WP 05-WH1025

Revision 3

CH Waste Downloading and Emplacement

Technical Procedure

EFFECTIVE DATE: 10/11/10

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APPROVED FOR USE

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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
3	10/11/10	Corrected reference in Step 2.27 and Attachment 1 from WP 05-WH.01 to WP 05-WH.02

INTRODUCTION [1, 2]

This procedure provides instructions for preparing the contact-handled (CH) waste payloads for downloading and emplacement in the underground (U/G) disposal area.

Performance of this procedure generates the following record(s), as applicable. Any records generated are handled in accordance with departmental Records Inventory and Disposition Schedules.

- Attachment 1 - CH Downloading and Emplacement Data Sheet
- Attachment 3 - Supersack/BRT Emplacement Data Sheet
- U/G Emplacement Map
- Narrative Logbook

REFERENCES

BASELINE DOCUMENTS

- Title 10 Code of Federal Regulations (CFR) Part 71, "Packaging and Transportation of Radioactive Material"
- 10 CFR Part 835, "Occupational Radiation Protection"
- 40 CFR Part 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"
- Contact Handled Transuranic Waste Authorized Methods for Payload Control (CH TRAMPAC)
- Hazardous Waste Facility Permit (HWFP), Waste Isolation Pilot Plant, Permit No. NM4890139088-TSDF, issued by the New Mexico Environment Department
- DOE Order 5400.5, *Radiation Protection of the Public and the Environment*
- DOE Standard 1090-2007, *Hoisting and Rigging*
- DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*

- DOE/WIPP-07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*
- DOE/WIPP-09-3427, *Waste Data System User's Manual*
- WP 12-HP1100, Radiological Surveys
- WP 04-IM1000, Issues Management Processing of WIPP Forms

REFERENCED DOCUMENTS

- WP 04-AD3001, Facility Mode Compliance
- WP 05-WH.02, WIPP Waste Handling Operations WDS User's Manual
- WP 05-WH1101, Surface Transuranic Mixed Waste Handling Area Inspections
- WP 05-WH1402, 13 Ton Electric Forklifts
- WP 05-WH1406, Conveyance Loading Car
- WP 05-WH1412, CH Waste Handling Toyota Forklifts
- WP 05-WH1603, CH TRU Underground Transporter, 52-H-008A, B, and C
- WP 05-WH1810, Underground Transuranic Mixed Waste Disposal Area Inspections
- WP 05-WH4401, Waste Handling Operator Event Response
- WP 12-HP1100, Radiological Surveys
- WP 12-HP1500, Radiological Posting and Access Control
- WP 12-HP2001, Abnormal Radiological Conditions
- WP 12-HP4000, Emergency Radiological Control Responses

EQUIPMENT

- Large plastic ties or other securing materials, as required
- Quality Level-1 Absorbent Material (socks), as required

- Cutters, as required
- Work Gloves, as required
- Tape measure or ruler, as required

PRECAUTIONS AND LIMITATIONS

NOTE
Unless otherwise noted, steps are performed by waste handling (WH).

The Technical Safety Requirements (TSRs) contain Limiting Conditions for Operation (LCOs) and Specific Administrative Controls (SACs) which provide specific preventative or mitigative limits and required actions for identified accident scenarios. Failure to comply with LCOs or SACs may constitute a violation and must be immediately reported to the Facility Shift Manager (FSM). The step affected by the LCO/SAC is followed by the LCO/SAC number in bold brackets (e.g., **[LCO 3.X.X]**). Applicable LCO/SAC Surveillance Data Sheets SHALL be completed as required by WP 04-AD3001.

The specific safety requirements that apply during performance of this procedure are as follows:

- The fire suppression system on the WASTE HANDLING EQUIPMENT selected for use SHALL be OPERABLE. **[LCO 3.1.2]**
- Propane powered vehicles are prohibited in the underground at all times. **[LCO 3.3.4]**
- The lube truck SHALL be prohibited in DISPOSAL ROOMS at all times. **[LCO 3.3.5]**
- The lube truck SHALL be prohibited in the VEHICLE EXCLUSION ZONE at all times. **[LCO 3.3.5]**
- The TRANSPORT PATH SHALL be established prior to WASTE movement (the transport path is situationally determined. **[LOC 3.3.6]**
- A VEHICLE EXCLUSION ZONE SHALL be established to escort the WASTE through the TRANSPORT PATH with a leading and lagging escort. **[LCO 3.3.6]**
- The VEHICLE EXCLUSION ZONE SHALL be maintained from the S-400/E-140 intersection to the DISPOSAL ROOM entrance. **[LCO 3.3.6]**

- WASTE SHALL be moved in a VEHICLE EXCLUSION ZONE. **[LCO 3.3.6]**
- Non-WASTE handling vehicles/equipment SHALL be prohibited in the VEHICLE EXCLUSION ZONE. **[LCO 3.3.6]**
- Only one liquid-fueled vehicle/equipment SHALL be in the VEHICLE EXCLUSION ZONE. **[LCO 3.3.6]**
- Liquid-fueled vehicle/equipment and non-WASTE handling equipment may enter the VEHICLE EXCLUSION ZONE to repair **OR** replace disabled WASTE HANDLING EQUIPMENT.
- Only WASTE HANDLING EQUIPMENT selected for WASTE HANDLING ACTIVITIES may approach the WASTE FACE during emplacement. **[LCO 3.3.7]**
- Non-WASTE handling vehicle/equipment supporting emplacement activities SHALL be ≥ 25 feet from the WASTE FACE. **[LCO 3.3.7]**
- Liquid-fueled WASTE HANDLING EQUIPMENT emplacing WASTE SHALL be ATTENDED. [LCO 3.3.7]
- Liquid-fueled vehicles/equipment SHALL be ≥ 25 feet from the WASTE FACE. **[LCO 3.3.8]**
- The WASTE hoist conveyance SHALL be present prior to opening Door 155 OR Door 156. [LCO 3.5.2]
- Designated storage areas for non-flammable compressed gas cylinders SHALL be ≥ 25 feet from WASTE. **[LCO 3.6.1]**
- Designated storage areas for flammable compressed gas cylinders SHALL be ≥ 100 feet from WASTE. **[LCO 3.6.1]**
- The moving front of a WASTE array is an ACTIVE WASTE FACE and becomes STATIC when WASTE emplacement or retrieval has not occurred in 10 days.
- An ACTIVE WASTE FACE is established at the start of WASTE emplacement at the beginning of a new DISPOSAL ROOM. The ACTIVE WASTE FACE becomes STATIC 10 days after the completion of the final row or 10 days after no WASTE emplacement.

- A STATIC WASTE FACE SHALL BE protected by one of the following:

  — Bulkhead installed
  — Chain link / brattice installed
  — Absorbent material placed along the bottom edge

- Surveillance Requirement (SR) 4.4.2.1 SHALL BE completed within 10 days after no WASTE emplacement. **[LCO 3.4.2]**

- CH WASTE SHALL BE secured to the facility pallet AND the facility pallet SHALL BE secured to the transporter. **[LCO 3.5.1]**

- Only personnel qualified as a CH Transuranic (TRU) U/G Process Waste Handling Technician/Waste Handling Engineer (WHT/WHE), or trainees operating under the direct supervision of a qualified CH-TRU U/G Process WHT/WHE, are authorized to perform the waste handling activities specified in this procedure.

- Emergency response events that require cessation of this procedure, such as a radiological event, must be performed in accordance with WP 05-WH4401 and WP 12-HP4000.

- Abnormal event(s) in which cessation of this procedure takes place must be in accordance with WP 05-WH1058 (e.g., torn slip sheet, movement of emplaced containers, return of waste to surface and emplacement of MgO [magnesium oxide] column support stands [hereafter referred to as BRTs]).

- If procedure cannot be performed as written, WHE shall be contacted.

- When connecting or disconnecting the 480 volt power cable to conveyance loading car, operators are required to wear a long-sleeve 100% cotton shirt, safety shoes/boots, safety glasses, and leather gloves.

- In the event waste handling activities will be performed on the back-shift (or off-shift), Waste Handling Manager (WHM) or WHE must contact the Facility Shift Manager to assess the need for additional fire fighting capabilities. Concurrent activities during waste handling, such as equipment maintenance, waste receipt, construction activities, abnormal hoisting activities, and equipment used during these activities, including surface mining equipment, may indicate the need to evaluate the possibility for additional firefighting capabilities. This will be assessed on a case-by-case basis.

- **If automatic fire suppression system becomes inoperable with waste on the equipment, the equipment with the waste shall be placed in a safe condition, the WHE shall be notified, and a fire watch shall be posted.**

- **A spotter is required when moving WASTE.**

- A qualified spotter is required, as a passenger on the transporter, when moving waste.

- Steps 2.13 and 2.13.3 may be performed any time prior to the first waste emplacement in a new disposal room.

PREREQUISITE ACTIONS

1.0 WHE, record shipment number, and outer containment assembly (OCA) body serial number on Attachment 1.

SIGN- OFF

2.0 WHE, ensure shipment has been received into the WIPP Waste Information System (WWIS)/WDS prior to emplacement.

SIGN-OFF

PERFORMANCE

1.0 WASTE DOWNLOADING

1.1 Ensure preoperational checks for the conveyance loading car have been completed in accordance with WP 05-WH1406, prior to downloading.

1.2 WH, ensure waste handling building (WHB), including the shaft access area, and the U/G are configured for WASTE HANDLING MODE for CH Waste.

SIGN-OFF

1.3 WH, ensure payload assemblies are properly secured to facility pallet, in good condition, and there are no signs that a release has occurred.

SIGN-OFF

1.4 Ensure U/G Radiological Control Technician (RCT) is at the Waste Station.

NOTE

FSM must only be notified that the first payload(s) is being downloaded for the shift. It is not necessary to make notification for additional downloading evolutions on the shift.

1.5 Load facility pallet on conveyance loading car.

1.6 Prior to opening Door 156, verify the waste hoist conveyance is staged at collar for loading.

1.7 Complete the **Surveillance Data Sheet(s)**, EA04AD3001-SR30, for **LCO 3.5.2, SR 4.5.2.1**, as found in WP 04-AD3001.

1.8 Notify FSM waste downloading is beginning for the shift and surveillance is completed.

1.9 Open door 156.

1.10 Load facility pallet on waste hoist conveyance.

1.11 Transfer waste to U/G.

1.12 RCT, ensure underground waste transit notification system has been activated (e.g., Amber lights and/or Underground Services).

2.0 WASTE EMPLACEMENT

NOTE

Unless otherwise directed by WHM, waste will be emplaced in disposal panel in a sequential room-to-room manner, beginning with furthermost accessible room. Waste emplacement will begin at ventilation bulkhead in exhaust drift, and emplaced to beginning of disposal room. Waste will then be emplaced in disposal room to beginning of access drift. Waste will then be emplaced in access drift to a point approximately parallel with ventilation bulkhead in exhaust drift.

2.1 Load facility pallet with waste, onto transporter.

2.2 Ensure waste container(s) are secured to the facility pallet and the facility pallet is secured to the transporter. **[LCO 3.5.1]**

2.3 Remove folder with paperwork.

NOTE

The WASTE TRANSPORT PATH is defined as the route from S-400/E-140 to the active panel/room. When the Waste In Transit lights are activated, the WASTE TRANSPORT PATH is established. In the event the Waste In Transit lights become inoperable, movement of waste must stop and U/G Services is to be notified. The roving watch must sweep the WASTE TRANSPORT PATH and make notification via the mine pager system that waste is in transit.

2.4 Establish a WASTE TRANSPORT PATH prior to WASTE movement. The TRANSPORT PATH is situationally determined. **[LCO 3.3.6]**

2.5 Establish a VEHICLE EXCLUSION ZONE to escort the WASTE through the TRANSPORT PATH with the leading and lagging escort. **[LCO 3.3.6]**

2.6 The VEHICLE EXCLUSION ZONE SHALL be maintained from the S-400/E-140 intersection to the DISPOSAL ROOM entrance. **[LCO 3.3.6]**

2.7 Only one liquid-fueled vehicle SHALL be in the VEHICLE EXCLUSION ZONE. **[LCO 3.3.6]**

2.8 Ensure WASTE is moved within the VEHICLE EXCLUSION ZONE. [LCO 3.3.6]

2.9 Ensure NON-WASTE HANDLING VEHICLES/EQUIPMENT are NOT within the VEHICLE EXCLUSION ZONE. **[LCO 3.3.6]**

2.10 Complete the Surveillance Data Sheet(s), EA04AD3001-SR23, for **LCO 3.3.6, SR 4.3.6.1** and **SR 4.3.6.2**, as found in WP 04-AD3001.

2.11 Transport waste to waste emplacement area.

2.12 Complete the **Surveillance Data Sheet(s)**, EA04AD3001-SR37, for **LCO 3.3.6, SR 4.3.6.3**, as found in WP 04-AD3001.

2.13 **IF** performing first WASTE emplacement in a new DISPOSAL ROOM, **THEN** perform the following:

2.13.1 Place absorbent material as close as possible to the chain link fence to a height of ≥ 4.5 inches across the entire base of the chain link overlapping each section of absorbent material by approximately 12 inches and continuing along both walls of the DISPOSAL ROOM for approximately 2 ft.

2.13.2 Secure absorbent material (socks) together where they overlap and/or need to be secured to each other using plastic ties or other securing material to prevent inadvertent separation.

2.13.3 Complete the **Surveillance Data Sheet(s)**, EA04AD3001-SR28, for **LCO 3.4.2, SR 4.4.2.1**, as found in WP 04-AD3001.

NOTE

Step 2.14 maybe performed at any time after waste arrives at the disposal room.

2.14 U/G RCT, contact waste station to de-energize waste transport notification system.

2.15 ONCE EACH SHIFT while in WASTE HANDLING MODE, verify only one WASTE HANDLING EQUIPMENT is emplacing WASTE. **[LCO 3.3.7]**

2.16 ONCE EACH SHIFT while in WASTE HANDLING MODE, verify NON-WASTE HANDLING EQUIPMENT is ≥ 25 ft from WASTE FACE. **[LCO 3.3.7]**

NOTE

The **Surveillance Data Sheet(s)** for **SR 4.3.7.1** and **4.3.7.3** must be completed each shift while in WASTE HANDLING MODE.

2.17 Complete **Surveillance Data Sheet(s),** EA04AD3001-SR24, for **LCO 3.3.7, SR 4.3.7.1** and **4.3.7.3**, as found in WP 04-AD3001.

2.18 Remove ratchet straps from payload(s).

CAUTION

All pulling movements performed by the push/pull attachment should be conducted at a slow rate of speed. This will minimize the likelihood of tearing a slip sheet.

2.19 Ensure push/pull attachment has been positioned level with the facility pallet.

2.20 **IF** the U/G surface prevents the attachment from being positioned level with the facility pallet,
THEN perform the following:

2.20.1 Using the push/pull attachment, grip the slip sheet and move payload back (by backing forklift) until the push/pull attachment has evened out or is flush with the edge of the facility pallet.

CAUTION

Weight of payload may suddenly shift from facility pallet to forklift.

2.20.2 Pull payload onto the push/pull attachment, ensuring an appropriate angle and height is are maintained.

2.21 **IF** slip sheets tear and are unable to pull payload,
THEN GO TO applicable section of WP 05-WH1058 **AND** return to Step 2.22.

NOTE

Emplacement data and/or bar code scans may be performed at any time during the remainder of this procedure.

2.22 WHT, perform the following:

- Unload payload assembly from facility pallet.
- Remove payload net from payload assembly (if applicable).

NOTE

Payload assembly may be emplaced into waste stack while contamination surveys are being performed.

2.23 RCT, perform the following:

- **IF** payload pallet has been in contact with drum assembly,
  THEN perform contamination swipes on payload pallet.
- **IF** required to split drum assemblies,
  THEN perform contamination swipes on newly exposed areas.

2.24 RCT, monitor swipes for gross levels of activity.

CAUTION

Criticality Safety Administrative Control: Waste shall be stacked no greater than three drums or boxes high in the disposal area.

NOTE

Attachment 2, Payload Assembly Positioning, shows positioning of payloads.

NOTE

Ten-drum overpacks (TDOPs) shall be placed on the bottom of the column. Four packs of 85-gallon drums and three packs of 100-gallon drums may be placed on top of assemblies of the same type or will be placed on the top of the column only.

2.25 Position payload assemblies into waste stack.

2.26 If starting a new row, mark row number on first payload assembly emplaced.

2.27 WH, scan a waste container in each of the payload assemblies using WWIS/WDS bar code reader per the Underground Operations Section of WP 05-WH.02, initial Attachment 1, and N/A Waste Emplacement Location Section.

- **IF** WWIS/WDS bar code reader is not operational,
  THEN record the information on Attachment 1.

SIGN-OFF

2.28 Update Underground Emplacement Map.

2.29 **IF** waste that is already emplaced needs to be moved,
THEN GO TO applicable section of WP 05-WH1058 **AND** return to Step 3.0.

2.30 RCT, verify activity on swipes of the payload pallet and newly exposed area is below acceptable limits.

SIGN-OFF or N/A

2.31 RCT, ensure radiological posting and boundaries are established in accordance with WP 12-HP1500.

3.0 BACKFILL

NOTE

Supersacks may be placed on completed columns at any time during the process.

NOTE

WHE will perform MgO excess factor calculations at the end of shift when waste emplacement data is uploaded to the WWIS/WDS. WHM must be contacted if the MgO excess factor is less than 1.2.

NOTE

Prior to initiating waste disposal in the air intake drift for each room, the MgO excess factor must be evaluated to determine if additional MgO is required to be emplaced.

3.1 **IF** column is complete,
THEN place supersack on top of the column.

3.2 When placing a supersack on top of a column, use WWIS/WDS bar code reader per applicable section of WP 05-WH.02.

3.2.1 **IF** WWIS/WDS bar code reader is not operational,
THEN record the information on Attachment 3.

3.2.2 **IF** additional MgO is determined to be required by the WHM,
THEN emplace additional MgO into the waste stack per applicable section of WP 05-WH1058.

3.3 WH, record required information on Attachment 3, if applicable, and initial Attachment 1 that completed columns have necessary backfill emplaced.

SIGN-OFF

4.0 WASTE FACE BARRIER INSTALLATION

4.1 **IF** final row in the DISPOSAL ROOM has been completed,
THEN perform the following.

4.1.1 Place absorbent material as close as possible to the WASTE FACE to a height of ≥4.5 inches across the entire base of the WASTE FACE overlapping each section of absorbent material by approximately 12 inches and continuing along both walls of the DISPOSAL ROOM for approximately 2 ft.

4.1.2 Secure absorbent material (socks) together where they overlap and/or need to be secured to each other using plastic ties or other securing material to prevent inadvertent separation.

4.1.3 Use additional absorbent material as needed during the backfill process continuing, along both walls of the DISPOSAL ROOM at the edges of the WASTE FACE for approximately 2 ft.

4.1.4 Complete **Surveillance Data Sheet(s),** EA04AD3001-SR28, for **LCO 3.4.2, SR 4.4.2.1**, as found in WP 04-AD3001.

5.0 UPLOAD WWIS/WDS

5.1 WHE, **IF** WWIS/WDS bar code reader is not operational, **THEN GO TO** WWIS/WDS Barcode Reader Emplacement Form to upload payload and MgO data in the WWIS/WDS and evaluate MgO excess factor.

5.2 WHE, prior to room closure, ensure MgO excess factor is ≥ 1.2.

6.0 WHE REVIEW

6.1 WHE, ensure the following:

- Attachment 1 is completed properly.
- Attachment 3 is completed properly (if applicable).
- Waste location from Attachment 1 is updated in WWIS/WDS database (if applicable).
- Supersack/BRT data from Attachment 3 is updated in WWIS/WDS database (if applicable).
- FSM is notified of time and date of the last WASTE emplacement of shift.

6.2 Forward all Surveillance Data Sheet(s) and associated documentation to FSM for review and approval prior to end of shift.

Attachment 1 – CH Downloading and Emplacement Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITE ACTIONS	
1.0	Shipment No.: _____ OCA Body Serial No.: _____	WHE
2.0	Shipment received into WWIS/WDS.	WHE
	PERFORMANCE	
1.2	WHB, including the shaft access area, and the U/G are configured for waste handling mode.	WH
1.3	Payload assemblies properly secured, in good condition, and inspected for damage.	WH
2.27	Scan a waste container in each of the payload assemblies using WWIS/WDS bar code reader per the Underground Operations Section of WP 05-WH.02, initial Attachment 1, and N/A Waste Emplacement Location Section below.: • **IF** WWIS/WDS bar code reader is not operational, **THEN** record the information below.	WH or N/A

Container Number		
Row Number		
Column (Left to Right)	1 2 3 4 5 6	1 2 3 4 5 6
Place in Stack (Circle Location)	Top Middle Bottom	Top Middle Bottom
Disposal Room	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Disposal Panel	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8

2.30	Activity on swipes is below acceptable limits.	RCT or N/A
3.3	Completed columns have necessary backfill emplaced.	WH

Performers, enter printed name, signature, date, and initials:

_____ / _____ / / _____

_____ / _____ / / _____

_____ / _____ / / _____

_____ / _____ / / _____

_____ / _____ / / _____

_____ / _____ / / _____

_____ / _____ / / _____

_____ / _____ / / _____

Printed Name Signature Date Initials

Attachment 1 – CH Downloading and Emplacement Data Sheet

REMARKS:_____

_____

_____

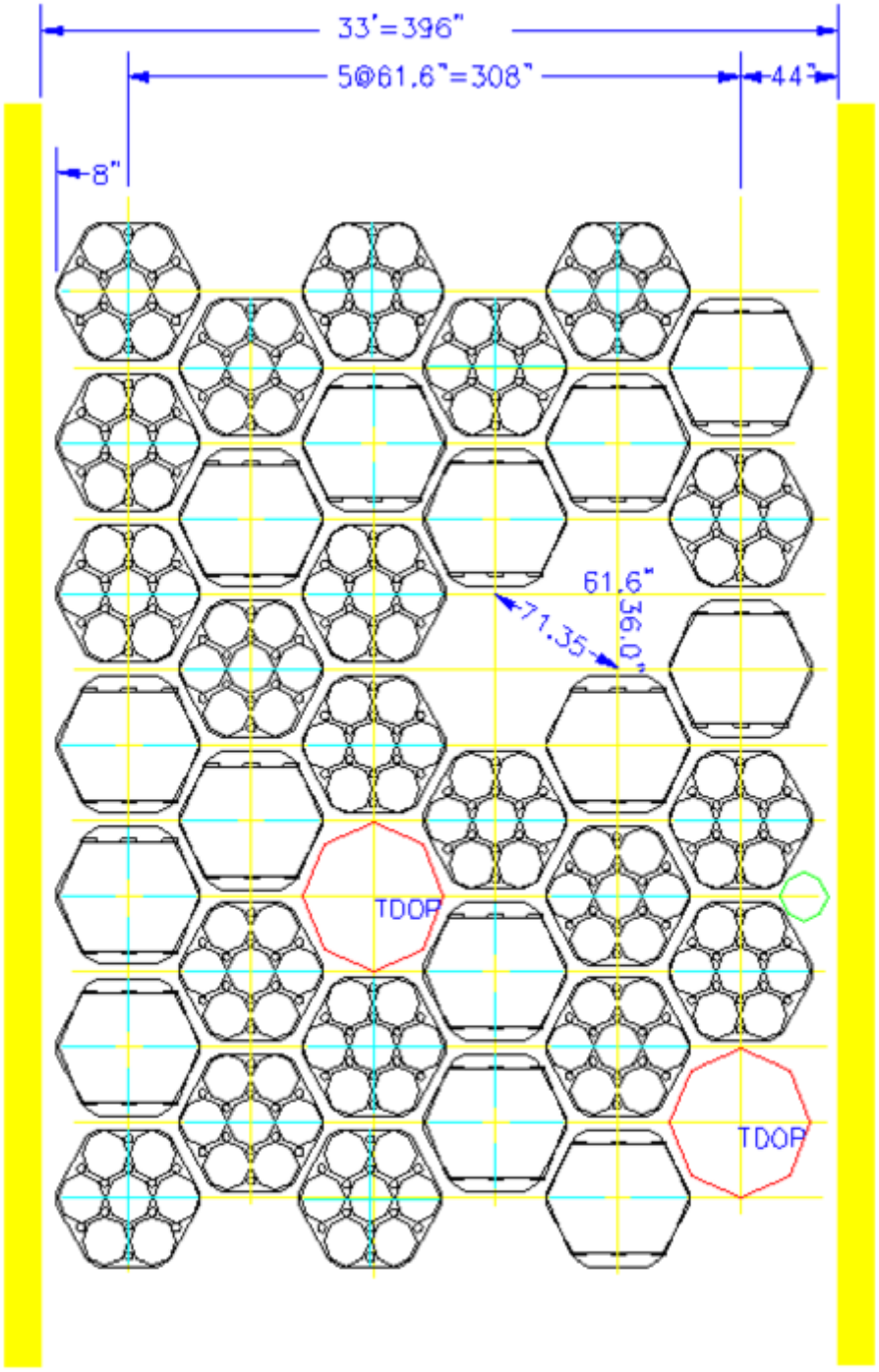
_____

_____

_____

REVIEW/VALIDATION:_____/_____/_____
WHE (Print Name) Signature Date

Attachment 2 – Payload Assembly Positioning



Attachment 3 – Supersack/BRT Emplacement Data Sheet

Supersack/BRT Placement

Style 01 4200 ± 50 lb. Supersack
3000 ± 50 lb. Supersack

Row Number		
Column (Left to Right)	1 2 3 4 5 6	1 2 3 4 5 6
Disposal Room	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Disposal Panel	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Disposal Date		

Remarks:_____

_____

_____

_____

Performer:_____/_____/_____
Printed Name Signature Date

Reviewer:_____/_____/_____
Printed Name Signature Date

WHE Validation:_____/_____/_____
Printed Name Signature Date