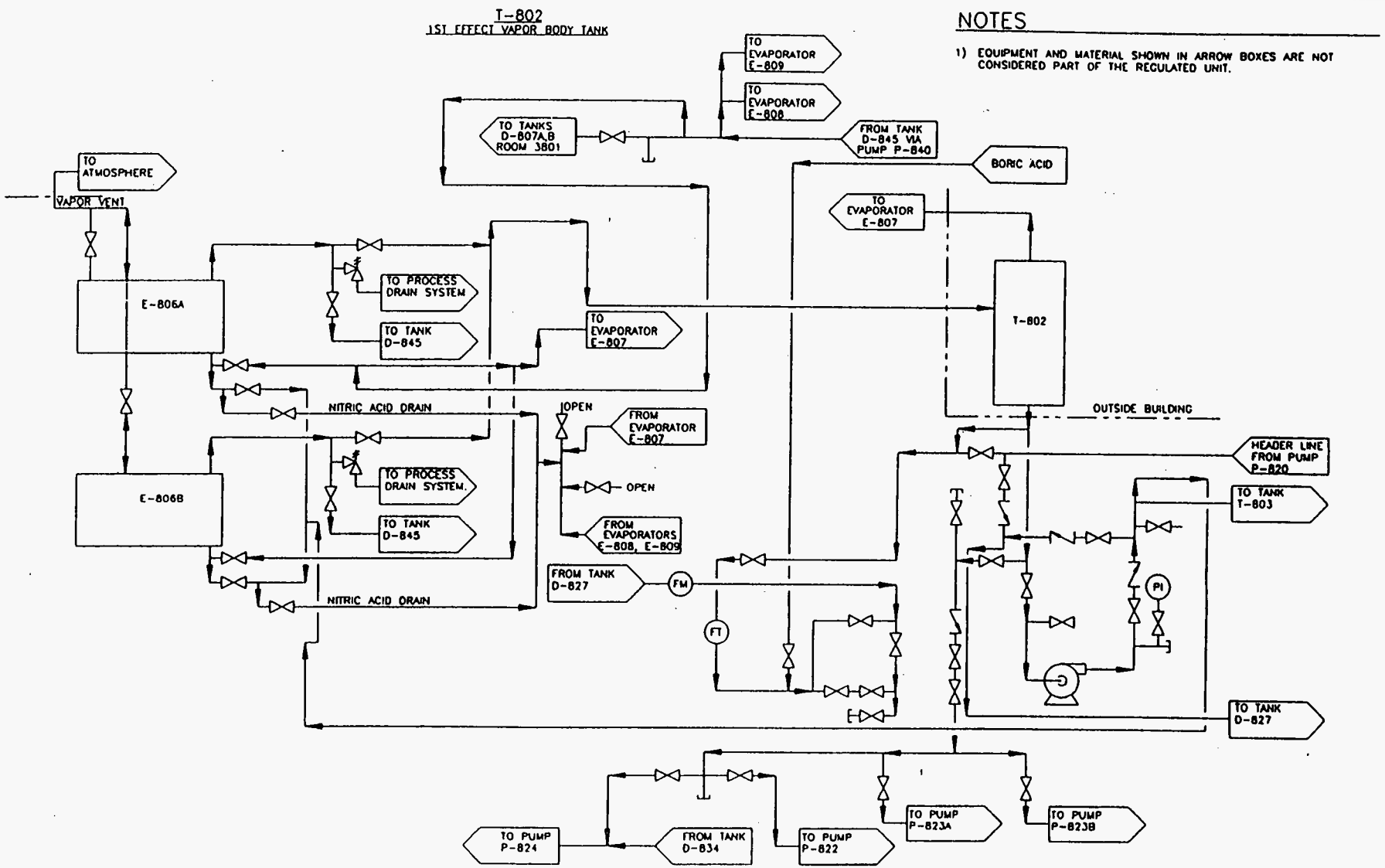
KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SAL	JCH	SAH		
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED											
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
4. TRU			DRAWN	LENNE	XX/XX/93						
5. P&ID			CHECKED	MRANAC	XX/XX/93	Rocky Flats Plant					
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401					
ROOM/AREA 4814						MIXED LL/TRU RCRA PERMIT MODIFICATION					
GRID COOR./COL NO.						TANK D-879					
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	SHERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
			APPROVED RFP			B	39650-2020		A	OF	
			APPROVED DOE								

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

285

374
4814



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	JCH	SRL	DCG	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED										
3. LOW LEVEL		DESIGNED HRANAC XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
4. TRU		DRAWN LONNIE XX/XX/93	Rocky Flats Plant							
5. P&ID		CHECKED GELSTON XX/XX/93	GOLDEN, COLORADO 80401							
BLDG./FACILITY 374		APPROVED HUGHES XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION							
ROOM/AREA 3810			TANK T-802							
GRID COOR./COL NO.		SUBMITTED BIERBAUM XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET			
MASTER YES ☐ NO ☒	SCALE: AS NOTED	APPROVED RFP APPROVED DOE	B	39650-2021		A	OF			

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3810

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"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

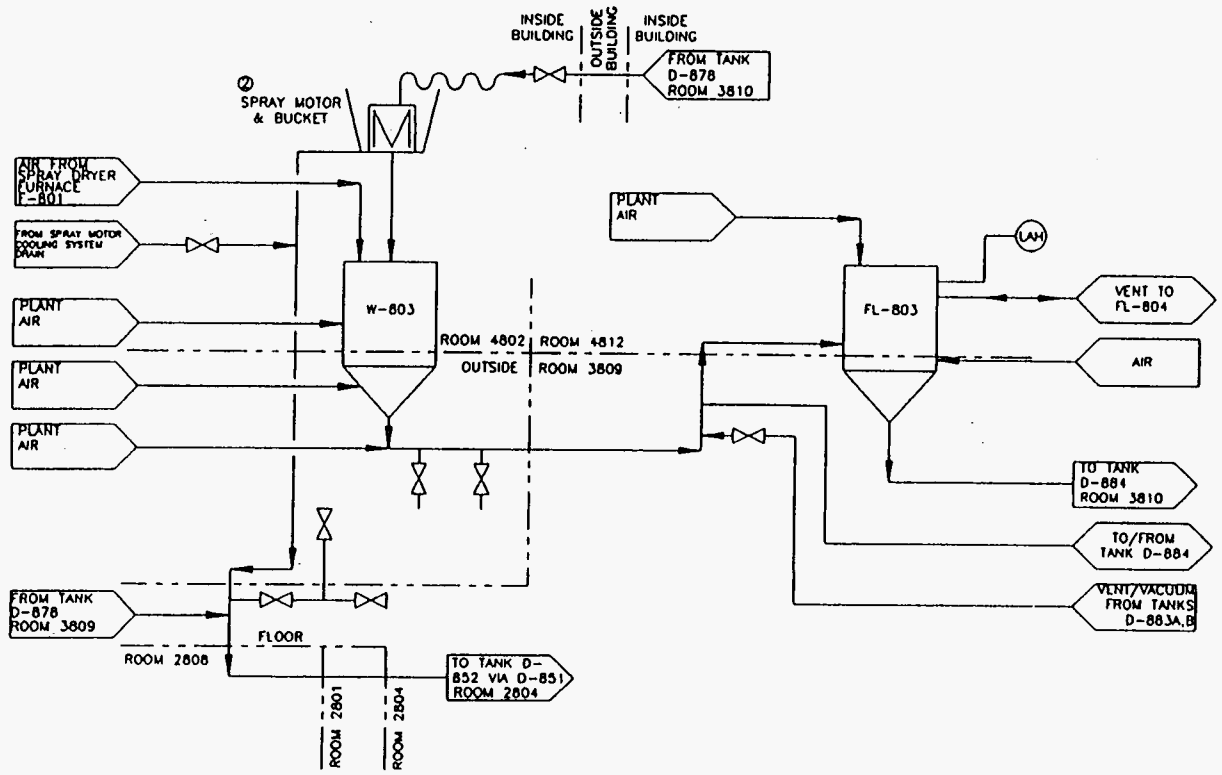
W-803
SPRAY DRYER

FL-803
SPRAY DRYER BAG FILTER

NOTES

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

② SPRAY MOTOR IS PLACED IN A BUCKET WITH A DRAIN WHEN NOT IN USE, ON TOP OF SPRAY DRYER.



KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCO	SRL	JCH	SRH	
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP		DOE	CLASS	JOB NO.
2. MIXED					U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
3. LOW LEVEL		DESIGNED	GELSTON	XX/XX/93						
4. TRU		DRAWN	LENNIE	XX/XX/93	Rocky Flats Plant					
5. P&ID		CHECKED	HRANAC	XX/XX/93						
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401					
ROOM/AREA 4802/4812					MIXED LL/TRU RCRA PERMIT MODIFICATION					
GRID COOR./COL NO.					TANKS W-803, FL-803					
MASTER YES ☐ NO ☒	SCALE: AS NOTED	SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
		APPROVED RFP			B	39650-2022		A	OF	
		APPROVED DOE								

374
4802

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Modification Request f 14
Draft Mixed LL/TRU 3/1/93 Rev 1

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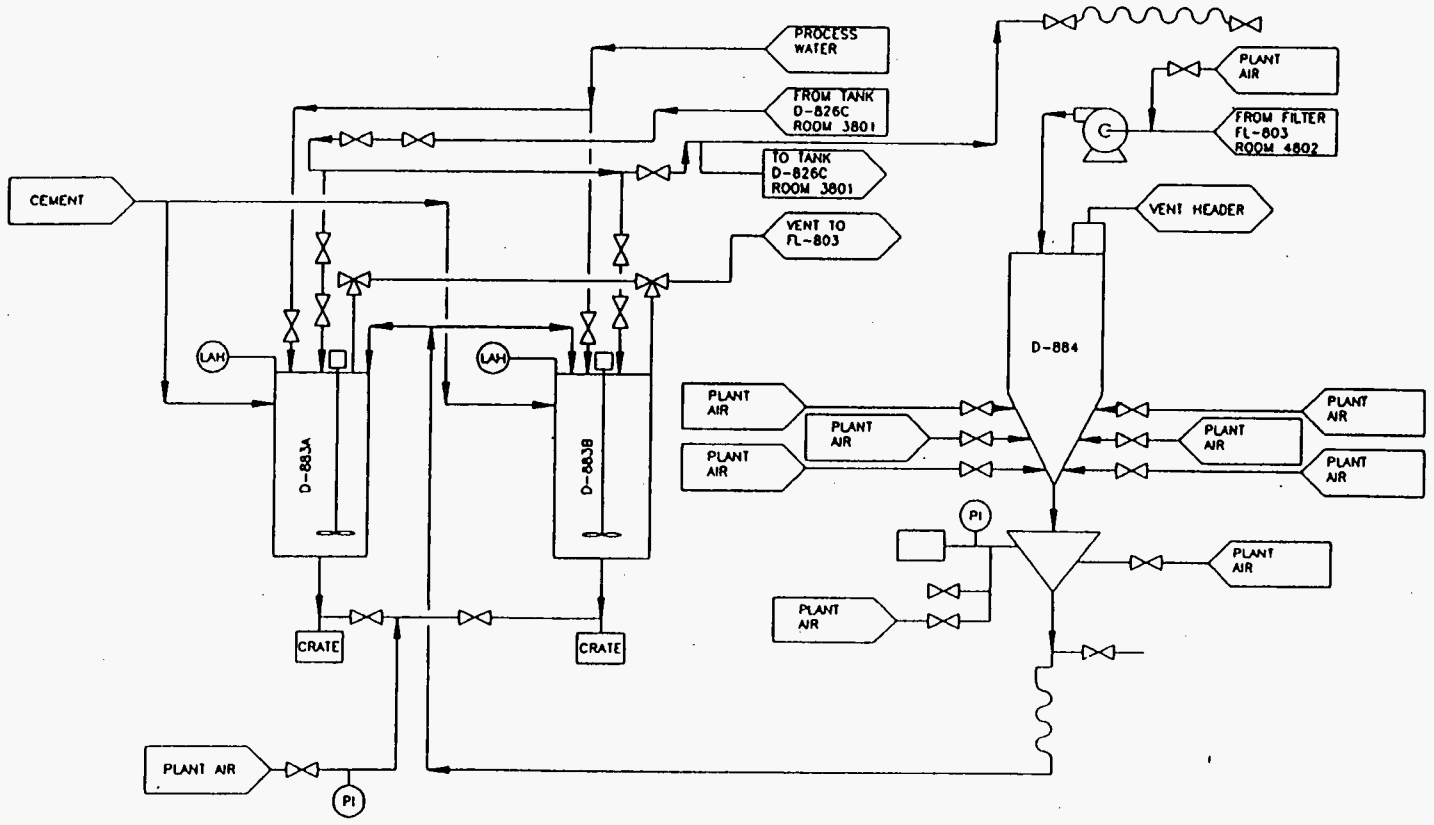
D-883A, D-883B
SALTCRETE MIXING TANKS

D-884
SALT TRANSFER TANK

NOTES

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



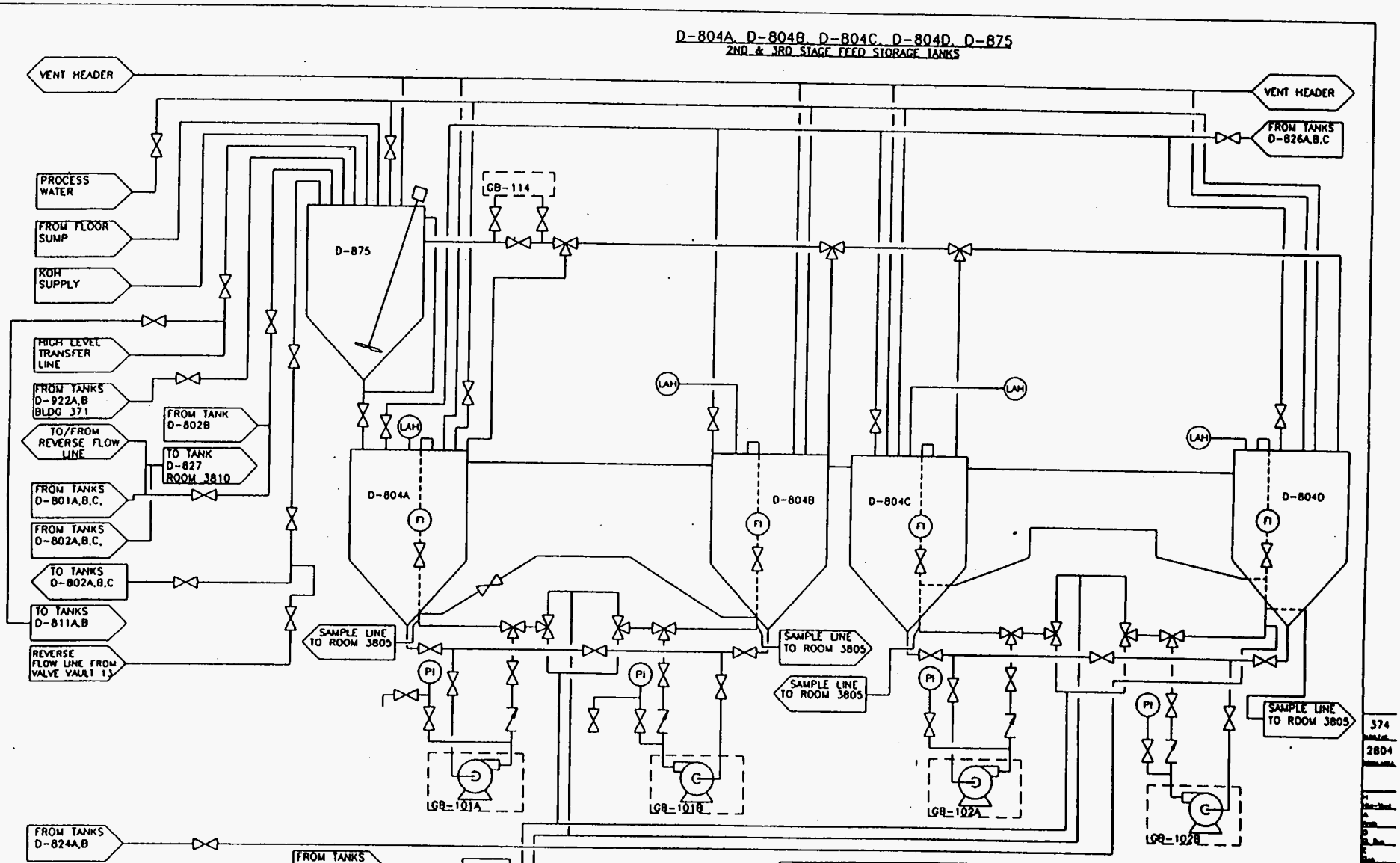
KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SAL	KJA	SAH			
1. RCRA	SYM	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED												
3. LOW LEVEL		DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
4. TRU		DRAWN	LENNE	XX/XX/93	Rocky Flats Plant							
5. P&ID		CHECKED	ALMQUIST	XX/XX/93								
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401							
ROOM/AREA 3810					MIXED LL/TRU RCRA PERMIT MODIFICATION							
CRID CODE/CDL NO.					TANKS D-883A,B, D-884							
MASTER YES ☐ NO ☒	SCALE: AS NOTED	SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER				ISSUE	SHEET	
		APPROVED RFP			B	39650-2023				A	OF	
		APPROVED DOE										

374
3810

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

288



NOTES

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

2) DASHED LINES ON TANKS INDICATE EQUIPMENT BEHIND TANKS.

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	JCH	SRL	DCG	SRH		
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP			DOE	CLASS	JOB NO.
2. MIXED									
3. LOW LEVEL		DESIGNED	HRAMAC	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO				
4. TRU		DRAWN	LENNE	XX/XX/93	Rocky Flats Plant				
5. P&ID		CHECKED	GELSTON	XX/XX/93					
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401				
ROOM/AREA 2804					MIXED LL/TRU RCRA PERMIT MODIFICATION				
GRID COOR./COL NO.					TANKS D-804A,B,C,D, D-875				
MASTER YES ☐ NO ☒	SCALE: AS NOTED	SUBMITTED	SHERBAUM	XX/XX/93	SIZE	DRAWING NUMBER	ISSUE	SHEET	
		APPROVED RFP			B	39650-2024	A	OF	
		APPROVED DOE							

374
2804

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

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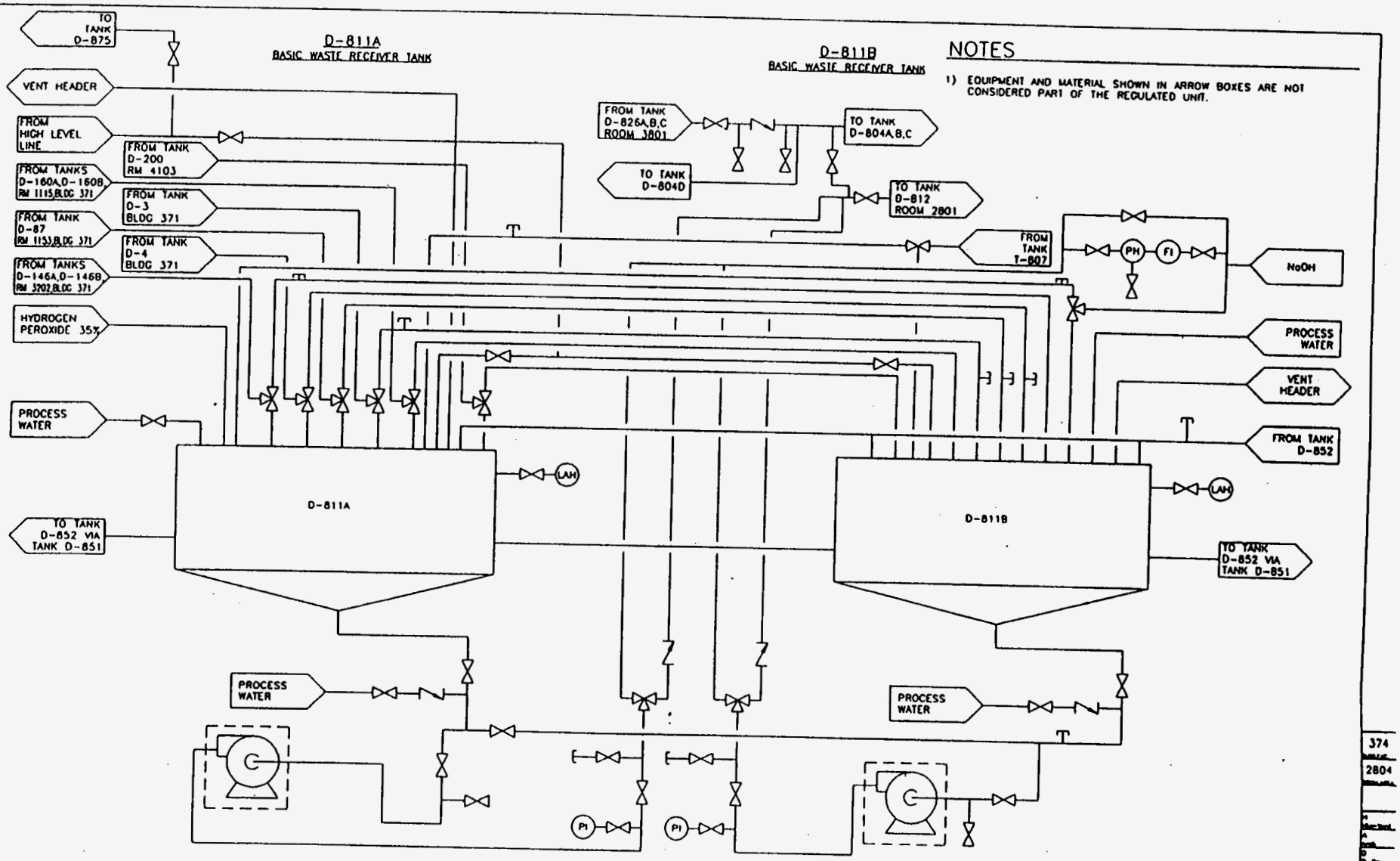


NOTES

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

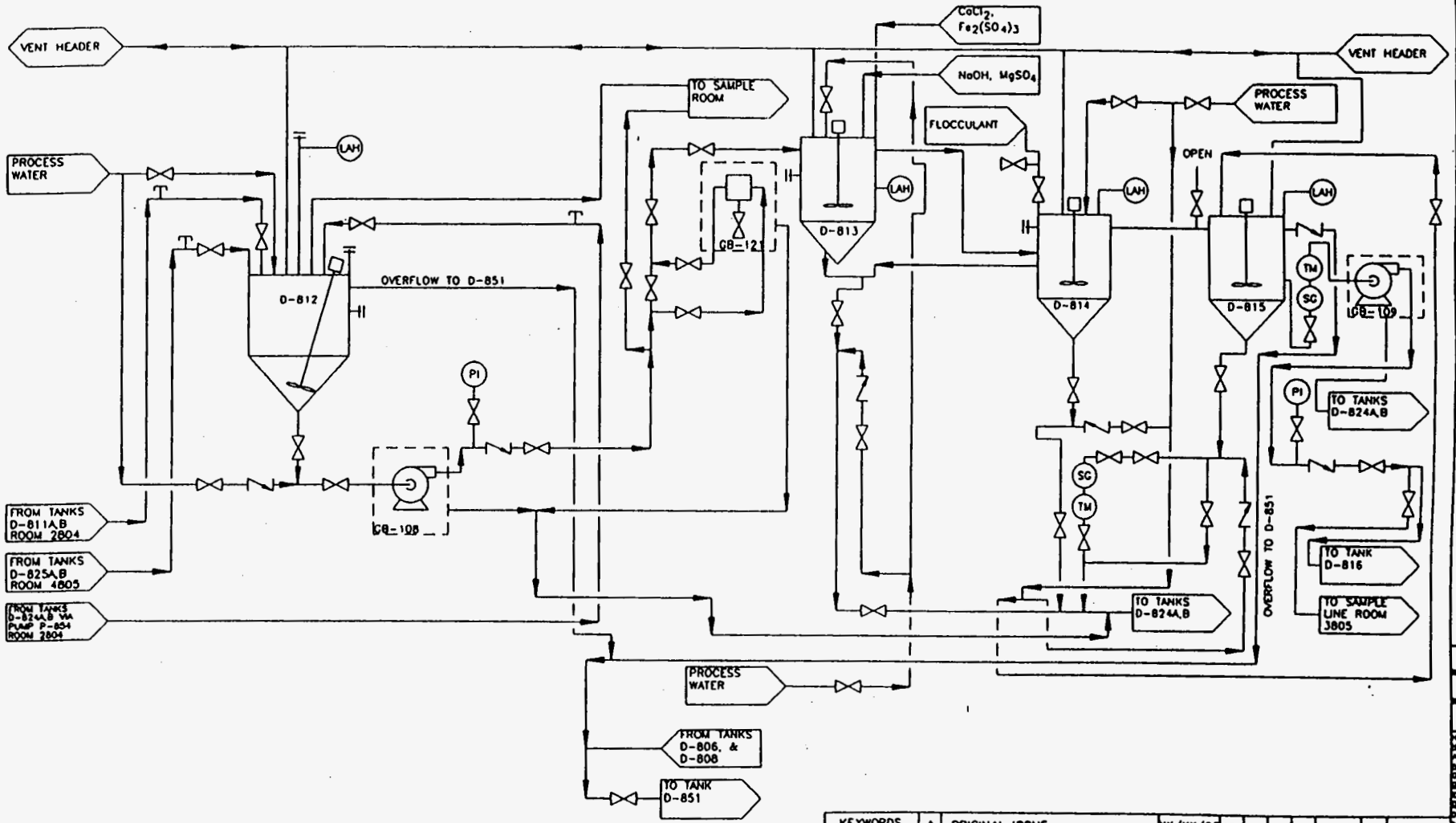
KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	KAS	JCH	SRH		
1. RCRA	REV	DESCRIPTION			DATE	RFP			DOE	CLASS	JOB NO.
2. MIXED											
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
4. TRU			DRAWN	SCHACKUN	XX/XX/93						
5. P&ID			CHECKED	HRANAC	XX/XX/93	Rocky Flats Plant					
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401					
ROOM/AREA 2804						MIXED LL/TRU RCRA PERMIT MODIFICATION					
GRID COOR./COL NO.						TANKS D-811A,D-811B					
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
			APPROVED ARP			B	39650-2025		A	OF	
			APPROVED DOE								

374
2804

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU 3/1/93 Rev. 1

289290



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRH			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO						
3. LOW LEVEL			DRAWN	LENNE	XX/XX/93	Rocky Flats Plant						
4. TRU			CHECKED	HRANAC	XX/XX/93	GOLDEN, COLORADO 80401						
5. P&ID			APPROVED	HUGHES	XX/XX/93							
BLDG./FACILITY 374						MIXED LL/TRU RCRA PERMIT MODIFICATION						
ROOM/AREA 3801						TANKS D-812, D-813, D-814, & D-815						
GRID COOR./COL NO.			SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET	
MASTER YES ☐ NO ☒	SCALE: AS NOTED		APPROVED RFP / APPROVED DOE			B	39650-2026			A	OF	

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3801

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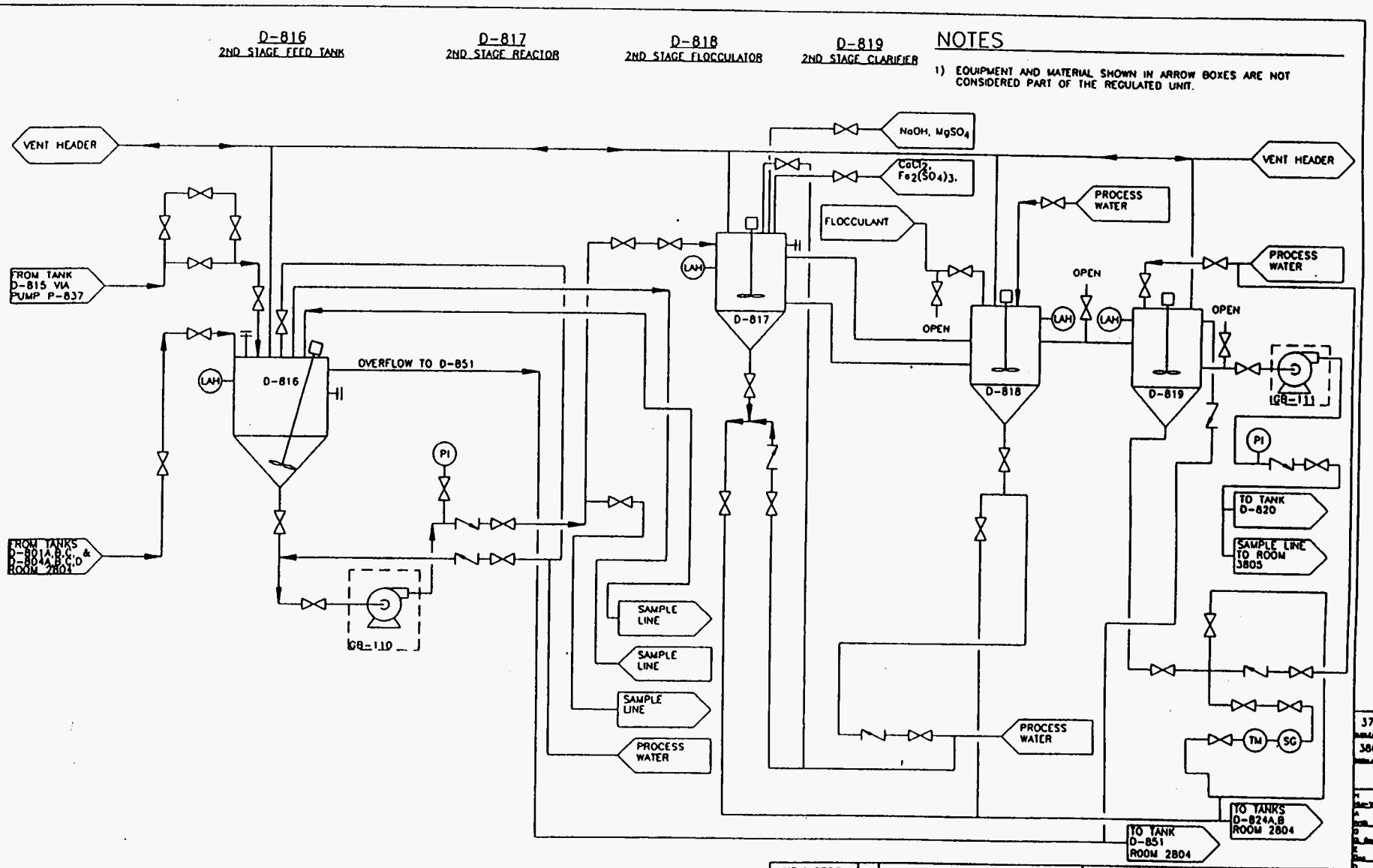
"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	DOG	SAL	JCH	SAH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED										
3. LOW LEVEL										
4. TRU										
5. P&ID										
BLDG./FACILITY 374										
ROOM/AREA 3801										
GRID COOR./COL NO.										
MASTER YES ☐ NO ☒	SCALE: AS NOTED									

DESIGNED	GELSTON	XX/XX/93
DRAWN	LONNIE	XX/XX/93
CHECKED	HRANAC	XX/XX/93
APPROVED	HUGHES	XX/XX/93
SUBMITTED	BIERBAUM	XX/XX/93
APPROVED RFP		
APPROVED DOE		

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant
GOLDEN, COLORADO 80401

MIXED LL/TRU RCRA PERMIT MODIFICATION

TANKS D-816, D-817, D-818, & D-819

SIZE	DRAWING NUMBER	ISSUE	SHEET
B	39650-2027	A	of

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3801

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

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D-820
3RD STAGE FEED TANK

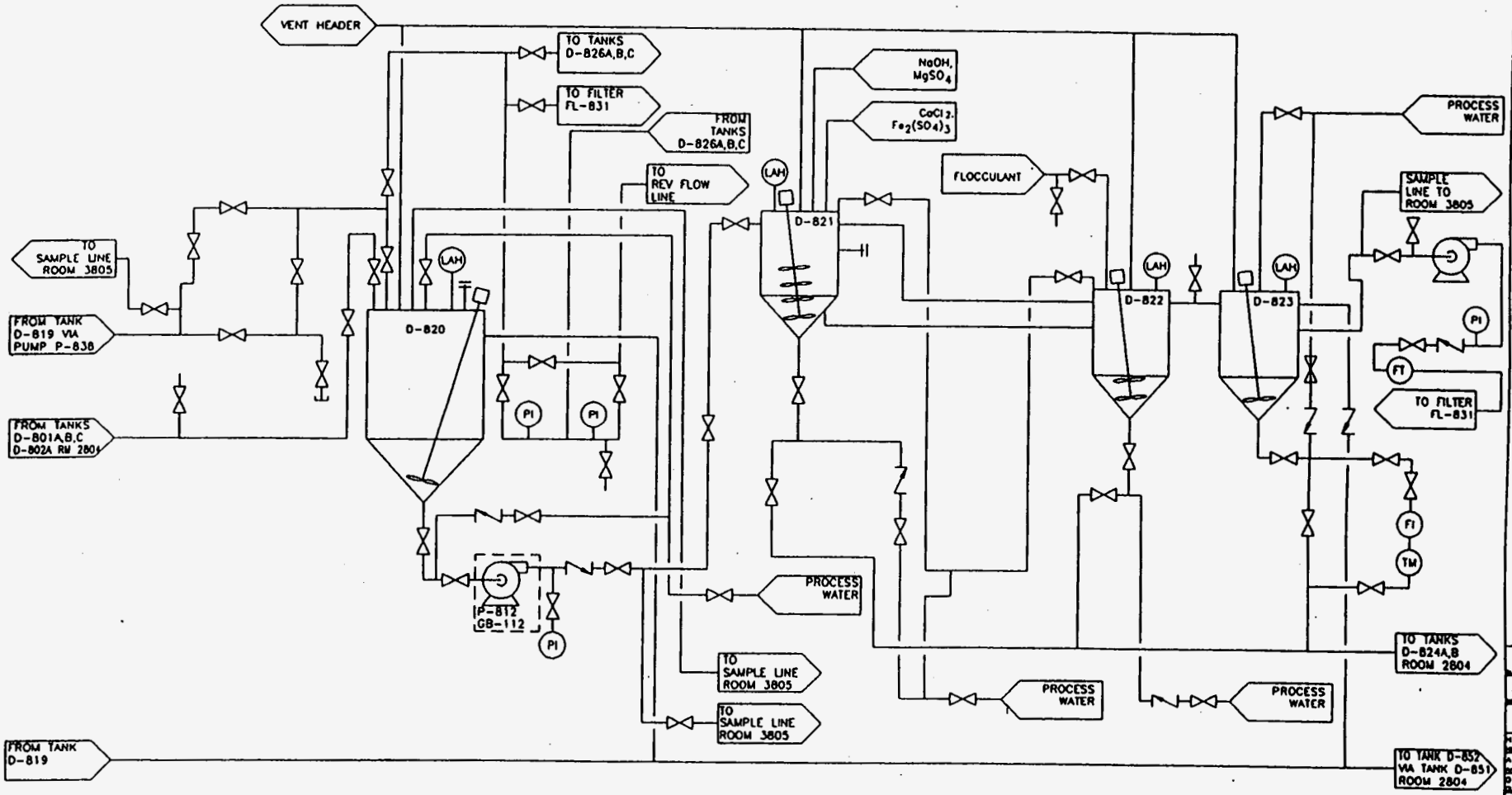
D-821
3RD STAGE REACTOR TANK

D-822
3RD STAGE FLOCCULATOR TANK

D-823
3RD STAGE CLARIFIER TANK

NOTES

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



KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRH			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED					U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93							
4. TRU			DRAWN	LENNIE	XX/XX/93	Rocky Flats Plant						
5. P&ID			CHECKED	HRANAC	XX/XX/93							
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401						
ROOM/AREA 3801						MIXED LL/TRU RCRA PERMIT MODIFICATION						
CAD COORD./COL NO.						TANKS D-820, D-821, D-822, D-823						
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	SIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET	
			APPROVED RFP			B	39650-2028			A	OF	
			APPROVED DOE									

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
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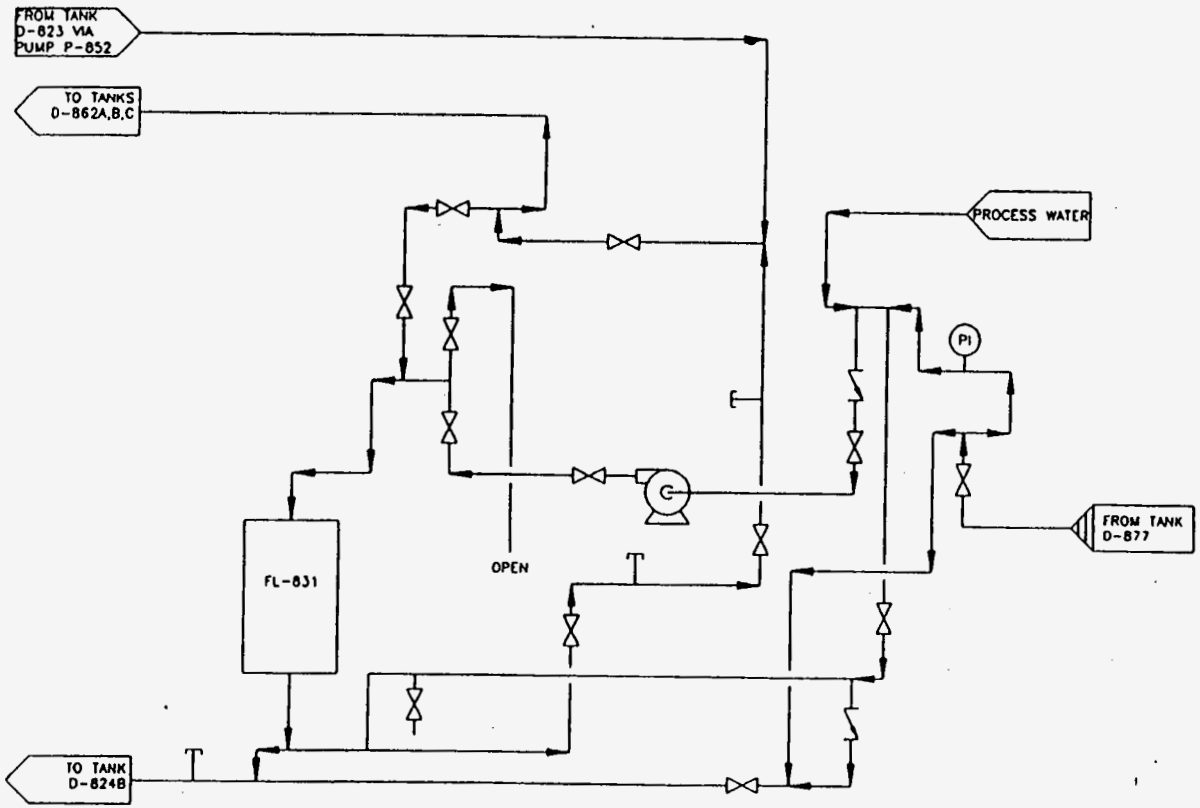
293

FL-831
POLISHING FILTER



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	JCH	SRL	DCG	SRH			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED			DESIGNED	HRANAC	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO						
3. LOW LEVEL			DRAWN	LONNIE	12/29/93							
4. TRU			CHECKED	GELSTON	XX/XX/93	Rocky Flats Plant						
5. P&ID			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401						
BLDG./FACILITY 374						MIXED LL/TRU RCRA PERMIT MODIFICATION						
ROOM/AREA 2801						FILTER FL-831						
GRID COOR./COL NO.			SUBMITTED	BIERBAUM	XX/XX/93							
MASTER YES ☐ NO ☒	SCALE: AS NOTED		APPROVED RFP / APPROVED DOE			SIZE B	DRAWING NUMBER 39650-2029			ISSUE A	SHEET OF	

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2801

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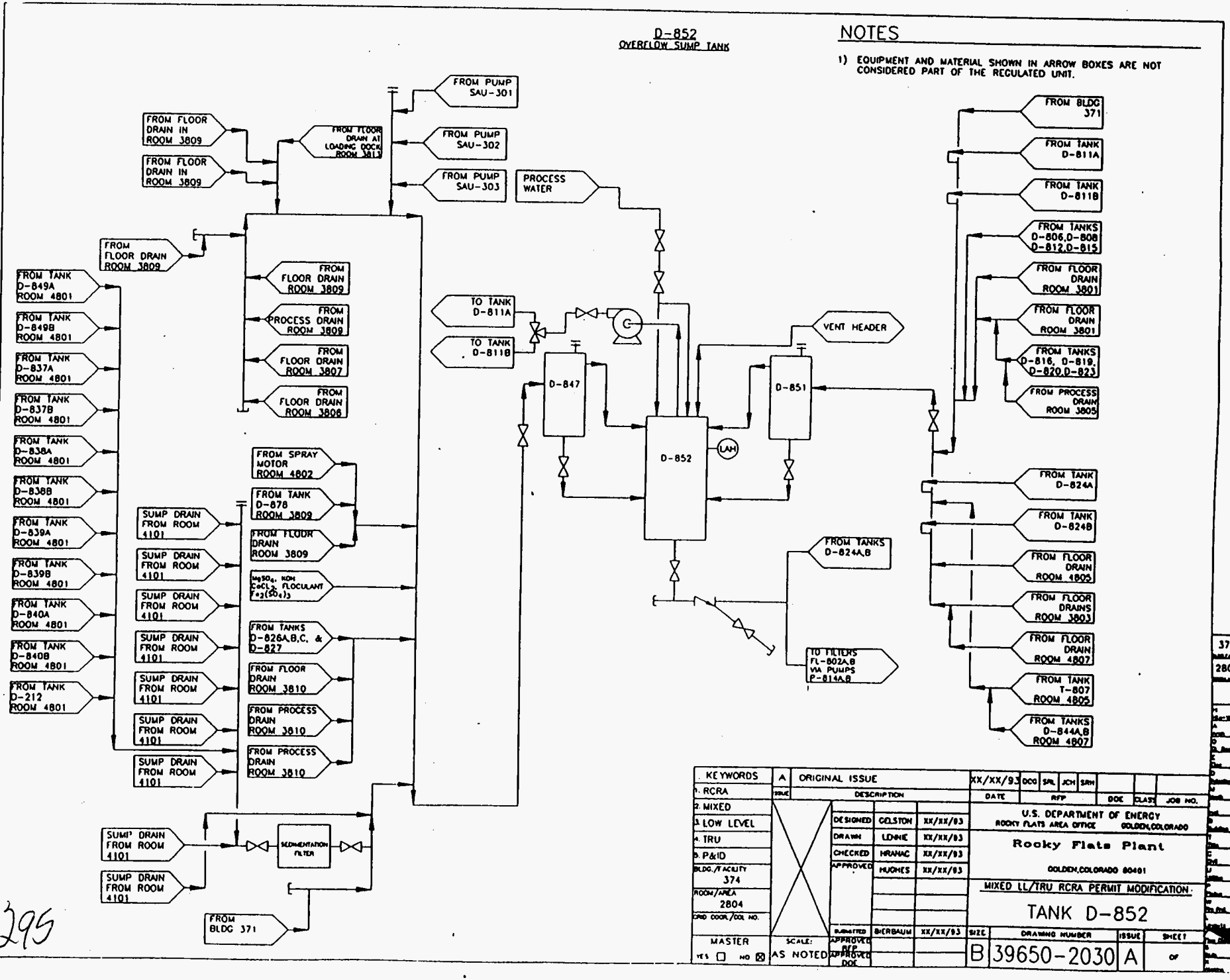
"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

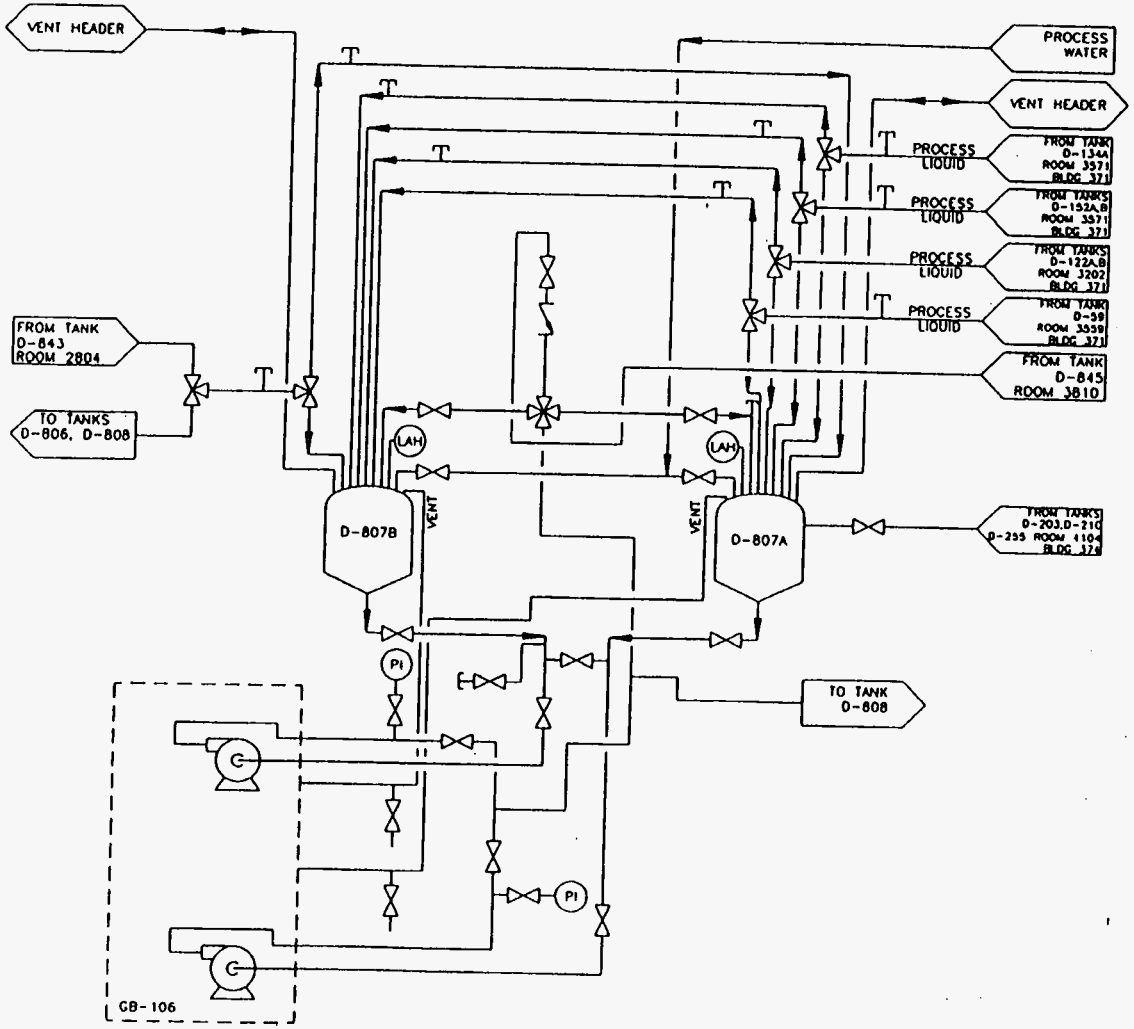
RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1



"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

295

D-807A, D-807B
ACID WASTE RECEIVING TANKS



NOTES

1) EQUIPMENT AND MATERIAL SHOWN IN ARROW BOXES ARE NOT CONSIDERED PART OF THE REGULATED UNIT.
2) TANKS D-134A, D-152A,B, AND D-59 ARE INCLUDED IN THE BIULDING 371 RCRA CLOSURE PLAN.
3) TANKS D-122A,B WERE NEVER OPERATIONAL.
4) ALARMS TO CONTROL PANEL, ROOM 3181.

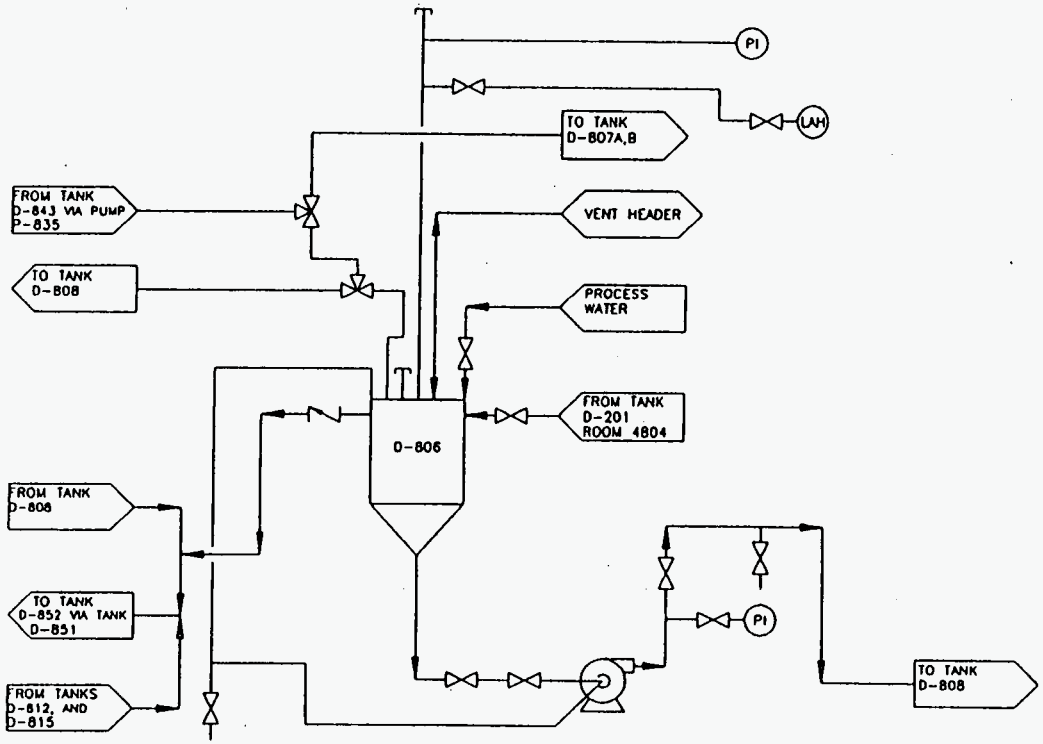
KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	JCH	SRL	DCC	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP			DOE	CLASS	JOB NO.	
2. MIXED		DESIGNED HRANAC XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
3. LOW LEVEL		DRAWN LONNIE XX/XX/93	Rocky Flats Plant							
4. TRU		CHECKED GELSTON XX/XX/93	GOLDEN, COLORADO 80401							
5. P&ID		APPROVED HUGHES XX/XX/93	MIXED LL/TRU RCRA PERMIT MODIFICATION							
BLDG./FACILITY 374			TANKS D-807A, B							
ROOM/AREA 3801										
GRID COOR./COL NO.		SUBMITTED BIERBAUM XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET		
MASTER YES ☐ NO ☒	SCALE: AS NOTED	APPROVED RFP APPROVED DOE	B	39650-2031			A	OF		

374
3801

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

296

D-806
PHOSPHORIC ACID RECEIVING TANK



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SAL	JCH	SRH			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED												
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO						
4. TRU			DRAWN	LENNIE	XX/XX/93	Rocky Flats Plant						
5. P&ID			CHECKED	HRANAC	XX/XX/93							
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401						
ROOM/AREA 3801						MIXED LL/TRU RCRA PERMIT MODIFICATION						
GRID COOR./COL NO.						TANK D-806						
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET	
			APPROVED RFP			B	39650-2032			A	OF	
			APPROVED DOE									

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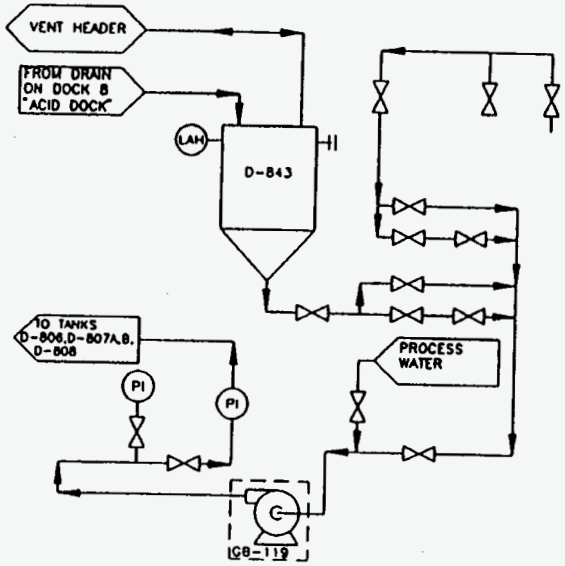
"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Modification Request # 14
Draft Mixed LL/TRU 3/1/93 Rev 1

374
3801

D-843
UNLOADING SUMP TANK



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRH		
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE CLASS	JOB NO.
2. MIXED											
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO					
4. TRU			DRAWN	LENNIE	XX/XX/93						
5. P&ID			CHECKED	HRANAC	XX/XX/93	Rocky Flats Plant GOLDEN, COLORADO 80401					
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93						
ROOM/AREA 2804						MIXED LL/TRU RCRA PERMIT MODIFICATION					
GRID COOR./COL NO.						TANK D-843					
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER		ISSUE	SHEET	
			APPROVED RFP			B	39650-2033		A	OF	
			APPROVED DOE								

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2804

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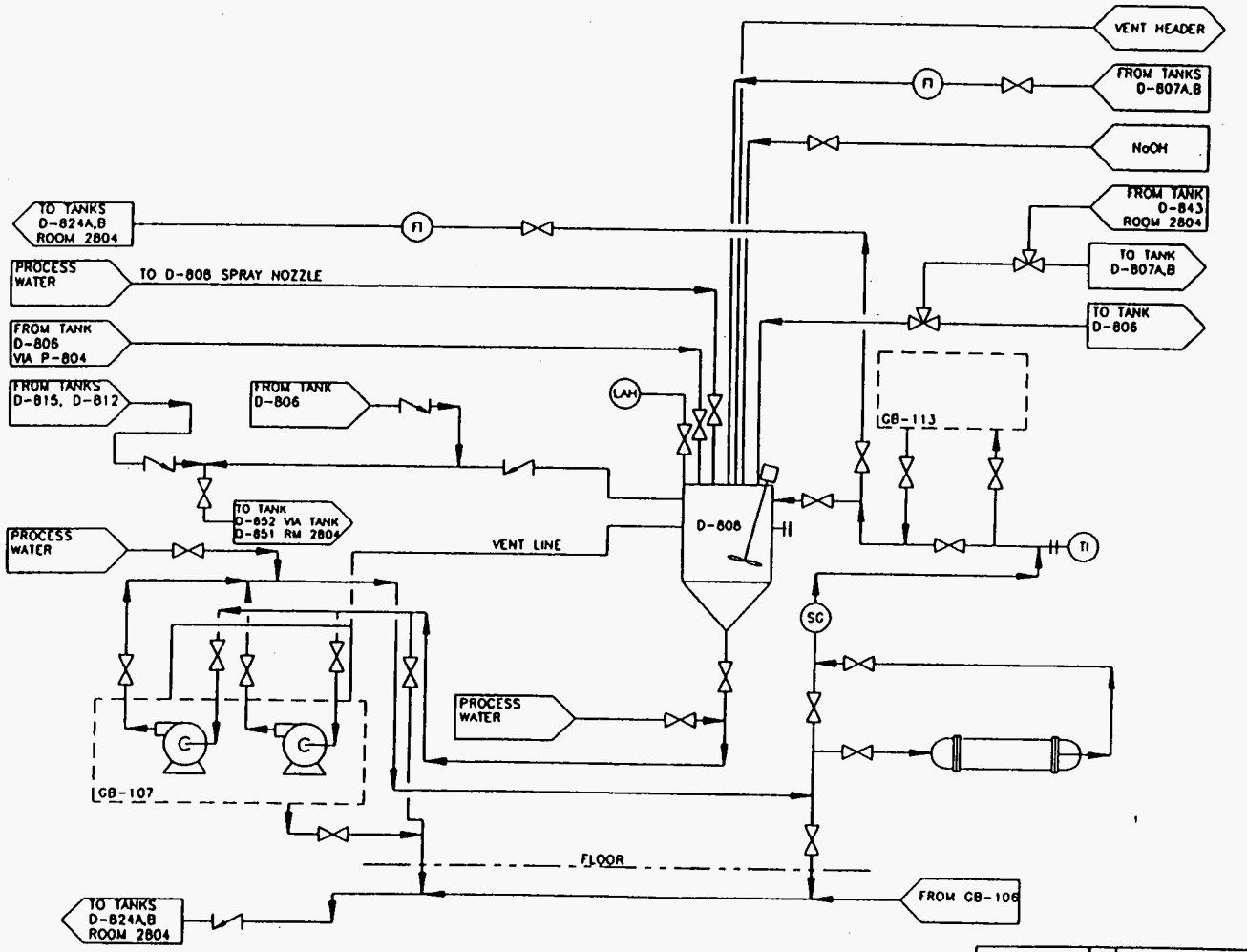
"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

D-808
NITRATE WASTE NEUTRALIZER TANK

NOTES

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



KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SAL	JCH	SAH			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED												
3. LOW LEVEL		DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
4. TRU		DRAWN	LENNE	XX/XX/93								
5. P&ID		CHECKED	HRANAC	XX/XX/93	Rocky Flats Plant GOLDEN, COLORADO 80401							
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93								
ROOM/AREA 3801					MIXED LL/TRU RCRA PERMIT MODIFICATION							
GRID COOR./COL NO.					TANK D-808							
MASTER YES ☐ NO ☒	SCALE: AS NOTED	SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET		
		APPROVED RFP			B	39650-2034			A	OF		
		APPROVED DOE										

374
3801

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

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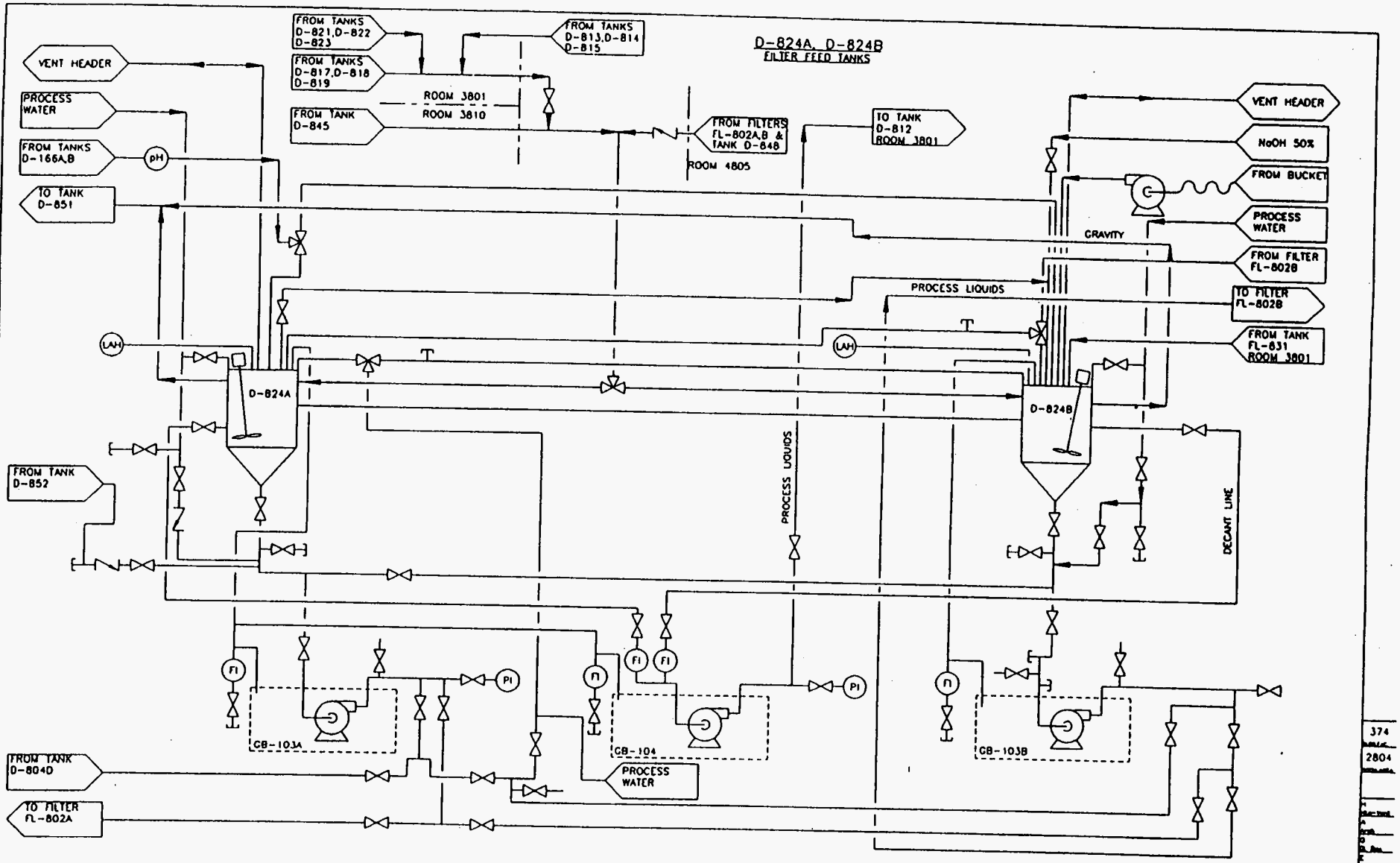

NOTES

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

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	JCH	SRL	DCG	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED										
3. LOW LEVEL		DESIGNED	HRANAC	XX/XX/93						
4. TRU		DRAWN	LENNE	XX/XX/93						
5. P&ID		CHECKED	GELSTON	XX/XX/93						
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93						
ROOM/AREA 2804										
GRID COOR./COL NO.		SUBMITTED	BIERBAUM	XX/XX/93						
MASTER YES ☐ NO ☒	SCALE: AS NOTED	APPROVED RFP / APPROVED DOE								

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS AREA OFFICE GOLDEN, COLORADO

Rocky Flats Plant

GOLDEN, COLORADO 80401

MIXED LL/TRU RCRA PERMIT MODIFICATION

TANKS D-824A,B

SIZE	DRAWING NUMBER	ISSUE	SHEET
B	39650-2035	A	of

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2804

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

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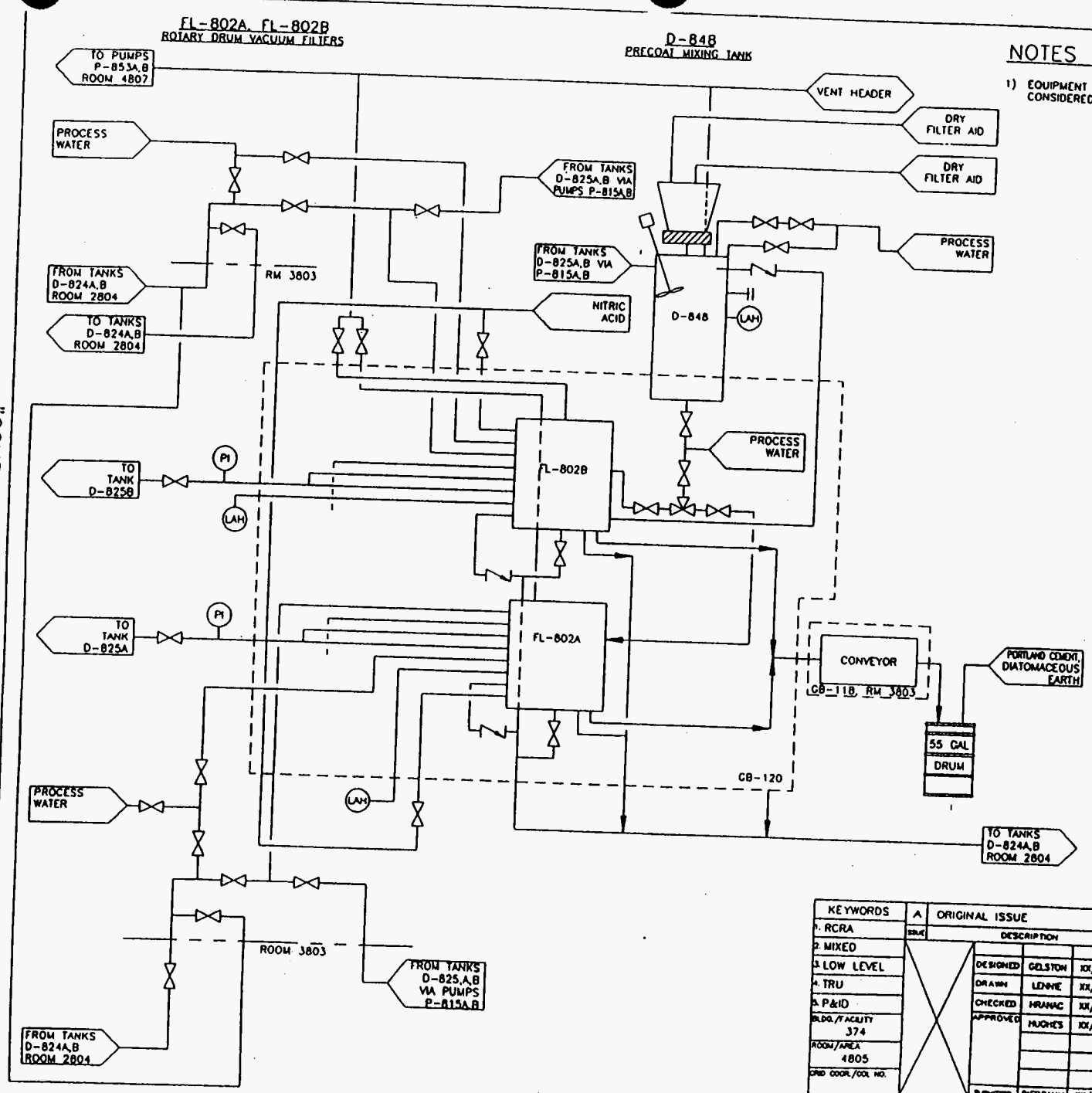

NOTES

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

KEYWORDS	A	ORIGINAL ISSUE	XX/XX/93	DCG	SAL	JCH	SRH			
1. RCRA	ISSUE	DESCRIPTION	DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED										
3. LOW LEVEL		DESIGNED GELSTON XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
4. TRU		DRAWN LENHE XX/XX/93								
5. P&ID		CHECKED HRANAC XX/XX/93	Rocky Flats Plant GOLDEN, COLORADO 80401							
BLDG./FACILITY 374		APPROVED HUGHES XX/XX/93								
ROOM/AREA 4805			MIXED LL/TRU RCRA PERMIT MODIFICATION							
GRID COOR./COL NO.			TANK D-848, & FILTERS FL-802A,B							
MASTER YES ☐ NO ☒	SCALE: AS NOTED	SUBMITTED SIEBERBAUM XX/XX/93 APPROVED RFP APPROVED DOE	SIZE B	DRAWING NUMBER 39650-2036				ISSUE A	SHEET of	

"COMPUTER-GENERATED: NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU 3/1/93 Rev. 1

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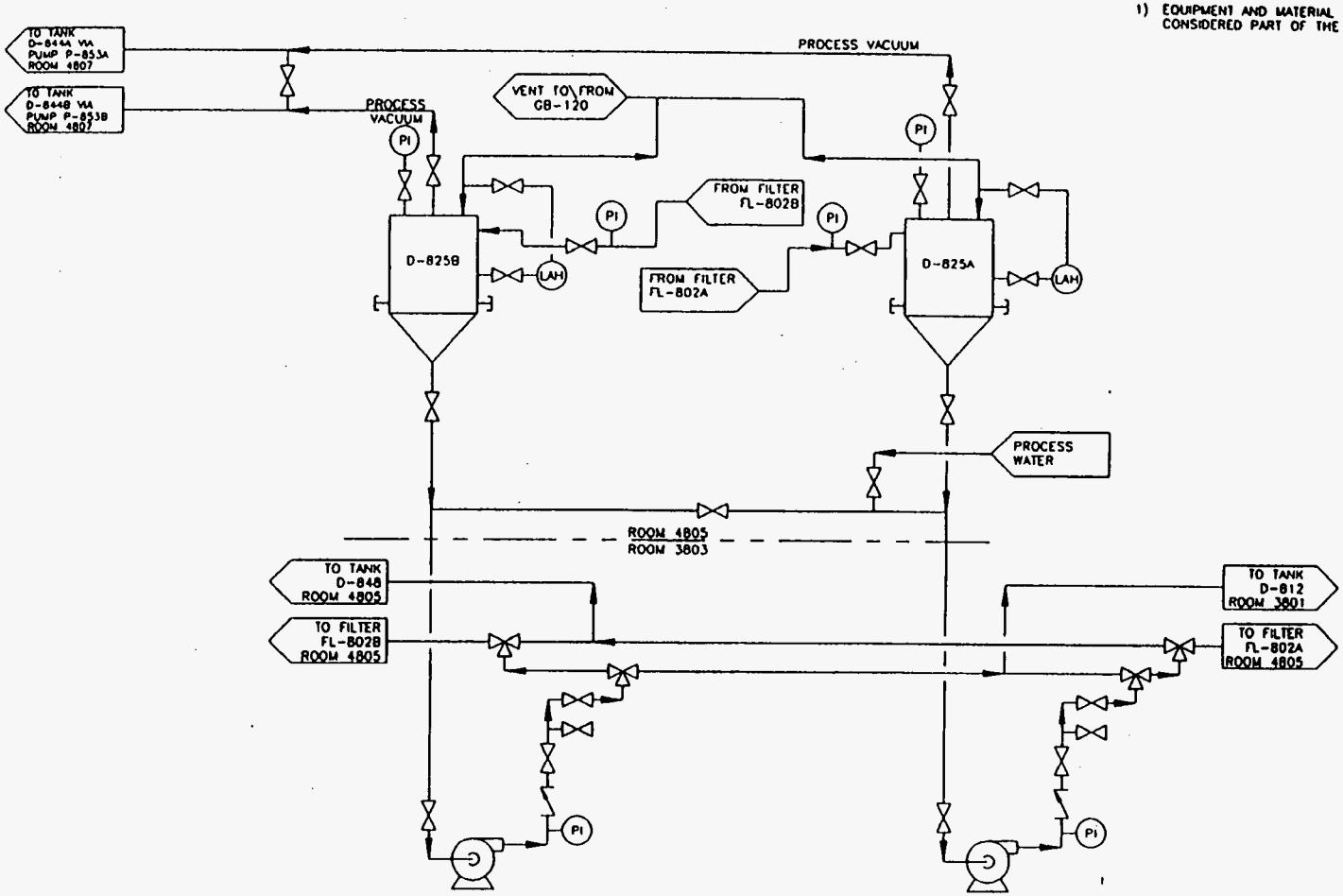
D-825A, D-825B
FILTER EFFLUENT TANKS



NOTES

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

KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	JCH	SAL	DCG	SRH			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP			DOE	CLASS	JOB NO.	
2. MIXED												
3. LOW LEVEL		DESIGNED	HRAMAC	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO							
4. TRU		DRAWN	LENNIE	XX/XX/93								
5. P&ID		CHECKED	GELSTON	XX/XX/93	Rocky Flats Plant							
BLDG./FACILITY 374		APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401							
ROOM/AREA 4805					MIXED LL/TRU RCRA PERMIT MODIFICATION							
GRID COOR./COL NO.					TANKS D-825A,B							
MASTER YES ☐ NO ☒	SCALE: AS NOTED	SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET		
		APPROVED NFP			B	39650-2037			A	OF		
		APPROVED DOE										

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4805

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Mod. Request #14
Draft Mixed LL/TRU/ 3/1/93 REV. 1

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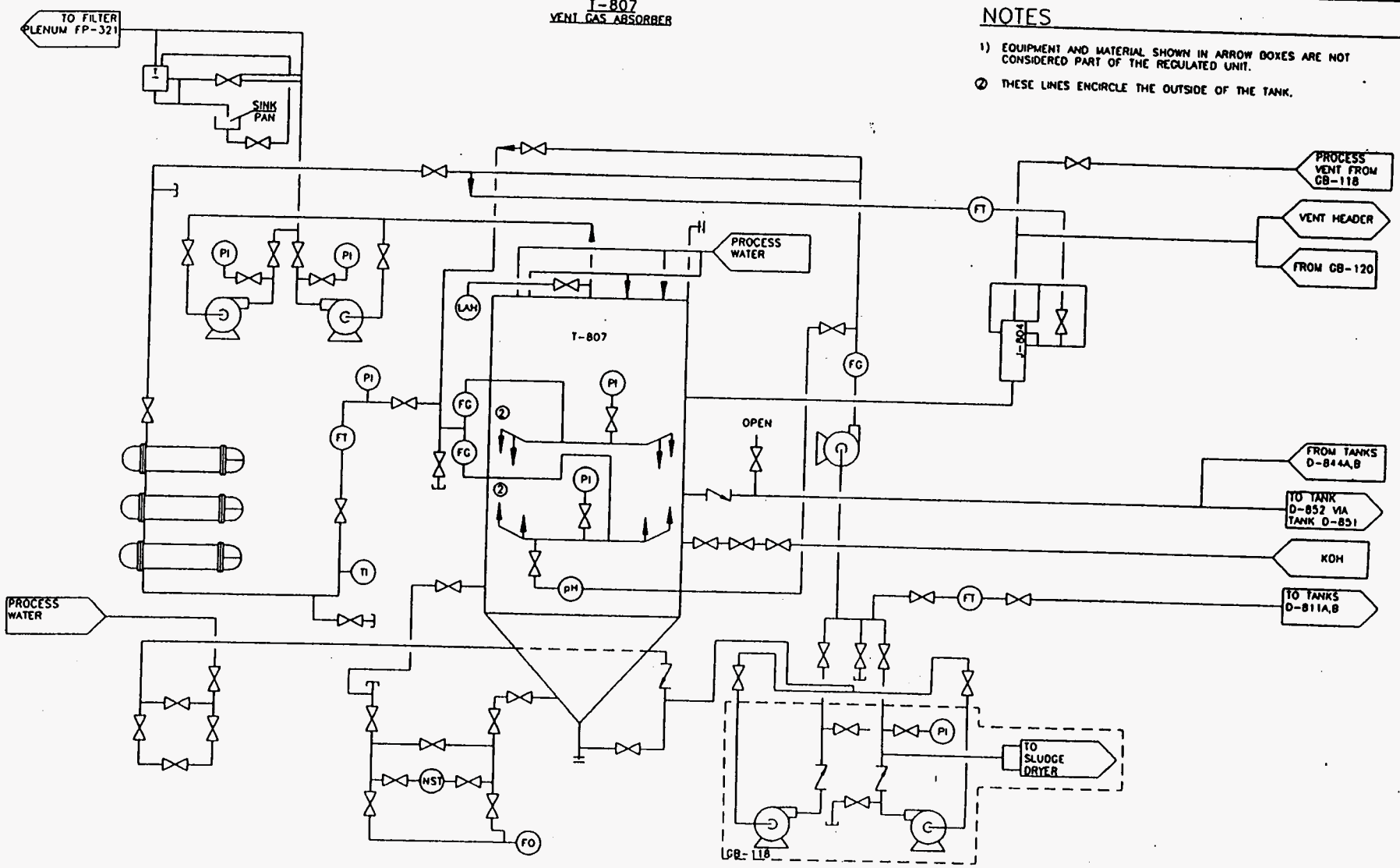
T-807
VENT GAS ABSORBER

NOTES

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

② THESE LINES ENCIRCLE THE OUTSIDE OF THE TANK.



KEYWORDS	A	ORIGINAL ISSUE			XX/XX/93	DCG	SRL	JCH	SRM			
1. RCRA	ISSUE	DESCRIPTION			DATE	RFP				DOE	CLASS	JOB NO.
2. MIXED												
3. LOW LEVEL			DESIGNED	GELSTON	XX/XX/93	U.S. DEPARTMENT OF ENERGY ROCKY FLATS AREA OFFICE GOLDEN, COLORADO						
4. TRU			DRAWN	LENNE	XX/XX/93							
5. P&ID			CHECKED	HRANAC	XX/XX/93	Rocky Flats Plant						
BLDG./FACILITY 374			APPROVED	HUGHES	XX/XX/93	GOLDEN, COLORADO 80401						
ROOM/AREA 4805						MIXED LL/TRU RCRA PERMIT MODIFICATION						
GRID COOR./COL NO						TANK T-807						
MASTER YES ☐ NO ☒	SCALE: AS NOTED		SUBMITTED	BIERBAUM	XX/XX/93	SIZE	DRAWING NUMBER			ISSUE	SHEET	
			APPROVED RFP			B	39650-2038			A	OF	
			APPROVED DOE									

"COMPUTER-GENERATED; NO MANUAL CHANGES ALLOWED"

RFP RCRA Permit Modification Request # 14
Draft Mixed LL/TRU 3/1/93 Rev 1

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4805

PART VI - WASTE ANALYSIS PLAN

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PART VI - WASTE ANALYSIS PLAN

A. INTRODUCTION

The Permittee shall follow the waste analysis procedures required by 6 CCR 1007-3, Section 264.13, and attached waste analysis plan as modified by the following conditions.

1. Objective
This Part covers the analytical requirements and procedures necessary to store or treat hazardous waste safely in tanks, container storage areas, and treatment units. The information presented in this Part will assist the Permittee in determining waste characteristics necessary to safely store and/or treat hazardous and mixed wastes in accordance with the Colorado Hazardous Waste Regulations.

2. Contents of the Waste Analysis Plan
The Waste Analysis Plan as described in the following sections consists of seven parts:

- Section B contains a description of the preacceptance guidelines which includes the analyses required by storage or treatment units prior to transfer of waste to the unit.
- Section C contains a description of the waste verification steps required for the storage or treatment unit prior to final waste acceptance.
- Section D references post-treatment waste analysis requirements.
- Section E references sampling methods.
- Section F references analytical methods.
- Section G briefly describes the quality assurance/quality control (QA/QC) program and references the RFETS *Analytical Services On-Site Laboratories Quality Assurance Plan (ALQAP)*.
- Section H contains unit-specific waste acceptance criteria rationale.

B. PREACCEPTANCE GUIDELINES

1. Hazardous Waste Determination
Except as to waste stored as backlog, generators of waste at RFETS conduct ongoing waste analysis to determine which solid wastes are hazardous wastes. This hazardous waste determination is required for generators by 6 CCR 1007-3, Section 262.11. The information obtained as part of the hazardous waste determination is used to assign EPA codes, determine compatibility codes, and identify wastes subject to Land Disposal Restrictions. Generators may use process knowledge, laboratory analysis, or a combination of these to obtain this information. Table VI-Analyte Prescription identifies the requirements for characterizing a routine, non-routine, or unknown sample. This will become the basis for information that unit owners will use to determine if wastes meet the acceptance criteria for a particular unit governed by this permit.

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2. Identify Unit-Specific Waste Acceptance Criteria

In addition to number 1 above, the generator will review the unit-specific waste acceptance criteria of the designated storage or treatment unit by contacting the unit owner or reviewing the Unit Specific Conditions outlined in Parts III and V respectively, of this permit. Based on this information, the generator will determine whether the waste to be transferred will satisfy the unit-specific waste acceptance criteria.

In addition to unit-specific waste acceptance criteria for the units managed within this permit, the *Rocky Mountain Remediation Services Waste Acceptance Criteria (RMRS WAC)* document also includes waste acceptance criteria for anticipated destination treatment or disposal facilities. The purpose of the *RMRS WAC* is to define the requirements which the waste must meet for acceptance into a storage or treatment unit. The *RMRS WAC* includes documentation, content, packaging, training and characterization requirements for each type of waste generated at the Site. When practicable, the analysis of the waste should take into consideration the waste acceptance criteria for the destination off-site treatment or disposal facility.

For all container storage units that are restricted to storing only solid hazardous or mixed waste, the permittee shall determine if free liquids are present in the wastes in storage. This determination shall be based upon fingerprint testing using Real Time Radiography, Paint Filter testing, documented process knowledge or other methods approved by the Division in writing.

If no record of fingerprint testing for free liquids is available, or no written documentation of this determination based upon process knowledge, existing waste must be fingerprinted using RTR or other methods approved by the Division. Alternatively, the existing waste may be stored as if free liquids were present in an interim status or permitted unit, with adequate secondary containment and allowable waste codes, until fingerprinted.

In the case where process knowledge is used to fingerprint a waste in order to prevent worker exposure, the facility will verify and document this information. These records are included in the operating record and will be made available to the Division upon request.

3. Sampling and Analysis

If laboratory analysis is required to characterize a non-routine or unknown waste or to verify the characterization of a routine waste, a representative sample of the waste will be collected in accordance with Appendix I of 6 CCR 1007-3, Section 261. Section E of this Part provides a matrix of appropriate sampling methods.

All samples will be submitted to the on-Site laboratory or an RFETS approved off-Site laboratory for analyses. The appropriate analytical methods (L-Procedures) are referenced in Section F of this Part. Sample management quality control/quality assurance procedures are referenced in Section G of this Part.

4. Transfer of Waste Analysis Information

Prior to waste transfer, the generator will provide preacceptance information to the unit owner of the destination storage or treatment unit by one of the following means: 1) a Waste Processing Request Form (typically for backlog wastes), 2) a Waste/Residue Traveler, 3) the Waste Acceptance Criteria and Hazardous Waste Information Forms as

required by the *RMRS WAC*, and/or 4) the Waste and Environmental Management System designed to track each container at the Site. Regardless of how provided, the information will contain, at a minimum, the following:

- documentation demonstrating that the waste complies with the unit-specific waste acceptance criteria
- the volume of waste to be transferred
- the current location of the waste

5. Review by Unit Owner
Upon receipt of the waste characterization information, the owner of the storage or treatment unit to which the waste will be sent will review the characterization documentation and verify that the waste can be accepted at the unit according to the unit-specific requirements.

6. Frequency of Characterization Validation
Characterization of each hazardous waste stream to be sent to a storage or treatment unit will be validated according to the following guidelines:

a. If the waste is a one-time generation or if the waste is stored as backlog, each waste stream will be validated in accordance with numbers 1 and 2 of this section. The generator may use process knowledge, laboratory analysis, or a combination of these to characterize the waste. Process knowledge must be verified and documented in the operating record.

b. If the waste is currently being generated from an on-going process, the unit owner will verify that the characterization information is current in accordance with Section 264.13(a)(3) of the Colorado Hazardous Waste Regulations. Information will be current if it has been updated within 13 months. An update is either a confirmation that the waste stream has remained unchanged or new or modified characterization information has been conducted based on changes in the on-going process.

C. WASTE VERIFICATION

1. Waste Inspection
The unit owner will inspect the waste container for the following as appropriate:
- Discrepancies between the waste and the label(s) or markings
- Discrepancies between the volume of the waste and the volume designated on the information supplied
- Properly completed notification or certification statements
- Container integrity

2. Response to Inconsistencies
If any inconsistencies are detected, the unit owner will:
- notify the generator of the inconsistencies, and either
- not accept the waste, or request additional information or analysis as necessary to resolve the inconsistency.

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D. POST-TREATMENT ANALYSIS

Post-treatment tests serve to assure that waste treatment is complete prior to transferring waste to the next treatment process, to storage, or off Site. Post-treatment tests may include sampling of surrogate waste or actual waste from containers, tanks, pipelines, or pump taps, or continuous in-line analysis. The sample location and frequency are specified in the Unit-Specific Conditions for treatment units (Part V of this Permit) along with specific waste parameters and rationale.

E. SAMPLING METHODS

Sampling methods used to collect hazardous waste samples at Rocky Flats comply with those described in Appendix I of 6 CCR 1007-3, Section 261 or an equivalent method approved by the Division as allowed in 6 CCR 1007-3, Section 264.13(b)(3). Sampling location, sample matrix, sample container type and size, and accessibility are taken into consideration when assigning a sampling method in order to ensure collection of a representative sample in accordance with the RFETS *Analytical Services On-Site Laboratories Quality Assurance Plan (ALQAP)* and the appropriate L-Procedures. Instructions for performing routine analytical laboratory operations and selection, validation and qualification of analysis methods are provided in L-Procedures. The *ALQAP* and L-Procedures are available on Site upon request. Table VI-1 lists waste matrices and appropriate sample methods.

F. ANALYTICAL METHODS

Specialized procedures have been developed at Rocky Flats to meet the technical requirements of analyzing certain wastes, such as those containing radionuclides or compounds which interfere with the accuracy or precision of the analysis. These test methods are entitled L-Procedures. L-Procedures are based on test methods found in 6 CCR, 1007-3, Part 261; "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication SW-846 [Third Edition (November, 1986), as amended by Updates I (July 1992), II (September, 1994), and IIA (August, 1993)]; "Methods for Chemical Analysis of Water and Wastes," EPA Publication No. 600/4-79-020 (1979); and various other EPA approved protocols such as those from the American Society of Testing and Materials (ASTM).

L-Procedures versus SW-846 Methods, Revision 2 dated May 15, 1995 identifies the list of L-Procedures which deviate from SW-846 or other established methods such as those outlined in the *DOE Methods for Evaluating Environmental and Waste Management Samples* and a summary of the deviation. The *L-Procedures versus SW-846 Methods* document is located at the Site and will be made available upon request. Significant changes to those L-Procedures will be submitted to the Division as a permit modification prior to implementation of the change.

G. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The Permittee maintains a Quality Assurance/Quality Control (QA/QC) program in accordance with the RFETS *Analytical Services On-Site Laboratories Quality Assurance Plan (3-21000-ALQAP, Revision B)* dated September 29, 1995 which complies with "Test Methods for Evaluation of Solid Waste: Physical/Chemical Methods", EPA Publication SW-846. The *ALQAP* includes administrative and operational L-procedures to address waste characterization and selection, validation and qualification of analysis methods. Operational L-Procedures provide instructions for routinely performed analytical work. Administrative L-Procedures cover standard operating practices (other than routine analytical methods) such as sample handling and

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chain-of-custody protocols, security procedures, nuclear accountability practices, and specific QA requirements. Both operational and administrative L-Procedures are maintained at the Site and are available upon request.

H. UNIT-SPECIFIC REQUIREMENTS

Prior to accepting waste into the unit, the unit owner will evaluate the parameters identified on each unit specific conditions sheet against the information provided by the generator prior to accepting the waste into the unit. Each storage unit specific conditions sheet contains, at a minimum, the following parameters:

- Unit Number
- Preacceptance Waste Parameters
  - EPA Hazardous Waste Code
  - Physical State (Free Liquids)
  - Ignitable or Reactive Status (including associated special management requirements)
  - Radiological Waste Type
  - Land Disposal Restricted

The rationale for each of the above parameters is discussed.

a. EPA hazardous waste code: The unit specific section of the permit limits the wastes which can be stored and treated in each unit by EPA hazardous waste code.

b. Physical State / Free Liquids: The generator of a waste will initially determine whether or not the waste may contain free liquids. If the waste does not contain free liquids, it may be stored as a solid hazardous waste. The facility may decide to store a given waste as a liquid in which case the determination of this parameter is unnecessary.

c. Ignitable or reactive waste: The generator of a waste will determine whether or not the waste is ignitable and/or reactive. If the waste is ignitable and/or reactive, it must be managed stored in a unit which is designed to handle ignitable and/or reactive wastes. The facility may decide to manage a given waste as ignitable and/or reactive in which case the determination of this parameter is unnecessary.

d. Radiological waste type: The generator categories the waste as non-radioactive hazardous waste, or a mixed (low-level or transuranic and hazardous) waste.

e. Land disposal restricted: Wastes which are subject to the land disposal restrictions may only be stored in units solely for the purpose of accumulating quantities of waste as are necessary to facilitate proper recovery, treatment, or disposal. The issue of storage of land disposal restricted wastes is addressed in the September 19, 1989 compliance agreement and compliance order on consent signed by DOE, CDH and EPA. Wastes subject to the land disposal restrictions must also be marked with an accumulation date. The facility may decide to store a given waste as if it were subject to the land disposal restrictions in which case determination of this parameter is unnecessary.

Each of these parameters will be determined by analytical tests, by process knowledge or by a combination of both testing and process knowledge.

Each treatment unit specific conditions sheet in Section V of this Permit contains the above-listed information, plus the following:

- Post-Treatment Parameters and Rationale
- Post-Treatment Sampling Location
- Post-Treatment Sampling Frequency
- Post-Treatment Analytical Methods

Compatibility codes are assigned to wastes in order to prevent unplanned mixing of incompatible wastes. When assigning compatibility codes, the Permittee will follow the guidelines established in 6 CCR 1007-3, Section 264, Appendix V.

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TABLE VI-1

MATRIX SPECIFIC SAMPLE METHODS	
MATRIX	**SAMPLE METHOD**
Aqueous	bailer, bellows, coliwasa, dipper, pour, pump, thief, weighted bottle, sample tap.
Non-aqueous liquid	bailer, bellows, coliwasa, dipper, pour, pump, thief, weighted bottle, sample tap.
Sludge	scoop, shovel, grab (hands, tongs, tweezers, etc.)
Soil	grab (hand, tongs, tweezers, etc.), scoop, core, trier
Granular materials	auger, scoop, thief, trier, core, grab (hand, tongs, tweezers, etc.)
Cemented materials	core, grab (hand, tongs, tweezers, etc.)
Combustibles	compact/core, grab (hand, tongs, tweezers, etc.)
Paint	scraper, chisel, grab (hand, tongs, tweezers, etc.)

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Figure VI-1

Generation Process

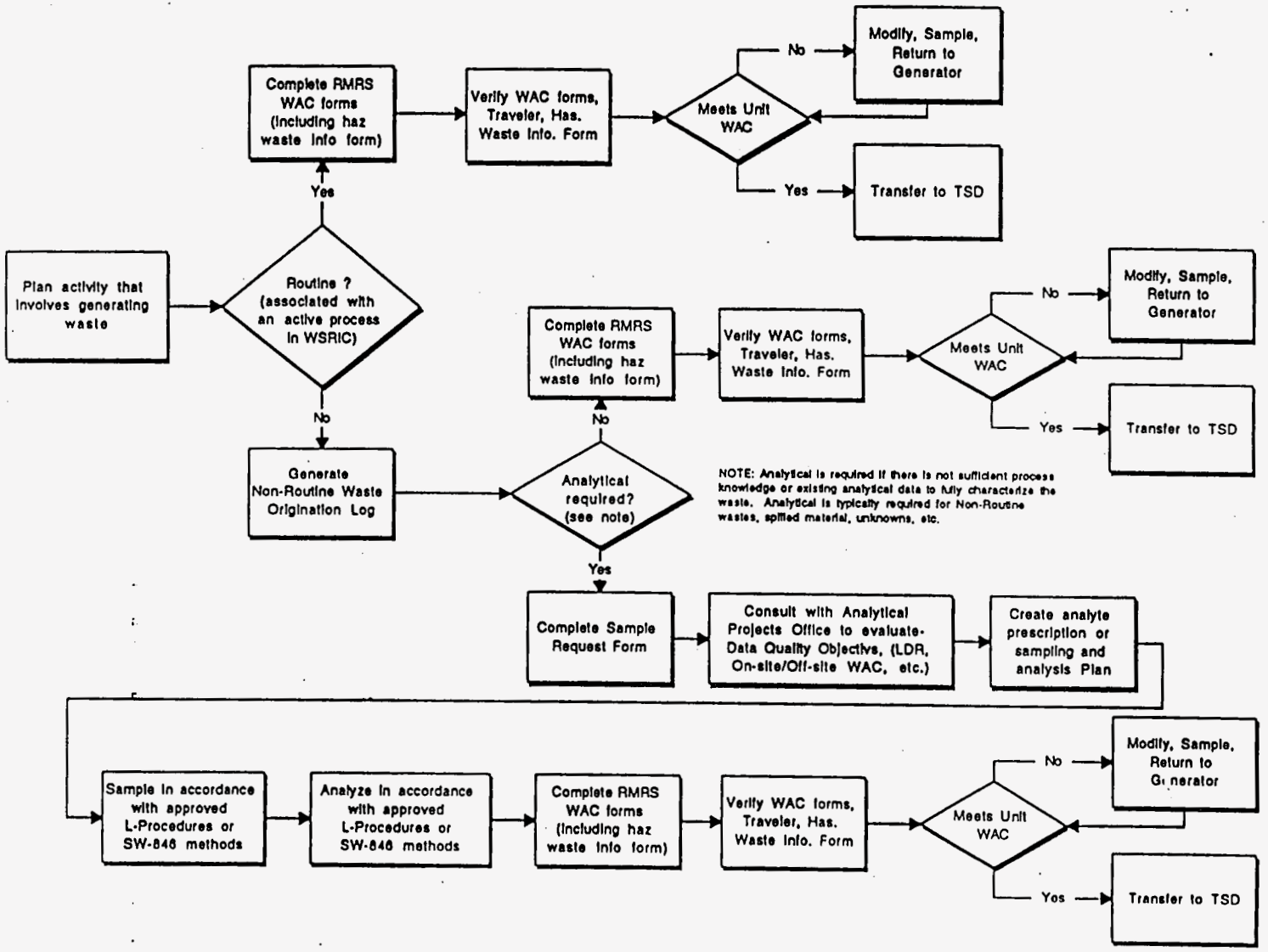

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Figure VI-2

Generation of Analyte Prescription

Generator contacts Analytical Projects Office for assistance in generating analyte prescription as identified in the Analytical Services On-Site Laboratories Quality Assurance Plan (LQAP).

Generator and APO evaluate the following considerations during preparation:

1. Radioactive status - May determine which laboratory will conduct the analysis or what analytical procedure will be employed.

2. Matrix - May determine what analytical method will be employed for a given analyte (i.e. TCLP metals analysis will be performed for solid samples and total metals analysis will be performed for liquid samples).

3. Rationale (Data Quality Objectives) - Analysis will vary depending on the intended use of the data (i.e. LDR determination v.s. treatment unit waste acceptance criteria).

4. Process Knowledge - Amount of existing process knowledge will effect extent of analysis.

5. Analysis Category
   a. Routine - Analysis will be used for waste streams which have been characterized based on process knowledge, analytical data, or a combination of both. Such analysis may be used to validate existing characterization; update a characterization based on a process change, determine if wastes meet unit specific waste acceptance criteria, or; determine applicability of land disposal restrictions (i.e. UHC or UTS concentrations).
   b. Non-routine - Analysis will be conducted for wastes and waste streams not previously fully characterized and documented. Knowledge of the process exists for non-routine wastes, however, additional information is necessary for complete characterization.
   c. Unknown - Unknown wastes are those for which no process knowledge or analytical data exists. Unknown wastes are typically abandoned or misplaced and later discovered. Unknown wastes generally require extensive qualitative analysis prior to determining final analyte prescription.

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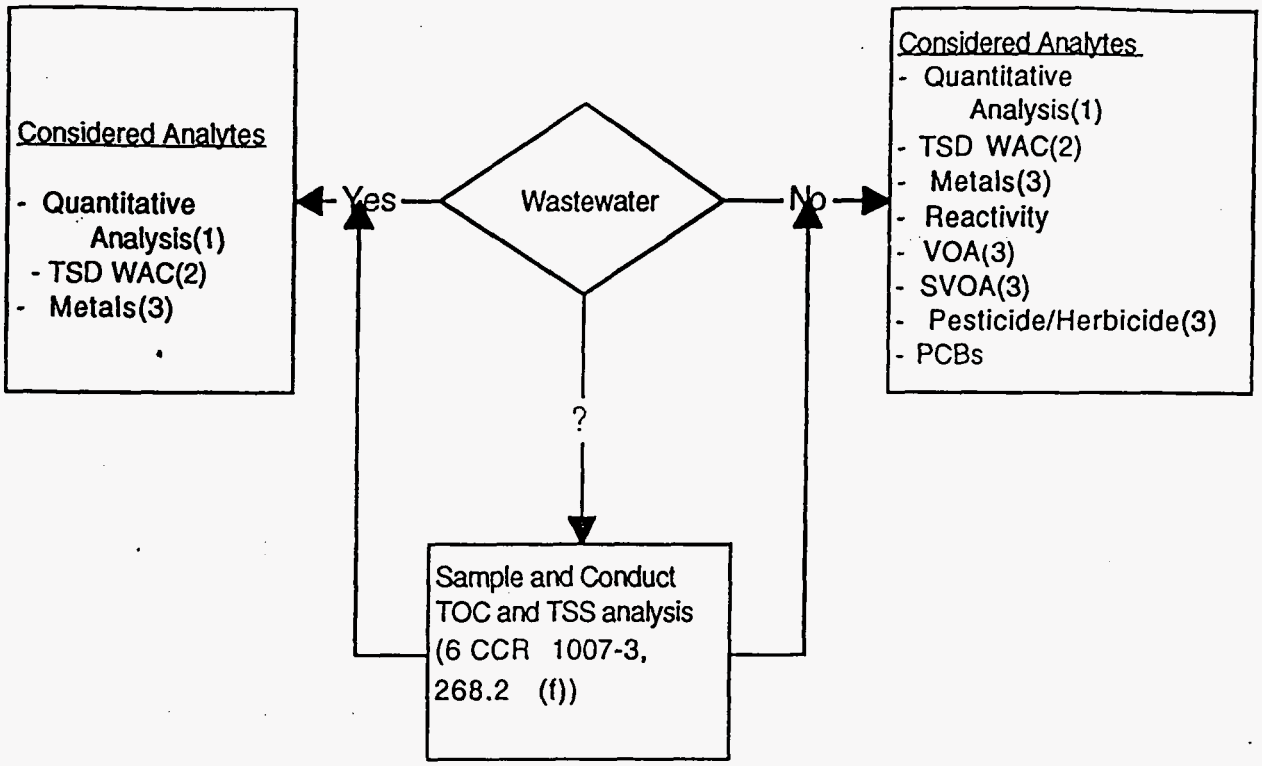

(1) Qualitative Analysis may include, but is not limited to, the following: physical appearance, miscibility, pH, ignitability, specific gravity, reactivity with water, chlorine, halogens, IR, X-Ray, and free liquids.

(2) TSD WAC - Waste acceptance criteria for the destination treatment, storage, or disposal facility. In the event that the destination TSD has not been identified and specific WAC is not available, APO will suggest the analytes most likely to satisfy WAC for the type of TSD likely to receive the waste.

(3) Matrix Specific Analysis - Totals or TCLP analysis will be performed for these analytes depending on the matrix of the specific wastes. In most cases, totals analyses will be performed on liquid wastes while TCLP will be performed for solid wastes.

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PART VII - PROCEDURES TO PREVENT HAZARDS

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PART VII - PROCEDURES TO PREVENT HAZARDS

The information provided in this section is submitted in accordance with the requirements of 6 CCR 1007-3, Part 100.41(a)(4),(5),(8), and (9). The section addresses the following:

- General security provisions
- Inspection requirements
- Preparedness and prevention requirements
- Preventive procedures, structures, and equipment
- Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes

A. SECURITY

1. 24-Hour Surveillance

A 24-hour electronic surveillance system monitors vehicle and personnel traffic at the Site's entry gates 24 hours each day. Uniformed guards patrol the Site 24 hours each day.

2. Access Control

Access to the Site is controlled by physical barriers, guards, and a personnel badging system. Only personnel with permanent badges or approved visitors with temporary badges are allowed access to the Site. Personnel must wear badges fully displayed at all times while at the Site.

The Site is currently surrounded by barbed-wire fence, with access through two entry gates (one on the west side of the Site and one on the east side). Vehicle and personnel traffic through these gates is controlled 24 hours per day.

The former production and support areas of the Site are currently surrounded by chain-link fence topped with barbed wire. Internal security areas within the fenced areas isolate classified information and nuclear materials. Entry to the internal security areas is also controlled 24 hours per day.

3. Warning Signs

All warning signs at the Site are printed in English and are visible from a distance of 25 feet and from all approach angles. Warning signs indicating that the Site is a high-security area are posted at Site entry gates and along the perimeter fence. These signs state: "Authorized Personnel Only; Keep Out."

Warning signs are posted on or at the entrance(s) to all hazardous waste storage and treatment units. These signs state: "Hazardous Waste" and "Danger! Unauthorized Personnel Keep Out" (or equivalent). If ignitable wastes are stored or treated in the unit, a "No Smoking" sign is also posted.

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B. INSPECTION REQUIREMENTS

Site personnel will conduct a variety of facility inspections on a regular basis in accordance with 6CCR 1007-3, Section 264.15.

Equipment will be inspected to ensure that it is functioning, adequately maintained and that no discharges or leaks have occurred. Potential problems will be noted on the inspection log sheet, and appropriate remedial actions for specific problems will be identified.

1. Remedial Action

Potential problems noted during an inspection will be brought to the attention of the unit supervisor, and immediate action will be taken to correct or mitigate the problem immediately. Remedial actions will be completed in a timely manner to ensure that the problem does not lead to an environmental or human health hazard. The remedial actions taken will be documented on the inspection log where the problem was first noted.

2. Inspection Logs

Written inspection logs will be maintained by each hazardous waste management unit supervisor or qualified designee. These logs will identify the inspector, date and time of inspection, and specific items to be checked for each unit. Potential problems identified during inspections, a description of the remedial action(s), and the date that remedial action is completed will be noted on the inspection log.

Completed inspection logs will be kept at the unit or under the care of the unit supervisor or designee for at least three years. During an enforcement action by the Director or the Environmental Protection Agency, they will be kept for at least the duration of the enforcement action or for the time period indicated in a compliance agreement, if any.

Typical inspection log sheets for waste management facilities at the Site are provided at the end of this section of the Permit as Figures 1 - 5. They identify the specific items to be checked for each type of unit and also identify the applicable inspection frequency.

3. Unit Inspections

a. Rooms, cargo containers, buildings, fenced areas

Weekly visual inspection of rooms, cargo containers, buildings and fenced areas used for storing containers shall identify the status of warning signs, container inventory, hazardous waste labels, and, at a minimum, the condition of the following: containers; spill control and personnel protective equipment; communications equipments/alarm systems; monitoring equipment; secondary containment (including structures such as berms and pads); ceiling; walls; aisle space; and access routes. The inspection log sheet for these inspections is presented in Figure 1.

b. Pads and Tents

Weekly visual inspection of pads and tents shall identify the status of warning signs,

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container condition, container inventory, spill control and personnel protective equipment, fire extinguishers, run-on/run-off management practices, aisle space, and egress routes for emergency equipment access. The inspection log sheet for these inspections is presented in Figure 1.

c. Vaults (excluding the Stacker)

Vaults containing highly radioactive materials are equipped with Selective Alpha Air Monitors (SAAM) as the primary method of leak detection. In addition to the primary method of remote monitoring, fixed air head samplers will be used as a secondary method of leak detection.

The SAAMs and air samplers are inspected at least weekly and the SAAMs are performance tested monthly and calibrated annually in accordance with the appropriate building Operational Safety Requirements (OSRs). As part of the calibration, the Permittee will perform annual smoke tests to determine the adequacy of the SAAM coverage and location. If the location and/or coverage of the SAAM is not adequate, the area will be posted as a "respiratory protection required" area, the area will be physically inspected weekly and a work order will be initiated to relocate and/or install additional SAAMs.

The weekly inspection of vaults provides checks for the status of warning signs, spill control and personnel protective equipment, results and certifications of remote monitoring via SAAMs and fixed air samplers, and ensures the bimonthly and annual inspection logs are complete. The results and certifications of remote monitoring via SAAMs and fixed air samplers will be kept in the facility's operating record. A weekly inspection logsheet for containers storage areas, including vaults, is presented in Figure 1, except that questions six (6) and seven (7) should be answered "n/a" except when containers are actually handled (e.g., moved, opened, repaired).

Personnel shall perform bimonthly physical inspections of the vaults to provide checks of: the unit's condition; the condition of containers; evidence of releases; and status of monitoring equipment and alarm systems. A bimonthly inspection logsheet for vaults is presented in Figure 3. In addition, personnel shall perform annual inventories of containers in vault storage areas. The annual inventory will consist of a physical verification of 100% of the containers within the vault. Container condition will be assessed during these inventories. Containers not readily visible during inspections, such as containers stored in water walled compartments, will be physically removed from their storage locations for inspection. Any container not in good condition will be replaced.

In lieu of conducting remote monitoring in a vault (i.e., in the event that the remote monitoring equipment becomes inoperable) the permittee shall conduct weekly visual inspections or remove all regulated material from the vault. However, for ALARA purposes, weekly visual inspections of vaults will not involve the handling of containers. Instead, containers will be inspected as much as possible by visually inspecting the container holders or storage locations. In addition, the Permittee shall immediately notify CDPHE of inspection method, identify any deficiency in PATS and initiate repairs of the remote monitoring equipment and track completion of the repairs on a tracking system Site Commitment Management Plan (SCMP).

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d. Stacker-Retriever

The mixed residue container storage area known as the "Stacker" in Building 371 will be inspected monthly using a remote camera surveillance system. This unit is maintained under an inert atmosphere and stores highly radioactive material. The monthly camera inspection is used to survey the condition of the floor and walls of the unit for evidence of leaks, spills, or cracks. The inspection also provides checks for the status of warning signs, condition of containers, spill control and personnel protective equipment, and ensures the annual inspection logs are complete.

Additional inspections are provided by personnel through the performance of bimonthly statistical inventories of containers. Ten percent of the containers in the Stacker will be inspected using the statistical sampling plan. Container condition will be assessed during these inventories. Any container not in good condition will be replaced. The inspection log sheet for the Stacker is presented in Figure 4.

In lieu of conducting monthly camera inspections or annual inspections of the Stacker (i.e, when the camera or retriever mechanism is inoperable) the permittee shall immediately notify the Director and shall initiate the necessary repairs in PATS and track completion of the repairs on a tracking system.

e. Gloveboxes

Weekly visual inspection of gloveboxes identify the status of warning signs, container condition, container inventory, spill control and personnel protective equipment, fire extinguishers, condition of the glovebox, container spacing, negative pressure in the glovebox, evidence of spills/releases and access routes for emergency equipment access. In addition, criticality drains shall be checked monthly for blockage and to ensure drain integrity. An inspection checklist for these inspections is presented in Figure 2.

f. Tank systems

Tank systems and their ancillary equipment will be inspected once each operating day. All tanks will be inspected visually. In the event the tank system is considered out-of-service, the Permittee may propose an alternate inspection frequency to CDPHE for review and approval via a permit modification. The Permittee shall perform tank integrity assessments at least once every five years (e.g., ultrasonic testing of tank wall thickness, coupon testing, etc.) A checklist for the daily tank inspection is presented in Figure 5.

g. Treatment units

Inspection requirements for treatment units will vary on a unit-by-unit basis. The treatment units are identified in Part V, Section C of this permit.

For the unit conducting treatment, inspections will identify the status of warning signs, container and unit condition, container and waste inventory, operating parameters, spill control, personnel protective equipment, secondary containment, evidence of

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releases/spills and access routes. In addition to these basic inspection requirements, the unit will be inspected to ensure that safety equipment is functioning properly.

Inspections will be conducted daily when waste is present and/or the unit is operating. Records of inspections will be maintained for each unit. A unit specific checklist for the inspection of treatment units is provided in Part V of this permit.

h. Security, Safety, and Emergency Equipment

The specific procedures for security inspections are considered sensitive information. They are detailed in documents entitled "Physical Protection of Security Interest" and "Plant Protection General Orders". These documents are maintained by the plant security force at Rocky Flats and are available for review by approved personnel.

Much of the on-site safety equipment is inspected by the Rocky Flats Fire Department. This includes the fire phone system, the on-site ambulances, the emergency self-contained breathing apparatuses (SCBAs), building sprinkler systems, manual and automatic fire alarms, fire extinguishers, fire hydrants, smoke detectors, cooling tower shutdown alarms, and firehoses. These items are checked to ensure that they are functioning properly and no deterioration has occurred. Records of these inspections related to permitted units must be maintained as part of the operating record.

Emergency power generators, if used as emergency back-up power supplies, are tested per industry standards such as IEEE or NFPA to ensure proper operation. Documentation of these tests is kept on file at the Site.

Emergency eyewashes and safety showers are tested monthly to ensure that they are in good operating condition. They are then tagged with the test date and the name of a person to contact if building personnel notice a malfunction between tests.

C. PREPAREDNESS AND PREVENTION REQUIREMENTS

1. Internal Communications

All facility personnel will be able to request emergency assistance as needed. In facilities so equipped, personnel will use the telephone system or the fire phones to report emergencies. In remote locations (such as the main hazardous waste storage area - Unit 1), personnel will use two-way radios for communications and emergency notification.

The fire alarm system and the Life Safety/Disaster Warning (LS/DW) public address system will be used to notify facility personnel of an emergency situation and provide immediate emergency instructions except in remote locations.

For areas which utilize the LS/DW System to notify facility personnel of operational activities, including emergency instructions and information pertaining to personal safety requirements, the LS/DW must be fully operational and audible. If the LS/DW system is not functional, an alternate means of communication will be used to notify personnel of emergency situations and to maintain contact. This alternative method for internal communications will be faxed to the Director at (303) 759-5355 within two working days. In addition, the deficiency will be entered

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into the Plant Action Tracking System (PATS) including a date for completion of the necessary repairs.

Finally, major buildings are equipped with an automatic fire suppression/detection and alarm system that will immediately and concurrently alert personnel at the Fire Department and the Site protection central alarm station when a fire is detected.

2. External Communications

Off-site communications with Federal and State agencies, hospital facilities and other agencies are maintained by telephone, two-way radio systems, and the Metropolitan Emergency Telephone System (METS). The METS is a Denver Metro Area emergency notification and information system with approximately 50 subscribers that include law enforcement, government agencies, emergency organizations and news media.

3. Emergency Equipment

Emergency equipment at the facility consists of fire control equipment, spill response equipment, and decontamination equipment. Each permitted waste management unit and all individual areas within the unit in this permit will have emergency equipment available for emergency response. Spill control equipment is maintained by the Fire Department HazMat unit. Details on the Fire Department's hazardous materials response program are contained in Site Fire Department standard operating procedures. A listing of the Fire Department's spill control equipment is maintained by the Fire and Emergency Services organization and is available for review at all times. The Fire Department's Baseline Capabilities document and Program Execution Guide outline the minimum equipment and staffing required to protect the Site and surrounding public.

4. Fire Control Equipment

a. Water for Fire Control

Fire hydrants at the facility provide water of adequate volume and pressure for fire control. A current list of fire hydrant locations will be maintained at the Site. The Fire Department's pumper tank truck will be used to supply water for fire control in areas that cannot be reached via the fire hydrant system.

Automatic sprinkler systems and fire extinguishers are located in buildings at the facility in accordance with National Fire Protection Association codes or an approved equivalent.

b. Special Fire Fighting Equipment

Portable fire extinguishers are kept at the Site for responding to fires requiring a fire fighting agent other than water. Special fire extinguisher availability (e.g., foam, dry chemical, and halon) is discussed in Part VIII, the Contingency Plan, of this permit.

5. Testing and Maintenance of Equipment

All facility emergency communications and alarm systems, fire protection equipment, spill control equipment, and decontamination equipment will be inspected and/or tested, and

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maintained on a regular basis in accordance with the manufacturer's suggested frequency or other frequency in accordance with applicable Site Engineering standards as identified in the following procedures: Self Contained Breathing Apparatus Program (3-U25-SOP-601); SCBA Annual Flow Test (3-U28-SOP-607); Preventative Maintenance and Inspections (4-65100-SOP-603); Apparatus Operational Checks (3-FES-GOG-609); PhD Atmospheric Monitor (4-65100-SOP-615); Encapsulated Suit Inspections (4-65100-SOP-1011); and Compressor Malfunction or Alarm (4-R44-SOP-616). Inspections records for these items associated with hazardous or mixed waste must be maintained as part of the operating record.

6. Aisle Space Requirements

Adequate aisle space will be maintained within units to allow for unobstructed movement of personnel and fire protection or spill control equipment in the event of an emergency. Specific requirements are included in Parts III, IV, and V of this Permit.

D. PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT

The facility currently maintains and implements general procedures that address health, safety, and environmental concerns related to facility operations.

1. Loading, Unloading, and Waste Transfer Operations

On-Site transportation of hazardous wastes will be performed in accordance with the On-Site Transportation Manual and the applicable CHWA regulations.

Wastes being shipped or received will be kept on loading docks for less than 24 hours and monitored during that time to ensure no spills or other releases occur. Within 24 hours, following the use of any dock for the shipment or receipt of hazardous or mixed waste, the dock will be checked for any signs of leakage from the waste containers.

Loading and unloading areas will not be used for storage of hazardous or mixed wastes. When wastes are transferred from containers to tanks or container-to-container, the containers will be open for only a minimal period of time to prevent spills or leakage. In addition, precautions will be taken to ensure any spillage or leakage from equipment connections during waste transfers is contained appropriately.

2. Run-off and Run-on

Site operations are designed to minimize the exposure of waste management units to run-on. Site drainage is designed to handle a 10-year, 24-hour storm to ensure effective drainage during and immediately after precipitation events. All loading docks at the Site are raised and/or covered to prevent run-on. Detailed information regarding the units subject to this requirement is provided in Part III and Part IV of this Permit. The tank and liquid container storage units outside of buildings are located within impermeable berms to minimize contact with run-on and to prevent the migration of spilled material by run-off transport. Liquids that accumulate in any bermed hazardous waste storage area will be sampled in accordance with Part VI of the Permit. Run-on must also be prevented for non-liquid hazardous or mixed wastes stored in wooden crates. In addition, no liquid hazardous wastes will be stored outside.

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3. Water Supply Protection

Containment will be provided for all units managing liquid waste to prevent releases to the environment or contamination of domestic drinking water supplies resulting from waste spills. Natural drainage structures at the Site include a series of basins to contain spills in the event that other containment fails.

Releases of hazardous waste to soil or surface water at the Site will be controlled and cleaned up as quickly as possible to prevent the spread of contamination that could enter water supplies. Detailed information regarding the equipment and personnel available to ensure prompt spill clean-up is provided in Part VIII of this permit. A surface water management plan, including procedures to minimize the impact of hazardous waste releases to the Site surface water control system and the procedures for sampling and analysis of surface water, will be maintained at the Site.

4. Mitigation of Effects of Equipment Failure and Power Outages

Appropriate facility personnel will be trained for inspection of equipment and emergency procedures to ensure that appropriate action is taken in the event of equipment failure. Emergency power systems at the Site will be available as back-up power sources during power outages, if required. The emergency power system will be activated after a power failure to minimize the effects of the power failure and ensure that hazardous wastes are not released to the environment. A description of the emergency power system is provided in Part VIII of this permit.

Rocky Flats utilizes a preventive maintenance scheduling and recordkeeping (PMO or preventive maintenance order) system to ensure proper operation of hazardous waste equipment. This system is operated by the Maintenance Department and is on a computer call-up based on frequencies determined by past practice or equipment manufacturer's recommendations. Any item found to be deficient during the PMO check is reported and a work order issued for immediate service or replacement. The program is described and documented in a manual which is prepared and updated by the Maintenance Department.

5. Personnel Protective Equipment (PPE)

Employee health and safety issues for activities involving the handling of hazardous and/or mixed wastes will be evaluated and addressed prior to activity startup. Each permitted unit will keep PPE in storage for both routine operations and release response efforts or will have the equipment readily available for use. Additional information regarding PPE is provided in Part VIII of this Permit.

6. Prevention of Releases to the Atmosphere

Spill prevention is the primary means of preventing releases to the atmosphere. Spill prevention will be facilitated by routine inspection procedures and safe handling practices for loading, unloading, and transferring waste.

If a spill occurs, prompt response and clean-up actions will ensure minimal releases of hazardous substances to the atmosphere. Detailed information regarding the equipment and personnel

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available to ensure prompt spill clean-up is provided in Part VIII of this Permit.

E. PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

1. General Waste Handling Precautions

General waste handling precautions at the facility will include the segregation of incompatible wastes in permitted units, cargo containers, and areas of buildings and not allowing ignition sources near ignitable waste. The strategy used at the Site to identify ignitable, reactive, and incompatible wastes is presented in Part VI of this Permit.

The Rocky Flats Fire Department will inspect all of the permitted units on a yearly basis to assure continued compliance with all of the applicable National Fire Protection Association (NFPA) codes. Results of these inspections will be kept on file.

2. Management of Ignitable or Reactive Wastes

Personnel involved with the generation, management, storage, handling, or transport of ignitable or reactive wastes will be trained to recognize conditions with the potential for fire, explosions, and dangerous reactions.

a. Containers

Ignitable and reactive wastes will be separated from sources of ignition. Waste containers used for the accumulation or storage of ignitable or reactive wastes will be placed away from machines that could spark, and areas will be posted with "No Smoking" signs.

b. Tanks

Sources of ignition or sparks will be kept away from ignitable and reactive waste storage tanks, and the areas will be posted with "No Smoking" signs.

c. Transport

Special precautions will be taken during loading, unloading, and on-site transport of ignitable wastes. Precautions to ensure a non-sparking environment will be taken when handling ignitable wastes. When ignitable or reactive wastes are transported on-site, they will be physically separated and segregated from incompatible wastes to ensure no commingling of wastes will occur in the event of a spill or release during transport.

d. Waste Transfer

Precautions to be taken during waste transfer operations include the grounding of containers and tanker trucks involved in the transfer of waste. Ignitable waste containers will be open for only a minimal period of time to reduce fire or explosion hazards.

3. Management of Incompatible Wastes

The facility's hazardous waste management training program addresses measures to prevent

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ignition or reaction of wastes and to prevent uncontrolled mixing of incompatible wastes.

For certain waste treatment processes (e.g., neutralization by mixing acidic and basic wastes), intentional mixing of incompatible wastes will be conducted in a controlled manner.

a. Containers: Incompatible wastes in containers will be separated by several means which are identified in Part III of the Permit.

b. Tanks: The operator practices used to avoid mixing of incompatible wastes in tanks are described in Part IV of this Permit.

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FIGURE 1.

CONTAINER STORAGE ROOM/AREA INSPECTION LOG SHEET

Building: _____ Room/Area No.: _____

Inspector: _____
Unit Owner or Qualified Designee Signature (Monthly): _____ Date: _____

CHECK EACH OF THE FOLLOWING WHICH ARE APPLICABLE:
The following log sheet must be filled out completely and accurately. The only acceptable responses are "Yes, "No", or "NA".

		Date:	___	___	___	___
A.	For All Container Storage Units					
1.	Area identification signs present, visible, and correct?		___	___	___	___
2.	Unit free of evidence of leaks, releases and other accumulated liquids?		___	___	___	___
3.	Containers placed properly (e.g., stacked properly per the unit drawing)?		___	___	___	___
4.	Adequate aisle space present within unit? Aisle space for this unit is 26 inches.		___	___	___	___
5.	Area clear of obstruction?		___	___	___	___
6.	Containers' hazardous waste labels correct and legible?		___	___	___	___
7.	Containers free of excessive corrosion, dents, buckles, holes damaged seams and/or deterioration?		___	___	___	___
8.	Is spill equipment available, accessible, and in good condition?		___	___	___	___
9.	Alarms/communication devices functioning appropriately?		___	___	___	___
10.	Last inspection within 7 calendar days?		___	___	___	___
B.	For Units Storing Liquid Waste					
1.	Lack of evidence of damage to secondary containment which could impair the effectiveness or integrity of the system?		___	___	___	___
2.	Base underlying containers free of cracks and gaps?		___	___	___	___
C.	For Storage Units Located Outside					
1.	No incidental precipitation within containment?		___	___	___	___
2.	Lack of evidence of seepage of waste outside of containment?		___	___	___	___

REMEDIAL ACTIONS:

- Always notify supervision of any problems.
- Any "No" response requires the following be included in the "Comments" section:

  a) Explanation of problem;
  b) Description of corrective action taken; and,
  c) Date corrective action was taken.

COMMENTS: Tracking System (PATS) including a date for completion of the necessary repairs

_____

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FIGURE 2.

HAZARDOUS WASTE PERMITTED GLOVEBOX
WEEKLY INSPECTION LOGSHEET

Building ____ Room/Area No. _____

Inspector:_____
Unit Owner or Qualified Designee Signature (Monthly): _____ Date: _____

CHECK EACH OF THE FOLLOWING:
The following log sheet must be filled out completely and accurately. The only acceptable responses are "Yes, "No", or "NA".

	Date	___	___	___	___
1.	Area warning signs present, visible, and correct, including Danger and No Smoking?	___	___	___	___
2.	Is the glovebox in good condition (windows clean and free of cracks, glovebox free of cracks, loose paint, etc.)?	___	___	___	___
3.	Is negative pressure maintained above 0.25 inches of water of vacuum?	___	___	___	___
4.	Area free of spillage, leakage, or other accumulated liquid ?	___	___	___	___
5.	Base underlying containers free of cracks or gaps?	___	___	___	___
6.	Containers' hazardous waste labels correct and legible?	___	___	___	___
7.	All containers in good condition (free of leaks, corrosion, buckles, dents, holes or damaged seams)?	___	___	___	___
8.	Is there adequate aisle space, and is each container clear of obstruction?	___	___	___	___
9.	Is spill equipment available, accessible, and in good condition?	___	___	___	___
10.	Is the unit's operating record (including WEMS) current and available?	___	___	___	___
11.	Last inspection conducted within 7 calendar days?	___	___	___	___
12.	Date of the last monthly criticality prevention drain inspection for integrity and blockage, if applicable. If results were not acceptable provide remedial actions and date initiated.	___	___	___	___

REMEDIAL ACTIONS:

- Always notify supervisor of <u>any</u> problems.
- Any "no" answer <u>requires</u> the following to be included in the "Comments" section:

a) Explanation of problem;
b) Description of corrective action taken;
c) Date corrective action was taken.

COMMENTS: Tracking System (PATS) including a date for completion of the necessary repairs.

_____

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FIGURE 3.

BIMONTHLY RCRA INSPECTION
LOG SHEET FOR VAULTS

Date: _____ Time: _____ Inspector: _____

Building: _____ Room: _____ Unit No.: _____

The following log sheet must be filled out completely and accurately. Inspections shall be performed in conjunction with regularly scheduled nuclear material accountability inspections.

Container #	RCRA	Container #	RCRA	Container #	RCRA	Container #	RCRA

Inspect for the following: YES NO

1. All containers in good condition (free of corrosion, buckles, dents, holes, or damaged seams)? ___ ___
2. Total number of containers inspected? ___ ___
3. Number of RCRA containers inspected? ___ ___

REMEDIAL ACTIONS:
Always notify supervision of any problems. Any "No" answers require an explanation and/or corrective action in the "Comments" section.

COMMENTS:

_____

_____

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FIGURE 4.

MONTHLY SURVEILLANCE CAMERA INSPECTION LOG SHEET FOR UNIT 90.100 - STACKER

BUILDING						
ROOM						
CONTAINER STORAGE AREA ID NO.						
DATE						
TIME						
SIGNATURE OF INSPECTOR SIGNATURE OF UNIT OWNER OR QUALIFIED DESIGNEE						

The following logsheet must be filled out completely and accurately. The only acceptable responses to questions 1-7 are "Yes", "No", or "NA." Inspections must be performed monthly

1. Last inspection within 60 calendar days?						
2. Are containers only stored in authorized areas?						
3. Area ID sign(s) present, correct, and visible?						
4. Is the area posted "Danger - Unauthorized Personnel Keep Out"?						
5. Is the base area free of cracks or gaps?						
6. Is the base area free of spillage, leakage or accumulated liquid?						
7. Is the room in good condition?						
8. Is the unit's operating record (including WEMS) current and available?						
9. Containers free of cracks, gaps, corrosion, and/or deterioration?						

REMEDIAL ACTIONS
ALWAYS NOTIFY SUPERVISOR OF ANY PROBLEMS
"NO" ANSWERS REQUIRE EXPLANATION AND/OR CORRECTIVE ACTION IN THE COMMENTS SECTION AND MUST BE ENTERED INTO PATS, IF APPLICABLE.

COMMENTS and CORRECTIVE ACTIONS:
(If additional space is required the reverse side of this logsheet may be used for comments)

_____ DATE _____

_____ DATE _____

_____ DATE _____

_____ DATE _____

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FIGURE 5.

TYPICAL RCRA PERMITTED TANK STORAGE UNIT DAILY INSPECTION LOG SHEET

BUILDING							
ROOM							
TANK STORAGE OR TREATMENT AREA ID NO.							
DATE							
TIME							
SIGNATURE OF INSPECTOR							

The following log sheet must be filled out completely and accurately. The only acceptable responses are "Yes, "No", or "NA".

1. Area signs present, correct and visible?							
2. Is the spill response equipment adequate, accessible and in good working condition?							
3. Lack of evidence of leakage from the tank system?							
4. Tank system labelled appropriately?							
5. Is the secondary containment system in good condition, free of cracks, gaps, or chips which could impair its ability to provide containment?							
6. Is the tank system in good condition, free of corrosion or deterioration which could compromise its integrity?							
7. Is overfill prevention equipment functioning properly?							
8. If tank monitoring equipment is present, is it operating properly?							
9. Was the last inspection within 24 hours?							
10. Alarms/communication system functioning appropriately?							

REMEDIAL ACTIONS:
Always notify supervision of any problems. Any "No" answers require an explanation and/or corrective action in the "Comments" section and the date any corrective action was taken.

COMMENTS:

_____

_____

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PART VIII - CONTINGENCY PLAN

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PART VIII - CONTINGENCY PLAN

A. PURPOSE

Incident response actions at the Rocky Flats Environmental Technology Site (Site) are governed by two documents. For non-emergency incidents, the Occurrence Reporting Process Procedure (ORPP) is used, while the Site Emergency Plan (EPLAN) is used for response actions to incidents categorized as emergencies.

Non-emergency incident response is conducted in accordance with the ORPP, which is maintained by the Occurrence Notification and Reporting Organization at the Site. It provides Site personnel with a method for categorizing and reporting non-emergency incidents that occur within their area. Since response actions to incidents categorized as non-emergency may differ depending on the affected building or area, the ORPP does not provide specific response actions. Specific response actions are conducted in accordance with building or area procedures.

Emergency response actions at the Site are governed by the EPLAN. The EPLAN is maintained by the Emergency Preparedness organization at the Site. The EPLAN provides an overview of the Site Emergency Response Organization and the roles and responsibilities of its members to develop, prepare, implement and maintain the capability to respond to and mitigate the effects of hazards associated with emergencies; to direct protective actions for workers and Site visitors; to notify off-site officials and provide protective action recommendations for the public; to limit adverse impacts to the environment; and to use the "as low as reasonably achievable" principle for hazard exposure limits for workers responding to the emergency. This Contingency Plan supplements the EPLAN for incidents which directly involve hazardous waste or hazardous waste constituents which could endanger human health or the environment.

Even though the ORPP and the EPLAN are referenced in this section of the permit, it is not intended that either document become part of the permit. Also, any changes incorporated into the EPLAN that do not specifically impact the implementation of the Contingency Plan will not be reported to the Division (this is limited to the EPLAN since the ORPP has no impact on the implementation of the Contingency Plan). On the other hand, any changes in the EPLAN that do impact the implementation of the Contingency Plan will be reported to the Division in writing and may require approval prior to the incorporation of the change into the EPLAN.

B. INCIDENT CATEGORIZATION AND INITIAL RESPONSE

All incidents at the Site are categorized based on their extent, impact on normal or safe operations, threat posed to human health and the environment, and the actions and personnel necessary for mitigation and remediation. When discovered, an incident is reported to building/area management. If building/area management is not available, the incident may be reported to emergency personnel through the Site emergency phone number (X2911) or directly to the Shift Superintendent at extension 2914. Following the completion of required initial notifications, building/area management will assess the incident, categorize it, and provide direction for its mitigation (if possible through the utilization of area equipment and personnel). If the incident is categorized as an "emergency," initial response actions are conducted to isolate the area and ensure area personnel are made aware of the situation and do not unknowingly enter the affected area.

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1. Response to Non-Emergency Incidents

If the incident is categorized as a non-emergency, response actions are conducted at the building level in accordance with approved Site procedures. The following examples are considered non-emergency incidents that would not require implementation of the Site Contingency Plan.

a) Release of a hazardous or mixed waste to secondary containment that is determined to be less than a reportable quantity, pursuant to 40 CFR 302.6 (RQ), that is cleaned up within 24 hours. If the release to secondary containment is not cleaned up within 24 hours the incident will be recategorized as an emergency and the Contingency Plan will be implemented.

b) A release of hazardous or mixed waste within a building, structure, or area that is less than an RQ and is determined not to threaten human health or the environment.

c) A fire or explosion of a controllable nature in a regulated waste management area that activates a fire suppression system (e.g., halon discharge, sprinkler heads); will not cause the release of vapors to the environment in excess of an RQ above authorized release levels; has been determined to not be a threat to human health or the environment; and is extinguished utilizing available equipment following the arrival of fire protection personnel.

d) An incident in a hazardous or mixed waste management area causing personal injury requiring only minor first-aid treatment.

e) A release or spill of hazardous waste from a tank system that is less than or equal to one pound and is immediately contained and cleaned up.

Non-emergency incidents require timely response of personnel assigned to the affected area (incidental response) for mitigation, clean-up, or attention. Emergency units and personnel external to the area in which the incident occurs are not typically involved in response to this type incident, although fire protection personnel will respond to the area if fire detection equipment is activated as a result of the incident. Acceptable personal protective equipment (PPE) for responding to a non-emergency incident is normal work area clothing and equipment; this may include higher levels of PPE and spill response equipment maintained at or near the affected waste management unit. Area personnel respond to these incidents in accordance with area-specific procedures and direction from area supervision.

When notified of the incident and the initial categorization, the Shift Superintendent monitors response activities to ensure additional resources are made available should the need arise. Should it be deemed necessary, the Shift Superintendent may recategorize the incident as an "emergency" at any time to initiate more vigorous response actions. If this were to occur, all required notifications and documentation would be carried out in accordance with the EPLAN.

2. Response to Emergency Incidents

Incidents that present a threat to human health and the environment are categorized as emergencies and are managed in accordance with the EPLAN. Included in the EPLAN is the

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Contingency Plan whose implementation occurs when emergency incidents involving hazardous or mixed waste require response in accordance with the EPLAN. The following hazardous and mixed waste incidents are considered emergencies requiring implementation of the EPLAN and the Contingency Plan.

a) A release of hazardous or mixed waste that may threaten human health or the environment. Any release of hazardous or mixed waste that meets or exceeds an RQ will result in the implementation of the EPLAN and Contingency Plan. For releases that do not meet or exceed the RQ, a determination will be made based on available information regarding the potential threat to human health and the environment. The results of the determination will be documented as required in the EPLAN.

b) A hazardous or mixed waste incident resulting in a fire or explosion that threatens human health or the environment and/or leads to the release of radioactive and/or hazardous constituents in excess of an RQ above an authorized release.

c) A hazardous or mixed waste incident resulting in injuries to personnel who then require hospitalization.

d) Releases of less than an RQ of hazardous waste to secondary containment that is <u>not</u> cleaned up within 24 hours of the time of discovery.

For incidents categorized as an emergency that involve hazardous and/or mixed waste, the EPLAN and the Contingency Plan will be implemented.

C. CONTINGENCY PLAN IMPLEMENTATION

Implementation of the Contingency Plan results from the categorization of a hazardous or mixed waste incident as an emergency (see B.2 above); non-emergency hazardous or mixed waste incidents do not necessitate implementation of the Contingency Plan (see B.1 above). Emergency incidents are managed in accordance with the EPLAN. If an emergency incident occurs that includes hazardous or mixed waste or regulated waste management areas, the Contingency Plan is implemented in accordance with the EPLAN.

D. EMERGENCY COORDINATORS

At the Site, a Shift Superintendent is on duty at all times and acts as the Emergency Coordinator (EC). The Shift Superintendent must have a minimum of 15 years experience at the Site and have extensive knowledge of the Site, they must have an engineering degree or equivalent, and must have previous management experience. These individuals receive standard Site training (e.g., Conduct of Operations, Radiation Worker Level II, 40 Hour OSHA training, DOT Awareness, Respirator training, etc.) and additional training to act as a first responder for hazardous waste incidents. In the event of an emergency incident, the EC is responsible for the implementation and coordination of the Contingency Plan. The EC is responsible for the initiation of sitewide response to emergencies and may also function in a similar capacity under the EPLAN.

In the event of an Operational Emergency as defined in the EPLAN, including implementation of the Contingency Plan, the EC is required to assume the role of the Incident Commander (IC). In these

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capacities, the EC has full authority to enlist all available Site resources and those discussed in Section H of this part to mitigate any emergency situation.

Per Site procedures, the EC is notified of all incidents at the Site. The EC relies upon incident descriptions (non-emergency or emergency), professional judgement, and input from personnel in the affected area to determine whether the conditions of B.2 exist requiring implementation of the Contingency Plan.

Only the EC may implement the emergency procedures of the Contingency Plan. All other actions outlined in the Contingency Plan may be performed by others (e.g., Crisis Manager, Senior Fire Protection Officer, Senior Security Officer) as delineated in the EPLAN. However, it remains the responsibility of the EC to ensure that the emergency procedures outlined in the Contingency Plan are completed.

In the event of an emergency, the Site EC will determine whether to activate the Emergency Operations Center (EOC). The EOC is staffed by teams of individuals from various disciplines at the Site who are assembled in time of emergency to evaluate an incident from their varied perspectives and ensure that response to an emergency incident is properly evaluated, coordinated, and implemented. In the event of an emergency, the EPLAN will be used to manage the activities of those charged with guiding the response measures. Periodic drills at the Site are conducted to ensure prompt and appropriate response actions are conducted. The regulatory requirements of the Contingency Plan for notification of local and national authorities are incorporated in response activities conducted as part of the EPLAN. In addition, a flowchart summarizing off-site notification for a potential hazardous waste release is provided as Attachment 2.

In the event of an emergency, the Site EC can be contacted by dialing extension 2911 from on-site or (303) 966-2911 from off-site (the Site emergency telephone number), or contacted directly by dialing extension 2914 from on-site or (303) 966-2914 from off-site. Additionally, Site personnel are trained to alert emergency personnel by lifting the receiver of a fire phone and leaving it off the hook. This automatically alerts the fire department of an incident and its location. In this manner, personnel unable to call the Shift Superintendent directly can notify emergency personnel of an incident requiring response without remaining in the area of the incident.

E. EMERGENCY PROCEDURES

In the event of an emergency incident, the personnel and entities listed below have the following responsibilities:

1. Emergency Coordinator (EC)

The EC will ensure that the following actions are completed in accordance with existing Site policies, procedures, and plans (e.g., EPLAN and Contingency Plan), as appropriate:

a. activate internal Site alarms or communication systems, where applicable, to notify affected Site personnel of the emergency;

b. notify appropriate State and local agencies of the emergency (a list of Federal, State, and local agencies to be contacted is provided as Attachment 1 and the off-site notification for

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releases of hazardous waste is provided as Attachment 2 at the end of this section;

c. identify the character, exact source, amount, and areal extent of any released materials by utilizing observation, process knowledge, records review or chemical analysis;

d. assess possible hazards to human health or the environment that may result from the incident including indirect effects of the release, fire, or explosion;

e. determine whether the incident could threaten human health or the environment outside the Site;

f. immediately notify appropriate local authorities if evacuation of local areas is advisable;

g. immediately notify the National Response Center (NRC) at 1-800-424-8802 if the release of hazardous or mixed waste is equal to or exceeds an RQ, or human health or the environment outside the Site is threatened and report the following:

   i. name and telephone number of reporter;

   ii. name and address of Site;

   iii. time and type of incident;

   iv. name and quantity of material(s) involved, to the extent known;

   v. the extent of injuries, if any; and

   vi. the possible hazards to human health or the environment outside the Site.

h. Take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the Site. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating any containers threatened by the incident or impeding response activities.

i. If hazardous waste operations at the Site are stopped in response to a fire, explosion, or release, then monitor for leaks, pressure buildup, gas generation, or rupture in valves, pipes, or other equipment as appropriate. Prior to the restart of any operations that are stopped, the Permittee will provide notification to the CDPHE, Hazardous Materials and Waste Management Division (HMWMD) representative via facsimile

j. Provide for the treatment, storage, or disposal of recovered waste, contaminated soil or surface water or any other material that resulted from the incident within two weeks of the incident (14 calender days).

k. Once the incident has been controlled, cleanup and/or removal will begin. Cleanup of releases to containment involves collecting and containing any released material including

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liquids and contaminated sorbent material. After cleanup, the responsible supervisor shall verify that all visible residual liquids and solid wastes have been removed from equipment and structures (such as berms) to a "dry condition" to ensure no further threat of release to the environment. The EC must determine if the support of an industrial hygienist and/or radiological protection technician is required to confirm that any potential exposure hazard (as a result of the release) is appropriately addressed in a manner that is protective of human health and the environment. In addition, for releases involving mixed hazardous waste, the EC will ensure that the radiological decontamination requirements established in the DOE Radiological Control Manual are followed.

Hazardous waste releaseses (including a material which, when discharged, becomes a hazardous waste) into inadequate containment will be assessed by evaluating the condition of the containment and the actual or potential threat to human health or the environment. An engineer(s) with experience in materials and construction methods and familiar with the Colorado Hazardous Waste Regulations shall perform a visual inspection of the containment to verify that the area affected by the release is free of cracks, gaps, structural inadequacies, or other pathways to soil, surface water, or ground water.

l. Ensure that, in the affected area(s) of the Site

i. No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed;

ii. Emergency equipment is cleaned and fit for its intended use before hazardous waste operations are resumed.

iii. Following the receipt of the notification from the responsible manager identified in section E.2(b) of this Part, provide notification to CDPHE, Hazardous Materials and Waste Management Division (HMWMD) representative via facsimile that post-emergency equipment maintenance has been completed.

2. <u>Responsible Manager</u>

Responsibilities of the manager of the affected area include the following:

a. Note in the operating record the time, date, and details of the incident.

b. Notify the EC that area(s) of the Site affected by the incident are in compliance with section VIII.F(1)(k)(i) and (ii) of this part and that operations discontinued as a result of the incident are to be restarted prior to resuming operations in the affected area(s).

c. Provide assistance to the EC as necessary.

3. <u>Permittee</u>

a. Within 15 days, submit a written report on the incident to the Division. The report must include:

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i. name, address, and telephone number of the owner, operator, or co-operator;

ii. name, address, and telephone number of the Site;

iii. date, time, and type of incident (e.g., release, fire, explosion);

iv. name and quantity of material(s) involved;

v. the extent of injuries, if any;

vi. an assessment of actual or potential hazards to human health or the environment, where applicable; and

vii. estimated quantity and disposition of recovered material that resulted from the incident.

F. EVACUATION PLAN

Evacuations of buildings or areas at the Site are conducted in accordance with applicable building or area procedures or instructions provided by building or area management. Site personnel are provided with facility-specific training regarding evacuation notification, primary and alternate evacuation routes, facility hazards, and assembly areas. Maps detailing both primary and alternate evacuation routes or designated assembly areas are posted at entrances to each building or area. Drills are conducted periodically to ensure Site personnel are familiar with the evacuation routes.

In the unlikely event emergency conditions warrant the evacuation from the entire Site, the evacuation will be carried out in accordance with the Winter Storm Contingency/Interim Site Evacuation procedure which is maintained by the Emergency Preparedness organization.

Site personnel will be notified via the Life Safety/Disaster Warning (LS/DW) system, two-way radios, and/or the internal telephone system and provided with information regarding best routes and methods of transportation for conducting the evacuation.

G. COORDINATED EMERGENCY SERVICES

Coordinated emergency services support is established through formal Memoranda of Understanding (MOU) and Mutual Aid Agreements (MAA) with the following:

- Medical: University of Colorado Health Sciences Center (MOU), St. Anthony Hospitals (MOU)
- Fire support: Jefferson County HAZMAT Authority (MAA), Coal Creek Fire District (MAA), Westminster Fire and Rescue (MAA)
- Security: Colorado State Patrol (MOU), Jefferson County Sheriff (MOU), Federal Bureau of Investigation (MOU)
- Alternate Emergency Operations Center: Federal Emergency Management Agency, Region VIII (MOU)

These agreements undergo an annual review and are normally effective for a period of five years or as modified earlier by request of either signatory. The Mutual Aid Agreements and Medical MOUs contain provisions for the availability of ambulance and Flight-for-Life support including provisions for the immediate transport of radioactively contaminated individuals. Copies of these formal agreements are appended to the EPLAN. Activities related to joint emergency response planning are facilitated through the Joint Planning Team, conducted under the direction of the Colorado Department of Public Health and Environment, Emergency Management Program.

H. EMERGENCY EQUIPMENT

The emergency equipment available at the Site, at a minimum, meets the requirements of 6 CCR 1007-3, Section 264.32 and 265.32. The Fire Department's Baseline Capabilities document and Program Execution Guide outline the minimum equipment and staffing required to protect the Site and surrounding public. A description of the emergency equipment follows:

1. Fire Control Equipment

The Site operates a fully staffed fire department for on-site emergency response. The majority of the Site's fire fighting equipment is located at the on-site Fire Department (Building 331). A listing of all fire control equipment, including location and capability, is maintained by the Fire Protection Engineering and Fire and Emergency Services organizations and is updated regularly Industrial Hygiene and/or the Fire Marshall. This information is available for review at all times.

2. Spill Response Equipment

Spill control equipment is maintained by the Fire Department HazMat unit. Details on the Fire Department's hazardous materials response program are contained in Site Fire Department standard operating procedures. A listing of the Department's spill control equipment is maintained by the Fire and Emergency Services organization and is available for review at all times.

In addition, all areas where hazardous waste is generated, accumulated, stored, or treated have adequate spill control equipment and/or supplies available to respond to a non-emergency release. Each hazardous waste area will be analyzed at least annually by Fire Department and Health and Safety personnel to verify adequacy of spill control equipment and/or supplies available. A list of the spill response materials accessible to each unit is maintained at or near the waste management unit.

3. Decontamination Equipment

Decontamination facilities are located in various buildings at the Site including the following: Buildings 122, 371, 707, 771, 776/777, 779, and 881. The decontamination facilities are maintained with monitoring equipment, showers, and decontamination materials. Eyewash stations and safety showers are located throughout the Site. In addition, the HazMat van and trailer are equipped with decontamination pools.

4. Medical Equipment

A medical facility is present at the Site (Building 122) to provide medical services to Site personnel. The Site maintains a staff of medical doctors, registered nurses, and Emergency

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Medical Technicians (EMTs) to provide medical services on a 24 hour basis. Doctors and nurses are available on day-shift with EMTs providing the remainder of the coverage. The medical facility has primary treatment stations for initial emergency care. Personnel who have sustained more serious injuries will be transported to designated local area hospitals that are prepared to accept both contaminated and uncontaminated personnel. Ambulances are also present at the Site and are equipped with communications equipment allowing contact with local hospitals and Site emergency personnel.

Site personnel are provided with Site- and facility-specific training to identify the locations of emergency equipment, for proper response to incidents and alarms, and incident reporting requirements. This training is conducted when personnel are assigned to a new or different area of the Site and annually thereafter during the assignment.

I. DOCUMENTS TO BE MAINTAINED ON-SITE AS PART OF THIS PERMIT

1. A copy of the evacuation routes, maintained at the building, will be presented to the Director's inspectors upon request.

2. An up-to-date list of all satellite and 90-day accumulation areas will be maintained at the facility, and will be presented to the Director's inspectors upon request.

3. An up-to-date lists of all fire hydrants and self-contained breathing apparatus (SCBAs) at the facility, is maintained at the Fire Department, and will be presented to the Director's inspectors upon request.

4. A list of fire extinguishers (including location) is maintained by the Fire Department. Individual building lists of fire extinguishers are also maintained in a majority of the buildings. These lists will be presented to the DIrector's inspectors upon request.

5. Phone numbers for emergency contacts will be kept up-to-date, and checked quarterly at a minimum and submit updates to the emergency response contacts listed on Table one.

6. A list of specific situations and criteria under which outside help is needed and the role of each emergency response authority will be submitted to the Director's on-site inspectors within 30 days of the effective date of this Permit.

7. A criteria list for determining off-site evacuation such as air monitoring at the plant boundary and other parameters will be submitted to the Director's on-site inspectors within 30 days of the effective date of this Permit.

8. The Fire Protection Report will be reviewed and updated annually, is maintained by the Fire Protection Engineering groups, and will be presented to the Director's inspectors upon request.

9. The inventory list of emergency release response (spill control) supplies will be reviewed and updated annually, is maintained by the Fire Department, and will be presented to the Director's inspectors upon request.

10. An up-to-date inventory of release response (spill control) equipment and/or supplies for responding to incidental releases, maintained at the hazardous waste storage or treatment facilities, will be presented to the Director's inspectors upon request.

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CONTINGENCY PLAN - ATTACHMENT 1
EMERGENCY RESPONSE CONTACTS

Federal

U.S. Environmental Protection Agency
Region VIII
(303) 293-1788 (24 hours)

EPA/National Response Center
Washington, D.C.
(800) 424-8802 (24 hours)

State

Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530
(303) 756-4455 (24 hours)

Hazardous Materials and Waste Management Division
(303) 692-3300 (business hours)

Water Quality Control Division
(303) 692-3500 (business hours)

Air Pollution Control Division
(303) 692-3100 (business hours)

Colorado Emergency Planning Committee
4300 Cherry Creek Drive South
Denver, CO 80220
(303) 756-4455 (24 hours)

Local

Broomfield Public Works Dept.
6 Garden Center
Broomfield, CO 80020
(303) 469-3301 ext. 364 (business hours)
(303) 469-2345 (police after hours)

Boulder Co. Emergency Planning Comm.
(303) 441-3390 (business hours)

Northglenn Water Department
(303) 451-1289

Thornton Water Department
(303) 538-7422 (business hours)
(303) 528-7245 (24 hours)

Jefferson Co. Health Department
260 South Kipling
Lakewood, CO
(303) 239-7097

Jefferson Co. Emergency Planning Comm.
(303) 271-8215

Westminster Water Department
4800 W. 92nd Ave.
Westminster, CO 80030
(303) 430-2400 ext. 2447

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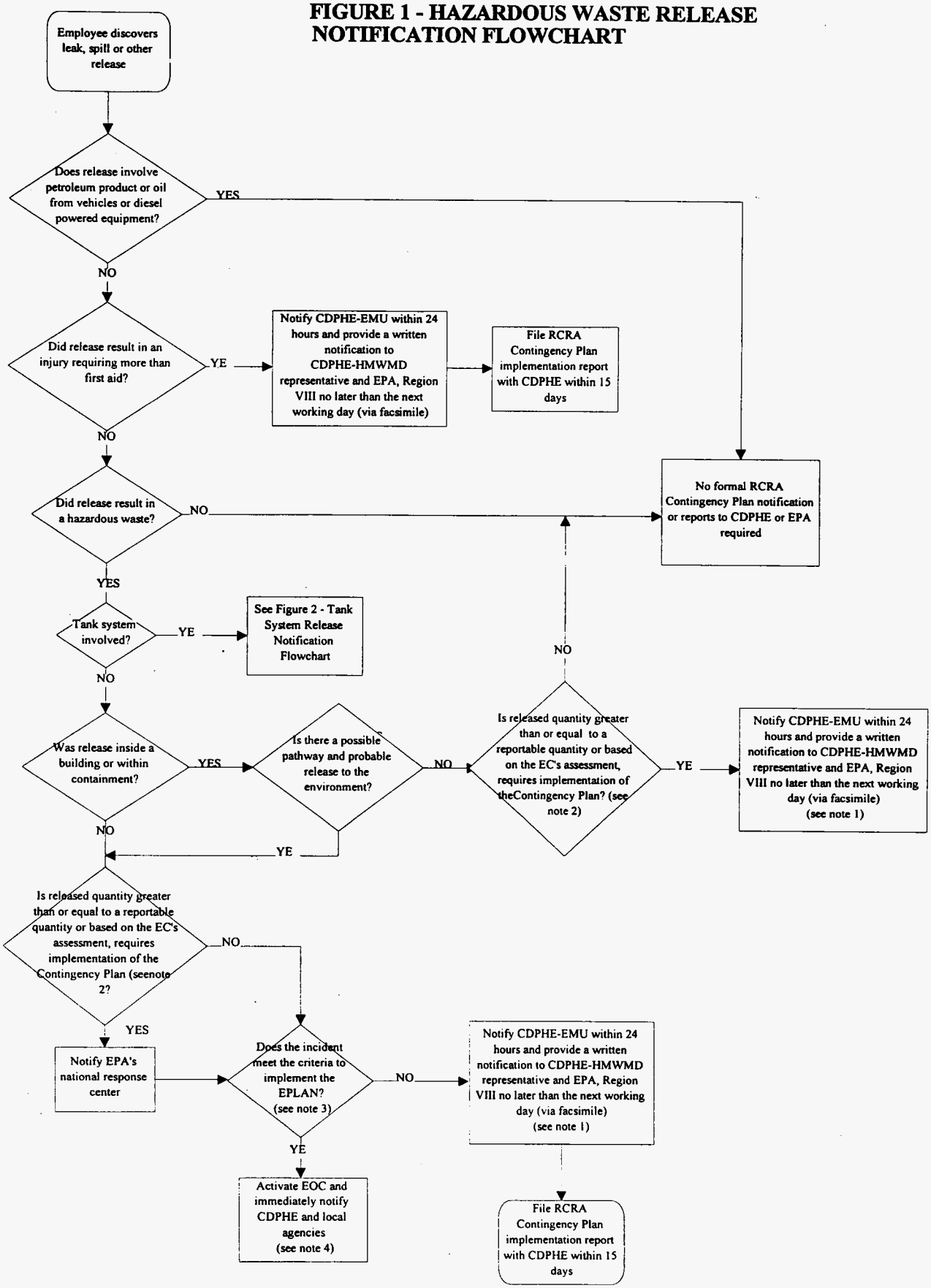
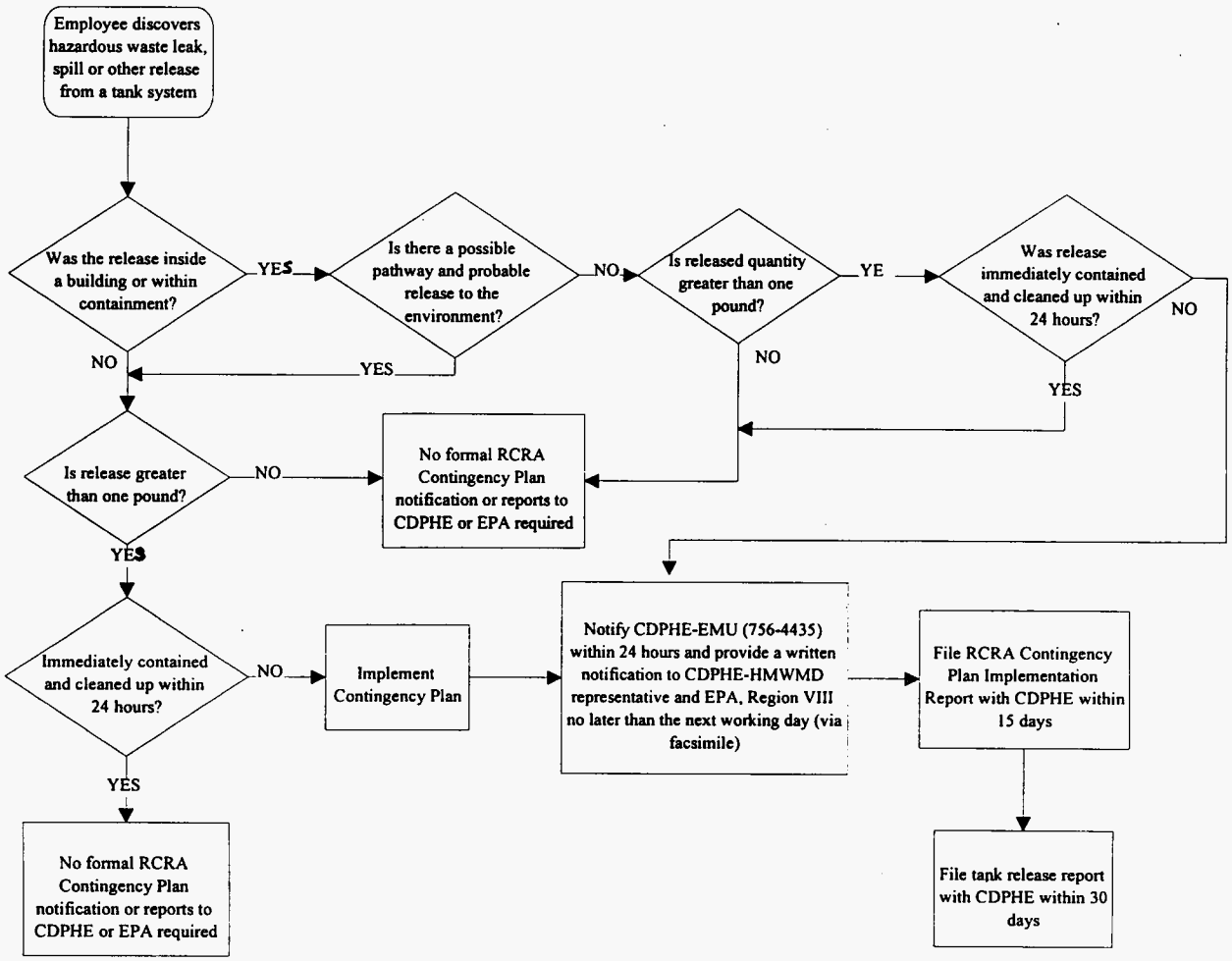
FIGURE 1 - HAZARDOUS WASTE RELEASE NOTIFICATION FLOWCHART



1) The brief written description will include the date, time, and location of the incident; the name, quantity and extent of the released material and the actions taken or planned to cleanup and/or remove the released materials.
2) This assessment must consider both direct and indirect effects of the release.
3) Reference RFETS Site EPLAN and implementing procedures.
4) As part of RFETS Site Emergency Plan Requirements, recommendations will be made concerning the need for off-site evacuation.

FIGURE 2 - TANK SYSTEM RELEASE NOTIFICATION FLOWCHART



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PART IX - PERSONNEL TRAINING

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PART IX - PERSONNEL TRAINING

A. INTRODUCTION

The Rocky Flats Environmental Technology Site (Site) RCRA training program is designed to ensure that individuals generating or managing hazardous or mixed waste are trained to perform their work and meet the requirements of the Colorado Hazardous Waste Regulations (6 CCR 1007-3), Sections 100.41(a)(12) and 264.16.

To identify the training an employee requires, a matrix of job classifications and training requirements has been developed for Site personnel responsible for the generation or management of hazardous or mixed waste. The Site RCRA Personnel Position Descriptions To Required Initial & Continuing Training Matrix (Site Training Matrix), which has been included as Appendix A to this section, provides job descriptions (position function), typical job tasks associated with each position function, and defines the required initial and continuing training for each position function.

Appropriate Department of Energy (DOE), contractor, and subcontractor personnel, will be provided classroom and on-the-job training within six months of job assignment or reassignment. Personnel will not be allowed to work in unsupervised positions until they have satisfactorily learned hazardous waste management procedures, including contingency plan implementation.

B. RCRA TRAINING OVERVIEW

1. Site Training Matrix

The specific training requirements for personnel at the Site involved in the generation or management of hazardous or mixed waste are identified in the Site Training Matrix which provides job groupings (position function) for Site personnel involved in the generation or management of hazardous or mixed waste, tasks performed as a part of each position function, the required initial and continuing training, and course information. The document allows the user to check on a particular job or associated task and to determine the required training.

Administrative and other Site personnel not directly involved in the generation or management of hazardous or mixed waste are not included in the Training Matrix. Their training requirements are dependent on their job duties and job location. These individuals receive general employee training which includes information on emergency response and notification, but do not receive the training that personnel involved in the generation and management of hazardous or mixed waste require.

The training requirements identified in the Site Training Matrix were developed to address both normal and emergency operations for each job description. This ensures that personnel are trained to perform the tasks within their job classification and are able to respond correctly and effectively to emergencies. The primary elements of the training program are:

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2. Environmental Professional Training

Environmental Professionals, will attend annual two-day seminars where changes in Site management RCRA practices and requirements, as well as changes in regulations will be discussed in detail. Environmental Professionals include: Environmental Program Managers, Environmental Technical Advisors, Environmental Managers, and Environmental Program personnel. Some Environmental Professionals have duties described in the Site Training Matrix. In this case, successful participation in the seminar described above will supersede the requirement for an Environmental Professional to complete annual RCRA update training.

3. Training Delivery

Training must be delivered by computer, classroom presentation, briefings, and/or classroom instruction that can include computer-based instruction, and OJT.

Additionally, Site Conduct of Operations procedures dictate that personnel attend briefings and job walkdowns prior to performing work in nuclear facilities. During these sessions, additional OJT is provided as involved personnel discuss waste to be generated , characterization of the waste, and associated management requirements.

4. Training Frequency

All personnel with job responsibilities involving the generation or management of hazardous or mixed waste will be provided general RCRA training on an annual basis. Individuals must be retrained within one month of the expiration date of their previous training to meet the requirement for annual retraining. These individuals are also provided with area-specific training by their supervision.

The area-specific training is developed from briefings provided to supervisors and designated trainers on an annual basis. From briefing materials, area-specific training for area personnel is developed. The supervisors or designated trainers then present applicable portions to workers in their areas of responsibility. In this manner, the unique circumstances or requirements of an area can be addressed.

5. Training Effectiveness Evaluation

Training materials, training sessions, and course content are periodically evaluated by both the participants and independent training auditors. The findings from evaluations are provided to the organization responsible for the training. This information is used in the maintenance of the program materials including course material, handouts, and tests which are updated as necessary to reflect current requirements.

6. Records

All training records are managed in accordance with the regulatory requirements for record maintenance and retention as found in 6 CCR 1007-3, Section 264.16 (d) and (e).

7. Area-Specific Training

Area-specific emergency response training is provided by line management in the specific area of assignment, while general Site emergency training is provided in classroom training sessions.

Area-specific training familiarizes each employee with the emergency procedures, emergency equipment, and emergency systems of the Site and their specific area of assignment. Specific training is provided for the following areas.

a. Facility Emergency and Monitoring Equipment

Facility monitoring equipment is used to monitor the current condition of equipment and the work environment. If changes to normal conditions occur that require the attention of area personnel, the monitoring equipment will provide notification by audible or visual alarm. Facility emergency equipment is used by area and Site personnel to respond to anomalous situations if/when they arise. Personnel are trained concerning the presence of this equipment, its importance, and their responsibilities (if any) for observing and obtaining information from it. Additionally, personnel are provided with area-specific training in the procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment. This includes: identifying the locations and capabilities of this equipment within an assigned area; method and frequency of equipment inspections; how and whom to notify of an equipment malfunction; and methods of remediating or mitigating an equipment malfunction.

b. Automatic Waste Feed Cut-Off Systems

For areas in which this equipment is present, personnel are trained on the location of the equipment and its capabilities. They also are instructed on the use of the equipment to ensure its proper function for normal operations and for emergencies.

c. Communications or Alarm Systems, Response to Fires or Explosions

All personnel subject to this training plan are trained on the appropriate response to incidents including fires and explosions in their work area. Personnel assembly areas are defined for all work areas, and alarm systems for areas are described and their functions and signal mechanisms explained.

Area-specific training is provided on the presence of special alarms in an area (e.g., high level alarms, Selective Alpha Air Monitors (SAAMs), glovebox overheat alarms) and responses to them. Personnel are trained on area and facility communication systems to identify any unique attributes or conditions which may affect the performance of the system, and any area-specific requirement for additional or alternate evacuation routes and methods of communication (e.g., the use of two-way radios).

d. Response to Environmental Contamination Incidents

Personnel subject to this training plan are trained in the specific hazards present within their work areas. They are also instructed on the proper response to possible or actual releases/spills from their work areas, evacuation routes, and notification requirements.

e. Shutdown of Operations

Personnel are trained in the proper shutdown of operations and equipment for routine and non-routine situations.

For routine situations, personnel perform shutdown in accordance with approved procedures.

For non-routine situations, personnel are instructed to place the operation or equipment in a safe configuration or how and when to abandon the operation or equipment depending on the severity of the incident and/or the threat to their well-being.

C. RCRA TRAINING OFFICER

The RCRA Training Officer is the designated individual responsible for administering the RCRA Training Program and has responsibility for the day-to-day maintenance and implementation of the RCRA Training Program. The RCRA Training Officer must be trained in hazardous waste management regulations, requirements, and procedures and is responsible for the approval of all phases of development, maintenance, delivery, and evaluation of the Site RCRA Training Program and verification that appropriate training records are maintained.

D. RESPONSIBILITIES

1. RCRA Training Officer

The responsibilities of the RCRA Training Officer include the following:

a. administers the RCRA Training Program;

b. ensures that the Training Matrix, course content, and class materials are current;

c. ensures that training records are properly maintained; and

2. Line Management

The responsibilities of Line Management include the following:

a. ensure that any person performing a task that involves the generation or management of a hazardous or mixed waste has successfully completed all required training;

b. ensure personnel are trained within six months of initial assignment or reassignment,

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and retrained annually thereafter; and

c. ensure that, until initial training is provided, the worker is supervised in the performance of his/her job tasks.

3. Waste Management Personnel

Personnel at the Site have the following responsibilities regarding their training:

a. ensure that they are appropriately trained for assigned job tasks that include the generation or management of hazardous or mixed waste;

b. maintain a copy of training certificates; and

d. notify line management when they believe their training may not be current.

The responsibilities provided above for the specified individuals are part of their job descriptions. Each employee is responsible for ensuring compliance with training requirements.

E. RCRA TRAINING OVERSIGHT

Oversight of the various training activities at the Site is provided by the Training and Qualification and Quality Assurance departments of the integrating management contractor. The Training and Qualification department is responsible for the integration of various Site training programs and oversees the implementation and performance of the training programs in place at the Site. The Quality Assurance department is responsible for providing periodic audits and evaluations of the training programs to ensure that the quality objectives are continually met.

Training oversight is conducted to ensure that training being delivered to Site personnel is adequate, current, controlled, and effective. It is also used to ensure that record generation and maintenance is adequate.

F. RECORDS MANAGEMENT

Training records at the Site are maintained in accordance with Site procedures for records management. Compliance with Site procedures ensures that regulatory requirements for training record retention are met. Records documenting training of active Site personnel are maintained at the Site indefinitely. Training records for personnel who are no longer active Site employees are maintained at the Site or archived off-site in retrievable storage. Archived records are placed into 75 year storage.

Appendix A

Rocky Flats Environmental Technology Site
RCRA Personnel Position Descriptions to Required Initial and Continuing Training Matrix

RCRA HAZARDOUS WASTE TRAINING PROGRAM	Basic RCRA Training	Waste Generator Program			RCRA Training Program					
					Initial					Continuing
	RCRA Compliance Computer Based Training (CBT) (023-435-01) (ONE TIME ONLY REQUIREMENT)	Waste Generator All Areas Classroom (067-576-01)	Waste Determination/WSRIC Classroom (125-574-01)	Waste Generator All Areas Qualification	RCRA Waste Management Classroom (018-863-01)	RCRA Tank Custodian Classroom (016-863-01)	RCRA Waste Management Qualification	RCRA Organic Air Emissions Briefing (019-866-01) (RCRA 10)	RCRA Organic Air Emissions Qualification	RCRA/Waste Gen. Annual Training (Checklist) (018-866-06)
Waste Generators	R	R	R	R						R
Emergency Response Personnel	R	R	R	R						R
RCRA Unit Owners	R	R	R		R	*		*		R
Hazardous/Mixed Waste Mgmt. Guidance	R	R	R		R	*	R[1]	*		R
Hazardous/Mixed Waste Mgmt. Personnel :										
• **RCRA Container Unit Inspectors**	R	R	R		R		R	*	*	R
• **RCRA Tank Inspectors**	R	R	R		R	R	R	*	*	R
• **Immediate Supervision of Hazardous /Mixed Waste Management Personnel**	R	R	R		R	*	R[1]	*	*	R

KEY - R - Required.
* - Required if duties involve those systems indicated.
R[1] - Required to complete Theoretical Knowledge Verification only.

Footnote : As of March 13, 1996, the requirement for biennial requalification of Waste Generator, RCRA Waste Management, and RCRA Organic Air Emissions was eliminated. This is applicable to any of these Qualifications which were current (last Qualed or ReQualed on or after March 13, 1994) as of March 13, 1996. Any of these Qualifications which were not current or are new Qualifications must go through the original qualification process. All of these Qualifications will be maintained as current by meeting the above matrixed RCRA/Waste Generator Annual Training requirement. The RCRA Hazardous Waste Training Program requalifications which were affected are as follows :

Waste Generator All Areas Biennial Requalification (067-577-02)
RCRA Waste Management Biennial Requalification (018-866-02)
RCRA Organic Air Emissions Biennial Requalification (006-973-02)

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POSITION FUNCTION: WASTE GENERATORS

Description:

The basic requirement for hazardous/mixed waste and solid radioactive waste generators is to ensure that these personnel have the necessary knowledge of the RCRA standards and requirements applicable to their duties. These include at a minimum: characterizing, generating, segregating, accumulating waste, responding to an incidental release, reporting, classifying, labeling of containers, and emergency response requirements (including but not to exceed the level of training for this position). This position is also applicable for immediate supervisors responsible for personnel directly involved in hazardous/mixed waste and/or solid radioactive waste accumulation and packaging.

Typical Work Performed:

- Generates RCRA regulated hazardous/mixed waste and/or solid radioactive waste.
- Packages or containerizes hazardous/mixed waste and/or solid radioactive waste.
- Prepares or closes containers of RCRA regulated waste and/or solid radioactive waste.
- Performs drum team/key custodian responsibilities for hazardous/mixed waste and/or solid radioactive waste containers.
- Performs maintenance activities within a RCRA unit.
- Performs RCRA waste and/or solid radioactive waste container inspections to include the following:
  - container pre-issue inspection.
  - random in-process inspection (contractor and subcontractors).
  - dock inspections.
  - final waste container inspections.
  - documentation inspections on Waste/Residue Traveler.
  - key custodian package inspections for subcontractors.
- Supervises personnel who perform any of the above work.

RCRA Training Requirements: Refer to the Training Matrix in ~~Figure 4~~. Appendix A.

POSITION FUNCTION: EMERGENCY RESPONSE PERSONNEL

Description:

This position includes personnel who respond to emergency situations and releases involving RCRA regulated hazardous/mixed waste.

Typical Work Performed:

- Responds to releases, involving RCRA regulated hazardous/mixed wastes, which may require response per the emergency procedures outlined in the RFETS RCRA Contingency Plan.
- Provides expertise on release severity assessment and input to formulate best course of containment and corrective/remedial actions (including safety and chemical hazards considerations).

RCRA Training Requirements: Refer to the Training Matrix in ~~Figure 4.~~ Appendix A.

NOTE: In addition to the training specified on the Matrices, personnel in this position complete Hazardous Materials Technician training to attain the State of Colorado certification and maintain this certification as current by attending monthly updates.

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POSITION FUNCTION: RCRA UNIT OWNER

Description:

Personnel in this position will be responsible for the security/control and management of a RCRA unit. They possess the resources or the ability to acquire the resources to maintain compliance of the unit. A RCRA unit includes all operating systems and their related processes that handle hazardous/mixed waste, including RCRA accumulation areas, storage areas, and regulated treatment, recycling, or disposal units. An owner can belong to either an operations, tenant, or support organization.

Typical Work Performed:

- Maintains assigned RCRA unit(s) in accordance with all established regulations and policies, including implementing pertinent Conduct of Operations, designating RCRA custodians, ensuring that required inspections are performed, and implementing actions to investigate, report, and correct all identified deficiencies.
- Ensures that security at assigned RCRA unit(s) is maintained and meets the regulatory requirements for access control to the unit as well as controlling access to in-process waste containers.
- Ensures that waste generated during spill cleanup activities is properly characterized, handled, packaged, marked, labeled, stored, treated, and transported in accordance with RCRA and applicable Rocky Flats Environmental Technology Site (RFETS) procedures.
- Oversees, directs, and coordinates all Key Custodian activities.
- Approves all movement of hazardous/mixed waste containers between areas of different line management, supervisors, or owner responsibilities (including receipt of hazardous/mixed waste into the facility and shipment of hazardous/mixed waste from the facility). Coordinates hazardous/mixed waste container movements with Unit Custodians, the WEMS building representative, and Transportation.
- Ensures that Waste Generators and RCRA Waste Management Personnel, in their organization and in RCRA units of their responsibility, are current regarding specified training requirements (including personnel from tenant organizations).
- Maintains a list of qualified Waste Generators and RCRA Waste Management Personnel for their organization.
- Ensures that Inspection Log Sheets are reviewed for accuracy.
- Certifies hazardous/mixed waste streams are identified and correctly characterized for functional operations.

RCRA Training Requirements: Refer to the Training Matrix in ~~Figure 4.~~ Appendix A.

POSITION FUNCTION: HAZARDOUS/MIXED WASTE MGMT. GUIDANCE

Description:

These personnel provide direction, guidance, and oversight to the activities within a facility or across plantsite that are subject to RCRA requirements. This position applies only to personnel who provide for the direct interface to ensure hazardous waste management commitments are carried out and all activities are performed within the confines of RCRA regulations and the RCRA permit. Personnel in this category will contact and interface with various waste management groups in order to support, communicate, and assess assigned units, areas, buildings, or plantsite for proper waste management conditions such that there are no deficiencies in the Site procedures, RCRA Permit, and State of Colorado regulations or agreements.

Typical Work Performed:

- Ensures proper handling of all RCRA regulated waste generated as non-routine by exercising approval signature authority on the Non-routine Waste Origination Log.
- Reports to operational organizations and provides general and specific hazardous/mixed waste management technical guidance to facility management, RCRA unit owners, custodians, inspectors, and floor-level personnel.
- Consults with the Environmental contractor organizations on the proper implementation of RCRA requirements.
- Reviews project/program engineering, and operations documents for all RCRA implications and provides necessary revision input.
- Coordinates/assists in collection of data for RCRA reports and permit applications.
- Coordinates response actions or resolutions to regulatory and internal inspections, appraisals, and audits.
- Provides floor level direction on emergency response and notification for hazardous/mixed waste occurrences.
- Ensures that the Building Book(s) are maintained as current and accurate.
- Conducts inspections, assessments, and appraisals and reports the results.
- Assists facility/operations management in identifying and maintaining proper documentation regarding the operating record and environmental compliance.
- Acts as liaison between facility/operations management and CDPHE, DOE, and Kaiser-Hill Regulatory Compliance.
- Arranges area tours/inspections for CDPHE, Environmental Protection Agency (EPA), DOE, and contractor organizations, participates on the tours/inspections, and completes appropriate pre- and post-status requirements.
- Conducts area/building specific reviews of RCRA training documentation, (i.e. waste generator, RCRA Waste Management) concerning area/building specific qualification guides and recordkeeping.
- Establishes an environmentally responsible culture through formal training and awareness briefings and then assesses actual compliance performance.
- Develops periodic environmental reports, guidance documents, awareness information, and operator aids.
- Assesses effectiveness of the implementation of environmental protection management systems, programs, and procedures to demonstrate proper compliance posture.
- Makes recommendations to the Shift Manager or Operations Manager concerning shut down of an operation within their designated buildings if compliance with applicable RCRA requirements is in question.
- Identifies corrective measures and prepares RCRA compliance action plans with consideration of priorities and the respective impact to operations.
- Initiates closure plans and coordinates closure of RCRA units.

RCRA Training Requirements: Refer to the Training Matrix in ~~Figure 4.~~ Appendix A

NOTE: Documentation as a member in good standing of the National Registry of Environmental Professionals would allow for an exception from completing the RCRA Compliance CBT (#023-435-01) under the Required Initial RCRA Training. Also, the documentation of annual proficiency maintenance would allow for an exception from completing the Required Continuing Training.

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POSITION FUNCTION: **HAZARDOUS/MIXED WASTE MGMT. PERSONNEL**

Description:

Hazardous/mixed waste management personnel include those individuals who manage hazardous/mixed waste in a hazardous waste management unit which is defined as a Satellite Accumulation Area, 90-day Accumulation Area, Container Storage Unit, Storage/Treatment Tank, 90-day Accumulation Tank, Mixed Residue Tank, Solar Evaporation Pond, or RCRA Treatment Unit. Duties performed by these personnel include storing waste, inspecting hazardous waste management units, treating or processing waste for disposal on or off site, implementing the contingency plan, and performing proper emergency response (including but not to exceed the level of training for this position).This position is also applicable for the immediate supervisors of these personnel.

Typical Work Performed:

- Functions as a RCRA Custodian and performs unit inspections for accumulation, storage, or treatment units.
- Functions as a RCRA Custodian and performs inspections for RCRA tanks.
- Functions as a RCRA Custodian and performs unit inspections for Solar Evaporation Ponds.
- Performs transfers of RCRA regulated liquid waste.
- Performs inspections of RCRA Organic Air Emissions systems.
- Performs specific hands on duties directly involved with hazardous/mixed waste at a TSD facility.
- Supervises personnel who perform any of the above work.

RCRA Training Requirements: Refer to the Training Matrix in Figure 4.

PART X - CLOSURE

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PART X - CLOSURE

A. INTRODUCTION

This section of the Permit addresses closure of all hazardous and mixed waste container storage, tank storage, and treatment units specifically identified and described in Parts III, IV, and V of this Permit (permitted units). General closure information is contained in Section B, while information regarding the specific activities to be conducted for closure of the permitted unit is identified in Sections C, D, and E of this Part. All closure activities for permitted units will be conducted in a manner that protects human health and the environment and in accordance with this Part X of the Permit that is the Closure Plan for the Site.

The Rocky Flats Environmental Technology Site (Site) is planning to accomplish clean closure of all permitted units. Contamination from permitted units found during closure activities that is impracticable to excavate or treat (if any) will be addressed through a modification of the Closure Plan to meet in-place closure standards. The scheduling of closure activities will be coordinated consistent with the integrated management and prioritization of all Site activities through the RFCA annual budget planning and Integrated Sitewide Baseline (ISB) process.

There are two scheduling scenarios for closure of permitted units:

1. closure independent of cleanup activities regulated under RFCA (e.g., a unit/area which will not be covered by Decommissioning Program Plan (DPP) or Decommissioning Operations Plan (DOP)); and

2. closure as part of a specific cleanup activity regulated under RFCA (e.g., a unit/area within buildings to be decommissioned under the DPP or DOP process).

In either case, the closure plan described in this Part X, or a closure plan modified in accordance with regulatory requirements, shall be used to accomplish closure.

It is anticipated that final closure for permitted units will occur in most instances as part of building decommissioning regulated under RFCA. RFCA provides that partial closure activities, in particular the removal of hazardous waste inventories and removing system components from operation will occur before decommissioning begins. Some small residual amounts of hazardous wastes may remain in systems and components after initial removal of inventories - that is, the units will be clean closed as part of decommissioning under RFCA.

When partial or final closure is done as part of a specific cleanup activity regulated under RFCA, a decision document for that cleanup activity (e.g., an Interim Measure/Interim Remedial Action [IM/IRA], a Proposed Action Memorandum [PAM], or the Decommissioning Operations Plan [DOP]) will be submitted and approved in accordance with RFCA. Although there will be a decision document for each activity, several activities may be consolidated under a single decision document. The decision document will reference the applicable permitted unit(s) closure plan already incorporated into the Permit under Part X.

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If a modification to Part X for a permitted unit is necessary due to the nature of the cleanup activity being accomplished under a RFCA decision document, the modification request will be part of the decision document. In that case, there will not be a separate permit modification request; however the modification will be reviewed and approved (including any required public comment period per the Colorado Hazardous Waste Regulations) as part of the RFCA decision document review and approval process. The RFCA decision document will also contain the Closure Description Document information specified in Section B.2 of this Part.

This Closure Plan contains the following information for the closure of the permitted units at the Site identified in Parts III, IV, and V of this Permit: regulatory requirements; strategies for conducting closure; and criteria to determine if closure has been successful. Regulatory requirements are identified in Section B: General Closure Information. Implementation of the closure strategies and closure performance standards are discussed in Section C: Clean Closure by Decontamination, Section D: "Debris Rule" Decontamination, and Section E: RCRA Stable.

B. GENERAL CLOSURE INFORMATION

The following describes the general regulatory requirements necessary for closure of the permitted units at the Site.

1. Closure Plan

6 CCR 1007-3, Part 264 requires the Permittee to submit a plan for closure of the permitted units at the Site. This Closure Plan addresses the following requirements: Part 264, Subpart G - Closure and Post-Closure (Parts 264.110 through 264.120); Subpart I - Containers (Part 264.178); and Subpart J - Tanks (Parts 264.190 and 264.199). This Part X of the Permit serves as the Closure Plan for the permitted units at the Site.

No demonstration of financial responsibility is required under current regulations because compliance with 6 CCR 1007-3, Part 266, Subpart A - Financial Requirements, is not required for government-owned facilities.

If post-closure care requirements are determined to be necessary, they will be addressed through a modification of the Closure Plan and will be completed in accordance with an approved RFCA Decision Document.

2. Content of the Closure Plan and Closure Description Document

Each permitted unit at the Site will be closed in accordance with this Closure Plan. This Closure Plan identifies the methods of accomplishing closure and criteria, in the form of closure performance standards, which will be used to evaluate closure performance.

In addition, it identifies methods by which closure of permitted units may be accomplished through RFCA regulated cleanup activities in accordance with an approved RFCA decision document.

Specific plans for individual permitted unit closures will be contained in a Closure Description Document. The purpose of the Closure Description Document will be to identify the portions or sections of this Closure Plan applicable to specific permitted unit closures. The Closure

Description Document will provide information on and rationale for the method of closure; the defined extent of the permitted unit; the type of closure to be performed (either partial or complete); the type of contamination to be addressed; decontamination method to be conducted; decontamination media to be used; the schedule for accomplishing closure; and other information associated with permitted unit closure activities.

This strategy for closure implementation is mandated by the number of permitted units that must be closed and the circumstances under which each of them will be closed relative to the options for closure. Additionally, due to uncertainties concerning the future need for the buildings containing some of the existing permitted units, this strategy allows for their closure as appropriate.

3. Facility Closure Notification

The Director will be notified of the intent to perform partial or final closure of any permitted unit(s) at least 45 days prior to the beginning of closure of the permitted unit(s). Accompanying the closure notification will be the Closure Description Document detailing the portions of this Closure Plan applicable to the permitted unit scheduled for closure. In the case of closures of permitted units being done as part of a RFCA regulated cleanup activity, notification will be accomplished by submittal of the RFCA decision document or by submittal of a closure notification and Closure Description Document.

4. Closure Schedule

a. Final closure of the permitted units identified in Parts III, IV, and V of this permit will be completed by 2015.

b. If the amount of time required for closure of a permitted unit will exceed 180 days, the Director will be notified of the additional time necessary to complete the closure and the reason for the delay.

c. The scheduling of closure activities will be coordinated consistent with the integrated management and prioritization of all Site activities through the RFCA annual budget planning process.

d. Environmental monitoring procedures will allow for the identification of the migration of any hazardous constituents. If, during environmental monitoring, unanticipated migration of hazardous constituents is identified, remedial actions to prevent further migration will be evaluated and implemented per RFCA.

e. The closure of waste management facilities at the Site will be scheduled in conjunction with the Integrated Sitewide Baseline to occur as part of a RFCA regulated cleanup activity or as an independent activity as need dictates. In some cases, the closures of individual units may occur at the same time other units are undergoing closure.

The actual descriptions of how closure may be conducted under each of the closure options is discussed in Sections C, D, and E of this part of the Permit. The logical sequence of a permitted unit closure is described in the following.

5. Sequence of Activities for Closure

a. The closure of a permitted unit and associated equipment will be accomplished in accordance with this Closure Plan and the Division approved Closure Description Document as described earlier in this section.

b. The Director will be notified of the intent to close a permitted unit identified in Part III, IV, and V of this permit within 30 days of the receipt of the final volume of waste at the unit or, at least, 45 days prior to the initiation of closure activities.

c. Where final closure is to be delayed to accomplish closure as part of a RFCA regulated cleanup activity, closure will begin as specified in B.5.b above and waste inventory will be removed from the permitted unit within 180 days of commencing closure to achieve partial closure. Administrative and engineering controls (e.g., lock-out/tag-out, restricted access, etc.) will be used to prevent any further hazardous or mixed waste inventory from entering the permitted unit.

Unit-specific closure schedules are currently unavailable for the permitted units at the Site. In lieu of a unit-specific closure schedule, the ISB will be the basis for determining which buildings or structures are to be deactivated in a given year. From this, the permitted units that will require closure may be identified. The plan for the decommissioning of all buildings and structures at the Site is contained in the DPP. However, unit-specific closure schedules must be included in their respective Closure Description Document at the time submittal.

d. Decontamination of a permitted unit will be initiated as soon as practical following the removal of wastes or containers. Decontamination of equipment will be done after the last use of the equipment in closure activities, or prior to leaving the contaminated area, as necessary. Detailed information on decontamination is provided in Part C and D of this Closure Plan.

e. Soil sampling and analysis, when required as a part of this Closure Plan, will be accomplished in accordance with soil contamination evaluation procedures discussed in Section F of this Closure Plan.

6. General Closure Activities

a. Partial Closure Activities

RCRA Regulations generally refer to "partial closure" as closing one or more of the permitted units at a facility or site, as opposed to closing all permitted units. This may occur when specific buildings, structures, or units are determined to no longer be needed.

For the purposes of this closure plan, however, partial closure refers to the closure of portions of a permitted unit. Some examples include: the closure of a tank while the ancillary equipment is left for a RFCA regulated cleanup activity; the closure of individual cargo containers or gloveboxes within a permitted unit; or the closure of an area or areas within a permitted unit.

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b. Closure of Permitted Units

Closure activities for the permitted units identified in Parts III, IV, and V of this permit will be conducted in accordance with this Closure Plan. Specific information regarding the method of closure for individual permitted units will be provided in the Closure Description Document or RFCA decision document. The appropriate document will be provided to the Division for approval as part of the pre-closure notification of the intent to initiate closure of a permitted unit.

c. Maximum Waste Inventory

The maximum inventory capacity of each of the permitted units is identified in Parts III, IV, and V of this permit. Authorized waste types and authorized hazardous waste codes are also identified for the permitted units in the referenced sections.

d. Closure Personnel

Actual numbers of personnel required for the closure of individual permitted units will be determined at the time of closure based on the closure schedule, safety, and regulatory standards. Minimum crews are required for health and safety (H&S) requirements. Personnel involved in the closure of permitted units will be qualified in accordance with Part IX: Personnel Training, of this Permit, and trained in necessary mechanical skills for conducting the closure, decontamination techniques, and safety procedures necessary to accomplish closure.

e. Replacement of Equipment and Components

Prior to the closure of the Site, some equipment and components in permitted units may require replacement or removal. If this occurs, the equipment or components to be replaced or removed will be removed from active status and replaced with identical or similar equipment or components.

The equipment or component removed from active status will be released from control as a hazardous or mixed waste by being decontaminated in accordance with the requirements of this Closure Plan or managed appropriately as a hazardous or mixed waste. The replacement equipment or components shall be capable of functioning as well as that being replaced and any changes to the permit necessitated by the change will be made via a permit modification.

f. Final Closure of Units

The options for the final closure of the permitted units identified in Parts III, IV, and V of this Permit have been developed to meet the regulatory requirements for their closure and to allow permitted unit closure to be conducted concurrently with RFCA regulated cleanup activities. As a part of closure, all permitted units and equipment thereof will either be disposed of appropriately or decontaminated, as necessary, to meet the applicable closure performance standard.

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Closure plans for the permitted units are predicated on the availability of some combination of on-site and off-site waste management capabilities for the storage, treatment, and disposal of inventory and cleanup waste. Efforts will be made to minimize waste generation as a result of closure. Where possible, equipment will be decontaminated.

The final disposal of any hazardous or mixed waste generated as a result of closure will be dependent on the nature of the waste and the availability of permitted waste management facilities within the DOE complex and the private commercial sector. Wastes generated from closure will be managed and disposed of in accordance with the applicable local, State, and Federal regulations.

The disposition of any hazardous or mixed waste will be dependent on the type of waste and the requirements for treatment and/or storage prior to ultimate disposal. Wastes generated as a result of closure activities, to the extent possible, will be treated in waste treatment facilities at the Site. Current capabilities include waste treatment for aqueous solutions with high or low pH that are radioactively contaminated and contain inorganic constituents. RCRA permitted treatment processes at the Site are identified in Part V of this Permit.

The types of waste generated by closure activities will depend on the type of closure conducted, the decontamination methods undertaken, and the results of soil sampling and excavation, if necessary. Specific decontamination methods and soil sampling and excavation procedures to be used are identified in Section C, D and F, respectively, of this part of the Permit

g. Waste Requiring Disposal as Part of Closure

The amount of waste generated from the closure of a permitted unit or units at the Site will be dependent on the type and amount of decontamination conducted, the size of the permitted unit, and the applicable closure performance standard. The volume of waste requiring disposal will include up to the maximum waste volume held in storage and the waste volume generated during closure of the permitted unit. It is difficult to determine the final amount of waste at the Site that will require disposal as a result of closure; however, an estimate would be at least the total volume of waste approved for storage at the Site.

7. Recordkeeping

The Permittee shall maintain the following closure records at the Site during closure activities and for a minimum of 30 years following certification of final Site closure:

- record of sampling activities (date, number, and type);
- results of screening activities, sampling of decontamination rinse waters, soil sampling, or groundwater sampling;
- actions taken to decontaminate or remove waste structures or soils, including contaminated soils;

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- other documentation which verifies that the Permittee is following the work package and the conditions of this permit; and

- records of volume of hazardous waste generated during closure, including contaminated soils.

8. Amendment of the Closure Plan

6 CCR 1007-3 Part 264.112 requires the Permittee to amend the closure plan whenever changes in the operating plans or facility design occur that affect the Closure Plan, or a change in the expected year of closure occurs. 6 CCR 1007-3, Part 264.112(c)(3) requires the Permittee to request modification of the closure plan within 30 days of identification of any event that causes modification of the closure plan to be necessary. In conducting final or partial closure, unexpected events that are identified during the implementation of closure activities may require an amendment of this Closure Plan. Modifications to this Closure Plan will be made in accordance with the requirements of 6 CCR 1007-3, Section 100.63.

C. CLEAN CLOSURE BY DECONTAMINATION

Clean closure of permitted units at the Site will be conducted in accordance with one of the three methodologies (decontamination, "debris rule" decontamination, or unit removal) described in the following sections.

The objective of clean closure of a permitted unit at the Site is to eliminate the need for maintenance and post-closure care due to waste or constituents remaining at the permitted unit or upon unit equipment. Clean closure by decontamination will be accomplished by removing all waste present in the permitted unit; decontaminating all unit equipment and structures; removing any and all contamination present due to the operation of the unit; and attaining compliance with applicable closure performance standards. If this objective is attained, the permitted unit will be certified as "clean closed," and will require no post-closure care or maintenance.

To attain clean closure, it will be necessary to conduct and document activities as part of closure in accordance with this Closure Plan. The following identifies standard activities to be conducted for accomplishing the clean closure of a permitted unit utilizing decontamination techniques.

1. Waste Inventory Removal

All wastes remaining in the permitted unit to be closed will be transferred to another permitted unit for storage or treatment or shipped off-site for treatment, storage, or disposal. For permitted units that are not actively managing waste at the time of closure, verification that no wastes are present within the unit and/or equipment will be obtained and documented.

2. Contaminant Evaluation

Decontamination requirements for the permitted unit being closed are dependent on the presence and distribution of contamination in the unit. To determine the degree of contamination present within a permitted unit scheduled to undergo closure, the Permittee will conduct an evaluation of the permitted unit. The contaminant evaluation, to be included in the Closure Description Document, could include the use of process knowledge, radiological survey results, historical

records, wipe or smear samples, or other non-intrusive methods to identify the presence and degree of contamination.

The need, degree, and process for decontamination will be based on the information obtained from the evaluation. For instance, for a container storage unit where no releases or only minor releases have occurred and documentation is available to track the life of the unit, it is possible to eliminate the need for decontamination and proceed directly with verification rinsing and sampling.

3. Decontamination

The type and degree of decontamination to be conducted and the decontamination materials to be used will be determined based on the contaminant evaluation of the permitted unit or upon general criteria relative to the entire unit. Two types of decontamination are identified for possible use at the Site; solution and mechanical decontamination. Solution decontamination will be conducted when possible due to less destructive results.

Selection of the appropriate solution for decontamination will be based on the types of waste previously managed in the unit and the contaminants that are present. Typical decontamination solutions include: water with sodium carbonate and trisodium phosphate; water with calcium hypochlorite and sodium hydroxide; water with sulphuric acid; deionized water with ethylenediaminetetracetic acid (EDTA) and citric acid; petroleum ether or other non-hazardous organic solvent; and water. These solutions may be applied by one or more of the following methods: manual application, hydroblasting, foam cleaning, or steam cleaning.

Decontamination may also be conducted using more physically destructive methods. Mechanical decontamination methods could include abrasive blasting, scarification, spalling, and vibratory finishing. All of these methods utilize some form of physical force to remove contaminants and surface material from the material being decontaminated.

4. Decontamination Activities

Decontamination of the permitted unit will be initiated in accordance with this Closure Plan and as part of a Division approved unit-specific document (e.g., Closure Description Document or RCRA Decision Document). In some cases, decontamination will begin by removing any dust or other loose debris by vacuuming the Unit.

For tanks, generally, the decontamination solution will be introduced into the tank through existing piping. If mechanical decontamination is to be conducted, steps to isolate the area being decontaminated will be taken. The following general principles will be followed while conducting decontamination.

a. Whenever decontamination is being conducted, all efforts will be made to "contain" the contamination as part of H&S protocols. Containment of the contamination released through decontamination may be accomplished by the use of temporary structures or other devices. For instance, plastic sheeting may be placed on walls when floors are being cleaned to minimize contact with overspray or debris resulting from the decontamination technique.

decontamination media and the removed contaminants and not allow the contaminants to migrate to less contaminated areas of the permitted unit.

b. Decontamination will be carried out in a manner to prevent redeposition and relocation of contaminants. In most cases, decontamination should be carried out from higher parts of the permitted unit toward the lower portions and from lower contamination areas to areas exhibiting higher amounts of contamination.

c. Whenever possible, methods which roughen or gouge the surface being cleaned shall be avoided. If they are necessary, precautions will be taken to minimize the transfer of contaminants due to the decontamination method.

d. A primary consideration in selecting a decontamination method will be the minimization of decontamination wastes.

Decontamination media will be removed from the surface undergoing decontamination by vacuum or other means and collected. Treatment of the decontamination media may occur at the permitted unit undergoing closure in accordance with the generator treatment provisions of 6 CCR 1007-3, or it may be transferred to another location (on or off-site) for treatment. The area will then be rinsed with water that will be collected and managed appropriately.

5. Decontamination Residuals and Rinsate Management

Residuals from decontamination will be physically separated and collected from the surface or equipment undergoing decontamination. This may include removal by mopping, vacuuming, vibrating, wiping, compressed air, rinsing, or other means. Residuals from decontamination will be characterized and managed appropriately as a waste.

The disposition of the rinsate will be dependent on the requirement for further decontamination. If the rinsate is generated from an interim rinse of a permitted unit and not the final rinse, it will be collected and managed as a waste, as appropriate. If it represents the final rinsing of the permitted unit undergoing decontamination, it will be containerized, sampled, and analyzed to determine compliance with the applicable closure performance standard. Following the completion of sampling and analysis, the rinsate will be managed as a waste and treated or disposed of accordingly.

All sampling and analysis will be conducted in accordance with Site L-Procedures that have been developed to comply with the methods specified in SW-846 and referenced in Part VI of this Permit. Following decontamination and rinsing, the Permittee will evaluate the rinsate analysis results against the applicable closure performance standard.

6. Closure Performance Standard

A permitted unit, unit equipment, or a portion thereof will be considered decontaminated upon removal of all visible waste residuals and:

a. for external surfaces, when a final rinsate volume of two gallons, or less, per 100 square feet of surface area rinsed, or

b. for internal surfaces of tanks, when a final rinsate volume of no more than 5% of the capacity of the tank,

produces concentrations of hazardous waste constituents in Appendix VIII of 6 CCR 1007-3, Part 261 identified as having been managed in the unit, and heavy metal concentrations no greater than the maximum contaminant levels for drinking water, and a pH between 6 and 9. Analytical tests will be conducted in accordance with the approved lab procedures that meet the requirements of SW-846.

These standards have been developed to attain a reasonable standard for the closure of the permitted units and equipment at the Site subject to clean closure. The standard is intended to provide a minor degree of flexibility to attain clean closure while addressing anomalous situations that can be traced to non-waste sources (e.g., lead-containing paint within a unit that could leach when subjected to decontamination activities).

Information regarding non-waste constituent sources that could impact the clean closure efforts will be identified in the Closure Description Document submitted to the Division as information on the permitted unit closure.

If the results of the evaluation indicate the applicable closure performance standard has been met, the unit or unit equipment will be considered "clean closed" and documentation will be prepared for certification by an independent professional engineer. If the results indicate contamination remains, appropriate steps, possibly including additional decontamination, to remove the remaining contaminants will be initiated.

At any time before or after attempting alternate or additional decontamination procedures, the permitted unit structures and equipment that fail to meet the closure performance standard may be managed as hazardous waste. The decontamination procedures identified in Section C.4 of this Part may meet the requirements of a debris rule waste-specific treatment standard as an extraction technology. Therefore, the closure standard for debris (identified in Section D of this Part) can be used without further washing or other decontamination provided the decontamination method meets the definition of an extraction technology as provided in 6 CCR 1007-3, Part 268.45, Table 1(A)(1) and (2), provided the unit structures and equipment meet the definition of debris, and provided the debris is managed as a non-hazardous solid waste.

If equipment or structures within the Unit cannot be successfully decontaminated, they will be removed and managed as a waste. Following the completion of closure activities for a permitted unit, the equipment used during closure will be cleaned using an appropriate method to remove any contaminants that are present.

7. Soil Contamination Evaluation

An evaluation to determine if soil contamination is present will be conducted in accordance with the process steps identified in Section F of this Part.

D. "DEBRIS RULE" DECONTAMINATION

Debris Rule decontamination methods apply to portions of units and unit components for which

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there is no intended further use or reuse and the debris is intended for discard. This determination will be made based on the economic value of a particular component of a unit versus the cost of decontaminating the component to achieve a clean closure standard that would allow for continued use or reuse (i.e. rinsate analysis closure performance standard). All components subjected to this standard must meet the definition of debris and be disposed of in accordance with applicable regulatory requirements. Typical candidates for the Debris Rule decontamination standard include: components that are impregnated with fixed radioactive contamination, tank systems and/or associated ancillary equipment, gloveboxes, other miscellaneous equipment.

Since no portions of permitted units subject to this type of closure will be reused off-site and all debris will be disposed of as waste, decontamination utilizing extraction technologies identified in the "debris rule" are appropriate to attain a clean closure performance standard. The following identifies standard activities to be conducted for accomplishing the clean closure of a permitted unit through "debris rule" decontamination.

1. Waste Inventory Removal

   All wastes remaining in the permitted unit and unit equipment to be closed will be removed and transferred to another permitted unit or shipped off-site for storage, treatment, or disposal.

2. Contaminant Evaluation

   Since this closure option is dependent on the decontamination of hazardous debris in accordance with the "debris rule," the contaminant evaluation is necessary only for the identification of the contaminants present and not the degree of contamination.

   Therefore, the contaminant evaluation will focus on the hazardous or mixed wastes managed in the permitted unit, the characterization and location of any releases or spills of the wastes having been managed, and the location of any staining on the surfaces of structures and equipment within the unit where waste management occurred.

3. Decontamination Options

   For permitted units that are to be closed using the "debris rule" (e.g., tanks, roll filters, ancillary equipment, etc.) decontamination will be conducted in the form of a waste-specific decontamination technology in accordance with 6 CCR 1007-3, Part 268.45, Table 1. By appropriately utilizing the applicable waste-specific decontamination technology and obtaining acceptable results, contamination is removed and a visual closure performance standard is attained. Hazardous debris that cannot be decontaminated or visually evaluated due to the physical nature of the debris (e.g., piping, valves, etc.) will be managed as hazardous debris.

4. Decontamination Activities

   Prior to land disposal, hazardous debris must be decontaminated for each "contaminant subject to treatment" defined in 6 CCR 1007-3, Part 268.45(b) using the technology or technologies identified in Table 1, therein. The following general principles will be utilized for waste-specific performance standards.

a. Hazardous debris that exhibits the characteristic of ignitability, corrosivity, or reactivity will be deactivated using one of the technologies identified in Table 1.

b. Performance standards identified in Table 1 must be achieved for each type of debris contained in a mixture of debris types.

c. Debris that is contaminated with more than one contaminant subject to treatment must be treated for each contaminant using one or more treatment technology identified in Table 1.

5. Decontamination Residuals Management

Residuals from the decontamination of hazardous debris will be physically separated from the decontaminated debris. This may include removal by vacuuming, vibrating, wiping, compressed air, rinsing, or other means. Residuals from the decontamination of hazardous debris will be characterized and managed as a waste in accordance with the general requirements identified in 6 CCR 1007-3, Part 268.45(d)(1).

6. Closure Performance Standard

Following the completion of strip-out, dismantlement, waste-specific decontamination and the removal of decontamination residuals, the Permittee will visually inspect the surface of the debris, as appropriate, against the closure performance standard for a "clean debris surface."

The closure performance standard for decontamination as hazardous debris is a "clean debris surface." This is defined as "a surface that, when viewed without magnification, shall be free of all visible contaminated soil or hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and soil and waste in cracks, crevices, and pits is limited to no more than 5% of each square inch of surface area."

If the results of the inspection indicate the closure performance standard has been met, the hazardous debris will be considered a non-hazardous solid waste and will be removed and managed as non-hazardous debris for subsequent disposal.

Documentation will then be prepared for certification by an independent professional engineer. If the results indicate contamination remains, appropriate steps will be initiated to remove the remaining contamination or manage the debris appropriately.

At any time before or after attempting alternate or additional waste-specific decontamination procedures, the hazardous debris that fail to meet the closure performance standard may be managed as hazardous waste. If hazardous debris within the permitted unit cannot be successfully decontaminated, it will be removed and managed as a hazardous waste.

Following the completion of closure activities for a permitted unit, the equipment used during closure will be cleaned using an appropriate method to remove any contaminants that are present.

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7. Soil Contamination Evaluation

An evaluation to determine if soil contamination is present will be conducted in accordance with the process steps identified in Section F of this Part.

E. RCRA STABLE

This strategy for clean closure allows the Permittee to conduct closure of the permitted unit in two stages; first by rendering a unit or portion of a unit "RCRA Stable", as described below, followed by completion of the final stage of closure as part of a RFCA regulated cleanup activity. Once a permitted unit is placed in a RCRA Stable configuration, final closure of the unit is deferred until it is scheduled pursuant to the RFCA budget planning process and prioritized and integrated with other activities. RCRA Stable units will be indicated as such, pending final closure, in the Master List of RCRA Hazardous Waste Units at Rocky Flats, which is updated semi-annually. Elements of this closure strategy include the following.

1. Waste Removal

a.. Rooms and cargo containers,

All containerized hazardous and mixed waste will be removed from the unit. Surfaces of the unit (walls, floors, ceilings, tank sides, etc.) will be wiped down/cleaned to a level that satisfies the definition of a clean debris surface as defined in paragraph D.6 of this closure plan.

b. Gloveboxes

All containerized hazardous and mixed waste will be removed from the unit. Surfaces of the unit (walls, floors, ceilings, tank sides, etc.) will be wiped down/cleaned with the objective of satisfying the definition of a clean debris surface. In the event that the unit's surfaces can not be made to satisfy the clean debris surface definition, the unit will be wiped down to remove as much remaining removable contamination as reasonably possible. The objective is to eliminate any significant risk from the remaining residuals.

c. Tank systems within buildings

Tanks and ancillary equipment will be emptied to the maximum extent possible using readily available means, with the objective of achieving less than 1% by volume of holdup in the tanks and ancillary equipment, no significant sludge remaining, and no significant risk associated with the remaining residuals. Once RCRA stable, tanks and ancillary equipment will be locked out and tagged out until closure is initiated.

2. Eliminate Future Waste Input

Following the removal of the remaining wastes to the degree described above in 1.a, the Permittee will eliminate the possibility of further waste introduction to the unit through physical means. This could include blanking flanges on piping, locking out valves, de-

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energizing pump circuitry, locking doors to container storage units, or other means necessary to ensure wastes cannot be reintroduced to the unit.

3. Unit Management

After the unit is placed in a RCRA Stable configuration, the risk posed by the unit will be minimized and the Permittee may implement less stringent unit management practices by requesting a permit modification. RCRA Stable units will be marked or labeled so as to indicate the type and volume of inventory remaining in the unit, in accordance with requirements identified in the Colorado Hazardous Waste Regulations. The inspection and monitoring requirements for a given tank system will be approved by the Division on a case-by-case basis considering the type, volume of residuals remaining in the tanks, ancillary equipment and considering controls to prevent access to further additions of hazardous waste. Once approved, the modified inspection and monitoring requirements will become part of the unit's specific conditions in Part III, IV, or V of this Permit.

4. Removal of the Unit

The permitted unit will remain idle until it is dismantled and the equipment and debris are dispositioned appropriately. When the unit and equipment have been cleaned or removed, closure will be deemed complete and all applicable certifications, including independent P.E. certifications, will be completed and submitted as necessary.

F. SOIL CONTAMINATION

During conduct of closure activities, but not later than after the permitted unit structures and equipment have been successfully decontaminated, soil contamination will be evaluated. This evaluation will be either non-intrusive or intrusive based on the following:

1. if documentation is available for all or part of the life of the RCRA permitted unit/area that identifies no spills or releases to the environment having occurred at any time during the operation, a visual evaluation will be conducted for verification. This evaluation will document the presence or absence of any visible soil discoloration, spill residues, or other indicators of a spill or release to the environment having taken place from the permitted unit. Once documented, any soil contamination as a result of waste management activities within the permitted unit will be deemed nonexistent; or

2. permitted units that have secondary containment structures which have not been compromised or overtopped by a release of waste during the active life of the unit and visually verified and documented will not require soil sampling; or

3. permitted units that utilize an asphalt pad for secondary containment or as a base on which waste management took place will be considered suspect and will require sampling and analysis to determine the presence or absence of soil contamination; or

4. if soil contamination is discovered and, through subsequent evaluation, it is determined that it may be effectively remediated as a part of the current closure process, it will be addressed at the time of the ongoing closure activities for the permitted unit; or

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5. if soil contamination is discovered and it is determined that remediation should be conducted as part of a RFCA regulated cleanup activity, the soil remediation will be included in the appropriate RFCA decision document. Documentation to accomplish this will include any information necessary to adequately evaluate and review the request to accomplish the proposed action pursuant to a RFCA decision document.

If soil sampling identifies contaminated soils associated with an area undergoing closure, a request for modification of the Closure Plan will be submitted which includes a schedule for closure activities. Modification requests for closures being done as part of a RFCA regulated cleanup activity in accordance with an approved RFCA decision document will be accomplished in accordance with the work change documentation requirements of RFCA (including any required public review and comment). A separate permit modification request will not be submitted.

G. CORRECTIVE ACTION

The purpose of the corrective action program is to determine when releases from permitted units contaminate groundwater or soil and ensure that the contaminants do not impact surface water quality and to remediate any contamination to levels protective of human health and the environment. In the case of groundwater, this is accomplished through the use of a groundwater monitoring program. For permitted units, a determination regarding the triggering of the implementation of a corrective action program is dependent on the following: the categorization of an incident that involved the release of hazardous waste that could migrate beyond the boundaries of the Site; or the discovery of soil contamination in the vicinity of permitted units that are undergoing closure (soil sampling is discussed in Section F of this Closure Plan Closure Plan).

The RFCA has been established as the governing document for accomplishing the requirements of the corrective action program under 6 CCR 1007-3, Part 264.100. Therefore, whenever contamination of soil or groundwater is discovered, corrective action (remediation) is to be addressed and regulated by RFCA.

H. POST-CLOSURE CARE REQUIREMENTS

The criteria used to determine if a permitted unit undergoing closure will be certified closed or follow post-closure procedures will be based upon the presence of soil or groundwater contamination. If these media have been contaminated by a permitted unit and are to be left in place, then post-closure procedures will be conducted as identified in the applicable RFCA remediation or corrective action decision document.