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EG&G ROCKY FLATS

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EG&G ROCKY FLATS, INC
ROCKY FLATS PLANT P O BOX 464 GOLDEN COLORADO 80402 0464 (303) 966 7000

June 14, 1994

94-RF-06405

F R Lockhart
Environmental Restoration Division
DOE, RFFO

DISPOSITION OF DEPARTMENT OF ENERGY (DOE) COMMENTS ON THE
ACCELERATED SLUDGE REMOVAL PROJECT (ASRP) HEALTH AND SAFETY PLAN
(HASP) - SRK-123-94

Attached please find revision 6 of the ASRP HASP This revision addresses your comments
provided to us verbally on June 8, 1994

Please inform us promptly of your concurrence or any additional changes that are required as
we are delaying C Pond operations until resolution of your comments

For further information, please contact J B Mellen at extension 8607

S R Keith

S R Keith
Program Manager
Solar Pond Projects

JBM jlb

Attachment
As Stated

Orig and 1 cc - F R Lockhart

- cc
- S Howard - DOE, RFFO
- M Witherill - DOE, RFFO
- S Olinger - DOE, RFFO

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REPLY TO RFP CC NO

OPTION ITEM STATUS
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 CLOSED
LTR APPROVALS

ORIG & TYPIST INITIALS

ADMIN REGRD

EG&G HASP FIELD CHANGE FORM

Field Change Number 1994-003 Effective Date _____

Requested by Vivian P. Valencia Signature/Date [Signature] / June 15, 1994
(Print Name)

Pen and Ink changes to be made to the HASP to alert the reader of this change

Non-Emergency Response actions added to Section 8, Clarification added to tasks in Sections 2 and 3, Doffing procedure added to Section 7, General Decontation of PPE added to Section 7.

Reason for the change to be incorporated into the HASP

Address DOE issues.

Text of change to be incorporated

See Section 1.0, 2.0, 3.0, 7.0, and 8.0

APPROVALS

H&S Area Administrator/Date

H&S Liaison Officer/Date

Unit Manager/Date

AS NEEDED CONCURRENCE

Occupational Safety

Radiological Engineering

Industrial Hygiene

Occupational Health

Fire Department

Radiological Operations

1 0 GENERAL INFORMATION

OU4 is comprised of five solar evaporation ponds 207A, 207B series (north center south) and 207C which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low level radioactive wastes. In addition to the five solar evaporation ponds, the Building 788 Clarifier was constructed to process pond sludge from the ponds into the low-level mixed waste form of pondcrete.

The Accelerated Sludge Removal Project (ASRP) consolidated pond sludge from the 207A pond and the 207B pond series into the 207B South pond in order to begin removal of sludge from the ponds. Pond sludge must be removed from the ponds in order to comply with the Interagency Agreement between the Department of Energy (DOE), the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH). The following activities are to be performed to complete the ASRP:

- 207B Pond Sludge Transfer
- 207C Pond Sludge Transfer
- Building 788 Clarifier Sludge Transfer
- Salt Slurry/Milling Operation of 207C Pond
- Decant Operations
- Salt Buster Rinse Down

All sludge transfer operations are to be performed by approved, trained and qualified personnel. Sludge is loaded into a vacuum tanker and then transported to the 750 Pad to be unloaded into 10,000 gallon High Density Polyethylene (HDPE) tanks for temporary storage. As sludge settles in the tanks, water collects on top of the sludge. In order to conserve space and tanks on the 750 Pad, the excess water is pumped into a designated 'decant' storage tank or into metal crates. The excess water is then pumped into an approved cargo tanker for transfer to Building 374. Decanting is only planned to be performed on the 207B Pond sludge.

The salt slurry operation will be performed by an approved, trained and qualified subcontractor. The 'Salt Buster' is a rough terrain four wheel drive forklift tractor. It will be used to grind the crystalline salt in 207C Pond to allow for transport of the 207C Pond sludge into the vacuum tanker. At periodic intervals and as required for maintenance the 'salt buster' will be rinsed off to prevent sludge particulates from becoming airborne.

Personnel will not physically enter 207C pond except under the following conditions:

- During final rinse down operations after build salt removal is complete
- During emergency situations
- During a non-emergency (i.e. breakdown of the salt buster) if the salt buster operator must leave the vehicle and the retrieval boat will not float in the pond.

1 1 SCOPE AND APPLICABILITY OF THE SITE HEALTH AND SAFETY PLAN (HASP)

The Occupational Safety and Health Administration (OSHA) specifies in the Hazardous Waste Operations and Emergency Response regulation (29 Code of Federal Regulations [CFR] 1910.120) that operations conducted at treatment, storage and disposal (TSD) facilities authorized under Resource Conservation and Recovery Act (RCRA) must have a written health and safety program. This written program must be written to 'identify, evaluate and control safety health hazards in [the] facilities'. This site-specific health and safety plan (HASP) is designed to meet these OSHA requirements. RFP Guidelines for compliance with 29 CFR 1910.120 under non-emergency response conditions are described in RFP Health and Safety Practices Manual (HSP) 21.03 Hazardous Waste Operations.

Table 1-1 identifies the areas addressed by this plan

TABLE 1-1

Building or Location	RCRA Unit No	RCRA Unit Name or other applicable name
Pond 207 B South	N/A	Solar Evaporation Pond
Pond 207 C	N/A	Solar Evaporation Pond
Building 788	# 48	Clarifier
750 Pad	# 25	750 Pad
Building 788	N/A	Phase I Equipment Removal

At Rocky Flats Plant (RFP) TSDs are called Hazardous Waste Areas (HWAs) or RCRA Units

1 2 COMPANION DOCUMENTS

The documents listed in Table 1-2 must be available for use with this HASP

TABLE 1-2

Document (check all that apply)	Location
(X) Health and Safety Practices Manual Volumes 1 & 2	T-750 G, T-788
(X) Hazardous Waste Requirements Manual (HWRM)	T-750 G, T-788
(X) Training Users Manual (TUM) Applicable Sections	T-893 B
(X) WSRIC	T-750 G T-788 Bldg 788 Tent # 5
(X) WEMS	T-893 B
(X) OSA 788 001	T-750 G T-788
(X) OSA 788 004	T-750 G T-788
(X) OSA 788 007	T-750 G T-788
(X) OPS ORDER 788-02,788-03 788-04, 788-07 788-08 788-09	T-750 G T-788
(X) IWCP # TD-073856 Decon of Vacuum Truck	T-750 G
(X) IWCP # TD-075106 Removal of Cement Silos and Steel Framing at Building 788	T-788
(X) Work Plan for Removal Of Water And Sludge From 207B South Pond	T-750 G INTERLOCKEN/SOLAR POND PROJECT FILES
(X) Work Plan for Salt Slurry Operation of 207C Pond	
(X) JSA Pond Sludge Removal	Sec 3 6
(X) Other Gen Equip Decon F-05	INTERLOCKEN/T-788 During decon operations
(X) Other Heavy Equipment Decon F-04	INTERLOCKEN/T-788 During decon operations
(X) Other Decon Facility Ops F-012	INTERLOCKEN/T-788 During decon operations
(X) Other ASRP Emergency Preparedness Plan	INTERLOCKEN T-750G

JSA = Job Safety Analysis
OSA = Operational Safety Analysis
SOP = Safe Operating Practice
WEMS = Waste Environmental Management System (for the Waste Isolation Pilot Plant waste acceptance criteria)
WSRIC = Waste Stream Residue Identification and Characterization

1.3 VISITORS

All visitors to the contamination reduction zone and exclusion zone at this location will be required to read and verify compliance with the provisions of this ASRP HASP and will be required to attend a Site Safety Briefing given by a representative from WS Operations. In addition, visitors will be expected to comply with relevant OSHA requirements such as medical monitoring, training, and respiratory protection as applicable. Visitors must be escorted at all times. Escorts are required to have all training required in section 4.0.

In the event that a visitor does not adhere to the provisions of the ASRP HASP, she/he will be requested to leave the work area. All nonconformance incidents will be recorded in the site log.

1.3.1 Minimum Entry Requirements for Visitors

Table 1-3 identifies minimum entry requirements for areas addressed in this plan.

TABLE 1-3
Minimum Entry Requirements for Visitors

EZ	SZ	Location	Minimum entry requirements for Visitors (No hands on work)
		207B South Pond	Training requirements (Escorted) General Employee Training (GET) RCRA 440 Personal Protective Equipment Safety glasses safety shoes hard-hat (in construction areas) TLD badge (Un-Escorted) RAD worker I required. All visitors will be required to read and verify compliance with the provisions of this ASRP HASP and will be required to attend a Site Safety Briefing given by a representative from WS Operations.
		207 C Pond	Training requirements (Escorted) General Employee Training (GET) RCRA 440 Personal Protective Equipment Safety glasses safety shoes hard-hat (in construction areas) TLD badge (Un-Escorted) RAD worker I required. All visitors will be required to read and verify compliance with the provisions of this ASRP HASP and will be required to attend a Site Safety Briefing given by a representative from WS Operations.
		750 Pad	Training requirements (Escorted) General Employee Training (GET) RCRA 440 Personal Protective Equipment Safety glasses safety shoes hard hat (in construction areas) TLD badge (Un-Escorted) RAD worker I required. All visitors will be required to read and verify compliance with the provisions of this ASRP HASP and will be required to attend a Site Safety Briefing given by a representative from WS Operations.
		Clarifier	Training requirements (Escorted) General Employee Training (GET) RCRA 440 Personal Protective Equipment Safety glasses safety shoes hard-hat (in construction areas) TLD badge (Un-Escorted) RAD worker I required. All visitors will be required to read and verify compliance with the provisions of this ASRP HASP and will be required to attend a Site Safety Briefing given by a representative from WS Operations.
		Building 788	Training requirements (Escorted) General Employee Training (GET) RCRA 440 Personal Protective Equipment Safety glasses safety shoes hard-hat (in construction areas) TLD badge (Un-Escorted) RAD worker I required. All visitors will be required to read and verify compliance with the provisions of this ASRP HASP and will be required to attend a Site Safety Briefing given by a representative from WS Operations.

EZ = Exclusion Zone as described in 6.0

SZ = Support Zone as described in 6.0

Note: Escorts must have all required training listed in section 4.0 category 3.

1.4 UNIT DESCRIPTIONS

Table 1-4 provides a description of HWAs as identified in Section 1.1 above

**TABLE 1-4
RCRA Unit Description**

Unit No 207B South Pond	Description This solar evaporation pond (SEP) is located in the central portion of the Rocky Flats Plant (RFP) on the northeast side of the Protective Area (PA) southeast of building 788. 207B pond has received treated sanitary effluent, contaminated ground water from the Interceptor Trench System, low level radioactive contamination, treated water, and backwash from the Reverse Osmosis Facility.
Unit No 207C Pond	Description This solar evaporation pond (SEO) is located in the central portion of the Rocky Flats Plant (RFP) on the northeast side of the Protective Area (PA), west of building 788. 207C pond was constructed to receive aqueous process waste, and is characterized as having a high pH. It is also known to have low level radioactive contamination and is designated as a hazardous waste.
Unit No 48 Clarifier	Description This building is located in the central portion of the Rocky Flats Plant (RFP) on the northeast side of the Protective Area (PA) east of Building 788. The clarifier was used to process pond sludge and still contains a sizable quantity of pond sludge which will have to be removed. The clarifier sludge is considered a hazardous and low-level radioactive waste.
Unit No 25 750 Pad	Description The 750 Pad is a fenced and bermed asphalt pad containing six large tent structures. It is located in the central portion of Rocky Flats Plant (RFP) in the south side of the Protected Area (PA). The open pad area and tents are used for the controlled storage of pondercrete, saltcrete, containerized pond sludge, and lesser amount low level radioactive and other hazardous contaminants.
Unit No Building 788	Description This building is located in the central portion of the Rocky Flats Plant (RFP) on the northeast side of the Protective Area (PA). 788 was constructed to store and process pondercrete and saltcrete. (NOTE: This applies to the work required to remove equipment and associated materials outside of Building 788 and the perimeters of 207A, 207C, and 207 B Series ponds.)

1.5 IDENTIFICATION OF HEALTH AND SAFETY RESPONSIBILITIES

Operations Management is responsible for the health and safety of personnel throughout the HWA area. Personnel health and safety is primarily a line management function. Each line manager is accountable to upper management for carrying out assigned work in a safe manner, protecting personnel from potential risks, and providing personnel with a healthy and safe environment as proscribed by this ASRP HASP. Appendix A shows lines of responsibility for each area. If line management found an imminent danger hazard and required that operations be stopped, then operations shall not resume until the same level of line management approves resumption.

Support services are provided by Health and Safety personnel from the following organizations: Engineering, Fire Protection, Industrial Hygiene and Safety, Occupational Health, Radiological Protection. **NOTE: All emergency phone numbers can be found on Table 8-1. In case of an emergency call X2911, for a non-emergency notify the shift supervisor or call the Shift Superintendent at X2914.** Specific responsibilities for each of the operations and support organizations are described in HSP 21.03, pp. 13-25.

1.6 FIELD CHANGE FORM

The forms following shall be used to change or update the HASP. Anyone can initiate a change in the HASP by filling out the HASP Field Change Form and submitting it to the H&S Area Administrator. The Area Administrator will review the change and submit to the affected H&S disciplines as needed for concurrence. The Area Administrator will obtain final approval from the Project Manager and H&S Liaison Officer. Once interim approval is obtained by signatures of Area Administrator, Project Manager, and H&S Liaison Officer, the Field Change Form will be submitted to the EG&G Document Control Officer to be annotated on a DMR. If operations orders, IWCPs, Work Plan and/or procedures are modified, the Operations Manager or designee will evaluate the changes against this HASP to verify that appropriate modifications are made to the HASP.

EG&G HASP FIELD CHANGE FORM

Field Change Number _____ Effective Date _____

Requested by _____
(Print Name) Signature/Date

Pen and Ink changes to be made to the HASP to alert the reader of this change

Reason for the change to be incorporated into the HASP

Text of change to be incorporated

APPROVALS

H&S Area Administrator/Date

H&S Liaison Officer/Date

Unit Manager/Date

AS NEEDED CONCURRENCE

Occupation of Safety

Radiological Engineering

Industrial Hygiene

Occupation of Health

Fire Department

Radiological Operations

2 0 HEALTH AND SAFETY HAZARD ASSESSMENT

2 1 TASK ANALYSIS

Table 2-1 assigns task numbers to each discrete task at this (these) HWA(s) Tasks are broken down into steps

Tasks 1 through 3 describe the 207B South Pond Sludge Transfer Operation

Task 4 describes the decontamination of the Vacuum Trucks

Tasks 5 through 8 describe the Decanting Operation

Tasks 9 through 11 describe the Building 788 Clarifier Pond Sludge Transfer Operation

Tasks 12 through 17 describe the 207C Pond Sludge Transfer Operation

Task 18 describes the removal of the cement silos, steel framing and equipment located around the ponds

2 1 1 REQUIRED DOCUMENTS

- JSA Section 3 6
- Operations Order 788-02 (207B South Pond Sludge Transfer Operations)
- Operations Order 788-03 (Decant Operations)
- Operations Order 788-04 (Waste Solidification Decontamination Operations)
- Operations Order 788-07 (Salt Buster Rinse Down)
- Operations Order 788-08 (207C Pond Sludge Transfer Operations)
- Operations Order 788-09 (Building 788 Clarifier Pond Sludge Transfer Operations)
- PA Decon Facility F-04 (General Equipment Decon)
- PA Decon Facility F-05 (Heavy Equipment Decon)
- PA Decon Facility F-012 (Decon Facility Operations)
- IWCP # TD-073856 (Decon of Vacuum Truck)
- IWCP # TD-075106 (Removal of Cement Silos and Steel Framing at Building 788)
- Work Plan For The Removal Of Water And Sludge From The 207B South Pond
- Work Plan for The Salt Slurry Operations of 207C Pond
- Operational Safety Analysis (OSA) 788 001 Routine Operations At Building 788 And The Solar Ponds
- OSA 788 004 Sludge Wash down in 207 Series Evaporation Ponds
- OSA 788 007 207B Pond Sludge Removal

TABLE 2-1 TASK ANALYSIS

NOTE

Tasks 1 through 3 describe the 207B South Pond Sludge Transfer Operation
 Task 4 describes the decontamination of the Vacuum Trucks
 Tasks 5 through 8 describe the Decanting Operation
 Tasks 9 through 11 describe the Building 788 Clarifier Pond Sludge Transfer Operation
 Tasks 12 through 17 describe the 207C Pond Sludge Transfer Operation
 Task 18 describes the removal of the cement silos, steel framing and equipment located around the ponds

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
1	207B Pond Sludge Transfer Equipment Preparation	JSA Sec 3.6 Ops Order 788-02 Work Plan for Removal of Water and Sludge from 207B South Pond	Position the vacuum truck necessary equipment and personnel by the 207B Pond	<ol style="list-style-type: none"> 1 Conduct a pre-evolution briefing 2 Obtain an RWP 3 Position the vacuum truck 4 Position the crane 5 Assemble the vacuum transfer hose and attach to the crane 6 Don PPE as specified in the RWP 7 Position the hose in the pond 8 Position personnel for sludge removal

WSRIC PROCESS NUMBER (if applicable) 207POND-1-1
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207B South Solar Pond

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
2	207B Pond Sludge Vacuum Tanker Filling	JSA Sec 3.6 Ops Order 788-02 04 Work Plan for Removal of Water and Sludge from 207B South Pond	Fill the vacuum truck with 207B pond sludge	<ol style="list-style-type: none"> 1 Startup the truck 2 Signal the crane operator to position the hose in the sludge 3 Move the hose through the sludge 4 Fill the vacuum truck 5 Remove the hose from the sludge and drain 6 Drain the hose disconnect the hose from the truck and cap the inlet 7 Request the RCT to survey the truck before relocating 8 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) 207POND-1-1
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207B South Solar Pond

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
3	Vaccum Truck Unloading at the 750 Pad	JSA Sec 3 6 Ops Order 788-02 04	Off-load sludge to storage tanks located in tents #3 and #4	<ol style="list-style-type: none"> 1 Drive truck to the 750 pad tents #3 and #4 2 Obtain an RWP 3 Don PPE as specified in the RWP 4 Hookup transfer line 5 Hookup exhaust line to vacuum truck 6 Hookup hose to designated tank 7 Start truck and off-load sludge 8 Fill tank 9 Disconnect hose from tank and drum 10 Disconnect hose from truck and cap 11 Disconnect exhaust line 12 Request RCT to survey truck 13 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) 750PAD-2-2

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit 25, 750 Pad

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
4	Decon of Vacuum Truck	FO-3 FO-4 FO-12 IWCP # TD-073856	Decon truck and associated equipment	<ol style="list-style-type: none"> 1 Review IWCP package 2 Obtain an RWP 3 Review Docs FO-3 FO-4 FO-12 4 Verify qualified operators 5 Position truck at decon pad 6 Decon truck per procedure and the IWCP work package 7 Decon associated equipment as needed 8 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) _____

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION PA Decon Facility

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
5	Decant Equipment and Personnel Preparation	Ops Order 788-03	Set up decant pumps and hoses position ladders and personnel	<ol style="list-style-type: none"> 1 Conduct pre-evolution briefing 2 Obtain RWP 3 Set up decant pumps 4 Position ladders 5 Position decant hoses 6 Set up metal crates or select ASRP tank 7 Position personnel

WSRIC PROCESS NUMBER (if applicable) 750PAD-2-2

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit 25, 750 Pad

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
6	First Stage Decant	Ops Order 788-03, 04	Decant ASRP tank 1st stage	<ol style="list-style-type: none"> 1 Start decant pumps 2 Monitor metal crate level or ASRP tank level 3 Shut off decant pumps 4 Remove hoses from metal crate or ASRP tank 5 Drain and disconnect hoses 6 Decontaminate equipment per 788-04 7 Bring hoses 8 If applicable cover metal crate 9 Request the RCT to survey the area

WSRIC PROCESS NUMBER (if applicable) 750PAD-2-2
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit 25, 750 Pad

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
7	Decant Liquid Cargo Tanker Fill	Ops Order 788-03 04	Set up decant pump, hoses, and equipment Position personnel	<ol style="list-style-type: none"> 1 Conduct pre-evolution briefing 2 Obtain RWP 3 Set up decant pumps 4 Position ladders 5 Position decant hoses 6 Position personnel 7 Start decant pumps 8 Monitor cargo tanker level 9 Shut off decant pumps 10 Remove hoses from metal crate or ASRP tank 11 Drain and disconnect hoses 12 Decontaminate equipment per 788-04 13 Bring hoses 14 If applicable cover metal crate 15 Request the RCT to survey the area

WSRIC PROCESS NUMBER (if applicable) 750PAD-2-2
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit 25, 750 Pad

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
8	Second and Third Stage Decant	Ops Order 788-03, 04	If necessary to decant additional liquid then perform second and/or third stage decanting	<ol style="list-style-type: none"> 1 Start decant pumps 2 Monitor metal crate levels 3 Shut off decant pumps 4 Remove hoses from metal crates 5 Drain hoses, disconnect 6 Decon per 788-04 7. Bag hoses 8 Cover metal crate 9 Request the RCT to survey the equipment and the area

WSRIC PROCESS NUMBER (if applicable) 750PAD-2-2

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit 25, 750 Pad

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
9	Building 788 Clarifier Pond Sludge Transfer Equipment Preparation	JSA Sec 3 6 Ops Order 788-09	Position the vacuum truck necessary equipment and personnel by the Building 788 Clarifier	<ol style="list-style-type: none"> 1 Conduct pre-evolution briefing 2 Obtain an RWP 3 Position vacuum truck 4 Don PPE as specified in the RWP 5 Position hose in the clarifier 6 Position personnel for sludge removal

WSRIC PROCESS NUMBER (if applicable) NONE

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit #48

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
10	Building 788 Clarifier Sludge Vacuum Tanker Filling	JSA Sec 3 6 Ops Order 788-09 04	Fill vacuum truck with clarifier sludge	<ol style="list-style-type: none"> 1 Startup truck 2 Lower hose into Clarifier 3 Fill truck 4 Remove hose from clarifier and drain 5 Drain hose disconnect hose from truck and cap inlet 6 Request RCT to survey truck before relocating 7 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) 207POND-1-17

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit #48

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
11	Vaccum Truck Unloading at the 750 Pad	JSA Sec 3 6 Ops Order 788-09, 04	Off-load sludge to storage tanks located in tents #3, #4, and #6	<ol style="list-style-type: none"> 1 Drive truck to 750 pad tents #3,#4 and #6 2 Obtain an RWP 3 Don PPE as specified in the RWP 4 Hookup exhaust line to vacuum truck 5 Hookup transfer line 6 Hookup hose to designated tank 7 Start truck and off-load sludge 8 Fill tank 9 Disconnect hose from tank and drain 10 Disconnect hose from truck and cap 11. Disconnect exhaust line 12 Survey truck 13 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) 750PAD-2-2
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit #48

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
12	207C Pond Salt Buster Milling Preparation	JSA Sec 3 6 Work Plan for Salt Slurry Operation of 207C Pond	Position personnel and salt busting equipment to perform salt milling operation	<ol style="list-style-type: none"> 1 Conduct pre-evolution briefing 2 Obtain RWP 3 Position personnel 4 Establish the step off pad 5 Position the retrieval boat 6 Don PPE as specified in the RWP 7 Enter pond with salt buster

WSRIC PROCESS NUMBER (if applicable) NONE
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207C Pond

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
13	Salt Slurry Operation of 207C Pond	JSA Sec 3 6 Work Plan for Salt Slurry Operation of 207C Pond	Perform salt milling operation Perform necessary maintenance and fueling	<ol style="list-style-type: none"> 1 Conduct pre-evolution briefing 2 Obtain an RWP 3 Inspect area to be milled 4 Perform walk-around vehicle inspection and verify HEPA filters are operational 5 Position salt buster at milling area 6 Startup salt buster and perform milling of sludge 7 At the end of each milling operation position the salt buster by the entry/exit platform area 8 When requested by WS supervision to rinse off the salt buster then perform Task 14 9 Perform daily fueling and maintenance

WSRIC PROCESS NUMBER (if applicable) 207POND-1-4

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207C Pond

NOTE Task 14 is only performed when directed by WS supervision

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
14	Salt Buster Rinse Down	JSA Sec 3 6 Ops Order 788-07 Work Plan for Salt Slurry Operation of 207C Pond	Rinse down salt buster per operations order only when directed to do so by supervision Perform necessary maintenance and fueling	<ol style="list-style-type: none"> 1 Conduct pre-evolution briefing 2 Obtain an RWP 3 Position personnel 4 Position rinse down equipment 5 Position salt buster at rinse down area 6 Rinse off salt buster 7 Position salt buster at fueling and maintenance pad 8 Perform fueling and maintenance

WSRIC PROCESS NUMBER (if applicable) 207POND-1-4

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207C Pond

TASK #	TASK TITLE	SOP/OSA if applicable	TASK DESCRIPTION	TASK STEPS
15	207C Pond Sludge Transfer Equipment Preparation	JSA Sec 3 6 Ops Order 788-08 Work Plan for Salt Slurry Operation of 207C Pond	Setup vacuum truck assemble vacuum transfer hose and position personnel	<ol style="list-style-type: none"> 1 Conduct pre-evolution 2 Obtain RWP 3 Position vacuum truck 4 Don PPE 5 Position hose in 207C Pond 6 Position personnel for sludge removal

WSRIC PROCESS NUMBER (if applicable) NONE

RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207C Pond

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
16	207C Pond Sludge Vacuum Tanker Filling	JSA Sec 36 Ops Order 788-08, 04 Work Plan for Salt Slurry Operation of 207C Pond	Fill vacuum truck with 207C Pond sludge	<ol style="list-style-type: none"> 1 Startup truck 2 Lower hose into 207C Pond 3 Fill truck 4 Request salt buster operator to push salt brine to low end of the pond with the 'salt buster' with additional equipment i.e. squeegee/rotary brush 5 Remove hose from 207C Pond and drain 6 Drain hose disconnect hose from truck, and cap inlet 7 Request the RCT to survey the truck before relocating 8 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) 207POND-1-17
RCRA UNIT NUMBER(S) (if applicable) OR LOCATION 207C Pond

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
17	Vacuum Truck Unloading at the 750 Pad	JSA Sec 36 Ops Order 788-08, 04 Work Plan for Salt Slurry Operation of 207C Pond	Off-load sludge to storage tanks located in tents #3, #4 and #6	<ol style="list-style-type: none"> 1 Drive truck to 750 pad tents #3, #4 and #6 2 Obtain an RWP 3 Don PPE as specified in the RWP 4 Hookup exhaust line to vacuum truck 5 Hookup transfer line 6 Hookup hose to designated tank 7 Start truck and off-load sludge 8 Fill tank 9 Disconnect hose from tank and drain 10 Disconnect hose from truck and cap 11 Disconnect exhaust line 12 Request the RCT to survey the truck before relocating 13 Cleanup spills per 788-04

WSRIC PROCESS NUMBER (if applicable) 750PAD 2-2
RCRA UNIT NUMBER(S) (if applicable) OR LOCATION RCRA Unit 25, 750 Pad

TASK #	TASK TITLE	SOP/OSA	TASK DESCRIPTION	TASK STEPS
18	Removal of Cement Silos and Steel Framing at Building 788	IWCP # TD-075106	Remove cement silos, steel framing and equipment located around the 207A, 207B, and 207C Series Ponds as part of the General Housekeeping	<ol style="list-style-type: none"> 1 Review IWCP package 2 Obtain an RWP 3 Remove equipment per the IWCP work package 4 Survey equipment as required 5 Obtain PRE s per Radiological Engineering Direction

WSRIC PROCESS NUMBER (if applicable) 207POND-1-11, 207POND-1-5, 207POND-1-14
 RCRA UNIT NUMBER(S) (if applicable) OR LOCATION Building 788 Excess Equipment

Attach additional pages if necessary

2 2

HAZARD ANALYSIS

Potential hazards associated with hazardous waste operations in this (these) location(s) were identified by reviewing the physical layout of each area the tasks associated with each area, and, where available, the results of chemical and radiological monitoring during previous operations. Radiological, physical, chemical, and other hazards potentially encountered during routine tasks are presented in Table 2-2, sections one, two, three, four, and five and Appendix B. Where applicable, Operational Safety Analyses, Standard Operating Procedures, and pre-existing hazard analysis documents are referenced. Hazard analysis and control for non-routine activities may be described in applicable Job Safety Analyses or Integrated Work Control Program packages (IWCP).

The following constituents have been detected in the 207A and the 207B ponds:

- | | | |
|------------|--------------|---------------------|
| • Ammonia | • Chromium | • Sodium |
| • Arsenic | • Magnesium | • Sulfate |
| • Barium | • Nitrates | • Trichloroethane |
| • Boron | • Phosphorus | • Trifluoroethane |
| • Cadmium | • Potassium | • Tetrachloroethene |
| • Chloride | • Silver | • Trichloroethene |

The average pH for the ponds is 9.8.

The following constituents have been detected in the 207C pond:

- | | | |
|------------------------------------|------------|----------------------------------|
| • Methylene Chloride | • Calcium | • Pyrene |
| • Arsenic | • Chromium | • Cyanide (Total as NaCN or KCN) |
| • 2-Butanone (Methyl Ethyl Ketone) | • Freon | • Silver |
| • Barium | • Lead | • 1,1,2-Trichloro |
| • Boron | • Benzene | • 1,2,2-Trifluoroethane |
| • Cadmium | • Nickel | • Trichloroethylene |
| | • Nitrates | • Tetrachloroethylene |

207C Pond Water pH range based on sampling: 10.0 - 10.1

207C Pond Sludge pH range based on sampling: 10.2 - 10.5

The following constituents have been detected in the Building 788 Clarifier:

- | | |
|--------------------|-----------------------|
| • Ammonia | • Lead |
| • Arsenic | • Mercury |
| • Barium | • Nickel |
| • Cadmium | • Silver |
| • Chloride | • Tetrachloroethylene |
| • Chromium | • Trichloroethylene |
| • Hydrogen Cyanide | |

Building 788 Clarifier water pH range based on sampling: 9.9 - 10.0

Building 788 Clarifier sludge pH range based on sampling: 9.7 - 9.8

NOTE

Tasks 1 through 3 describe the 207B South Pond Sludge Transfer Operation
 Task 4 describes the decontamination of the Vacuum Trucks
 Tasks 5 through 8 describe the Decanting Operation
 Tasks 9 through 11 describe the Building 788 Clarifier Pond Sludge Transfer Operation
 Tasks 12 through 17 describe the 207C Pond Sludge Transfer Operation
 Task 18 describes the removal of the cement silos, steel framing and equipment located around the ponds

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
 Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
1	207B Pond Sludge Transfer Equipment Preparation	Pond 207 B South

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
 ORDER 00-788-02, Work plan 207B pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
 dpm = disintegrations per minute
 cm² = square centimeters
 1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
 (X) OTHER OPS ORDER 00-788-02 Work Plan 207B pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F) Hands (H) Other - specify
() VOC s	() Likely () Unlikely () Unknown (X) N/A	Task 1	N/A
() Corrosives	() Likely () Unlikely () Unknown (X) N/A	Task 1	N/A
() Fire hazard	() Likely () Unlikely () Unknown (X) N/A	Task 1	N/A
() Carcinogens	() Likely () Unlikely () Unknown (X) N/A	Task 1	N/A
() Other Toxins	() Likely () Unlikely () Unknown (X) N/A	Task 1	N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
 LEL = Lower Explosive Limit
 VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

Attachment 1
94-RF-06405
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2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 1

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-02

If not check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Hoisting and Rigging Describe Use of crane to hoist hose	HSP 12 02	Ensure crane has been inspected and certified safe by the Construction Safety Department Ensure that all hoisting and rigging operators are properly trained Ensure all hazards have been identified for overhead lifts
(X) Ropes, Chains, Slings Describe Use of slings to hoist hose	HSP 12 02	Ensure slings are inspected and properly tagged Ensure that the slings are load rated properly
(X) Heat Stress (X) Cold Stress Describe Working outdoor,	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations and overhead power lines	HSP 15 00	Ensure GFCI protection in wet locations Overhead power lines are de-energized or shielded per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Working near pond berm edges	HSP 22 05	Ensure proper fall protection is utilized while working on the pond berm sides Tops of pond berms must be kept clear of snow and ice Follow requirements stated in OSAs 788 001 004 and 007
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey
(X) Other Biological Describe Snakes Spiders Rodents	N/A	Ensure proper footwear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
2	207B Pond Sludge Vacuum Tanker Filling	Pond 207 B South

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-02, Work plan 207B pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788-02, Work Plan 207B pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B), Face Splash (F) Hands (H), Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown	Task 2	I B F H
(X) Corrosives	() Likely (X) Unlikely () Unknown	Task 2	None expected
(X) Fire hazard	() Likely (X) Unlikely () Unknown	Task 2	None expected from materials (sludge)
(X) Carcinogens	() Likely (X) Unlikely () Unknown	Task 2	I B F H
(X) Other Toxins	() Likely (X) Unlikely () Unknown	Task 2	(Metals B F, H) inorganics, - unlikely exposure

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? () Yes () No (X) Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 2

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-02

If not check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Hoisting and Rigging Describe Use of crane to hoist hose	HSP 12 02	Ensure crane has been inspected and certified safe by the Construction Safety Department Ensure that all hoisting and rigging operators are properly trained Ensure all hazards have been identified for overhead lifts
(X) Ropes, Chains, Slings Describe Use of slings to hoist hose	HSP 12 02	Ensure slings are inspected and properly tagged Ensure that the slings are load rated properly
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids sufficient clothing frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and design the hearing protection if needed
(X) Electrical Hazards Describe Wet locations and overhead power lines	HSP 15 00	Ensure GFCI protection in wet locations Overhead power lines are de-energized or shielded per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Working near pond berm edges	HSP 22 05	Ensure proper fall protection is utilized while working on the pond berm sides Tops of pond berms must be kept clear of snow and ice Follow requirements stated in OSAs 788 001 004 and 007
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey
(X) Other Biological Describe Snakes, Spiders Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
3	Vacuum Truck Unloading at the 750 Pad	Pond 207 B South

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-02

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788-02 Work Plan 207B pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F) Hands (H), Other - specify
(X) VOC s	() Likely (X) Unlikely () Unknown	Task 3	I B F H
(X) Corrosives	() Likely (X) Unlikely () Unknown	Task 3	None expected
(X) Fire hazard	() Likely (X) Unlikely () Unknown	Task 3	None expected from materials (sludge)
(X) Carcinogens	() Likely (X) Unlikely () Unknown	Task 3	I B F H
(X) Other Toxins	() Likely (X) Unlikely () Unknown	Task 3	(Metals B, F H) inorganics, - unlikely exposure

PEL = Permissible Exposure Limit use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 3

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-02

If not check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ladders Describe Ladder used to access ASRP tank	HSP 22 02	Ensure the ladder has been approved for its intended use by Industrial Safety per ANSI a 14 7-1991 sections 6 and 8
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids, sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress. Take adequate breaks and drink plenty of fluids to prevent heat stress. Buddy system. Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures.
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH). IH will monitor pumping operations and designate hearing protection if needed.
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Walking and working on ladders and around tanks	HSP 22 05	Ensure proper fall protection is utilized while working on the ladders
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing. Leather gloves will be utilized when moving equipment and associated materials.

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
4	Decon of Vacuum Truck	Decon Pad

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER FO-3, FO-4, FO-12, IWCP # TD-073856, Work plan 207B pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER FO-3, FO 4, FO-12, IWCP #TD-073856, Work Plan 207B pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I), Body Splash (B), Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown	Task 4	I B F H
(X) Corrosives	() Likely (X) Unlikely () Unknown	Task 4	None expected
(X) Fire hazard	() Likely (X) Unlikely () Unknown	Task 4	None expected from materials (sludge)
(X) Carcinogens	() Likely (X) Unlikely () Unknown	Task 4	I B F H
(X) Other Toxins	() Likely (X) Unlikely () Unknown	Task 4	(Metals B F H) inorganics - unlikely exposure

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? () Yes () No (X) Unknown

If so describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

Confined space entries must comply with HSP 6 04 unless equally restrictive subcontractor plan is used

List type/location of confined spaces associated with task #4 (Decon Vacuum Truck)

1 Inside the tank of the vacuum truck	NOTE Confined Space Permit is required prior to entry
---------------------------------------	---

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
 (X) OTHER FO-3, FO-4, FO-12,
 IWCP #TD-073856

If not check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise area is per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Other Confined Space Entry Describe Inside the tank of the vacuum truck	HSP 6 04	Ensure all requirements are met prior to entering the designated confined space and all personnel are trained per the IWCP work package
(X) Other Biological Describe Snakes, Spiders Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
5	Decant Equipment and Personnel Preparation	RCRA Unit #25

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-03

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788-03

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I), Body Splash (B), Face Splash (F) Hands (H), Other - specify
() VOC's	() Likely () Unlikely () Unknown (X) N/A	Task 5	N/A
() Corrosives	() Likely () Unlikely () Unknown (X) N/A	Task 5	N/A
() Fire hazard	() Likely () Unlikely () Unknown (X) N/A	Task 5	N/A
() Carcinogens	() Likely () Unlikely () Unknown (X) N/A	Task 5	N/A
() Other Toxins	() Likely () Unlikely () Unknown (X) N/A	Task 5	N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodent.

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 5

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) () Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-03

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ladders Describe Ladder used to access ASRP tank	HSP 22 02	Ensure the ladder has been approved for its intended use by Industrial Safety per ANSI a 14 7-1991 sections 6 and 8
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids, sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Other Biological Describe Snakes, Spiders Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
6	First stage decant	RCRA Unit #25

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-03

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788-03

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F), Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown	Task 6	I B F H
(X) Corrosives	() Likely (X) Unlikely () Unknown	Task 6	None expected
(X) Fire hazard	() Likely (X) Unlikely () Unknown	Task 6	None expected from materials (sludge)
(X) Carcinogens	() Likely (X) Unlikely () Unknown	Task 6	I B F H
(X) Other Toxins	() Likely (X) Unlikely () Unknown	Task 6	Metals inorganics -unlikely exposure

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 6

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) () Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-03

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ladders Describe Ladder used to access ASRP tank	HSP 22 02	Ensure the ladder has been approved for its intended use by Industrial Safety per ANSI a 14 7-1991 sections 6 and 8
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids sufficient clothing frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK#	TASK TITLE	HWA
7	Decant Liquid Cargo Tanker Filling	RCRA Unit #25

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-03

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788-03

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F), Hands (H), Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown	Task 7	I, B, F H
(X) Corrosives	() Likely (X) Unlikely () Unknown	Task 7	None expected
(X) Fire hazard	() Likely (X) Unlikely () Unknown	Task 7	None expected from materials (sludge)
(X) Carcinogens	() Likely (X) Unlikely () Unknown	Task 7	I B F H
(X) Other Toxins	() Likely (X) Unlikely () Unknown	Task 7	Metals inorganics -unlikely exposure

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so, describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 7

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) () Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-03

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ladders Describe Ladder used to access ASRP tank	HSP 22 02	Ensure the ladder has been approved for its intended use by Industrial Safety per ANSI a 14 7-1991 sections 6 and 8
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids, sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Other Biological Describe Snakes, Spiders Rodents	N/A	Ensure proper foot wear and company issued clothing, leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK#	TASK TITLE	HWA
8	Second and Third Stage Decant	RCRA Unit #25

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-03

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788-03

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B), Face Splash (F), Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown	Task 8	I B, F, H
(X) Corrosives	() Likely (X) Unlikely () Unknown	Task 8	None expected
(X) Fire hazard	() Likely (X) Unlikely () Unknown	Task 8	None expected from materials (sludge)
(X) Carcinogens	() Likely (X) Unlikely () Unknown	Task 8	I B F H
(X) Other Toxins	() Likely (X) Unlikely () Unknown	Task 8	Metals inorganics -unlikely exposure

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so, describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 8

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) () Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-03

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ladders Describe Ladder used to access ASRP tank	HSP 22 02	Ensure the ladder has been approved for its intended use by Industrial Safety per ANSI a 14 7-1991 sections 6 and 8
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids, sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress. Take adequate breaks and drink plenty of fluids to prevent heat stress. Buddy system. Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures.
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH). IH will monitor pumping operations and designate hearing protection if needed.
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing. leather gloves will be utilized when moving equipment and associated materials.

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
9	Building 788 Clarifier Sludge Equipment Preparation	RCRA Unit #48

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS
ORDER 00-788-09

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER OPS Order 00-788 09, Work Plan Building 788 Clarifier

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B), Face Splash (F) Hands (H) Other - specify
() VOC s	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Corrosives	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Fire hazard	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Carcinogens	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Other Toxins	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Equipment Preparation	() Likely () Unlikely () Unknown () N/A

PELL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 9

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-02

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ropes, Chains, Slings Describe Use of slings to hoist hose	HSP 12 02	Ensure slings are inspected and properly tagged Ensure that the slings are load rated properly
(X) Ladders Describe Ladder used to access manual valve	HSP 22 02	Ensure the ladder has been approved for its intended use by Industrial Safety per ANSI a 14 7-1991 sections 6 and 8
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations and overhead power lines	HSP 15 00	Ensure GFCI protection in wet locations Overhead power lines are de-energized or shielded per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Walking and working on ladders and around the clarifier	HSP 22 05	Ensure full body harness and lanyards are utilized while working on clarifier platform
(X) Other Biological Describe Snakes, Spiders Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
10	Building 788 Clarifier Sludge Vacuum Tanker Filling	RCRA Unit #48

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS ORDER 00-788-09

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER OPS Order 00 788-09

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I), Body Splash (B), Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	Building 788 Clarifier Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

* NOTE Mitigating measures are specified in Tables 3-1 1 through 3-1 5 (ie task specific PPE, engineering controls, and monitoring practices)

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 10

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-09

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ropes Describe Use of ropes to position hose in the clarifier	HSP 12 02	
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations and overhead power lines	HSP 15 00	Ensure GFCI protection in wet locations Overhead power lines are de-energized or shielded per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Walking and working on ladders and around the clarifier	HSP 22 05	Ensure full body harness and lanyards are utilized while working on the clarifier platform
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
11	Vacuum Truck Unloading at the 750 Pad	RCRA Unit #25

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS ORDER 00-788-09

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER OPS Order 00-788-09

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B), Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

* NOTE Mitigating measures are specified in Tables 3-11 through 3-15 (i.e. task specific PPE, engineering controls, and monitoring practices)

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents
Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 11

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-09

If not check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working in unheated tents	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey
(X) Other Biological Describe Snakes Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing, leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
12	207C Pond Salt Buster Milling Preparation	207 C Pond

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER Work plan for Salt Slurry Operation of 207C Pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER Work Plan for Salt Slurry Operation of 207C Pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B), Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown () N/A	207C Pond Salt Buster Milling Preparation	() Likely (X) Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	207C Pond Salt Buster Milling Preparation	() Likely (X) Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	207C Pond Salt Buster Milling Preparation	() Likely (X) Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	207C Pond Salt Buster Milling Preparation	() Likely (X) Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	207C Pond Salt Buster Milling Preparation	() Likely (X) Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? () Yes (X) No () Unknown

If so describe Biological hazards may not be present, but the following should be considered. snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 12

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan Work Plan for Salt Slurry Operation of 207C Pond () SOP (X) JSA

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working in unheated area Working in closed cab	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Other Walking and Working Surfaces Describe Walking and working on the slope of the pond berm	HSP 22 05	Ensure a full body harness equipped with a tag line which will be held by a stationary operator, will be utilized while working on the slope of the pond berm NOTE The tag line will strictly be utilized for retrieval of personnel

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
13	Salt Slurry Operation of 207C Pond	207 C Pond

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER Work Plan for Salt Slurry Operation of 207C Pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER Work Plan for Salt Slurry Operation of 207C Pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B), Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown () N/A	Salt Slurry Operation of 207C Pond	(B F) Likely* () Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	Salt Slurry Operation of 207C Pond	(B F) Likely* () Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	Salt Slurry Operation of 207C Pond	(B F) Likely* () Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	Salt Slurry Operation of 207C Pond	(B F) Likely* () Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	Salt Slurry Operation of 207C Pond	(B F) Likely* () Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

* NOTE Mitigating measures are specified in Tables 3-11 through 3-15 (i.e. task specific PPE, engineering controls, and monitoring practices)

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards in it not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 13

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan Work Plan for Salt Slurry Operation of 207C Pond () SOP (X) JSA

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working in unheated area Working in closed cab	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Other Walking and Working Surfaces Describe Walking and working on the slope of the pond berm	HSP 22 05	Ensure a full body harness equipped with a tag line, which will be held by a stationary operator will be utilized while working on the slope of the pond berm NOTE The tag line will strictly be utilized for retrieval of personnel

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
 Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
14	Salt Buster Rinse Down	207C Pond

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS ORDER 00-788-07, Work Plan for Salt Slurry Operation of 207C Pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
 dpm = disintegrations per minute
 cm² = square centimeters
 1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER OPS Order 00 788-07, Work Plan for Salt Slurry Operation of 207C Pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I), Body Splash (B), Face Splash (F) Hands (H) Other - specify
(X) VOC s	() Likely (X) Unlikely () Unknown () N/A	Salt Buster Rinse Down	(B, H) Likely* () Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	Salt Buster Rinse Down	(B, H) Likely* () Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	Salt Buster Rinse Down	(B, H) Likely* () Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	Salt Buster Rinse Down	(B, H) Likely* () Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	Salt Buster Rinse Down	(B, H) Likely* () Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
 LFL = Lower Explosive Limit
 VOCs = Volatile Organic Compounds

* NOTE Mitigating measures are specified in Tables 3-11 through 3-15 (i.e. task specific PPE, engineering controls, and monitoring practices)

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered: snakes, spiders, and rodents
 Controls Survey surroundings prior to beginning work

2-2.4 CONFINED SPACES

No confined spaces are present during performance of Task 14

2-2.5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan Work Plan for Salt Slurry Operation of 207C Pond () SOP (X) JSA

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working in unheated area Working in closed cab	N/A	Warm fluids, sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Other Walking and Working Surfaces Describe Walking and working on the slope of the pond berm	HSP 22 05	Ensure a full body harness equipped with a tag line which will be held by a stationary operator will be utilized while working on the slope of the pond berm NOTE The tag line will strictly be utilized for retrieval of personnel

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
15	207C Pond Sludge Transfer Equipment Preparation	207C Pond

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS ORDER 00-788-08, Work Plan for Salt Slurry Operation of 207C pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER OPS Order 00-788-08 Work Plan 207C pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F) Hands (H) Other - specify
() VOC's	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Transfer Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Corrosives	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Transfer Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Fire hazard	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Transfer Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Carcinogens	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Transfer Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A
() Other Toxins	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Transfer Equipment Preparation	() Likely () Unlikely () Unknown (X) N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 15

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan for Salt Slurry Operation of 207C Pond () SOP (X) JSA (X) OTHER OPS Order 00-788-08

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids sufficient clothing frequent breaks and proper training on how to identify hypothermia Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Walking and working on the slope of the pond berm	HSP 22 05	Ensure a full body harness equipped with a tag line, which will be held by a stationary operator will be utilized while working on the slope of the pond berm NOTE The tag line will strictly be utilized for retrieval of personnel
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing, leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
16	207C Pond Sludge Vacuum Tanker Filling	207C Pond

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER OPS ORDER 00-788-08, Work Plan for Salt Slurry Operation of 207C Pond

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC (X) OTHER OPS Order 00-788-08, Work Plan for Salt Slurry Operation of 207C Pond

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F) Hands (H) Other - specify
(X) VOC s	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	207C Pond Sludge Vacuum Tanker Filling	(H) Likely* () Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

* NOTE Mitigating measures are specified in Tables 3-1 1 through 3-1 5 (i.e task specific PPE, engineering controls, and monitoring practices)

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered, snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 16

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) (X) Workplan for Silt Slurry Operation of 207C Pond () SOP (X) JSA (X) OTHER OPS Order 00-788-08

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Ropes Describe Use of ropes to position hose in the clarifier	HSP 12 02	
(X) Heat Stress (X) Cold Stress Describe Working outdoors	N/A	Warm fluids, sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA
(X) Other Walking and Working Surfaces Describe Walking and working on the slope of the pond berm	HSP 22 05	Ensure a full body harness equipped with a tag line which will be held by a stationary operator, will be utilized while working on the slope of the pond berm NOTE The tag line will strictly be utilized for retrieval of personnel
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper footwear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
17	Vacuum Truck Unloading at the 750 Pad	RCRA Unit #25

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) (X) OSA (X) WSRIC (X) OTHER Ops Order OO-788-08

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) (X) JSA (X) WEMS (X) WSRIC
(X) OTHER Ops Order OO-788-08

Complete Appendix B, then mark all of the following which apply to this task

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Corrosives	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Fire hazard	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Carcinogens	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A
(X) Other Toxins	() Likely (X) Unlikely () Unknown () N/A	Vacuum Truck Unloading at the 750 Pad	(H) Likely* () Unlikely () Unknown () N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

* NOTE Mitigating measures are specified in Tables 3-11 through 3-15 (i.e. task specific PPE, engineering controls, and monitoring practices)

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 17

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) () Workplan () SOP (X) JSA
(X) OTHER OPS Order 00-788-08

If not check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working in unheated tents	N/A	Warm fluids sufficient clothing, frequent breaks and proper training on how to identify hypothermia to prevent cold stress. Take adequate breaks and drink plenty of fluids to prevent heat stress. Buddy system. Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures.
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH). IH will monitor pumping operations and design the hearing protection if needed.
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14.
(X) Lifting Describe Lifting vacuum hose	N/A	Ensure proper lifting techniques are utilized per the JSA.
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey.
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing. Leather gloves will be utilized when moving equipment and associated materials.

TABLE 2-2 HAZARD ANALYSIS AND CONTROL WORKSHEET BY TASK
Sections of Table 2-2 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
18	Removal of Cement Silos and Steel Framing at Building 788	N/A

2-2 1 RADIOLOGICAL HAZARDS

Are radiological hazards fully described in (check all that apply) () OSA () WSRIC (X) OTHER IWCP # TD-075106

ISOTOPE PRESENT	% DAC	FIXED CONTAMINATION dpm/100 cm ²	REMOVABLE CONTAMINATION dpm/100 cm ²	DOSE RATE NEUTRON	DOSE RATE BETA/GAMMA
Plutonium	NO	UNKNOWN	UNKNOWN	NO	NO
Americium	NO	UNKNOWN	UNKNOWN	NO	NO
Uranium	NO	UNKNOWN	UNKNOWN	NO	NO

DAC = derived air concentration (hours)
dpm = disintegrations per minute
cm² = square centimeters
1 = anticipated contamination 2 = measured concentrations

2-2 2 CHEMICAL HAZARDS

Are chemical hazards fully described in (check all that apply) () JSA () WEMS () WSRIC (X) OTHER IWCP # TD-075106

Hazard Type	Are concentrations greater than 1/2 PEL* or 10% LEL in air expected in this task?	Job Duty	Routes of Exposure During Task Inhalation (I) Body Splash (B) Face Splash (F) Hands (H) Other - specify
(X) VOC's	() Likely () Unlikely () Unknown (X) N/A	Removal of Cement Silos and Steel Framing at Building 788	() Likely () Unlikely () Unknown (X) N/A
(X) Corrosives	() Likely () Unlikely () Unknown (X) N/A	Removal of Cement Silos and Steel Framing at Building 788	() Likely () Unlikely () Unknown (X) N/A
(X) Fire hazard	() Likely () Unlikely () Unknown (X) N/A	Removal of Cement Silos and Steel Framing at Building 788	() Likely () Unlikely () Unknown (X) N/A
(X) Carcinogens	() Likely () Unlikely () Unknown (X) N/A	Removal of Cement Silos and Steel Framing at Building 788	() Likely () Unlikely () Unknown (X) N/A
(X) Other Toxins	() Likely () Unlikely () Unknown (X) N/A	Removal of Cement Silos and Steel Framing at Building 788	() Likely () Unlikely () Unknown (X) N/A

PEL = Permissible Exposure Limit * use Threshold Limit Value if more restrictive
LEL = Lower Explosive Limit
VOCs = Volatile Organic Compounds

2-2 3 BIOLOGICAL HAZARDS

Are biological hazards present during the task? (X) Yes () No () Unknown

If so describe Biological hazards may not be present, but the following should be considered snakes, spiders and rodents

Controls Survey surroundings prior to beginning work

2-2 4 CONFINED SPACES

No confined spaces are present during performance of Task 18

2-2 5 PHYSICAL HAZARDS

Are the physical hazards of this task fully described in (check all that apply) () Workplan () SOP (X) JSA
(X) OTHER IWCP # TD-075106

If not, check all that apply and complete the following

POTENTIAL HAZARDS	HSP SECTION	CONTROL MEASURES
(X) Heat Stress (X) Cold Stress Describe Working in unheated tents	N/A	Warm fluids sufficient clothing frequent breaks and proper training on how to identify hypothermia to prevent cold stress Take adequate breaks and drink plenty of fluids to prevent heat stress Buddy system Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures
(X) Noise Describe Equipment noise	HSP 7 06	Proper hearing protection in high noise areas per direction of Industrial Hygiene (IH) IH will monitor pumping operations and designate hearing protection if needed
(X) Electrical Hazards Describe Wet locations	HSP 15 00	Ensure GFCI protection in wet locations per HSP 15 00 Sec 10 14
(X) Other Illumination Describe Temporary lighting	OSHA CFR 1910 120 (m) table 120 1	Ensure proper illumination at the work site per Industrial Hygiene survey
(X) Other Biological Describe Snakes, Spiders, Rodents	N/A	Ensure proper foot wear and company issued clothing leather gloves will be utilized when moving equipment and associated materials

3 0 HEALTH AND SAFETY HAZARD CONTROL

Hazard control includes administrative, engineering and personal protective equipment methods. Table 2-2, section four includes control measures for each physical hazard identified. Table 3-1 defines administrative and engineering controls, personal protective equipment, and monitoring requirements for radiological and chemical hazards.

3 1 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The criteria used to determine appropriate levels of personal protective equipment include the work being conducted, potential chemical, radiological and physical hazards at the site, availability of monitoring data, effectiveness of engineering or administrative exposure controls, and applicable regulations. As stated in HSP 8 01, Safe Work Apparel, Occupational Safety and Industrial Hygiene will assist supervisors in determining the required job-specific protective clothing. Industrial Hygiene shall determine PPE based on the manufacturer's permeability charts utilizing ASTM F739-85 test method 'Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids and Gases'. This selection will be based upon the site hazards as specified in Table 2-2 and Appendix B.

HSP 7 03, Respiratory Protection and HSP 7 05 Breathing Air detail plant policy for respiratory protection. Refer to these practices for guidance on respiratory protection selection, issue and return, training, fit testing, medical evaluation, and limitations during temperature extremes.

Subcontractors may utilize their own Respiratory Protection Program provided it has been approved by the EG&G Respiratory Protection Program Administrator.

Industrial Hygiene and Radiological Engineering shall evaluate control requirements and modifications according to the site monitoring. The Radiological Control Technician (RCT), or the Industrial Hygienist shall not be allowed to modify PPE in the event of an emergency. PPE upgrades shall be implemented when site monitoring indicates exposure limits meet or exceed the appropriate action levels of the specific contaminant(s) being monitored. Upgrades shall be as conditions warrant and down grades will be implemented only after sufficient monitoring has established that PPE will not be required. **NOTE: If Action Levels are met or exceeded, then operations will be discontinued and re-evaluated.** Action levels are specified in Table 3-1, section 4. Note: Gloves worn in 207B South pond Clarifier, 207C pond and 750 Pad during ASRP will be silver shield and leather gloves as needed (in that order).

Personnel will not physically enter 207C pond except under the following conditions:

- During final rinse down operations after bulk salt removal is complete
- During emergency situations
- During a non-emergency (i.e. breakdown of the salt buster) if the salt buster operator must leave the vehicle and the retrieval boat will not float in the pond

NOTE

Tasks 1 through 3 describe the 207B South Pond Sludge Transfer Operation
 Task 4 describes the decontamination of the Vacuum Trucks
 Tasks 5 through 8 describe the Decanting Operation
 Tasks 9 through 11 describe the Building 788 Clarifier Pond Sludge Transfer Operation
 Tasks 12 through 17 describe the 207C Pond Sludge Transfer Operation
 Task 18 describes the removal of the cement silos, steel framing and equipment located around the ponds

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
1	207B Pond Sludge Transfer Equipment Preparation	Pond 207 B South

3-1.1 RADIOLGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Point	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	

3-1.2 RADIOLGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lipel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
1	207B Pond Sludge Transfer Equipment Preparation	Pond 207 B South

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level C	Action Evacuate and re-evaluate
VOC's	PID	Breathing zone most likely exposed	12 ppm*	25 ppm
Mercury	Jerome	Breathing zone most likely exposed	005 mg/m ³ **	025 mg/m ³
Metals	N/A	Breathing zone most likely exposed	0 5 x PEL	PEL
Noise	Quest 2700 or comparable sound level meter	Breathing zone most likely exposed	85 db	105 db

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i e , hard hat, earplugs)
Task 1	(X) yes () no	Saranex - In pond Tyvek-On pond berm and designated outside activities	Nitrile or Viton (leather as needed)	* Upgrade to GMD-H	Rubber boots, hard hat, safety shoes, safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
2	207B Pond Sludge Vacuum Tanker Filling	Pond 207 B South

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
2	Load vacuum truck by 207B pond	Pond 207 B South

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level C	Action Evacuate and re-evaluate
VOC's	PID	Breathing zone most likely exposed	12 ppm*	25 ppm
Mercury	Jerome	Breathing zone most likely exposed	005 mg/m ³ **	025 mg/m ³
Metals	N/A	Breathing zone most likely exposed	0.5 x PEL	PEL
Noise	Quest 2700 or comparable sound level meter	Breathing zone most likely exposed	85 db	105 db

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e., hard hat earplugs)
Task 2	(X) yes () no	Saranex - In pond Tyvek-On pond berm and designated outside activities	Nitrile or Viton (leather as needed)	* Upgrade to GMD H ** MERSORB	Rubber boots hard hat safety shoes, safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
3	Vacuum Truck unloading at the 750 Pad	Pond 207 B South

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks vacuum truck exhaust vented outside of tents
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
3	Vacuum Truck Unloading at the 750 Pad	Pond 207 B South

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
VOC's	PID	Breathing zone most likely exposed	12 ppm*	25 ppm
Metals	N/A	Breathing zone most likely exposed	0.5 x PEL	PEL
Mercury	Jerome	Breathing zone most likely exposed	0.05 mg/m ³ **	0.25 mg/m ³
Noise	Quest 2700 or comparable sound level meter	Breathing zone most likely exposed	85 db	105 db

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat, earplugs)
Task 3	(X) yes () no	Saranex/Tyvek	Nitrile or Viton (leather as needed)	*Upgrade to GMD-H ** MERSORB	Rubber boots, hard hat, safety shoes, safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
4	Decon of Vacuum Truck	Decon Pad

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
() Enter Only at Stop-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
() No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
() Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	(X) Confined Space Entry Permit Required for Access

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet
(X) Confined Space Entry	Tank section of the vacuum tankers are a Confined Space Area

TASK #	TASK TITLE	HWA
4	Decon of Vacuum Truck	Decon Pad

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
VOC's	PID	Breathing zone most likely exposed	12 ppm*	25 ppm
Metals	N/A	Breathing zone most likely exposed	0.5 x PEL	PEL

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e., hard hat, earplugs)
Task 4	(X) yes () no	Plastic Rain Suit	Nitrile or Viton (leather as needed)	*Upgrade to GMD-H ** MERSORB	Rubber boots hard hat safety shoes, safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
5	Decant Equipment and Personnel Preparation	RCRA Unit #25

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
() Dust Suppression	N/A

TASK #	TASK TITLE	HWA
5	Decant Equipment and Personnel Preparation	RCRA Unit #25

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
N/A	N/A	N/A	N/A	N/A

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat, earplugs)
Task 5	(X) yes () no	Saranex - In pond Tyvek-On pond berm and designated outside activities	Nitrile or Viton (leather as needed)	N/A	Rubber boots hard hat, safety shoes safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
6	First Stage Decant	RCRA Unit #25

3-1.1 RADIOLGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	

3-1.2 RADIOLGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks vacuum truck exhaust vented outside of tents vacuum truck tank exhaust vented through external HEPA filter unit
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
() Dust Suppression	N/A

TASK #	TASK TITLE	HWA
6	First Stage Decant	RCRA Unit #25

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
Ammonia	NIOSH 5347	A representative sampling of personnel/breathing zone	5XPEL	PEL
Metals scan	NIOSH 7300	A representative sampling of personnel/breathing zone	5XPEL	PEL
Mercury	NIOSH 6009	A representative sampling of personnel/breathing zone	5XPEL	PEL
Organics	NIOSH 1500	A representative sampling of personnel/breathing zone	5XPEL	PEL

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e., hard hat earplugs)
Task 6	(X) yes () no	Saranex/Tyvek	Nitrile or Viton (leather as needed)	N/A	Rubber boots hard hat safety shoes safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
7	Decant Liquid Cargo Tanker Fill	RCRA Unit #25

3-1.1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents only)
() High Radiation Area	

3-1.2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks vacuum truck exhaust vented outside of tents vacuum truck tank exhaust vented through external HEPA filter unit
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
() Dust Suppression	N/A

TASK #	TASK TITLE	HWA
7	Decant Liquid Cargo Tanker Fill	RCRA Unit #25

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
Ammonia	NIOSH 5347	A representative sampling of personnel/breathing zone	5XPEL	PEL
Metals scan	NIOSH 7300	A representative sampling of personnel/breathing zone	5XPEL	PEL
Mercury	NIOSH 6009	A representative sampling of personnel/breathing zone	5XPEL	PEL
Organics	NIOSH 1500	A representative sampling of personnel/breathing zone	5XPEL	PEL

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 7	(X) yes () no	Saranex/Tyvek	Nitrile or Viton (leather as needed)	N/A	Rubber boots hard hat safety shoes safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
8	Second and Third Stage Decant	RCRA Unit #25

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls,	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tent's only)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450 G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
() Dust Suppression	N/A

TASK #	TASK TITLE	HWA
8	Second and Third Stage Decant	RCRA Unit #25

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
Ammonia	NIOSH 5347	A representative sampling of personnel/breathing zone	5XPEL	PEL
Metals scan	NIOSH 7300	A representative sampling of personnel/breathing zone	5XPEL	PEL
Mercury	NIOSH 6009	A representative sampling of personnel/breathing zone	5XPEL	PEL
Organics	NIOSH 1500	A representative sampling of personnel/breathing zone	5XPEL	PEL

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e., hard hat earplugs)
Task 8	(X) yes () no	Sarinex/Tyvek	Nitrile or Viton (leather as needed)	N/A	Rubber boots hard hat safety shoes safety glasses/face shield

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
9	Building 788 Clarifier Pond Sludge Transfer Equipment Preparation	RCRA Unit #48
3-1.1 RADIOLGICAL POSTINGS REQUIRED		(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area	
(X) Dosimeter Badge	() Self Contained Breathing Apparatus	
(X) Radiological Controlled Area	() Respirator Ready for Use	
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges	
(X) No Consumables	() Supplied Breathing Air	
() White or Visitor Coveralls	() Air-Line Respirators	
() Shoe Covers	() Airborne Radioactivity Area	
(X) Whole Body Monitoring	() Respiratory Protection Required	
() Radiation Area	(X) Dose Rate Readings (tents and clarifier)	
() High Radiation Area		
3-1.2 RADIOLGICAL MONITORING REQUIRED		
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable
ROUTINE RADIATION SURVEY	Quarterly	Gamma
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha
		Ludlum 12-1A Eberline SAC-4 Eberline BC-4
		Victoreen 450-G
		Portable air sampler Lapel sampler Eberline SAC-4
3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED		DESCRIBE
() Local Exhaust Ventilation	N/A	
() Dilution (General) Ventilation	N/A	
() Enclosure/Glovebag	N/A	
(X) Confined Space	Personnel are prohibited from entering the clarifier	
(X) Dust Suppression	Keep pond sludge wet	

TASK #	TASK TITLE	HWA
9	Building 788 Clarifier Pond Sludge Transfer Equipment Preparation	RCRA Unit #48

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 9	(X) yes () no	Grey Coveralls	Silver Shields and leather gloves	Sec RWP	Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
10	Building 788 Clarifier Sludge Vacuum Tanker Filling	RCRA Unit #48

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents and clarifier)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Confined Space	Personnel are prohibited from entering the clarifier
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
10	Building 788 Clarifier Sludge Vacuum Tanker Filling	RCRA Unit #48

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 10	(X) yes () no	Saranex	Silver Shield and leather gloves	See RWP	Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
11	Vacuum Truck Unloading at the 750 Pad	RCRA Unit #25

3-1.1 RADILOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents and classifier)
() High Radiation Area	

3-1.2 RADILOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks, vacuum truck exhaust vented outside of tents, vacuum truck tank exhaust vented through external HEPA filter unit
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
11	Vacuum Truck Unloading at the 750 Pad	RCRA Unit #25

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 11	(X) yes () no	Saranex	Silver Shield and leather gloves	See RWP	Hard hat in construction areas Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
12	207C Pond Salt Buster Milling Preparation	Pond 207 C

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents and classifier)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Gloves bag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
12	207C Pond Salt Buster Milling Preparation	Pond 207 C

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 12	(X) yes () no	Grey coveralls for support personnel Barricade for salt buster operator	Silver Shield and leather gloves	See RWP	Rubber boots (hip waders) for salt buster operators Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
13	Salt Slurry Operation of 207C Pond	Pond 207 C

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents and clarifier)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma, Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
13	Salt Slurry Operation of 207C Pond	Pond 207 C

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 13	(X) yes () no	Grey coveralls for support personnel Barricade for salt buster operator	Silver Shield and leather gloves	See RWP	Rubber boots (hip waders) for salt buster operator, safety shoes, Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
14	Salt Buster Rinse Down	Pond 207 C

3-1.1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tent and classifier)
() High Radiation Area	

3-1.2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Gloving	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
14	Salt Buster Rinse Down	Pond 207 C

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i e , hard hat, earplugs)
Task 14	(X) yes () no	Barricade	Silver shield and leather gloves	See RWP	Rubber boots, safety shoes Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
15	207C Pond Sludge Transfer Equipment Preparation	Pond 207 C

3-1 1 RADIOLOGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tent and classifier)
() High Radiation Area	

3-1 2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1 3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
15	207C Pond Sludge Transfer Equipment Preparation	Pond 207 C

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 15	(X) yes () no	Grey coveralls for support personnel Saranex for vacuum truck operator Barricade for the salt buster operator	Silver Shield and leather gloves	See RWP	Safety shoes rubber boots for support personnel hip waders for salt buster operator Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
16	207C Pond Sludge Vacuum Tanker Filling	Pond 207 C

3-1.1 RADIOLGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumibles	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tests and classifier)
() High Radiation Area	

3-1.2 RADIOLGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victorecn 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
16	207C Pond Vacuum Tanker Filling	Pond 207 C

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3 2 1 (Real Time Monitoring not applicable)

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i e , hard hat earplugs)
Task 16	(X) yes () no	Grey coveralls for support personnel Saranex for vacuum truck operator Barricade for the salt buster operator	Silver Shield and leather gloves	See RWP	Rubber boots for support personnel safety shoes hip waders for salt buster operator Face shield and chemical goggles will be used if full-face is not required

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
17	Vacuum Truck Unloading at the 750 Pad	RCRA Unit #25

3-1.1 RADIOLGICAL POSTINGS REQUIRED	(X) See RWP
(X) Radiation Work Permit Required for Access	() Very High Radiation Area
(X) Dosimeter Badge	() Self Contained Breathing Apparatus
(X) Radiological Controlled Area	() Respirator Ready for Use
(X) Enter Only at Step-Off Pad	() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables	() Supplied Breathing Air
() White or Visitor Coveralls	() Air-Line Respirators
() Shoe Covers	() Airborne Radioactivity Area
(X) Whole Body Monitoring	() Respiratory Protection Required
() Radiation Area	(X) Dose Rate Ranges (tents and classifier)
() High Radiation Area	

3-1.2 RADIOLGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha, Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	Portable air sampler Lapel sampler Eberline SAC-4

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
(X) Local Exhaust Ventilation	Vented tanks, vacuum truck exhaust vented outside of tents vacuum truck tank exhaust vented through external HEPA filter unit
() Dilution (General) Ventilation	N/A
() Enclosure/Glovebag	N/A
(X) Dust Suppression	Keep pond sludge wet

TASK #	TASK TITLE	HWA
17	Vacuum Truck Unloading at the 750 Pad	RCRA Unit #25

3-1.4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action Level for 1/2 PEL	Action Level for PEL
See Appendix B	See Appendix B	See Appendix B	See Appendix B	See Appendix B

NOTE See Integrated Sampling Plan, Section 3.2.1 (Real Time Monitoring not applicable)

3-1.5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e. hard hat earplugs)
Task 17	(X) yes () no	Saranex	Silver Shield and leather gloves	See RWP	Hard hat in construction areas. Face shield and chemical goggles will be used if full-face is not required.

NOTE PPE has been determined to be chemically compatible with hazardous constituents as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs provided in the Permeation Guide for Dupont Tychem Fabrics.

TABLE 3-1 RADIATION AND NON-RADIOLOGICAL CHEMICAL HAZARD CONTROL BY TASK

Sections of Table 3-1 which are not applicable to this task should be left blank

TASK #	TASK TITLE	HWA
18	Removal of Cement Silos and Steel Framing at Building 788	N/A
3-1.1 RADIOLOGICAL POSTINGS REQUIRED		(X) See RWP
(X) Radiation Work Permit Required for Access/when required		() Very High Radiation Area
(X) Dosimeter Badge		() Self Contained Breathing Apparatus
(X) Radiological Controlled Area/as posted		() Respirator Ready for Use
(X) Enter Only at Step-Off Pad/when required		() Full-Face With Charcoal/HEPA Cartridges
(X) No Consumables		() Supplied Breathing Air
() White or Visitor Coveralls		() Air-Line Respirators
() Shoe Covers		() Airborne Radioactivity Area
(X) Whole Body Monitoring/when required		() Respiratory Protection Required
() Radiation Area		(X) Dose Rate Ranges/is required by Rad Engineering
() High Radiation Area		

3-1.2 RADIOLOGICAL MONITORING REQUIRED	FREQUENCY	TYPE	EQUIPMENT
ROUTINE CONTAMINATION SURVEY	Daily	Alpha Beta/Gamma Fixed and Removable	Ludlum 12-1A Eberline SAC-4 Eberline BC-4
ROUTINE RADIATION SURVEY	Quarterly	Gamma	Victoreen 450-G
CONTINUOUS MONITORING	Continuous Air Monitoring	Alpha	When required by Rad Engineering

3-1.3 ENGINEERING OR ADMINISTRATIVE CONTROLS EMPLOYED	DESCRIBE
() Local Exhaust Ventilation	N/A
() Dilution (General) Ventilation	N/A
() Enclosure/Gloving	N/A
() Dust Suppression	N/A

TASK #	TASK TITLE	HWA
18	Removal of Cement Silos and Steel Framing at Building 788	N/A

3-1 4 NON-RADIOLOGICAL CHEMICAL MONITORING REQUIREMENTS		ACTION LEVELS		
Contaminant	Type of Real Time Instrument or Analytical Method	Frequency/ Locations	Action	Action
N/A	N/A	N/A	N/A	N/A

3-1 5 PERSONAL PROTECTIVE EQUIPMENT					
Job Duty	Safety Shoes & Safety glasses	Body Covering Type	Glove Type	Respirator Type (Specify cartridge if applicable)	Other (i.e., hard hat, earplugs)
Task 18	(X) yes () no	Grey coveralls	Leather as needed	See RWP	Hard hat in construction areas

3.2 MONITORING

The procedures for monitoring for hazards may include direct-reading instrumentation, radiation and contamination surveys, personal monitoring, and area sampling for chemical, radiological, biological and/or physical hazards. The objectives of this monitoring program are:

- To characterize the work area for the presence of gases, particulates (dusts, mists, fibers, smoke and fumes) and vapors in the atmosphere
- To record background levels of contaminants and document possible releases
- To obtain sufficient quantitative measurements for ascertaining the correct site control assessments and boundaries, the appropriate levels of PPE for personnel, and decontamination procedures
- To collect a sufficient number of samples to characterize personal exposure levels
- To recognize conditions that may be immediately dangerous to life and health
- To evaluate overall effectiveness of exposure controls implemented at the site

Table 3-1.2 and 3-1.4 describe frequency and type of monitoring based upon the site hazards as specified in Table 2-2 and Appendix B. Industrial Hygiene and Safety identifies non-radiological and physical hazard monitoring. Radiological Engineering defines radiological hazard monitoring requirements.

The Industrial Hygiene Procedures Manual, Section 1.2, 1.3, 1.4, 1.5, and 2.2 describe quality assurance/quality control and record keeping SOPs for non-radiological Industrial Hygiene samples. The Radiological Control Manual specifies quality assurance/quality control and record keeping for radiological samples.

3 2 1 BASELINE PERSONAL SAMPLING

Employee exposure monitoring will be conducted by Industrial Hygiene or designated representative. The monitoring will be conducted to assess the effectiveness of administrative controls, engineering controls and personal protective equipment (PPE). Employee exposure monitoring will be conducted at the start of new operations involving potential hazardous chemicals or physical hazards, change of conditions, emergency situations, or periodically based on Industrial Hygiene evaluation.

Air sampling will be conducted using real-time instrumentation and/or personal sampling based on the following table.

BASELINE PERSONAL SAMPLING 207B SOUTH 207C AND THE CLARIFIER

CONTAMINANT	TASK	# OF SAMPLES	SAMPLING METHODS
Ammonia	2, 3	See NOTE 1	NIOSH 5347
Metals Screen Pb, Cd, Se, Be, etc	2, 3, 4, 10, 12, 13, 15	See NOTE 1	NIOSH 7300
Mercury	2, 3, 10	Daily sample	NIOSH 6009
pH	10, 13, 16		Lithmus paper
ORGANICS	2, 3, 10, 12, 13, 15	A representative sampling of personnel working with sludge or water per task	NIOSH 1501
Tetrachloroethylene			
1,1,1, Trichloroethane			
Trichloroethylene			
1,1,2 Trichloro 1,2,2 -			
Trifluoroethane			
Methylethylketone (MEK)			
Total Other Hydrocarbons			
Benzene	12, 13, 15	Sound Pressure Level Measurements obtained during work tasks	NIOSH 1003
Noise	2, 3, 12		Sound Level Meter (SLM) Noise Dosimeter

NOTE 1 Initial monitoring will be performed for 3 days. IH will re-evaluate the need to perform monitoring after the initial 3 day period and establish an appropriate monitoring schedule. The minimum sampling frequency shall not be less than once weekly and will be based on change in conditions or operations.

Air sampling may also be conducted with substance specific drager tubes, phot-ionizing detector (PID), etc.

Sampling may be conducted several times per task based on results.

Noise dosimetry may or may not be conducted based on the results of Sound Pressure Level Measurements.

3 3 OTHER CONTROL MEASURES

Standard 29 CFR 1910.120(g) requires that "Engineering controls and work practices shall be instituted to reduce and maintain employee exposure to or below the permissible exposure limits, except to the extent that such controls and practices are not feasible." Such control measures including engineering controls are specified in Table 3-1.3.

Eating, drinking, or smoking is not permitted in contaminated areas. Procedures are to be utilized during pumping operations (i.e., Operations Orders 788-02, 03, 04, 07, 08, 09, Work Plan 207B South, and Work Plan 207C Pond).

NOTE: Wet methods will be used at all times to prevent potential air-borne chemical/radiological contamination.

3.4 CONFINED SPACES

Confined space entries must comply with HSP 6.04, Confined Space Entry Program. All confined spaces associated with this task are listed in Table 2-2.4.

Will confined space entries be a part of the task(s) covered by this HASP? Yes No

3.5 NEW TECHNOLOGIES

The H&S Liaison Officer will coordinate evaluation of new technologies and equipment developed for the improved protection of employees working with hazardous waste clean-up operations for implementation at this site. The H&S Liaison Officer will coordinate evaluation of these technologies with the assistance of resources in each of the H&S departments as applicable. Any employee may introduce such a new technology to the H&S Liaison Officer.

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
1 Obtain transfer hose, fittings etc	1 Personnel injury from lifting	1 Proper back support devices and lifting techniques should be used when lifting heavy items to prevent over straining
2 Transfer equipment to sludge removal location	2 Personnel injury from slipping/tripping	2 Personnel shall be aware of their surroundings at all times Caution shall be exercised when working around the slope of the pond or on elevated areas of the clarifier Work shall be re-evaluated during periods of incimate weather
3 Retrieve debris	3 Personnel injury from slipping on the slope of the pond 3a Personnel contamination from radioactive or hazardous chemical material	3 Caution shall be exercised when working around the slope of the pond or on the clarifier A full body safety harness and tag lines (held by WS support person) shall be worn when on the slope of the berm or elevated portions of the clarifier 3a Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1 5 All items and personnel exiting the controlled area shall be monitored for contamination A portable safety shower/eyewash or garden hose shall be located within 100 of the operation
4 Connect hoses	4 Hand injury from fittings 4a Personnel contamination from radioactive or hazardous chemical material	4 Personnel are required to wear silver shield and leather gloves while performing sludge removal 4a Proper PPE shall be worn according to the posted RWP All items and personnel exiting the controlled area shall be monitored for contamination A portable safety shower/eyewash or garden hose shall be located within 100 of the operation

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
<p>5 Position hoses in ponds, clarifier</p>	<p>5 Falls slipping personnel injury to back or extremities while transferring of lifting hoses</p> <p>5a Overhead equipment</p> <p>5b Personnel contamination from radioactive or hazardous chemical material</p>	<p>5 Caution shall be exercised when working around the pond or clarifier, a full body safety harness with tag lines (held by WS support person) shall be worn. A back support device can be worn when lifting</p> <p>5a Hard hats shall be worn when working on or around overhead equipment. If necessary use a tag-line when positioning hose in pond or clarifier. Overhead electrical lines must be de-energized or shielded to prevent wire contact</p> <p>5b Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1.5. All items and personnel exiting the controlled area shall be monitored for contamination. A portable safety shower/eyewash or garden hose shall be located within 100' of the operation</p>
<p>6 Load sludge tanker</p>	<p>6 Falls, slipping, personnel injury to back or extremities while transferring sludge or lifting hoses</p> <p>6a Personnel contamination with radioactive or hazardous chemical material</p> <p>6b Dust from semi-dried sludge</p>	<p>6 Caution shall be exercised when working around the slope of the pond. If working on the slope of the berm, an anchored harness with a tag line (held by WS support person) shall be worn. A back support device can be worn when lifting hoses</p> <p>6a Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1.5. All items and personnel exiting the controlled area shall be monitored for contamination. A portable safety shower or eyewash or garden hose shall be located within 100' of the operation</p> <p>6b Lightly mist the semi-dried sludge during removal to prevent any dust from becoming airborne</p>

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
6 Load sludge tanker (cont)	<p>6c Overhead equipment</p> <p>6d Personnel injury from cold/heat stress</p>	<p>6c Hard hats shall be worn when working on or around overhead equipment. If necessary use a tag-line when positioning hose in pond or clarifier. Overhead electrical lines must be de-energized or shielded to prevent wire contact.</p> <p>6d For cold exposure, insulated garments will be furnished. Warm up breaks provided as necessary. During periods of high temperatures duration of work periods will be adjusted as necessary. Industrial Hygiene Representative will hold safety meetings to discuss heat stress symptoms and preventative measures.</p>
7 Disconnect hoses	<p>7 Hand injuries from fittings</p> <p>7a Personnel injury from pressurized lines</p> <p>7b Overhead equipment</p> <p>7c Falls slipping personnel injury to back or extremities while transferring sludge or lifting hoses</p> <p>7d Personnel contamination with radioactive or hazardous chemical material</p>	<p>7 Personnel are required to wear silver shield and leather gloves while performing the sludge removal operation.</p> <p>7a Drain sludge from hoses before disconnecting.</p> <p>7b Hard hats shall be worn when working on or around overhead equipment. If necessary use a tag-line when positioning hose in pond or clarifier. Overhead electrical lines must be de-energized or shielded to prevent wire contact.</p> <p>7c Caution shall be exercised when working around the slope of the pond or on clarifier. If working on the slope of the berm or on the clarifier an anchored harness with a tag line (held by WS support person) shall be worn. A back support device can be worn when lifting hoses.</p> <p>7d Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1.5. All items and personnel exiting the controlled area shall be monitored for contamination. A portable safety shower or eyewash shall be located within 100' of the operation.</p>

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
<p>8 Remove hoses from ponds or clarifier</p>	<p>8 Falls, slipping, personnel injury to back or extremities while transferring sludge or lifting hoses</p> <p>8a Personnel contamination with radioactive or hazardous chemical material</p> <p>8b Environmental contamination with radioactive or hazardous material</p>	<p>8 Caution shall be exercised when working around the slope of the pond or on the clarifier. If working on the slope of the berm or on the clarifier, an anchored harness with a tag line (held by WS support person) shall be worn. A back support device can be worn when lifting hoses.</p> <p>8a Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1.5. All items and personnel exiting the controlled area shall be monitored for contamination. A portable safety shower/eyewash or garden hose shall be located within 100' of the operation.</p> <p>8b Hoses shall be kept within the bermed area during setup, shutdown, and operation. Lines shall be drained back into the pond or clarifier. Hoses and equipment shall be free of visible external sludge material and monitored by an RCT before being transferred to the storage area. All spills outside the bermed area shall be reported to supervision. All reportable spills (one pint or one pound) shall also be reported to the Shift Superintendent and Radiological Protection Section Manager. Minimize the spread of contamination as directed by supervision.</p>
<p>9 Positioning ladders</p>	<p>9 Falls, slipping, personnel injury to back or extremities while transferring ladder</p> <p>9a Hand injury from sharp edges</p>	<p>9 Caution shall be exercised when working with roll-around ladders. A back support device can be worn when moving ladder.</p> <p>9a Personnel are required to wear silver shield and leather gloves while performing sludge off-loading.</p>

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
<p>10 Connect hoses to storage tanks</p>	<p>10 Falls, slipping, personnel injury while climbing ladder</p> <p>10a Injury to back or extremities while lifting hoses 10b Hand injury from fittings</p> <p>10c Personnel contamination from radioactive or hazardous chemical material</p>	<p>10 Personnel inspect ladders prior to usage Employees must follow HSP 22 02 and ANSI Standard A14 7-1991 Section 6 and 8 guidelines for proper ladder usage and maintenance</p> <p>10a A back support device can be worn when connecting hoses 10b Personnel are required to wear silver shield and leather gloves while performing operations</p> <p>10c Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1 5 All items and personnel exiting the controlled area shall be monitored for contamination A portable safety shower/eyewash shall be located within 100 of the operation</p>
<p>11 Pumping sludge from tanker to storage tank</p>	<p>11 Falls from ladder while monitoring tank</p> <p>11a Personnel injury from pressurized lines</p> <p>11b Personnel contamination from radioactive or hazardous chemical material</p> <p>11c Overhead equipment and personnel</p>	<p>11 Personnel inspect ladders prior to usage Employees must follow HSP 22 02 and ANSI Standard A14 7-1991 Section 6 and 8 guidelines for proper ladder usage and maintenance</p> <p>11a Fittings shall be checked for secure position and hoses shall be inspected for leaks</p> <p>11b Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1 5 All items and personnel exiting the controlled area shall be monitored for contamination A portable safety shower or eyewash shall be located within 100 of the operation</p> <p>11c Hard hats shall be worn when working on or around overhead hazards</p>

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
<p>12 Disconnect hoses from storage tanks</p>	<p>12 Hand injury from fittings</p> <p>12a Personnel injury from pressurized lines</p> <p>12b Overhead equipment and personnel 12c Falls, slipping, personnel injury to back while disconnecting hoses and climbing ladder</p> <p>12c Personnel contamination from radioactive or hazardous chemical material</p>	<p>12 Personnel are required to wear silver shield and leather gloves while performing the sludge loading operations</p> <p>12a Drain sludge from hoses before disconnecting</p> <p>12b Hard hats shall be worn when working on or around overhead hazards 12c Personnel inspect ladders prior to usage Employees must follow HSP 22 02 and ANSI Standard A14 7-1991 Section 6 and 8 guidelines for proper ladder usage and maintenance</p> <p>12c Personnel inspect ladders prior to usage Employees must follow HSP 22 02 and ANSI Standard A14 7-1991 Section 6 and 8 guidelines for proper ladder usage and maintenance</p>
<p>13 Salt buster rinse down</p>	<p>13 Personnel contamination from radioactive or hazardous chemical materials</p> <p>13a Environmental contamination with radioactive or hazardous material</p>	<p>13 Proper PPE shall be worn according to the posted RWP and as specified in Table 3-1 5 All items and personnel exiting the controlled area shall be monitored for contamination A portable safety shower/eyewash</p> <p>13a Hoses shall be kept within the bermed area during setup shutdown and operation Lines shall be drained back into the pond or clarifier Hoses and equipment shall be free of visible sludge material and monitored by an RCT before being transferred to the storage area All spills outside the bermed area shall be reported to supervision All reportable spills (one pint or one pound) shall also be reported to the Shift Superintendent and Radiological Protection Section manager Minimize the spread of contamination as directed by supervision</p>

JOB SAFETY ANALYSIS FOR POND SLUDGE REMOVAL

BASIC OPERATION	HAZARD	SAFETY MEASURES
13 Salt buster rinse down	13b Personnel injury from slipping on the slope of the pond	13b Caution shall be exercised when working around the slope of the pond A full body safety harness with a tag line (held by WS support person) shall be worn when on the slope of the berm
14 Doffing Personnel Protective Equipment	14 Radiological and chemical contamination from skin contact with contaminated PPE	14 Personnel shall rinse off PPE prior to removing PPE Leather gloves shall be removed prior to doffing body covering PPE shall be removed away from the body to prevent skin contact

4 0 PERSONNEL HEALTH AND SAFETY TRAINING REQUIREMENTS

HSP 21 03 specifies Hazardous Waste Operations and Emergency Response Training requirements for hazardous waste activities. Additionally, the following training is necessary for personnel performing hands-on work in each of the tasks indicated. Training requirements for visitors are described in Table 1-3.

REQUIRED TRAINING	TASK NUMBER								
	1	2	3	4	5	6	7	8	9
Building Indoctrination # 788-750-01	A	A	A	A	A	A	A	A	A
General Employee Training #019-235-01	A	A	A	A	A	A	A	A	A
Nuclear Material Safeguards #038-597-01	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C
Hazard Communication #019-750-01	A	A	A	A	A	A	A	A	A
Nuclear Criticality Safety #023-415-01	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C
Radiation Worker Level 1 #023-480-01	B	B	B	B	B	B	B	B	B
Radiation Worker Level 2 #023-482-01	C	C	C	C	C	C	C	C	C
Respirator Indoctrination #056-284-01	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C
Respirator Fit #056-284-02	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C
24 Hour OSHA #018-691-02	B	B	B	B	B	B	B	B	B
40 Hour OSHA #018-691-03	A	A	A	A	A	A	A	A	A
8 Hour OSHA Refresher #018-691-05	A	A	A	A	A	A	A	A	A
8 Hour OSHA Supervisor #018-691-01	X	X	X	X	X	X	X	X	X
RCRA CBT #023-435-01	A	A	A	A	A	A	A	A	A
RCRA OJT #018-442-01	A	A	A	A	A	A	A	A	A
Beryllium Operations #056-286-01	X	X	X	X	X	X	X	X	X
Waste Generator Non-PA #067-285-02	X	X	X	X	X	X	X	X	X
Waste Generator PA #067-285-01	A	A	A	A	A	A	A	A	A
Other Waste Generator PA Qual #067-291-01	A	A	A	A	A	A	A	A	A
Other Hearing Conservation #071-400-01	X	X	X	X	X	X	X	X	X
Other Quality Assurance	X	X	X	X	X	X	X	X	X
Other Health & Safety	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C
Other Emergency Plan	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C

- A-Items required for entry into HWA
- B-Items required for controlled area entry (No hands on work)
- C-Items required for controlled area entry (Hands on work)
- X-Items required by specific job classification

40 (continued)

REQUIRED TRAINING	TASK NUMBER									
	10	11	12	13	14	15	16	17	18	
Building Indoctrination # 788 750 Pad	A	A	A	A	A	A	A	A	A	A
General Employee Training #019-235-01	A	A	A	A	A	A	A	A	A	A
Nuclear Material Safeguards #038-597-01	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C
Hazard Communication #019-750-01	A	A	A	A	A	A	A	A	A	A
Nuclear Criticality Safety #023-415-01	A	A	A	A	A	A	A	A	A	A
Radiation Worker Level 1 #023-480-01	B	B	B	B	B	B	B	B	B	B
Radiation Worker Level 2 #023-482-01	C	C	C	C	C	C	C	C	C	C
Respirator Indoctrination #056-284-01	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C
Respirator Fit #056-284-02	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C	A, C
24 Hour OSHA #018-691-02	B	B	B	B	B	B	B	B	B	B
40 Hour OSHA #018-691-03	A	A	A	A	A	A	A	A	A	A
8 Hour OSHA Refresher #018-691-05	A	A	A	A	A	A	A	A	A	A
8 Hour OSHA Supervisor #018-691-01	X	X	X	X	X	X	X	X	X	X
RCRA CBT #023-435-01	A	A	A	A	A	A	A	A	A	A
RCRA OJT #018-442-01	A	A	A	A	A	A	A	A	A	A
Beryllium Operations #056-286-01	X	X	X	X	X	X	X	X	X	X
Waste Generator Non-PA #067-285-02	X	X	X	X	X	X	X	X	X	X
Waste Generator PA #067-285-01	A	A	A	A	A	A	A	A	A	A
Other Waste Generator PA Qual #067-291-01	A	A	A	A	A	A	A	A	A	A
Other Hearing Conservation #071-400-01	X	X	X	X	X	X	X	X	X	X
Other Quality Assurance	X	X	X	X	X	X	X	X	X	X
Other Health & Safety	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Other Emergency Pl in	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C

A-Items required for entry into HWA

B-Items required for controlled area entry (No hands on work)

C-Items required for controlled area entry (Hands on work)

X-Items required by specific job classification

5.0 MEDICAL SURVEILLANCE REQUIREMENTS

The EG&G Medical Surveillance program is described in HSP 4.00, Medical Program Chapters 4.02 -4.17. Physical examination practices are described in HSP 4.09, Physical Examinations. HSP 21.03 defines hazardous waste workers for purposes of medical surveillance.

This program covers

- HSP 4.20 Emergency Medical Response
- HSP 4.03 Medical Restrictions
- HSP 4.04 Transuranium Registry
- HSP 4.05 Access to Employee Medical and Exposure Records
- HSP 4.06 Medical Radionuclide Procedure Follow-Up
- HSP 4.07 Pregnancy
- HSP 4.08 Serious Illness Notification Program
- HSP 4.09 Physical Examinations
- HSP 4.15 Workers' Compensation Program
- HSP 21.03 Hazardous Waste Operations

All personnel working this HWA will have documented proof of training and will have the minimum of 24 hours of on the job training (OJT).

Subcontractors may obtain 24 hours of training from an off-site training facility whose program meets the requirements of 29 CFR 1910.120 (p).

NOTE: Rocky Flats Occupational Health Department has a current Medical Surveillance Program for all Hazardous Waste Workers. Occupational Health will determine additional surveillances if deemed necessary for ASRP operations.

7 0 DECONTAMINATION PLAN

HSP 18 02, Personnel Contamination Control Requirements for Radiological Controlled Areas describes requirements for decontamination. The objective of decontamination is to remove hazardous substances (chemical or radiological) from workers and equipment to assure compliance with DOE Order 5480 11 Radiological Operating Instructions, and OSHA standard 1910 120, and to preclude the occurrence of related adverse health effects. This chapter specifies decontamination techniques for applicable areas identified in Table 1-1.

7 1 DECONTAMINATION PROCEDURES AND LOCATION

The decontamination process shall take place within the RCA, if applicable (or outside of the contaminated area) in an area identified as the CRZ which consists of the following items:

- Barrier to prevent unauthorized traffic through the area
- Step off pad, decontamination rooms, and ancillary decontamination equipment
- Designated entry and exit to prevent cross contamination

NOTE

- Tasks 1 through 3 describe the 207B South Pond Sludge Transfer Operation
- Task 4 describes the decontamination of the Vacuum Trucks
- Tasks 5 through 8 describe the Decanting Operation
- Tasks 9 through 11 describe the Building 788 Clarifier Pond Sludge Transfer Operation
- Tasks 12 through 17 describe the 207C Pond Sludge Transfer Operation
- Task 18 describes the removal of the cement silos, steel framing and equipment located around the ponds

These items are described in the following table:

Task #	Type of Barrier (door type etc.)	Decontamination Equipment	Decontamination Steps
1	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Walk to edge of pond 2 Wash down personnel 3 Wipe down personnel 4 Monitor personnel 5 Remove contaminated PPE 6 Exit step-off area 7 Shower out at T-750E
2	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Walk to edge of pond 2 Wash down personnel 3 Wipe down personnel 4 Monitor personnel 5 Remove contaminated PPE 6 Exit step-off area 7 Shower out at T-750E
3	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Walk to edge of pond 2 Wash down personnel 3 Wipe down personnel 4 Monitor personnel 5 Remove contaminated PPE 6 Exit step-off area 7 Shower out at T-750E

4	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Walk to edge of pond 2 Wash down personnel 3 Wipe down personnel 4 Monitor personnel 5 Remove contaminated PPE 6 Exit step-off area 7 Shower out at T-750E
5	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Enter step-off pad 2 Wipe down personnel 3 Monitor personnel 4 Remove contaminated PPE 5 Exit step-off area 6 Shower out at T-750E
6	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Enter step-off pad 2 Wipe down personnel 3 Monitor personnel 4 Remove contaminated PPE 5 Exit step-off area 6 Shower out at T-750E
7	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Enter step-off pad 2 Wipe down personnel 3 Monitor personnel 4 Remove contaminated PPE 5 Exit step-off area 6 Shower out at T-750E
8	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Nitrile or Viton Gloves Plastic Bags	1 Enter step-off pad 2 Wipe down personnel 3 Monitor personnel 4 Remove contaminated PPE 5 Exit step-off area 6 Shower out at T-750E
9	Yellow and magenta rope	Garden hose with nozzle Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	1 Rinse off with garden hose and wash with decontamination solution 2 Descend clarifier platform 3 Remove contaminated clothing 4 Monitor personnel 5 Exit RCA if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F

10	Yellow and magenta rope	Portable Eye Wash/Shower Station (for operator filling vacuum truck) Garden hose with nozzle (for operator on clarifier platform) Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	Clarifier Platform operator will perform the following steps 1 Rinse off with garden hose and wash with decontamination solution 2 Descend clarifier platform 3 Remove contaminated clothing 4 Monitor personnel 5 Exit RCA, if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency, shower out at T-750F Operator filling vacuum tanker will perform the following steps 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F
11	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F

12	Yellow and magenta rope	Portable Eye Wash Station Kimwipes/Shower Decontamination Solution Silver shield Gloves Plastic Bags	<ol style="list-style-type: none"> 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F
13	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	<p>In case of emergency, contact the Fire Department Non-Emergency</p> <ol style="list-style-type: none"> 1 Drive salt buster to the dock if operational 2 If salt buster is not operational await retrieval crew or don PPE and wade to dock 3 Enter step-off pad if solution has come into contact with skin report to Occupational Health 4 Rinse off at portable eye wash/shower station and wash with decontamination solution 5 Remove contaminated PPE 6 Monitor personnel 7 Exit step-off area 8 In an emergency contact Fire Department 9 In a non-emergency shower out at T-750F
14	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	<ol style="list-style-type: none"> 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F

15	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	<ol style="list-style-type: none"> 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F
16	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	<ol style="list-style-type: none"> 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F
17	Yellow and magenta rope	Portable Eye Wash/Shower Station Kimwipes Decontamination Solution Silver shield Gloves Plastic Bags	<ol style="list-style-type: none"> 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F

<p>18</p>	<p>For work inside the RCA, yellow and magenta rope</p> <p>For work outside the RCA, follow RWP posting requirements</p>	<p>Portable Eye Wash/Shower Station (for work inside the RCA)</p> <p>Plastic Bags</p>	<p>When working inside the RCA perform the following steps</p> <ol style="list-style-type: none"> 1 Enter step-off pad 2 Rinse off at portable eye wash/shower station and wash with decontamination solution 3 Remove contaminated PPE 4 Monitor personnel 5 Exit step-off area if solution has come into contact with skin report to Occupational Health 6 In an emergency contact Fire Department 7 In a non-emergency shower out at T-750F <p>When working outside of the RCA perform the following steps</p> <ol style="list-style-type: none"> 1 Rinse off at portable eye wash/shower station and wash with decontamination solution 2 Remove contaminated PPE 3 Monitor personnel if solution has come into contact with skin report to Occupational Health 4 In an emergency contact Fire Department 5 In a non-emergency shower out at T-750F
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Attach additional pages if necessary

All employees leaving a contaminated area shall be appropriately decontaminated for the suspected contaminants
The decontamination layout is shown in Appendix C, Figure 11-1

The extent of decontamination will be dependent on the level of contamination

Workers in Level D PPE should rinse or wipe boots before leaving contaminated area. Doffing procedures must be performed in the order listed on Page 7-8 to minimize the potential for personnel contamination during the doffing activity

Health and safety procedures at the Decontamination Facility will comply with the HASP for Operation of Decontamination Facilities, Protective Area Decontamination Facility prepared by Woodward-Clyde

Reusable decontaminatable PPE includes hip waders, and/or rubber boots

Reusable products are chemically compatible with the chemical constituents in the ponds and the clarifier as documented in the ASTM Recommended List of Liquid and Gaseous Chemicals for Evaluating Protective Clothing Materials in Testing Programs. Reusable products will be monitored for radiological contaminants and cleaning solution analyses shall be conducted for the first three days of operations and weekly thereafter as a minimum or more frequently as requested by IH. Contaminants analyzed for will include contaminants of concern. If physical degradation of the PPE is observed, contaminated PPE has come into contact with the skin and/or PPE cannot be decontaminated, then the PPE shall be disposed of as low-level mixed waste. The absence of radiological contamination is defined in HSP 18.10 Release of Property/Waste for Conditional and Unrestricted Use as per DOE Order 5480.11, and measured with radiation survey instruments capable of detecting Alpha and Beta/Gamma radiation at these levels

Reusable PPE shall be decontaminated using the following steps

NOTE

As necessary, support personnel who assist in decontamination shall be in the same level of PPE as personnel exiting the Exclusion Zone/Radiological Material Area

- 1 Obtain following materials from the designated storage area within the RCA
 - Decontamination solution
 - Kim Wipes
 - Brushes or Scotch Brite Pads
 - Plastic Containers (3)
- 2 Place hip waders and/or rubber boots in a clean plastic container
- 3 Scrub the hip waders and/or rubber boots using decontamination solution and brushes or Scotch Brite pads
- 4 If possible use kimpwipes to absorb the decontamination solution
- 5 Collect and properly dispose of kimpwipes and contaminated PPE used for decontamination in accordance with WO-1100 Solid Radioactive Waste Packaging Within the PA
- 6 Repeat steps 3 through 5 two times in clean buckets and solutions
- 7 Place decontaminated hip waders and/or rubber boots in the designated storage area within the RCA
- 8 Proceed to wash hands and face

Heavy equipment will be contained transported to the Decontamination Facility and decontaminated in accordance with FO-04, FO-05, and FO-12

GENERAL DOFFING PROCEDURE

NOTE Reusable PPE shall be decontaminated by support personnel in accordance with steps on Page 7-7 Decontamination of reusable PPE does not have to occur simultaneously as personnel exit from the RMA/Exclusion Zone

- 1 Exit the RMA/Exclusion Zone, and proceed to the doffing station
- 2 Place all equipment and supplies on plastic drop cloth provided
- 3 Per supervisor direction, remove used footwear and outer protective garments (i.e. rubber boots/hip waders saranex or barricade, leather gloves and/or silver shield gloves)
- 4 Don clean footwear
- 5 Proceed directly to the step-off pad to be monitored
- 6 Request Radiological Control Technician (RCT) to perform a personnel monitor and to monitor respiratory protection, if worn
- 7 Remove respiratory protection as directed by the RCT
- 8 Exit the step-off pad
- 9 Proceed to support zone to wash hands and face

TABLE 7 1
HSP 18 10 Surface Contamination Limits for Unrestricted Release

Radionuclides ²	Average ^{3,4} Total (Fixed Plus Removable) (dpm/100 cm ²) ¹	Maximum Total (Fixed Plus Removable) (dpm/100 cm ²) ¹	Removable ^{1,5,6} (dpm/100 cm ²)
Transuranics, I-125, I-129, Ra-226, Ac-227, Ra-223, Th-228 Th-230 Pa-231	100	300	20
Th-Natural, Sr-90, I-126, I- 131, I-133, Ra-223, Ra 224 U-232 Th-232	1,000	3,000	200
U-Natural, U-235, U-238, and associated decay product, alpha emitters	5 000	15 000	1,000
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above) ⁷	5 000	15 000	1 000

Notes

- 1 As used in this table dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background efficiency and geometric factors associated with the instrumentation
- 2 Where surface contamination by both alpha and beta gamma radionuclides exists the limits established for alpha and beta gamma emitting radionuclides should apply independently
- 3 Measurements of average contamination should not be averaged over an area of more than 1 m² For objects of less surface area the average should be derived for each object.
- 4 The average and maximum dose rates associated with surface contamination resulting from beta gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h respectively at 1 cm
- 5 The maximum contamination level applies to an area of not more than 100 cm²
- 6 The amount of removal material per 100 cm² of surface area should be determined by wiping an area of that size with a dry filter or soft absorbent paper applying moderate pressure and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency When removable contamination on objects of surface area less than 100 cm² is determined the activity per unit area should be based on the actual area and the entire surface should be wiped It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination
- 7 This category of radionuclides includes mixed fission products including the Sr 90 which is present in them It does not apply to Sr 90 which has been separated from the other fission products or mixtures where the Sr 90 has been enriched

7 2 DISPOSAL OF DECONTAMINATION EQUIPMENT AND SOLUTIONS

All contaminated clothing and equipment leaving the contaminated area shall be appropriately contained to prevent the spread of the contaminant and shall be properly managed or decontaminated in the appropriate decontamination area.

All wash solutions used for decontamination shall be contained tubs pans four-liter jugs or drums and used as process water Containers will be designated for process waste use only and will not be used for any other purpose All solutions shall be sampled for chemical constituents and radiological constituents for proper waste identification and stored or treated per plant policies and RCRA permits

All wastes collected during decontamination procedures shall be stored and managed according to applicable waste requirements procedures

8 0 EMERGENCY RESPONSE

Does a Building Emergency Preparedness Plan exist for this location as proscribed by DOE Order 5500 3A?
(X) Yes () No If so, include the plan in Table 1-2

8 1 PRE-EMERGENCY PLANNING

The purpose of this Emergency Response Plan is to have a detailed pre-determined strategy for handling emergency incidents and potential problems. This pre-emergency planning will aid in immediate response and abatement of problems and will likely reduce the severity and impact of hazardous situations. The plan is designed to protect site personnel from potential hazards created by an emergency situation. In addition to safeguarding site personnel, the plan is designed to protect plant personnel and the public from contaminants that could potentially move offsite, protect property adjacent to the storage areas from potential hazards within the storage areas and prevent equipment loss as a result of fire, explosion or contamination.

8 2 EMERGENCY CONTACT/NOTIFICATION

It is critical that key personnel are informed immediately of emergency situations so response efforts can be carried out effectively. Success will depend on the efforts of appropriate personnel and the input they can provide as a result of training and experience. Team work is crucial for abating hazards and minimizing damage. Emergency assistance should always be requested when it is unclear whether there is a need for support personnel. This section details procedures to be followed during an emergency. The Fire Department Rescue team will be immediately notified of any life threatening situations involving the rescue of the salt buster operator during 207C Pond Operations.

LIFE THREATENING EMERGENCIES - NOTIFY SHIFT SUPERINTENDENT - CALL X2911 OR RADIO CHANNEL #1

NON-LIFE THREATENING EMERGENCIES - NOTIFY SUPERVISION, HAZARDOUS WASTE FOREMAN X5521 OR 4414 MANAGER X2489 OPERATIONS MANAGER X5841

Notification requirements for emergency situations at the storage areas depend on the nature of the perceived emergency (i.e., spill, injury, illness, or fire) and the extent to which the damage and/or injuries have progressed. Upon discovery of a release of materials or other non-life threatening emergency situation, immediately notify the onsite supervisor, and Area Administrator. The supervisor will evaluate the situation and notify appropriate personnel. Emergency phone numbers are in Table 8-1.

8 2 1 NON-EMERGENCY RESPONSE

Due to the potential for equipment failure, the following actions shall be performed for retrieval of the Salt Buster and/or Salt Buster Operator:

RETRIEVAL OF THE SALT BUSTER OPERATOR

- 1 Health and Safety Area Management, Shift Manager, Industrial Hygiene, Radiological Engineering and the Fire Department will be notified of non-emergency situation.
- 2 The WS support personnel will don personnel protective equipment (butyrate hip waders, silver shield gloves, leather gloves, and full face respirator).
- 3 The approved retrieval boat will be placed into 207C Pond.
- 4 Waste Solidification (WS) support personnel will don personnel protective equipment (saranex hip waders, nitrile gloves, and full face respirator).
- 5 The WS support personnel will enter the boat and support personnel will pull the WS employee by use of installed tag lines to the salt buster.

RETRIEVAL OF THE SALT BUSTER OPERATOR

- 6 The salt buster operator will don personnel protective equipment (barricade, hip waders, silver shield gloves, leather gloves and full face respirator)
- 7 The salt buster operator will enter the boat and both the WS support personnel and the salt buster operator will be pulled to the closest bermed edge of the 207C Pond

RETRIEVAL OF THE SALT BUSTER

WARNING

Before the salt buster is pulled from the pond, all personnel will clear the area in the vicinity of the cable to eliminate possible injury due to the possibility of tow cable breakage occurring

- 1 Health and Safety Area Management Shift Manager, Industrial Hygiene, Radiological Engineering, and the Fire Department will be notified of non-emergency situation
- 2 Waste Solidification (WS) support personnel will don personnel protective equipment (barricade, hip waders, silver shield gloves, leather gloves and full face respirator)
- 3 The approved retrieval boat will be placed into 207C Pond. If the water level is lowered to the point that it will not support the boat and its occupants, then personnel will enter the pond with the proper personnel protective equipment (i.e. saranex, hip waders, nitrile gloves and full face respirator) and leave the salt buster in as safe a manner as possible

NOTE Due to the known contamination (i.e., radiological and chemical hazards), the cable used to pull the salt buster from the pond will need to be decontaminated or disposed of if contact with pond sludge or pond water occurs

- 4 An approved load tested cable will be utilized to remove the salt buster from the pond. The cable will be attached to a front end loader supplied by the Garage
- 5 The cable will be attached from the front end loader and will be taken to the salt buster via the WS support personnel in the retrieval boat or traversing the pond if water level is too low to support the retrieval boat and installed on the back of the salt buster
- 6 The front end loader operator will pull the salt buster to the closest pond berm edge as directed by WS support personnel

TABLE 8-1

Emergency Numbers

Department/Group	Name	Phone #	Pager #	Home Phone
Shift Superintendent (Incident Commander)		2911 2914		
H&S Area Administrator	D Chojnacki	2148	1641	
H&S Liaison Officer	L A Nelowet	5471	3048	
H&S Liaison Officer	K D Anderson	6979	5142	
Industrial Hygiene	N Candido	2780	1658	
Occupational Health	F J Furman	2895		
Occupational Safety	D Perryman	5827	1655	
Onsite Supervisor	G Martinez	5755	0680	
Operations Manager	J D Roberts	3324	3562	
Project Manager	T D Beckman	8725	1988	
Radiological Engineering	R W Norton	4075	7973	
Radiological Operations	D J Davidson	5772	5514	
RCRA/CERCLA	A L Schubert	5251	1177	
Response & Reporting		3456		
Security		2444		
Site Foreman	J R Churchill	5755	4226	
Unit Manager Units 25	J D Roberts	3324	3562	

If the supervisor is not available or the situation is life threatening notify RFP emergency response personnel as detailed below

Call X2911 or radio channel #1 for emergency assistance for life threatening emergencies to access

- Incident Commander (Shift Superintendent)
- Plant Protection Central Alarm Station
- Fire Department Dispatch Center, and
- Occupational Health

Provide as much detail about the emergency as possible. A decision to dispatch any or all of the following equipment will be made on the information provided

- Fire Engine/Equipment
- Ambulance
- Hazmat Response Vehicle

Provide the following information upon request to the qualified Emergency Dispatcher

- Exact location of the emergency (nearest road etc)
- Nature of the emergency
- Condition of patient if applicable (breathing consciousness bleeding etc)
- Special hazards in the area
- Your name
- Building number Cargo number or Unit number
- Any other information requested

If no details are given emergency response personnel will respond automatically

The Incident Commander (IC) will immediately respond to all emergency alerts and alarms. Radio/telephone communications shall be maintained with personnel having access to the plant Public Address System. At his/her discretion, the IC may activate the Emergency Operation Center (EOC) and notify departments that have an advisory role in the situation. The IC will determine if additional help from offsite agencies (police, hospitals, etc.) is required. The IC will then notify the following groups when appropriate:

Radiological Engineering	Industrial Hygiene
Radiological Operations	Traffic
Occupational Safety	H&S Administrator
Event Notifications Officer	Hazardous Waste Operations
Occupational Health	

Radiological Engineering and Industrial Hygiene will assess any hazards associated with the release of spilled product. Fire Department will be first responders. Hazardous Waste Operations will evaluate the incident for RCRA/CERCLA reporting requirements. Notification shall also be made to Response and Reporting at X7264. Industrial Hygiene and Radiological Engineering shall advise on the type of PPE including respiratory protection in the event of an emergency.

8.3 EMERGENCY EQUIPMENT LOCATION

All work sites are equipped with emergency response equipment. Minimum emergency response equipment needed is located in Table 8-2.

TABLE 8-2
 Emergency Equipment

Check all that apply

Spill Response Supplies	Location
<input checked="" type="checkbox"/> Coveralls (Barricade)	750 Pad Tents, Building 788
<input checked="" type="checkbox"/> Gloves (silver shield, leather surgeons etc)	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Booties (compatible with spill material)	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Tape (2 inch and 6 inch)	750 Pad Tents, Building 788
<input type="checkbox"/> Non-sparking tools to seal drums	
<input checked="" type="checkbox"/> Kim-wipes	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Poly bags	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Oil-dri absorbent	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Broom and dust pan (non-sparking)	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Neutralizer (for acid and caustic) (minimum 1 liter of each)	750 Pad Tents, Building 788 (For battery acid only)
<input checked="" type="checkbox"/> 55-gallon poly bags	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Wet vacuum pickup	750 Pad Tents Building 788
<input type="checkbox"/> Explosion proof wet vacuum pickup	
<input checked="" type="checkbox"/> Roll of plastic	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Decon solution	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Non-sparking shovel	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Face shield	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Pumps (also include explosion proof)	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Extension cords	750 Pad Tents Building 788
<input checked="" type="checkbox"/> Generator with Ground Fault Circuit Interrupter	750 Pad Tents Building 788
Empty containers for use for spill response and/or material transfer should it become necessary	750 Pad Tents Building 788
<input checked="" type="checkbox"/> 55-gallon containers (poly soft steel or 6D as needed)	750 Pad Tents Building 788
<input type="checkbox"/> 85-gallon containers (poly, soft steel, or 6D as needed)	
Shall have Nuclear Criticality's approval.	

Industrial Hygiene will approve any neutralizing materials that may be acquired

8.4 SPILL RESPONSE & CONTROL PROCEDURES

Spill response procedures are described in HSP 21.04, Emergency Response and Spill Control, and in Hazardous Waste Requirements Manual (HWRM) Section 4

ALL LARGE SPILLS SHALL BE REPORTED TO THE EMERGENCY COORDINATOR AT X2911 OR RADIO CHANNEL #1

Other spill response procedures Operations Order 788-04

8.5 FIRE OR EXPLOSION RESPONSE

Notify the Fire Department in the event of a fire no matter how minor. REPORT FIRES AND EXPLOSIONS TO X2911 OR RADIO CHANNEL #1

Other fire response procedures _____

8.5.1 Post-Emergency Response

Equipment will be decontaminated at the Decontamination Facility or by wiping with a soap solution. Non-reusable items used for decontamination and decontamination wash water will be handled per the Hazardous Waste Requirements Manual 3.0 and plant policies. The Project Manager will ensure that emergency equipment is restocked and a post-emergency review is performed.

8.6 EVACUATION PLAN

Personnel and visitors to this HWA will not respond to the incident and will evacuate the areas if any of the following occur:

- Fire, explosion
- Spill
- If instructed by the Life Safety/Disaster Warning (LS/DW) Public Address System
- If instructed by site supervision
- Other _____

Assembly areas are taught in the building indoctrinations or site briefings and are shown in Appendix C. After an evacuation the supervisor is required to verify that all employees under his/her supervision are accounted for.

9 0 REFERENCES

9 1 FEDERAL AND STATE REGULATIONS

- Title 29 Code of Federal Regulations, Parts 1920 1000 through 1910 1048 (Subpart Z), "Toxic and Hazardous Substances"
Code of Federal Regulations, Part 1910 120 "Hazardous Waste Operations and Emergency Response"
Code of Federal Regulations, Part 1910, "Occupational Safety and Health Standards for General Industry"
Code of Federal Regulations, Part 1926, "Safety and Health Regulations for Construction"
Title 40 Code of Federal Regulations, Parts 260-270, "Hazardous Waste Management System"

Title 49 Code of Federal Regulations, Transportation

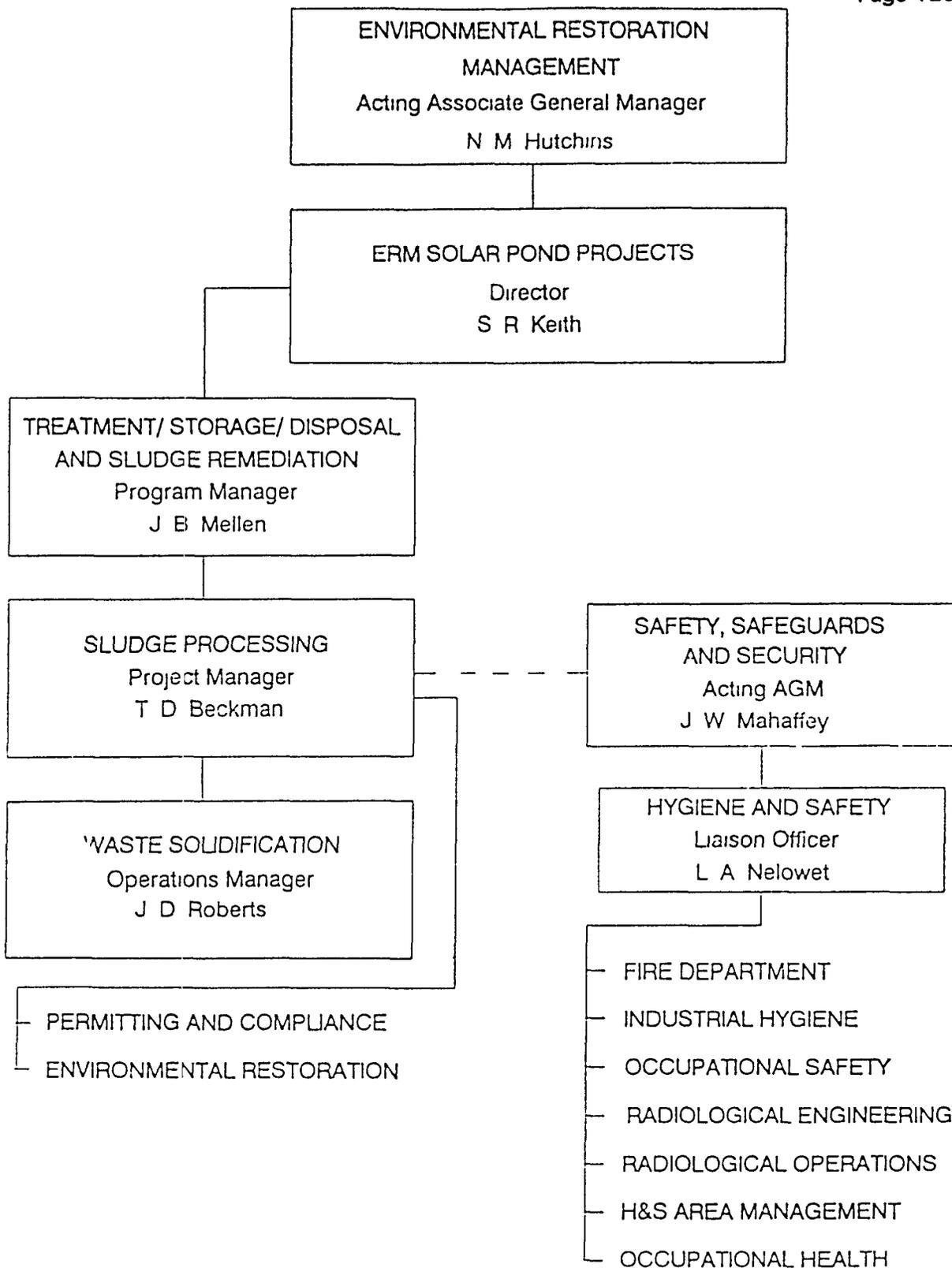
NIOSH Occupational Safety and Health Guidance for Hazardous Waste Site Activities US Department of Health and Human Services, National Institute of Occupational Safety and Health (NIOSH), October 1985
Threshold Limit Values and Biological Exposure Indices for 1990-1991, American Conference of Governmental Industrial Hygienists 1990

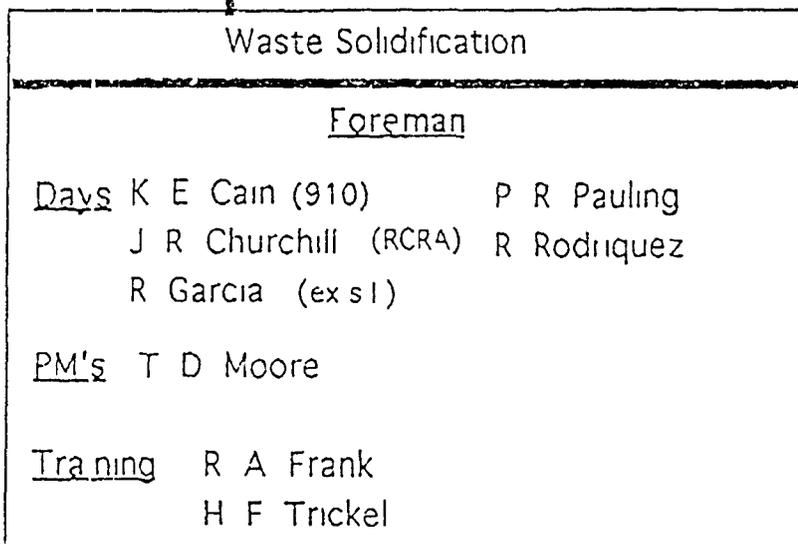
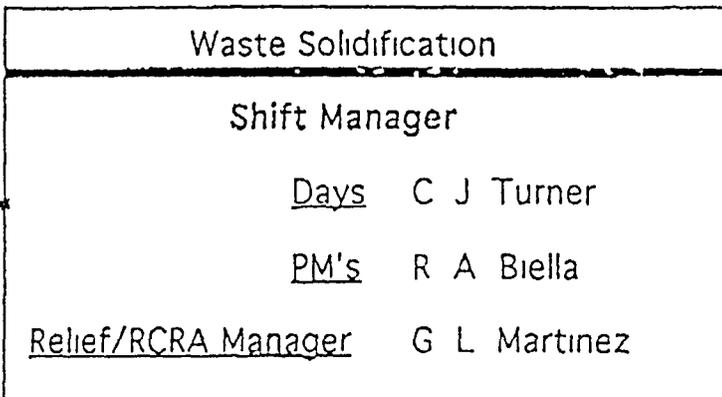
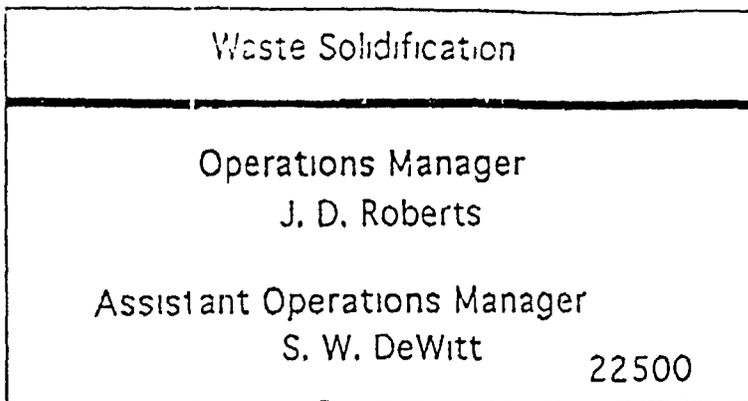
9 2 DEPARTMENT OF ENERGY ORDERS

- 5400 1 "General Environmental Protection Plan"
5480 11 "Radiation Protection for Occupational Workers"
5480 19 "Conduct of Operations"
5480 6 "Radiological Control Manual"

9 3 ROCKY FLATS PLANT MANUALS

- COOP Conduct of Operations
EMD Operating Procedures Vol 1
Environmental Management Radiological Guidelines
HSP EG&G Rocky Flats Plant (RFP) Health and Safety Practices Manual
HWRM Hazardous Waste Requirements Manual
ROI Radiological Operating Instructions
TUM Training Users Manual
WRM Waste Requirements Manual
WRPM Waste Requirements Procedures Manual





A 1 PROJECT MANAGER

Responsibilities of the Project Manager include

- Single point EG&G responsibility for the ASRP project and the performance of the EG&G project team, including health, safety, radiological, and environmental specialists
- Ensures that key EG&G personnel with expertise in health and safety, and environmental and radiological protection are assigned specific tasks as applicable during the planning and execution phase of the project
- Approves all changes in cost estimate and schedule while ensuring health and safety functions are intact
- Addresses and approval responsibility for all deliverables including all health and safety plans and health and safety aspects of all Standard Operation Procedures (SOPs) Coordinates any other internal reviews for these deliverables that may be required at Rocky Flats
- Ensuring that the ASRP Health and Safety plan is prepared, reviewed and approved by the appropriate individuals within the Department of Energy (DOE) the Rocky Flats Plant and other government agencies
- Single point responsibility for all public relations and regulatory activities

A 2 OPERATIONS MANAGER

The Operations Manager is responsible for all EG&G activities associated with pond clean-up operations at the ASRP site. These activities include

- Providing management operational direction and technical input to assure that all plant resources are utilized to safely support the production facility in accordance with EG&G policies, directives, and regulations
- Performing audits of all operations as required to maintain compliance with policies, procedures, directives, etc. with emphasis on safety
- Ensuring all EG&G employees conform to the safety requirements of their job through familiarity and policies, requirements, and procedures
- Proactively seeking ways to improve safety performance and general housekeeping in work areas
- Providing management direction and guidance to achieve and ensure the proper training and certification of foreman, shift managers, skilled and hourly personnel in accordance with EG&G policy
- Maintaining responsibility for all personnel assigned to the complex when an emergency occurs and working closely with the Shift Superintendent to ensure employee safety, property safety, and minimization of loss when possible
- Serving as the single point of authority to coordinate and facilitate any action necessary to keep the complex operating at design capacity, safely, efficiently, and in keeping with all security requirements
- Serving as chairperson of (or appointing a designee to chair) the ALARA committee

A 3 ASSISTANT OPERATIONS MANAGER

The Deputy Operations Manager reports directly to the Operations Manager and assists in implementing the responsibilities of the Operations Manager. In addition, the Deputy Operations Manager's safety responsibilities include

- Directing implementation of the Health and Safety Plan in the field for EG&G activities
- Recommending additions and revision to the Health and Safety Plan as necessary
- Initiating appropriate action to correct EG&G safety violations
- Acting on EG&G employee concerns in accordance with the procedures outlined in Plant Policies and Procedures Manual

A 4 SITE RCRA MANAGER

Responsibilities of the Site RCRA Manager include

- Ensuring that specific site requirements of the ASRP Health and Safety Plans (e.g. sign requirements, decontamination facilities, etc.) are in place and operational prior to start-up
- Interfacing with the health and safety divisions to ensure that appropriate safety measures have been implemented at the ASRP site
- Ensuring that employees are adequately trained in the hazards associated with the facility operation equipment and hazardous materials handled or utilized on site

A 5 SHIFT MANAGERS

Responsibilities of the Shift Managers include

- Ensuring that remediation operations on the ASRP site run safely and smoothly
- Seeing that RCRA inspections are performed as required
- Reporting spills and assigning personnel to respond to spills
- Ensuring that EG&G employees are familiar with and comply with housekeeping, safety, and operating requirements
- Promoting improvements in housekeeping and safety
- Verifying that EG&G and subcontractor personnel working at the ASRP site are fully qualified to perform the work by auditing available training and medical surveillance records, and by observing performance of field duties

A 6 SITE FOREMAN

Responsibilities of the Site Foreman include

- Managing field operations
- Executing the work plan and schedule
- Enforcing safety procedures
- Coordinating protection levels with Industrial Hygiene and Radiological Engineering
- Enforcing site control
- Documenting site activities
- Implementing emergency response and notification procedures

A 6.6 PROCESS SPECIALIST

Responsibilities of the Process Specialist include

- Reporting process equipment malfunctions
- Reporting conditions that could result in potential worker exposure or release of material to the environment
- Ensuring that housekeeping problems do not exist
- Comply with safety and operational procedures

A 7 HYGIENE AND SAFETY AREA ADMINISTRATOR

The Industrial Hygiene and Safety Administrator is responsible for the management of a multi-discipline safety team. As the safety team leader, the IH&S Area Administrator ensures effective communications within the IH&S organization. In addition, the IH&S Area Administrator will assist ASRP site management in the completion of a Job Safety Analysis (JSA) in accordance with the Rocky Flats Policies and/or Health and Safety Procedures Manual.

The IH&S Area Administrator will

- Implement the policies and requirements established by EG&G
- Enforce Stop-Work-Orders if any operation threatens worker health or safety

A 8 INDUSTRIAL HYGIENE REPRESENTATIVE

The Industrial Hygiene (IH) Representative is responsible for implementing the chemical monitoring program. This includes initial evaluation of the site to ensure respiratory and clothing protection levels are adequate and generation of sufficient data upon which further personal protective equipment (PPE) decisions may be based. The IH Representative is responsible for the duration of operations at the ASRP site and re-evaluating PPE requirements if necessary, due to changing site conditions. In addition, the IH Representative will assist Waste Operations Management in the implementation and review of changes to engineering controls at the ASRP site that could potentially effect exposures. Finally, the IH Representative will address complaints and concerns from management and operators at the ASRP site concerning industrial hygiene at the site.

A 9 HEALTH AND SAFETY LIAISON OFFICER

The responsibilities of the Health and Safety Liaison Officer include

- Coordinates health and safety activities with the Operations Manager and the IH&S Area Administrator
- Implements the HASP by providing and supervising EG&G site Health and Safety Coordinators at each designated ER site
- Reviews and approves EG&G Health and Safety Plans (HASPs)
- Supervises the EG&G site Health and Safety Coordinators

A 10 INDUSTRIAL SAFETY REPRESENTATIVE

The responsibilities of the Industrial Safety Representative include

- Reviewing operations for potential safety and health hazards
- Recommending appropriate personal protective equipment
- Acting as consultants to Hazardous Waste Operations
- Reviewing health and safety programs and plans for technical accuracy and compliance with health and safety regulations
- Performing audits/inspections of Hazardous Waste Operations procedures and operations

A 11 RADIOLOGICAL OPERATIONS FOREMAN

The Radiological Operations Foreman (ROF) has responsibility for providing qualified Radiological Control Technicians (RCTs) to the ASRP site to implement the radiological monitoring program. The ROF must also provide oversight, professional guidance and direction and ensure the thoroughness and accuracy of the RCTs. The ROF must also work with Radiological Engineering to provide guidance and implementation of the Radiological Protection Program.

A 12 RADIOLOGICAL CONTROL TECHNICIANS

Radiological Control Technician (RCT) practices shall be in conformance with Radiological Operating Instructions (ROIs). RCTs will be responsible for notifying on-site supervision when action levels are approached or reached and for documenting all monitoring results. RCTs will conduct monitoring and will know the action levels for radiological contamination.

A 13 RADIOLOGICAL ENGINEERING REPRESENTATIVE

The Radiological Engineering (RE) Representative will define the requirements for radiation protection for the ASRP site as required by the Rocky Flats Radiation Control Program, DOE, ANSI, OSHA, and other relevant requirements. The RE will define the protocols for monitoring, clothing, respiratory protection, and decontamination in accordance with prudent health physics practices and DOE directives. In addition, the RE will assist Waste Operations Management in the development, implementation, and review of any changes to the engineering controls at the ASRP site. Complaints and concerns from radiological hazards will be addressed by the RE.

A 14 ENVIRONMENTAL RESTORATION REPRESENTATIVE

The Environmental Restoration Representative will prepare the RCRA spill report required within 15 days of a spill, and coordinate RCRA closure activities at the ASRP site, at the appropriate time

A 15 PERMITTING AND COMPLIANCE REPRESENTATIVE

The Permitting and Compliance Representative will ensure that routine RCRA internal audits are conducted at the ASRP site, through the Waste Surveillance group and will review and sign off on safe operating procedures through the Waste Guidance group

A 16 OCCUPATIONAL HEALTH DIRECTOR

The Occupational Health Director is responsible for the administration of the Rocky Flats Plant (RFP) Occupational Health Program. These responsibilities include

- Maintaining EG&G medical records
- Correlating exposure data to ensure that the scope of annual physical examinations are correct
- Issuing letters to employees concerning potential exposures to hazardous materials based on bioassays

A 17 FIRE PROTECTION REPRESENTATIVE

The Fire Department is responsible for minimizing the potential for damage and injury to health and property as a result of fire. This is accomplished by ensuring that adequate fire suppression systems are available site-wide. That audits and inspections are conducted to abate potentially hazardous situations such as the improper storage of flammable or combustible materials and to provide emergency support in the event of an injury or accident

Appendix B

Chemical Hazards Posed by Site Contaminants and Route of Exposure

Tasks Involving Contaminant	Maximum Expected Concentration (a) air or other medium (specify)	Contaminant (Synonyms) (Abbreviations)	OSHA PEL, ACGIH TLV or NIOSH REL * Action Level (AL) <IDLH>	Hazard Type	Physical/Chemical Characteristics	Routes of Exposure	Exposure Symptoms/ <Target Organs>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier None/84 mg/kg	Ammonia	17 mg/m3 AL 10 mg/m3 <347 mg/m3>	Corrosive	Colorless gas with pungent, suffocating odor	Inhalation Ingestion Contact	Eye, nose, throat irritation chest pain, difficulty breathing, skin burns <respiratory system, eyes>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier 37 mg/kg 219 mg/kg	Arsenic	0.010 mg/m3 AL 0.005 mg/m3 <100 mg/m3>	Carcinogen Toxic	Silver gray or tin white brittle, odorless solid in solution and salt form in pond and clarifier	Inhalation Absorption Contact Ingestion	Nasal ulceration, GI disturbances respiratory irritation <Liver, kidneys skin lungs, lymphatic system>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier 61.5 mg/kg 217 mg/kg	Barium	0.5 mg/m3 AL 0.25 mg/m3 <1100 mg/m3>	Toxic	White odorless solid in solution and salt form in pond and clarifier	Inhalation Ingestion Contact	Irritates eyes nose, throat upper respiratory, GI, muscle spasms, slow pulse skin burns <heart, CNS, skin, respiratory system, eyes>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier 30 ug/kg none	Benzene	3.20 mg/m3 AL 0.3 mg/m3 <9582 mg/m3>	Carcinogen	Colorless to light yellow liquid with an aromatic odor	Inhalation Absorption Contact Ingestion	Respiratory symptoms Irritated eyes, headache nausea <blood CNS eyes bone marrow>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier 665 mg/kg 4660 mg/kg	Cadmium Dust	0.2 mg/m3 AL 0.1 mg/m3 <50 mg/m3>	Carcinogen Toxic	Silver white, blue tinged lustrous odorless solid in solution and salt form in pond and clarifier	Inhalation Ingestion	Pulmonary edema, cough tight chest, chills, muscle aches nausea, vomiting, diarrhea <Respiratory system, kidneys prostate, blood>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier 320 ug/kg none	Coal Pitch Tar (Pyrene)	0.2 mg/kg AL 0.1 mg/m3 <700 mg/kg>	Carcinogen	Black or dark brown amorphous residue	Inhalation Contact	Respiratory symptoms <bladder, kidneys skin>
10, 11, 12, 13, 14, 15, 16	C Pond/clarifier 960 mg/kg 3190 mg/kg	Chromium	0.5 mg/m3 AL 0.25 mg/m3 <No evidence>	Carcinogen Toxic	Blue white to steel gray, lustrous, brittle hard solid in solution and salt form in pond and clarifier	Inhalation Ingestion	Corrosive to skin and mucous membranes, carcinogen of the lungs, nasal cavity, stomach larynx

Tasks Involving Contaminant	Maximum Expected Concentration (a) air or other medium (specify)	Contaminant (Synonyms) (Abbreviations)	OSHA PEL, ACGIH TLV or NIOSH REL * Action Level (AL) <IDLH>	Hazard Type	Physical/Chemical Characteristics	Routes of Exposure	Exposure Symptoms/ <Target Organs>
10, 11, 12 13, 14, 15, 16	C Pond/clarifier 33 ug/kg none	Freon 113 (1,1,2 Trichloro 1,2,2 Trifluoroethane) (Chlorofluorocarbon 113)	7670 mg/m3 9590 mg/m3 (st) AL 3835 mg/m3 <4500>	Toxic	Colorless to water white liquid with an odor like carbon tetrachloride at high concentrations BP 118F	Inhalation Ingestion Contact	Irritates throat, drowsiness, dermatitis <skin, heart>
10, 11, 12 13, 14, 15, 16	C Pond/clarifier 170 mg/kg 190 mg/kg	Total Cyanide as NaCN KCN (for total CN)	5 mg/m3 (st) AL 3 mg/m3 <5 mg/m3>	Fire Toxic	Colorless or pale blue liquid or gas with bitter almond like odor BP 78 F, LEL 5.6% UEL 40% crystalline solids or white granular	Inhalation Absorption Ingestion Contact	Asphyxiation and death at high levels, weak, headache nausea, vomiting, respiration slow and gasping <CNS, CVS, liver, kidneys>
10, 11 12 13, 14, 15, 16	C Pond/clarifier 38.5 mg/kg 191 mg/kg	Lead	0.050 mg/m3 AL 0.003 mg/m3 <700 mg/m3>	Toxic	Heavy, ductile, gray, soft metal, in solution and salt form in pond and clarifier	Inhalation Ingestion Contact	Weakness, insomnia, nervous irritability, tremors, muscle pain <CNS, PNS, GI tract, blood, kidneys>
10, 11 12 13, 14, 15, 16	C Pond/clarifier 10 mg/kg 14 mg/kg	Mercury	0.01 mg/m3 AL 0.005 mg/m3 <10 mg/m3>		Silver white, mobile, heavy odorless liquid in solution and salt form in pond and clarifier	Inhalation Contact Absorption	Eye and skin irritant poison by inhalation, cough, tremor, headache, irritability <GI tract, CNS>
10, 11, 12 13, 14, 15, 16	C Pond/clarifier 160 ug/kg none	Methyl Ethyl Ketone (MEK) (2 Butanone)	590 mg/m3 885 mg/m3 (st) AL 290 mg/m3 <8845 mg/m3>		Colorless liquid with a moderately sharp fragrant mint or acetone like odor Fl pt 16F BP 175F LEL 1.4% UEL 14%	Inhalation Ingestion Contact	Irritates eyes, nose, headache dizziness, vomiting <CNS, lungs>
10, 11, 12 13, 14, 15, 16	C Pond/clarifier 8 ug/l none	Methylene Chloride (Dichloromethane) (Methylene Dichloride)	103 mg/m3 207 mg/m3 (st) AL 52 mg/m3 <13889 mg/m3>	Carcinogen VOC	Colorless liquid with chloroform like odor BP 104 F LEL 14% UEL 22%	Inhalation Ingestion Contact	Fatigue, weakness, sleepiness, lightheadedness, numbness and tingling in limbs, nausea eye and skin irritation <CNS CVS, eyes skin>
10, 11 12 13, 14, 15, 16	C Pond/clarifier 146 mg/kg 902 mg/kg	Nickel	1 mg/m3 (Insoluble) 0.1 mg/m3 (Soluble) AL 0.05 mg/m3 <No evidence>	Carcinogen Toxic	Silvery white hard malleable and ductile metal in solution and salt form in pond and clarifier	Inhalation Ingestion Contact	Nasal, lung and skin irritant carcinogenic <respiratory system, CNS>

Tasks Involving Contaminant	Maximum Expected Concentration (a) air or other medium (specify)	Contaminant (Synonyms) (Abbreviations)	OSHA PEL, ACGIH TLV or NIOSH REL * Action Level (AL) <IDLH>	Hazard Type	Physical/Chemical Characteristics	Routes of Exposure	Exposure Symptoms/ <Target Organs>
10, 11 12, 13, 14, 15, 16	C Pond/clarifier 73.6 mg/kg 166 mg/kg	Silver	0.01 mg/m ³ AL 0.005 mg/m ³ <No evidence>	Toxic	White, lustrous solid metal in solution and salt form in pond and clarifier	Inhalation Ingestion Contact	Blue gray eyes, skin irritation, ulceration, GI distress <nasal septum, skin, eyes>
10, 11, 12, 13 14 15 16	C Pond/clarifier 73 ug/kg none	Tetrachloroethylene (Perchloroethylene)	170 mg/m ³ 685 mg/m ³ (st) AL 85 mg/m ³ <3390 mg/m ³ >	Carcinogen VOC	Colorless liquid with sweet odor, not combustible VP 14 mm Hg	Inhalation Ingestion Contact	Eye, nose, throat irritation, nausea, flushed face, vertigo, headache <liver, kidneys CNS, upper respiratory system>
10, 11, 12 13 14, 15, 16	C Pond/clarifier 7 ug/kg none	Trichloroethylene (Ethylene Trichloride) (Trichloroethene) (TCE)	269 mg/m ³ 537 mg/m ³ (st) AL 135 mg/m ³ <5374 mg/m ³ >	Carcinogen VOC Fire	Colorless liquid, sweet odor LEL 8% UEL 10.5%	Inhalation Ingestion Contact	Headache vertigo, visual disturbance, vomiting nausea eye and skin irritation <respiratory system, heart liver, kidneys, CNS, skin>

Tasks Involving Contaminant	Maximum Expected Concentration (a) air or other medium (specify)	Contaminant (Synonyms) (Abbreviations)	OSHA PEL, ACGIH TLV or NIOSH REL * <IDLH>	Hazard Type	Physical/Chemical Characteristics	Routes of Exposure	Exposure Symptoms/ <Target Organs>
KEY							
ACGIH	American Conference of Governmental Industrial Hygienists						
BP	Boiling point						
CNS	Central nervous system						
Fl pt	Flash point closed cup unless otherwise noted						
IDLH	Immediately Dangerous to Life and Health	Maximum concentration from which one could escape within 30 minutes without experiencing any					
LEL	Lower explosive limit						
mg/m3	Milligrams per cubic meter						
NA	Not applicable						
OSHA	Occupational Safety and Health Administration						
PEL	Permissible exposure limit	Concentration that nearly all workers may be repeatedly exposed day after day, without adverse effect					
ppm	(Based on an 8 hour workday and 40 hour workweek)						
st	Parts per million						
TLV	15 minute short term exposure limit						
	Threshold limit value	Concentration that nearly all workers may be repeatedly exposed, day after day without adverse effect					
	(Based on an 8 hour workday and 40 hour workweek)						
UEL	Upper explosive limit						
ug/m3	Micrograms per cubic meter						
VP	Vapor pressure at 68 F in millimeters (mm) mercury (Hg) unless otherwise noted						
REFERENCES							
Air Contaminants	Permissible Exposure Limits (29 CFR 1910.1000)						
American Conference of Governmental Industrial Hygienists,	Threshold Limit Values and Biological Exposure Indices for 1990 to 1991						
National Institute of Occupational Safety and Health,	Pocket Guide to Chemical Hazards June 1990						
Sax N Irving	Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Company New York 1979						

SOLAR POARDS

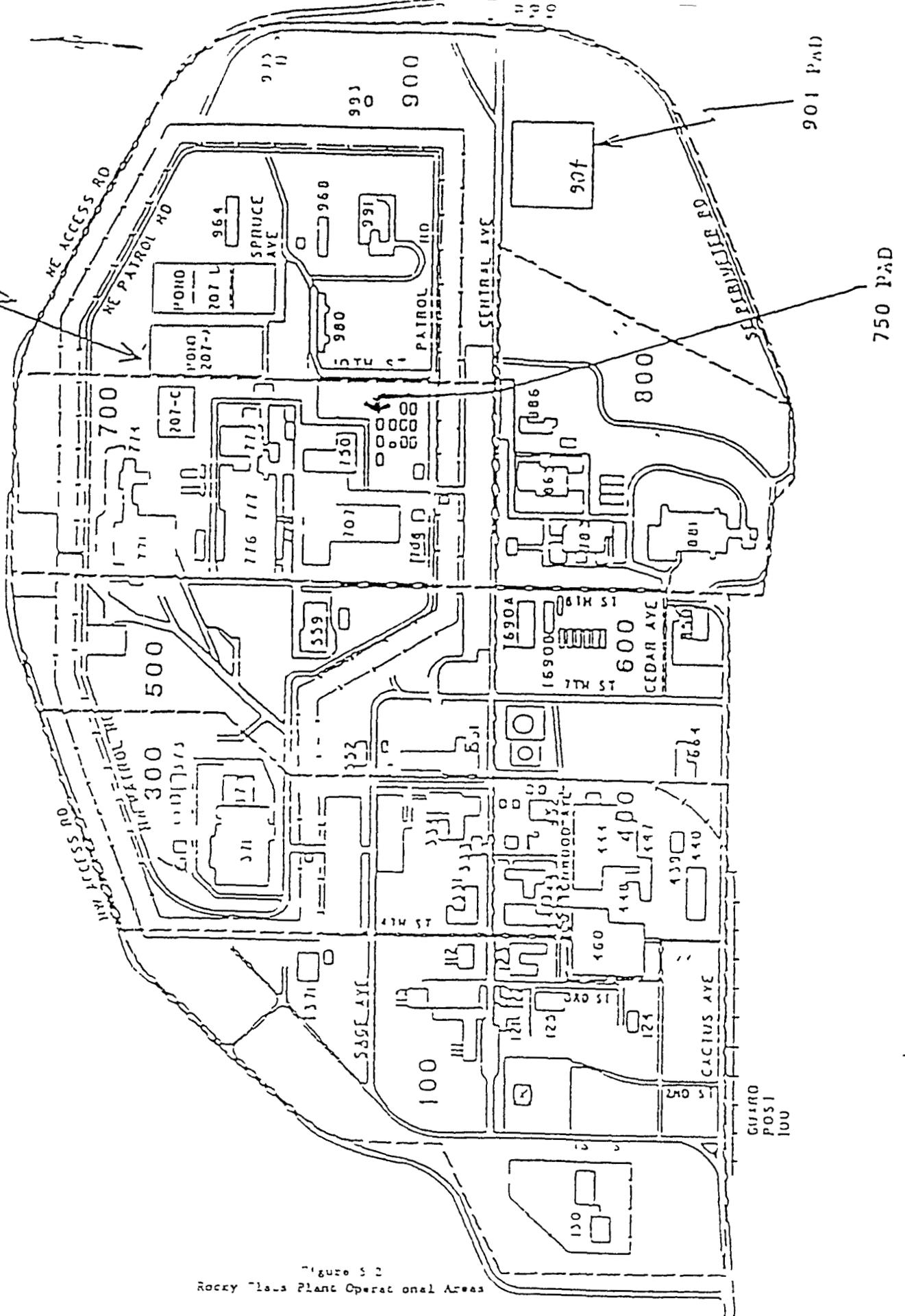


Figure 5.2
Rocky Plaza Plant Operational Areas

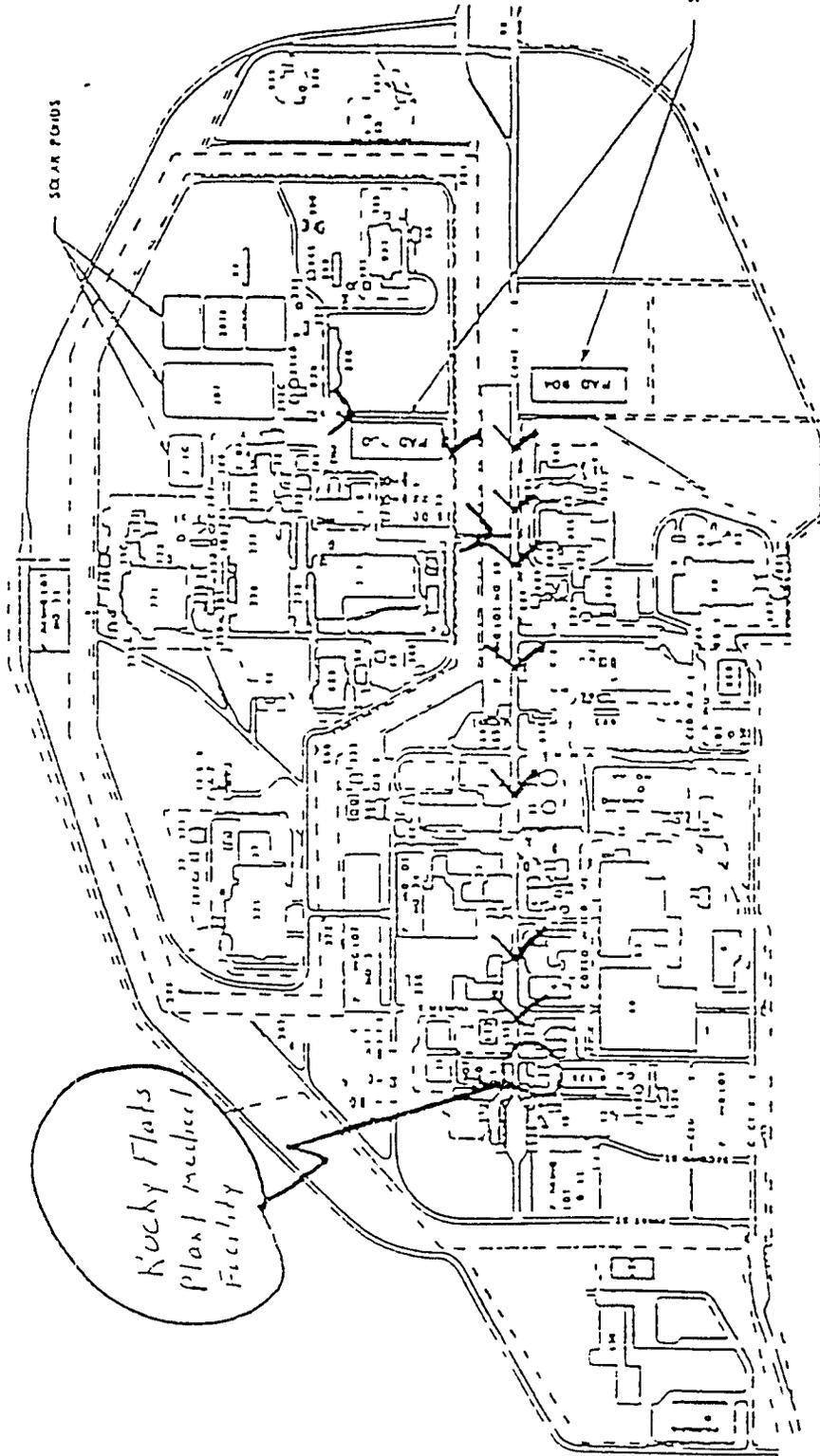


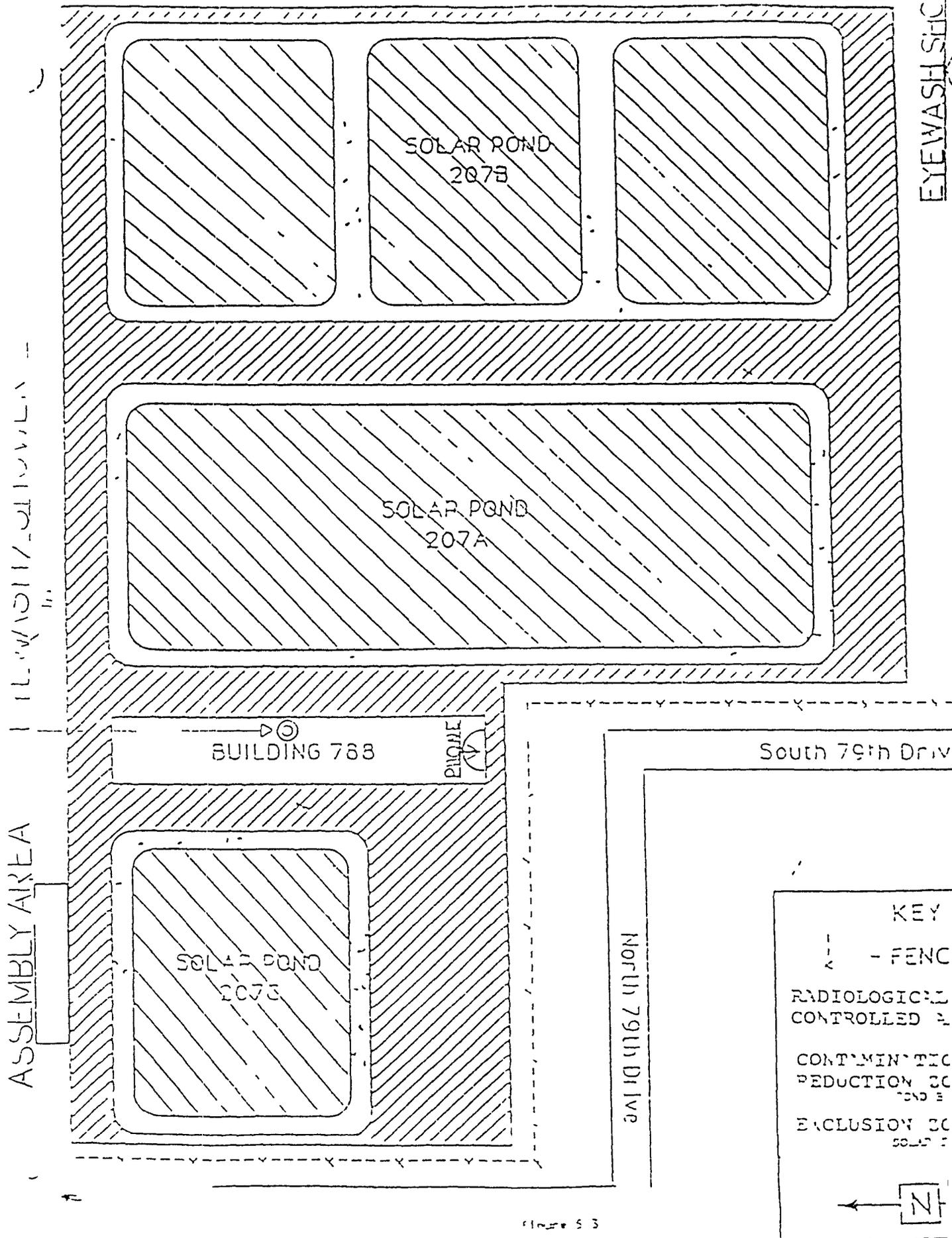
Figure 0-1
Location of Rocky Flats Plant
Medical Facility at Building 122

FIGURE 1-1



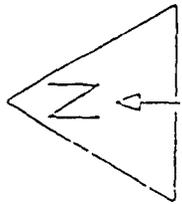
ROCKY FLATS COMPLEX
ROCKY FLATS, GOLDEN, COLORADO
NOT TO SCALE

SOLAR PONDS SITE CONTROL DESIGNATION

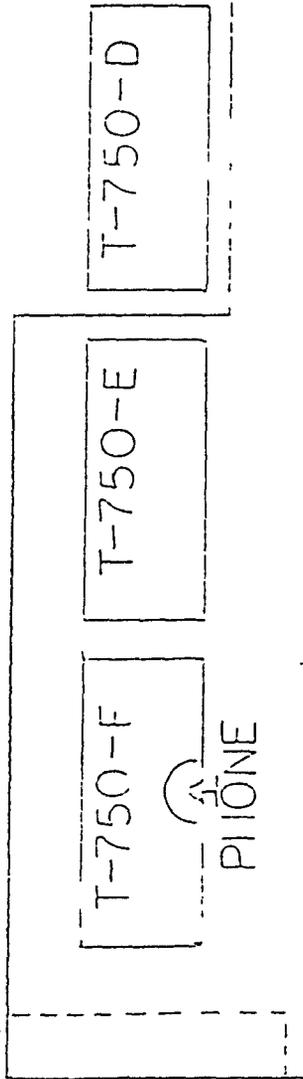


EYEWASH SHED

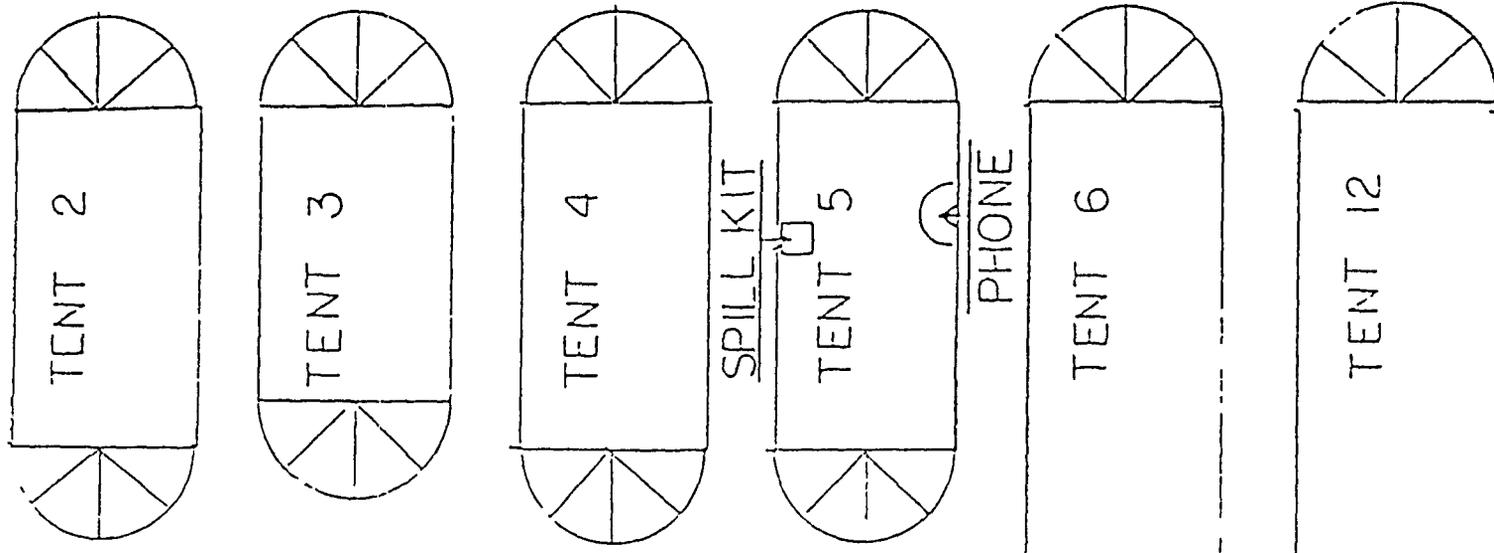
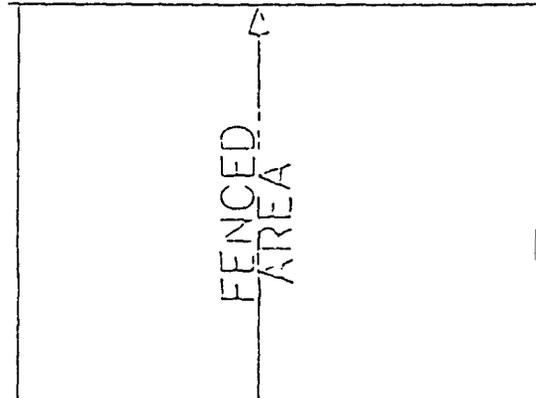
Figure 5.3



ASSEMBLY AREA



FENCED AREA



ASPHAL CURBIN



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REVISION NO. THE NAME 10/01/01/01 000 DMC DATE 10/1/12 DRAWN BY TEB APPROVED BY ALL APPROVED BY

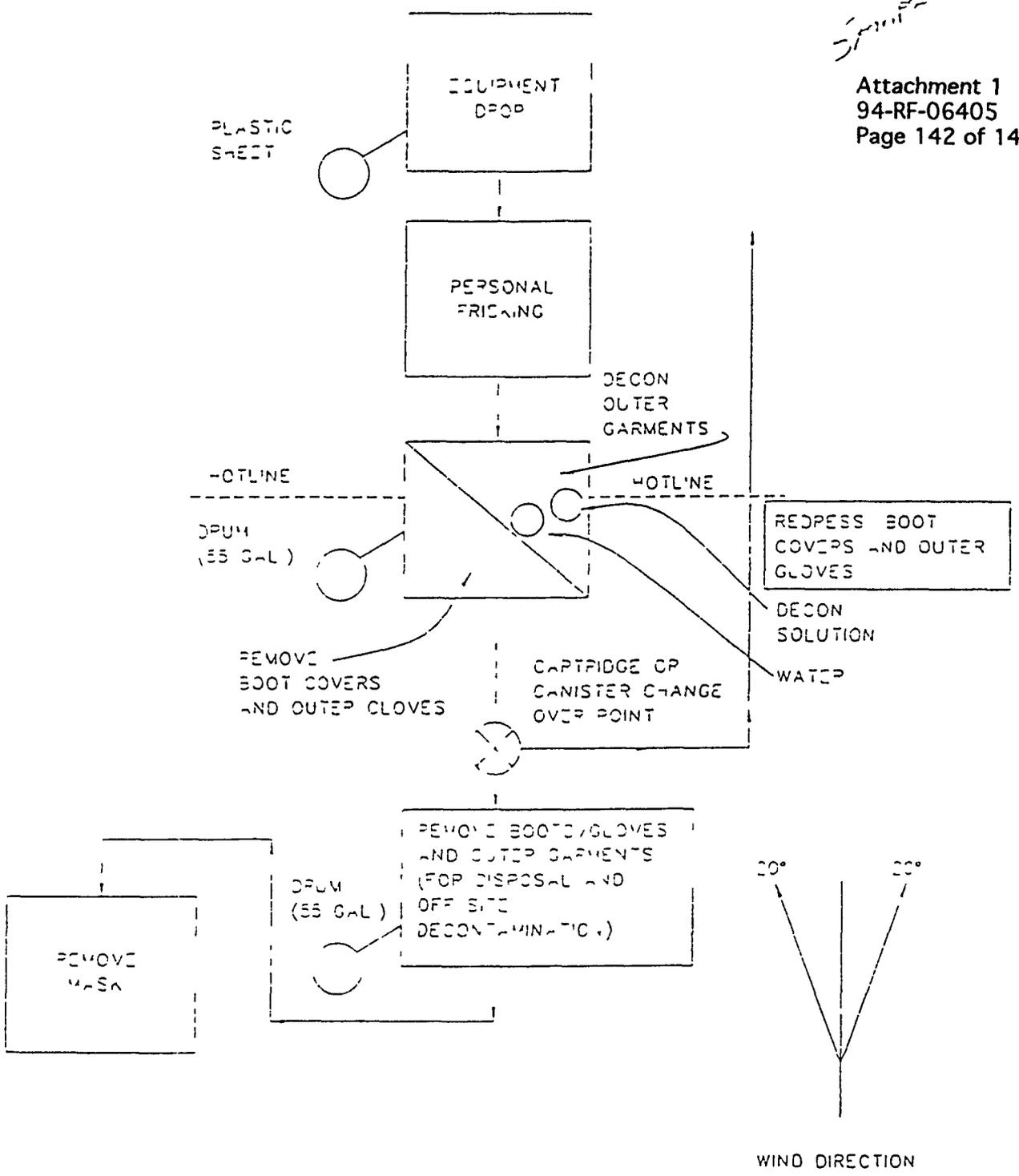


FIGURE 11-1
DECONTAMINATION LAYOUT
LEVEL C PROTECTION

PREPARED FOR
EG&S ROCKY FLATS
GOLDEN COLORADO

Applied Environmental

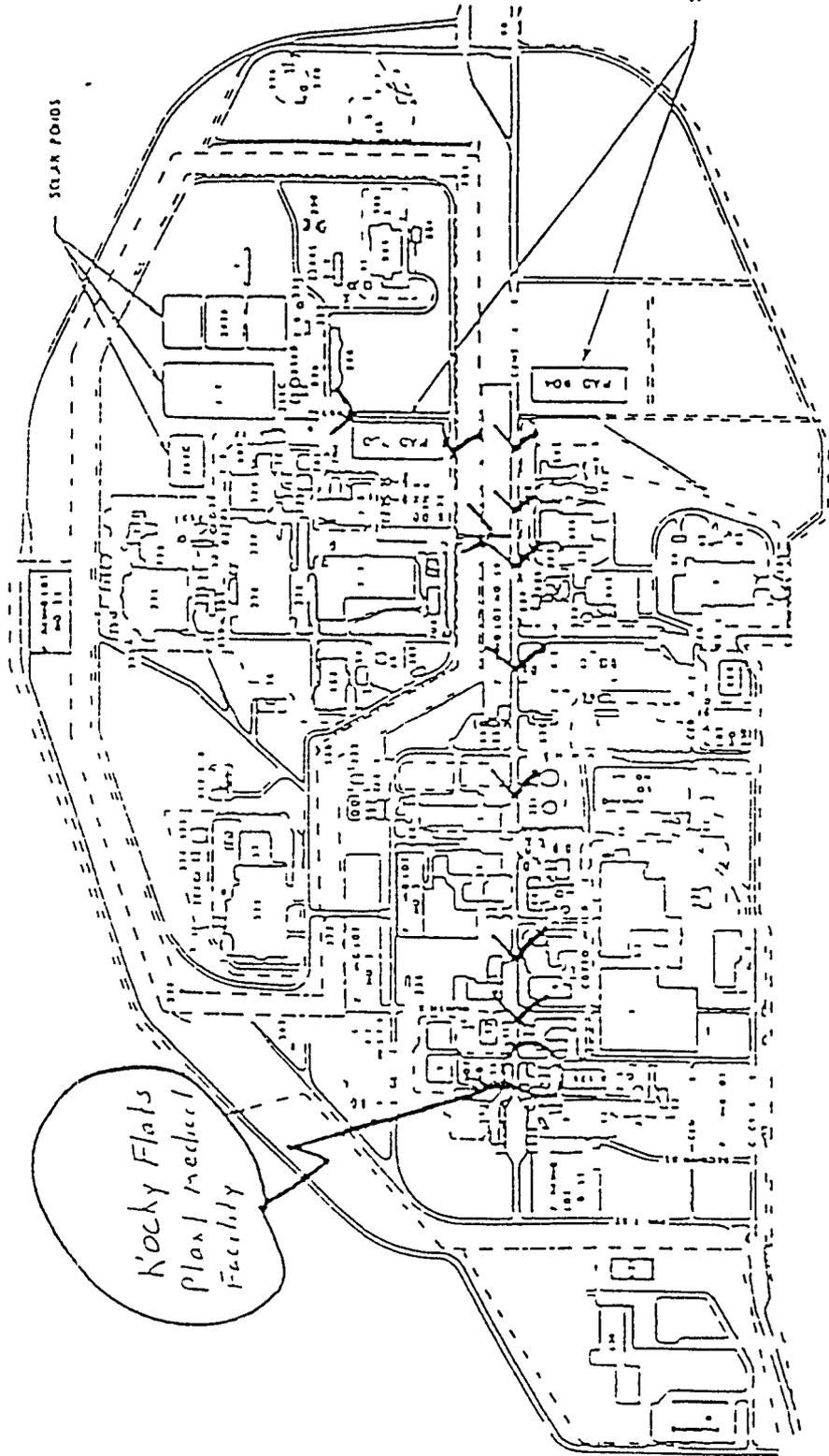
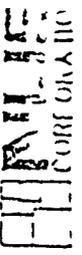
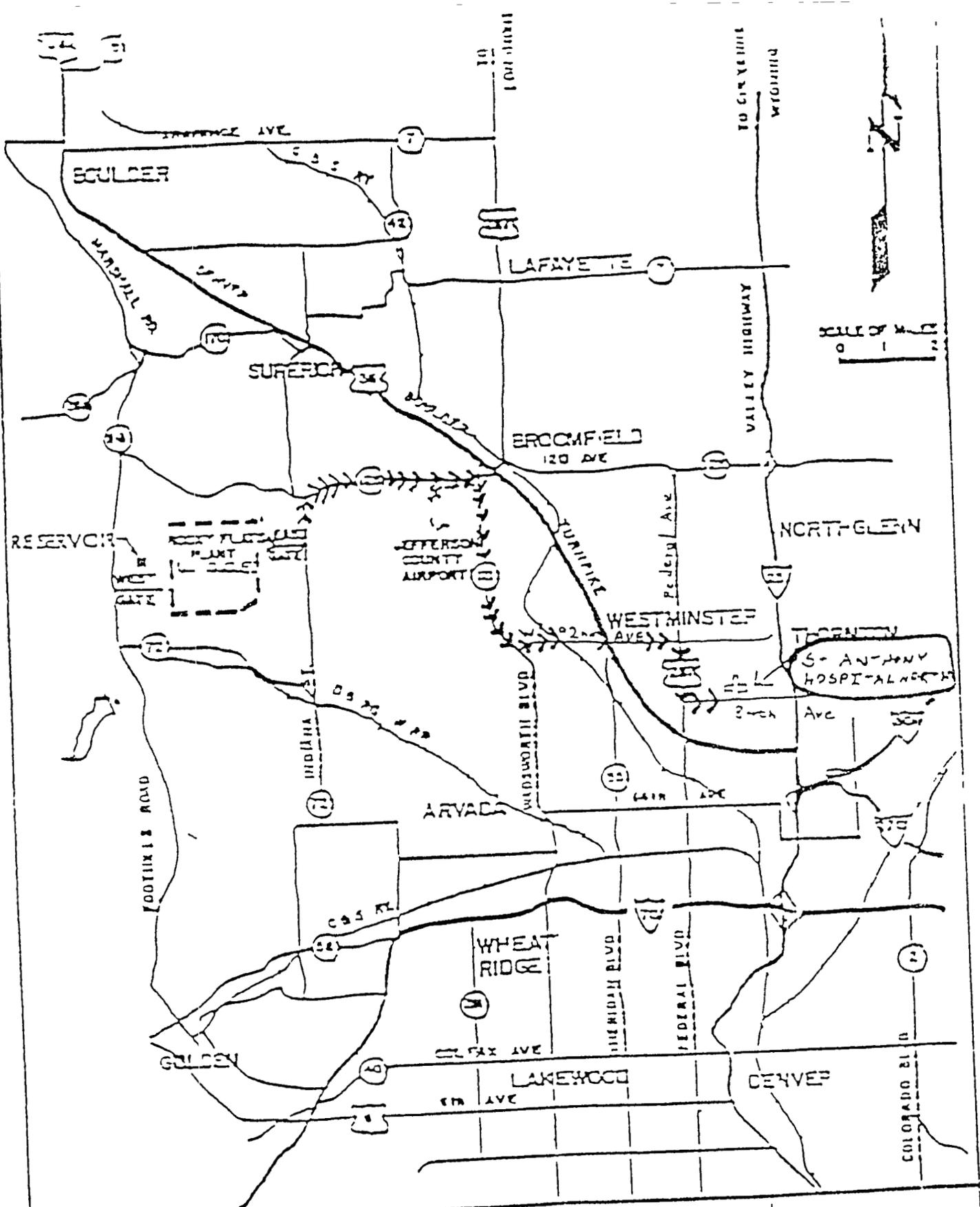


Figure 9-1
Location of Rocky Flats Plant
Medical Facility at Building 122

FIGURE 1-1



ROCKY FLATS COMPLEX
ROCKY FLATS GOLDEN - COLORADO
1:101 TO SCALE



DATE - 1/22/81
 SCALE - GRAPHIC

ROCKY FLATS PLANT
 LOCATION MAP

Figure 9-2
 Location of St. Anthony's Hospital North

