Los Alamos National Laboratory's Revised Nitrate Salt-Bearing Waste Container Isolation Plan

May 29, 2014

Attachments

Attachment 1

LA-UR-14-23807
May 29, 2014

Summary of Evaluation and Identification of LANL Nitrate Salt Containers

Los Alamos
NATIONAL LABORATORY
EST. 1943

Prepared by the Environmental Programs Directorate

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BACKGROUND

Los Alamos National Laboratory (LANL) staff along with the Planning and Technical Solutions (PTS) team within the LANL TRU Waste Program (LTP) evaluated generator data to identify unconsolidated nitrate salts in the aboveground transuranic (TRU) waste container population. The evaluation was conducted from January to May 2012 to identify Technical Area 55 (TA-55) TRU waste containers that were consistent with the Central Characterization Project (CCP) Nonconformance Report (NCR) (NCR-LANL-0509-09) issued for drums with uncemented nitrate salts that originated from the TA-55 evaporator operations. Forty-eight (48) containers were identified in the NCR that may have required a waste stream reassignment consistent with homogeneous solids.

In addition, in May 2012, the LANL Carlsbad Office Difficult Waste Team authored a white paper (Amount of Zeolite Required to Meet the Constraints Established by the EMRTC Report RF 10-13: Application to LANL Evaporator Nitrate Salts, May 08, 2012) that established the remediation requirements for the Waste Isolation Pilot Plant (WIPP) to affirm that the final mixture of LANL nitrate salts meets WIPP acceptance criteria. The nitrate salt evaluation was conducted to identify the population of active aboveground containers that required management as unconsolidated nitrate salts in accordance with the newly identified requirements. Containers that had been, dispositioned, or belowground were considered beyond the scope of the evaluation.

EVALUATION METHODS

- Extracted all containers with LANL generator Waste Codes A25 (Leached Process Residues), A26 (Evaporator Bottom/Salts), A27 (Nitrate Salts), and A28 (Chloride Salts) that had originated from TA-55. These waste codes had been in use since 1971.
- Initially identified 2,568 containers across all solution packages and waste streams.
- Containers with generator Waste Code A28 were eliminated after initial review indicated all containers with A28 Waste Code were indeed from TA-55 chloride operations and not nitrate operations.
- Dates of generation of interest were from 1979 to 1991 because these dates spanned the period between the start-up of TA-55 nitrate evaporator operations in 1979 and full implementation of new evaporator and cement fixation operations in 1991. The latter eliminated the generation of unconsolidated nitrate salt wastes but allowed the generation of individual cemented cans on a case-by-case basis.
- The mid-1980s represent a time period when unconsolidated and cemented nitrate salts were generated concurrently, but the same generator Waste Codes were applied.
- Over 1,700 active aboveground containers were evaluated for the presence of unconsolidated nitrate salt in bags with attached generator Waste Codes of A25, A26, and A27.
- Reviewed and summarized TA-55 nitrate operational procedures to establish criteria for presence of unconsolidated nitrate salts.
- Identified processes that generated nitrate salts and eliminated those that did not, such as chloride salt operations.
- Examined waste generator records including discardable waste forms and logs that contained itemized descriptions of waste items that were not part of radioactive solid waste disposal forms and database comment fields.

- Discussed nitrate solution evaporation and cement fixation processes with TA-55 personnel (some since retired) to confirm timing of cementation process changes.

RESULTS OF INITIAL NITRATE SALT EVALUATION JUNE 2012

- Identified two hundred and sixty-five (265) nitrate salt or suspect original parent containers based on review of generator data. These had been independently assigned by CCP personnel to TA-55 waste streams LA-MHD01.001 and LA-CIN01.001-Cans (Table 1).
- All other containers in TA-55 waste streams LA-MHD01.001 and LA-CIN01.001-Cans not listed in Table 1 were considered to contain other waste forms, such as debris or cemented materials, and not nitrate or suspect nitrate salts.
- No nitrate or suspect nitrate salt containers were identified in TA-55 homogeneous waste streams (e.g., LA-MIN02-V.001 or LA-MIN04-S.001 or from other TAs).
- Assigned the following salt types to active TRU waste containers:
  - ***Nitrate*** salt, based on generator records that indicated unconsolidated nitrate salt or process room number or glovebox number associated with nitrate operations evaporator or waste management operations, because not all of the legacy records included waste or process descriptions.
  - ***Suspect*** nitrate salt, based on generator records that indicated nitrate salt or process room number or glovebox number, but the container was assigned to a cemented waste stream and additional information was thought necessary for proper assignment (e.g., real-time radiography [RTR] or evidence of cementation such as presence of cans during remediation or visual examination).
  - ***Miscellaneous***, based on generator records that indicated homogeneous solids were generated from operations other than TA-55 nitrate operations.
- Established Salt Type as data field in Container Management tracking spreadsheet.
- Containers that did not explicitly receive salt type designations were assigned *Not Applicable* because they are not nitrate salts.

No TA-21 (TA-55 predecessor facility) nitrate salts were identified because the TA-21 nitrate solutions were cemented.

Table 1
Summary of Initial Nitrate Salt Assignments to Original, Parent, TRU Waste Containers

Salt Type and Waste Stream	Count of Containers
Nitrate	**189**
LA-CIN01.001-Cans	**25**
SP 36	7
SP 37	18
LA-MHD01.001	**164**
SP 72	163
SP 78	1

Suspect	**76**
LA-CIN01.001-Cans	**76**
SP 36	1
SP 57	44
SP 72	31
Grand Total	**265**

PROGRESSION OF NITRATE SALT CONTAINERS FROM AUGUST 2012 TO APRIL 2014

As of May 2012, 376 containers existed because thirty-three (33) parent drums had been processed through the Waste Characterization, Reduction and Repackaging Facility (WCRFF) that resulted in a moderate population of active remediation daughters. Table 2 summarizes the population of nitrate and suspect nitrate salt containers as of July 31, 2012, and includes the Solution Package (SP) assignments. This date captures the assignment of salt types after the initial evaluation, but before additional nitrate salt drum processing had occurred.

Remediated daughter containers, created as part of the waste sorting and repackaging operations at WCRRF, were initially assigned to the homogeneous waste stream LA-MIN04-S.001.

Table 2
Summary of Nitrate and Suspect Nitrate Salt Containers, Including Waste Stream and Solution Package Codes (Data as of July 31, 2012)

Salt Type, Waste Stream, and Container Type	Count of Containers
Nitrate	**300**
Original	**156**
LA-CIN01.001-Cans	25
SP 36	7
SP 37	18
LA-MHD01.001	131
SP 72	130
SP 78	1
Remediation Daughter	**144**
LA-MHD01.001	128
SP 72	128
LA-MIN04-S.001	16
SP 72	16
Suspect	**76**
Original	**76**
LA-CIN01.001-Cans	76
SP 36	1
SP 57	44
SP 72	31
Grand Total	**376**

The nitrate salt container remediation process, including waste sorting, neutralization, and absorption of liquids according to the revised requirements, started in October 2012 and continued through March 2014 at WCRFF. Table 3 summarizes the population of nitrate and suspect nitrate salt containers as of May 8, 2014. This date captures the progression of the two hundred and sixty-five (265) initially identified nitrate and suspect nitrate salt drums through remediation and disposition operations largely conducted as part of the 3,706 Waste Campaign. Table 3 includes containers identified as "*Original*" that were not remediated as part of the 3,706 Waste Campaign and retained their original inner package configurations, as received from the TA-55 generator. These original containers were staged at LANL and had not yet been remediated at WCRRF, but may have been placed in compliant overpacks such as an 85-gal. drum or a standard waste box.

Table 3
Summary of Nitrate and Suspect Nitrate Salt Containers, Including Container Types and Waste Streams (Data as of May 8, 2014)

Salt Type, Waste Stream and Container Type	Count of Containers
Nitrate	**549**
LA-CIN01.001-Cans	**26**
Original in overpack	1
Original	24
Remediation Daughter	1
LA-MHD01.001	**84**
Remediation Daughter	84
LA-MIN02-V.001	**436**
Remediation Daughter	436
LA-MIN04-S.001	**3**
Remediation Daughter	3
Suspect	**154**
LA-CIN01.001-Cans	**89**
Original	7
Remediation Daughter	82
LA-MHD01.001	**4**
Remediation Daughter	4
LA-MIN02-V.001	**61**
Original in overpack	3
Remediation Daughter	58
Grand Total	**703**

As a result of radiological release at WIPP, a subsequent review of the 2012 nitrate salt evaluation was performed. This review of containers with nitrate, suspect nitrate salt, or miscellaneous salt types included review of remediation records and RTR data reports and videos. This review resulted in the identification of two (2) original containers (S855943 and S824181) that were not assigned as unconsolidated nitrate salts in July 2012. The assignment of nitrate salt type to the two (2) parent containers results in the assignment of nitrate salt type to four (4) remediation daughters. These four (4) containers were remediated and managed as nitrate salts. Table 4 summarizes the population of nitrate and suspect nitrate containers as of May 21, 2014, and their locations. This date captures the progression of the 265 originally identified nitrate and suspect nitrate salt drums in 2012, the expansion of the population through creation of remediation daughter, and their disposition, including the two (2) newly identified parents and their daughters. Table 4 summarizes the population of nitrate and suspect nitrate salt containers by waste stream and location, as of May 21, 2014.

The creation of remediation daughter drums during waste sorting, neutralization, absorption of liquids, and repackaging resulted in the redistribution of wastes from the parent to the daughters and subsequent reassignment of waste stream designations. For example, the parent container may have been assigned

to waste stream LA-MHD-01.001, a remediation daughter that contained more than 50% by volume homogeneous solids, and was reassigned to MIN02-V.001 by CCP. The majority of nitrate salt remediation daughters were reassigned to homogeneous solid waste stream LA-MIN02-V.001, including the four (4) remediation daughters discussed in the previous paragraph. A few were assigned to the homogeneous LA-MIN04-S.001 waste stream if they appeared to contain little nitrate salt material. Some remediation daughters may have retained the LA-MHD-01.001 or LA-CIN01.001 waste stream assignment if they contained more than 50% debris by volume or if the waste appeared to be cemented, respectively.

Table 4
Summary of Nitrate and Suspect Nitrate Salt Containers,
Including Waste Streams, Container Types and Locations (Data as of May 21, 2014)

Location	Container Type	Salt Type	Waste Stream	Count of Containers
LANL	**Original**	Nitrate	LA-CIN01.001-Cans	24
		Suspect	LA-CIN01.001-Cans	1
	Remediation Daughter	Nitrate	LA-MHD01.001	9
			LA-MIN02-V.001	21
		Suspect	LA-CIN01.001-Cans	1
			LA-MHD01.001	2
			LA-MIN02-V.001	24
	Original in overpack	Nitrate	LA-CIN01.001-Cans	1
		Suspect	LA-MIN02-V.001	3
LANL Total				**86**
WCS	**Original**	Suspect	LA-CIN01.001-Cans	1
	Remediation Daughter	Nitrate	LA-CIN01.001-Cans	1
			LA-MHD01.001	2
			LA-MIN02-V.001	100
		Suspect	LA-CIN01.001-Cans	2
			LA-MIN02-V.001	7
WCS Total				**113**
WIPP	**Original**	Suspect	LA-CIN01.001-Cans	5
	Remediation Daughter	Nitrate	LA-MHD01.001	73
			LA-MIN02-V.001	270
			LA-MIN04-S.001	3
		Suspect	LA-CIN01.001-Cans	79
			LA-MHD01.001	2
			LA-MIN02-V.001	21
WIPP Total				**453**
WIPP Panel 7	**Remediation Daughter**	Nitrate	LA-MIN02-V.001	49
		Suspect	LA-MIN02-V.001	6
WIPP Panel 7 Total				55
Total				**707**

DISCUSSION OF IDENTIFICATION OF NITRATE SALT CONTAINERS

This report summarizes the evaluations conducted to identify nitrate and suspect salts in the aboveground TRU inventory. The evaluation started in January 2012 with the identification of forty-eight (48) containers in NCR-LANL-0509-09. The evaluation focused on Waste Codes A25, A26, A27 and A28 that were a required part of the generator documentation. Containers that had been dispositioned or were belowground were not included in the evaluation. The initial evaluation in 2012 identified two hundred and sixty-five (265) nitrate salt or suspect nitrate salt original parent containers based on review of generator data. Forty (40) of the containers in the NCR were confirmed to be unconsolidated nitrate salts. The eight (8) other containers were identified as other salt or waste types. Two (2) additional nitrate salt containers were recently identified that brought the count of original parent containers to two hundred and sixty-seven (267). The processes of waste sorting, neutralization, absorption of liquids, and waste repackaging created remediation daughters that expanded the population nitrate or suspected nitrate salts to seven hundred and seven (707) containers, as summarized in Table 4.

The nitrate salt evaluation focused on the generation processes that created the nitrate salt wastes from TA-55 nitrate operations. The population of nitrate and suspect nitrate salt waste containers were identified and tracked through remediation, characterization, and disposition. The waste stream assignments were independently determined by CCP and were not considered an essential part of the assignment of nitrate or suspect nitrate salt type to specific containers. Thus, nitrate and suspect nitrate salt wastes were initially identified to exist in both LA-MHD01.001 and LA-CIN01.001-Cans waste streams. The salt type Suspect was assigned to containers in waste stream LA-CIN01.001-Cans until other independent evidence, such as visual examination or RTR, was obtained. This was not generally available in 2012 but was available and used in the May 2014 review of these containers. As described, all of the other containers in TA-55 waste streams LA-MHD01.001 and LA-CIN01.001-Cans were considered to contain other waste forms, such as debris or cemented materials, and were not, and are not, considered to contain unconsolidated nitrate or suspect nitrate salts. The WCRRF remediation technicians noted that some of the bags of salts appeared to be physically cemented. These were apparently retained in the LA-CIN01.001 waste stream.

The rest of the TRU waste inventory at TA-54 Area G that was not part of the focused evaluation was determined not to contain unconsolidated nitrate salts. Table 5 summarizes all TA-55 waste generated before 1991 that do not contain unconsolidated nitrate salts. The year 1991 represents full implementation of the new TA-55 nitrate solution evaporator and cement fixation operations that completely eliminated the generation of unconsolidated nitrate salt wastes. The Cemented and Miscellaneous salt (e.g., chlorides and other salt residues) waste streams are benign based on their chemical and physical characteristics. The remaining combustible and noncombustible trash, equipment, scrap metal, glass, plastic, and absorbed liquids do not contain any salt residues and are considered safe for storage based on current packaging configurations.

Table 5
Summary of other Homogeneous Solid and Debris TRU Wastes Generated at TA-55 Prior to 1991 That Do Not Contain Unconsolidated Nitrate Salts (Data as of May 28, 2014)

Waste Stream	Bldg Code	Waste Stream Description	Count of Containers
LA-CIN01.001	TA-55	Cemented	431
		Miscellaneous	81
LA-MHD01.001	TA-55	Cemented	1
		Miscellaneous	10
		Combustible Decontamination Waste	3
		Scrap Metal	16
		Other Combustibles	19
		Combustible Lab trash	12
		Non-Combustible Lab Trash	18
		Non-Property Numbered Equip.	1
		Property Number Equip.	3
		Non-Combustible Filter Media	3
		Glass	3
		Plastics	2
		Combustible Trash	1
LA-MIN02-V.001	TA-55	Silicon Base Oil on Vermiculite	1
LA-MIN04-S.001	TA-55	Miscellaneous	1
Total			**606**

ATTACHMENTS

Attachment 1 Summary of Legacy Nitrate Salt Timeline from 2012 Evaluation

Activities	**1984 -** (7/6/84 Approval Date) MST-12 Procedure – Procedure: 485-REC-R00 Treatment of Evaporator "Bottoms"	**1987 -** (2/18/87 Approval Date) MST-12 Standard Operating Procedure – Procedure: 485-REC-R01 Treatment of Evaporator Bottoms	**1989 -** (2/9/89 Approval Date) MST-12 Standard Operating Procedure – Procedure: 485-REC-R02 Treatment of Evaporator Bottoms	**1991 -** 9/22/91 (Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R01 Computer Operated Nitric Acid Volume Reduction and Treatment of Evaporator Bottoms	**1995 -** (8/31/95 Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R03 Computer Operated Nitric Acid Volume Reduction and Treatment of Evaporator Bottoms	**1996 -** (11/20/96 Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R04 Nitric Acid Process Evaporator	**1997 -** (9/9/97 Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R05 Nitric Acid Process **Evaporator (EV)**	**2002 -** (4/23/2002 Approval Date) NMT-2 Work Instruction – Procedure: NMT2-WI-002-REC-485 Nitric Acid Process Evaporator (Supersedes procedure NMT2-SOP-REC-485-R06)
	No Location Specified in the Procedure	**Location:**	**Location:**	**Location: (Computer Operated Evaporators)**	**Location: (Computer Operated Evaporators)**	**No Location Specified in the Procedure**	**No Location Specified in the Procedure**	**Location:**
Salts vacuum dried	Salts are vacuum dried	Salts are vacuum dried for at least 15 minutes						
Salts packaged in double bags	Salts are packaged in double bags	Salts are place in plastic bags/taped (salt is bagged as soon as it looks dry enough)						
Salts bagged out for disposal	Salts are placed in a 55-gal drum	Salts are discarded and bagged out	Salts are bagged out or given additional washing if not discardable					
Salts transferred to cement fixation (CF)				Salts are redissolved and added to the bottoms and filtered; otherwise, are transferred to CF in 5-L ss cans. Bottoms are transferred to CF	Filtrates and salts are transferred to CF if they meet discard limit per PFD	Bottoms is sent to CF; otherwise, to IX if above discard limit	Filtrate is sent to CF per PFD	Residue and salt are removed from the EV and sent to CF if it meets the discard limit; otherwise, to ion exchange

Activities	**1984 -** (7/6/84 Approval Date) MST-12 Procedure – Procedure: 485-REC-R00 Treatment of Evaporator "Bottoms"	**1987 -** (2/18/87 Approval Date) MST-12 Standard Operating Procedure – Procedure: 485-REC-R01 Treatment of Evaporator Bottoms	**1989 -** (2/9/89 Approval Date) MST-12 Standard Operating Procedure – Procedure: 485-REC-R02 Treatment of Evaporator Bottoms	**1991 -** 9/22/91 (Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R01 Computer Operated Nitric Acid Volume Reduction and Treatment of Evaporator Bottoms	**1995 -** (8/31/95 Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R03 Computer Operated Nitric Acid Volume Reduction and Treatment of Evaporator Bottoms	**1996 -** (11/20/96 Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R04 Nitric Acid Process Evaporator	**1997 -** (9/9/97 Approval Date) NMT-2 Safe Operating Procedure – Procedure: 485-REC-R05 Nitric Acid Process **Evaporator (EV)**	**2002 -** (4/23/2002 Approval Date) NMT-2 Work Instruction – Procedure: NMT2-WI-002-REC-485 Nitric Acid Process Evaporator (Supersedes procedure NMT2-SOP-REC-485-R06)
	No Location Specified in the Procedure	**Location:**	**Location:**	**Location: (Computer Operated Evaporators)**	**Location: (Computer Operated Evaporators)**	**No Location Specified in the Procedure**	**No Location Specified in the Procedure**	**Location:**
Solution (supernatant transferred to CF)	Supenatant solution is tranferred to CF if it contains the ff: Pu-242 and Uranium	Reduced solution goes to CF (Solutions are transferred to CF)	Bottoms are filtered and the solutions goes to CF	Distillate is transferred to TA-50		Distillate is transferred to TA-50 per PFD	Distillates to TA-50 if they meet discard limit per PFD	Distillate is transferred to TA-50 if it meets the discard limit; otherwise, it is redistilled
	Filteraid was used to absorb any moisture	If salts are not discardable, they are washed with 7 M HNO3		Bottoms are filtered and sent back to ion ex. for reprocessing if discard limit is exceeded	Distillate is transferred to TA-50; otherwise, transferred it's reprocessed through EV	Bottoms are filtered and salts remain in the filter is washed with water		Bottoms are filtered and washed with water to further dissolve and send to CF or ion ex. for reprocessing per PFD
	Supernatant solution containing no salts or Pu is recycled/ reprocessed	Chemicals use: 15.9 M HNO3	Solution goes back to ion ex. for reprocessing	Salt is transferred to CF if it meets the discard limit and bagged out per PFD				
	Drums have lead lined and poly liner							

Attachment 2 Itemized List of 265 Original, Nitrate, and Suspect Nitrate Containers

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S793450	S793450	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S793724	S793724	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S794448	S794448	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S801676	S801676	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S802641	S802641	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S802701	S802701	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S802739	S802739	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S802833	S802833	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S802853	S802853	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S802959	S802959	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S803078	S803078	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S803613	S803613	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S804948	S804948	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S804989	S804989	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S804995	S804995	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S805051	S805051	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S805289	S805289	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S811613	S811613	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S811692	S811692	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S811734	S811734	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S811812	S811812	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S811834	S811834	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S811872	S811872	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S813223	S813223	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S813385	S813385	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S813389	S813389	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S813471	S813471	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S813475	S813475	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S813545	S813545	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S813562	S813562	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S813601	S813601	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S813620	S813620	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S813676	S813676	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S814859	S814859	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S815176	S815176	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816304	S816304	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816305	S816305	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S816342	S816342	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816357	S816357	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816374	S816374	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816394	S816394	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816434	S816434	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S816440	S816440	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816469	S816469	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816664	S816664	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816667	S816667	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816692	S816692	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S816768	S816768	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S816773	S816773	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816810	S816810	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S816828	S816828	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816837	S816837	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S816890	S816890	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S816900	S816900	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S816915	S816915	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S818255	S818255	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S818354	S818354	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S818370	S818370	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S818382	S818382	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S818412	S818412	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S818435	S818435	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S818449	S818449	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S821203	S821203	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S822541	S822541	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S822542	S822542	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S822599	S822599	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S822679	S822679	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S822713	S822713	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S822838	S822838	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S822844	S822844	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S822876	S822876	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S822952	S822952	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823004	S823004	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823016	S823016	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S823124	S823124	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S823125	S823125	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S823126	S823126	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S823127	S823127	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S823153	S823153	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S823166	S823166	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823184	S823184	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S823187	S823187	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823194	S823194	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823221	S823221	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823229	S823229	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S823276	S823276	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824184	S824184	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824187	S824187	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824188	S824188	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824208	S824208	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824468	S824468	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S824508	S824508	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824541	S824541	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824551	S824551	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824660	S824660	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S824967	S824967	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S825020	S825020	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S825021	S825021	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S825639	S825639	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S825664	S825664	Nitrate	LA-MHD01.001	Original	78	7/31/2012
S825730	S825730	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S825810	S825810	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S825878	S825878	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S825879	S825879	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S825902	S825902	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832040	S832040	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832140	S832140	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832141	S832141	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832143	S832143	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832144	S832144	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832145	S832145	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832146	S832146	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S832147	S832147	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832148	S832148	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832149	S832149	Nitrate	LA-MHD01.001	Original	72	7/31/2012

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S832150	S832150	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832155	S832155	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832156	S832156	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832241	S832241	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832320	S832320	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832340	S832340	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832448	S832448	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832464	S832464	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S832499	S832499	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S833037	S833037	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S833261	S833261	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S833409	S833409	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S833481	S833481	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S833846	S833846	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S833937	S833937	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S834406	S834406	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S834539	S834539	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S834633	S834633	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S835283	S835283	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S835372	S835372	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S835376	S835376	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S841239	S841239	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S841240	S841240	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S841251	S841251	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S841292	S841292	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S841314	S841314	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S841320	S841320	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S841627	S841627	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S842181	S842181	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S842213	S842213	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S842234	S842234	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S842446	S842446	Suspect	LA-CIN01.001-Cans	Original	36	7/31/2012
S842463	S842463	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S842526	S842526	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S842528	S842528	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S843528	S843528	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S843593	S843593	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S843594	S843594	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S843672	S843672	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S843673	S843673	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S843962	S843962	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S844213	S844213	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S844215	S844215	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S844253	S844253	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S844573	S844573	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S844602	S844602	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S844684	S844684	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S844689	S844689	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S845031	S845031	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S845072	S845072	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S845104	S845104	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S845201	S845201	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846088	S846088	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846096	S846096	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846107	S846107	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846132	S846132	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S845338	S845338	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846037	S846037	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846055	S846055	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S846168	S846168	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846172	S846172	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846195	S846195	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S846660	S846660	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851415	S851415	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S851416	S851416	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S851418	S851418	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S851426	S851426	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851432	S851432	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851436	S851436	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851506	S851506	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851682	S851682	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851739	S851739	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851752	S851752	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851764	S851764	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851772	S851772	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S851852	S851852	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S852513	S852513	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852530	S852530	Nitrate	LA-MHD01.001	Original	72	7/31/2012

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S852588	S852588	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S852590	S852590	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852592	S852592	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852593	S852593	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852883	S852883	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852895	S852895	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852923	S852923	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852931	S852931	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S852952	S852952	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S853006	S853006	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853279	S853279	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853326	S853326	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853482	S853482	Suspect	LA-CIN01.001-Cans	Original	57	7/31/2012
S853492	S853492	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853641	S853641	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853714	S853714	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S853771	S853771	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853898	S853898	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S853899	S853899	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S854616	S854616	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855126	S855126	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855139	S855139	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855216	S855216	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855240	S855240	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855290	S855290	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855566	S855566	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S855677	S855677	Suspect	LA-CIN01.001-Cans	Original	72	7/31/2012
S855793	S855793	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S860014	S860014	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S860093	S860093	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S860095	S860095	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S860096	S860096	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S861975	S861975	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S861976	S861976	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S861980	S861980	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S861995	S861995	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S862241	S862241	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S862255	S862255	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S862411	S862411	Nitrate	LA-MHD01.001	Original	72	7/31/2012

Original Container ID	PKG_ID	Salt Type	Waste Stream	Type	Code	Dataset Date
S862888	S862888	Nitrate	LA-CIN01.001-Cans	Original	37	7/31/2012
S863696	S863696	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S863787	S863787	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S863788	S863788	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S863789	S863789	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S864213	S864213	Nitrate	LA-CIN01.001-Cans	Original	36	7/31/2012
S864662	S864662	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S864663	S864663	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S864694	S864694	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S870065	S870065	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S870213	S870213	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S870338	S870338	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S870381	S870381	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S870475	S870475	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S870478	S870478	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S871844	S871844	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S873554	S873554	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S881562	S881562	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S881563	S881563	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S881569	S881569	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S881570	S881570	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S881607	S881607	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S881608	S881608	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S883130	S883130	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S891279	S891279	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S891387	S891387	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S891513	S891513	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S892963	S892963	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S900215	S900215	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S901114	S901114	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S910170	S910170	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S910171	S910171	Nitrate	LA-MHD01.001	Original	72	7/31/2012
S910172	S910172	Nitrate	LA-MHD01.001	Original	72	7/31/2012

Attachment 2

HAZARDOUS WASTE
CAUTION
RADIOACTIVE MATERIAL
LA-UR-14-23805

Photo 1

Photo 2

Photo 3

LA-UR-14-23805

Attachment 3

Los Alamos NATIONAL LABORATORY Nuclear Material Control & Accountability Program **Functional Work Instruction**	**TID User Manual**	Operating Procedure Number: **NMCA-TID-FWI-002**
		Revision: 1
		Effective Date: 3/14/2014
		Review Date: 3/14/2016
	Preparer: Dana Sandoval	Date: 2/10/2014
	Team Leader: Carol Slaughter	Date: 2/24/2014
	Group Leader: Michael Kaufman	Date: 3/14/2014

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History of Revisions

Revision	Effective Date	Action	Pages Revised	Description
000	9/11/13	☒ New ☐ Major revision ☐ Minor revision ☐ Reviewed, no change		
1	2/11/14	☐ New ☐ Major revision ☒ Minor revision ☐ Reviewed, no change	5 7, 19, 59	Changed reference to DOE O 474.2. TID Inventory form change.

1.0 PURPOSE

This User Manual sets forth the characteristics and requirements of the Laboratory Tamper Indicating Device (TID) Program. A TID is a device, such as a seal, that is applied to a container, door or object. The TID indicates tampering or entry has occurred. This program has been designed to enhance the control and protection of special nuclear material (NM) held by Los Alamos National Laboratory (LANL). The TID program is intended to complement existing Nuclear Material Control and Accountability (MC&A) programs. TIDs alert knowledgeable personnel of unauthorized tampering with a container, door, or object to which a TID has been affixed. TIDs are only considered a reliable safeguard when they are used in conjunction with an effective material surveillance program.

LANL's policy is to comply with Department of Energy (DOE) manual requirements for use of TIDs consistent with the graded safeguards described in DOE O 474.2, "*Nuclear Material Control and Accountability*." TIDs are administered by the Material Control and Accountability Group (SAFE-4) Nuclear Material Control Team.

TID personnel must have adequate training before applying, removing, voiding, or verifying TIDs. TIDs are a benefit only if they have been properly applied to readily indicate when they have been compromised.

2.0 SCOPE

2.1 WHEN TIDS ARE USED

TIDs are used before an accountability measurement, when the special nuclear material (SNM) transferred between material balance areas (MBA) is 50 grams (fissile) or more, when transporting NM from one material access area (MAA) to another or for external transfers containing accountable quantities of SNM.

2.2 BENEFITS OF USING TIDS

TIDs are only a benefit if they have been properly applied or have an intrinsic seal so that it is easy to detect when a container has been compromised. Improperly applied TIDs negate the benefits they provide under the graded safeguards requirements.

LANL acknowledges the validity of TIDs on items and shipping containers applied by other sites in the DOE complex.

3.0 PROCEDURE

3.1 RESPONSIBILITIES

3.1.1 TID ADMINISTRATOR

SAFE-4, TID Administrator in the Security, Safeguards, and Emergency Response Division is responsible for the TID Program, written procedures, procurement, storage, oversight of the RoboCrib, oversight of LANL TID training, for the TID program and other TID related activities.

3.1.2 RESPONSIBLE LINE MANAGERS

- Request the establishment of a TID account.
- Appoint a TID custodian and one or more designated TID alternates by completing form MCA-F201 (see Attachment 4).
- Appoint TID users by completing form MCA-F202 (see Attachment 5).
- Appoint TID users to utilize RoboCrib by completing form MCA-F233 (see Attachment 20).
- Ensure the designated TID custodians, designated TID alternates and TID users attend all required TID training. Ensure, with the assistance of the TID custodian, the TID training for all group personnel is current.
- Ensure group compliance with the TID Program.

NOTE: TID custodians and alternates may be assigned as the TID custodian or alternate to ONLY one TID account. The TID custodian and alternate can be designated as a TID user in multiple accounts.

3.1.3 TID CUSTODIANS/ALTERNATES

- May perform custodial functions in only one account.
- TID custodians/alternates assigned to the specific account are the ONLY individuals to have access to the TID repository, and TID records.
- Request TIDs, as needed, from the TID Administrator.
- Provide locked repository for TIDs and associated records.
- Ensure TIDs are issued sequentially to designated TID users assigned to their account.
- Ensure appropriate type of TID is issued for the intended use.

- Ensure appropriate application/removal forms are correctly filled out. TID records must be maintained for all TIDs, both applied and removed from item.
- All forms and documentation associated with the TID program must be kept in a TID Log Book, which includes:
  - TID Access Record (MCA-F219, see Attachment 17)
  - TID Application Forms (see Attachments)
  - TID Removal Forms (see Attachments)
  - TID Inventory Form (MCA-F217, see Attachment 16)
  - Discrepancy File
  - TID Users List (MCA-F200, see Attachment 3 or MCA-F205, see Attachment 6)
  - Intrinsically Tamper Indicating Item Forms (MCA-F208, see Attachment 8)
  - TID User Manual
- Records are kept INDEFINITELY. The records can be taken to the TID Administrator for archiving. (see Change of Documentation Custody)
- Maintain TID documentation and training records of TID users.
- Conduct biannual TID inventories on un-used TIDs and document the results of the inventory on the TID Inventory Form (MCA-F217, see Attachment 16).
- Participate in annual TID audit by the TID Administrator.
- Serve as the verifier as needed when TIDs are applied or removed within their TID account.
- Ensures TID's are updated on the nuclear material accountability system database.

NOTE: TID custodians and alternates may be assigned as the TID custodian or alternate to ONLY one TID account. The TID custodian and alternate can be designated as a TID user in multiple accounts.

NOTE: TIDs MUST NOT be left unattended.

3.1.4 TID USERS

- Ensure appropriate type of TID is issued for the intended use and is applied correctly.
- Ensure TID training is completed.
- Serve as the TID applicator, remover, or verifier when applying or removing TIDs. TID users may be authorized to conduct TID-related activities in more than one account.
- Ensure proper application, removal, verification, voidance, destruction and/or disposal of TIDs.
- Have knowledge of container contents.
- Complete and sign appropriate forms and return to the TID custodian/alternate.
- After the application of a TID, ensure that the correct TID serial number is entered into the nuclear material accountability system database.

NOTE: If using RoboCrib, please see TID User Responsibilities for RoboCrib.

NOTE: TIDs MUST NOT be left unattended.

3.2 PERSONNEL AUTHORIZED TO APPLY, REMOVE, VERIFY, AND DISPOSE OF TIDS

- The TID custodian/alternate CANNOT apply or remove TIDs in the TID account in which they are designated as a TID custodian or alternate. The TID custodian and alternate can however, verify TID application or removal of a TID within their TID account.

  NOTE: A TID custodian or alternate that is designated as a TID user in another TID account may perform TID user functions (apply/remove/verify) within that TID account.

- Qualified TID users are authorized to perform the TID application/removal/verification function provided they are assigned to that designated TID account.
- The TID Administrator may be called out to apply/remove/verify TIDs in any TID account.

  NOTE: Two-person rule applies to all TID activities.

NOTE: If using RoboCrib, please see TID User Responsibilities for RoboCrib.

3.3 CHANGE OF TID RESPONSIBILITIES

3.2.1 CHANGE WITHIN THE TID ACCOUNT

When a change occurs within a TID Account, the following actions are required:

1. Form (MCA-F200 or MCA-F205) must be sent to the TID custodian by the TID Administrator.

   NOTE: MCA-F200, Verification of TID Account (see Attachment 3), is a form that contains signatures from the Responsible Line Manager (RLM), TID custodian, TID alternate, and MBA custodian, verifying the TID users in a specific TID account.

NOTE: MCA-F205 is a form sent to the TID custodian when any type of change has been made to their TID account.

2. The TID custodian must verify the TID users in their specific TID account.
3. When the TID users are verified, form MCA-F200 must be completed, signed, and sent to the TID Administrator.

3.2.2 REMOVING TID USERS WITHIN A TID ACCOUNT

When TID custodians/alternates/users request removal from a TID account, the following actions are required:

1. Form MCA-F207 must be completed, signed and sent to the TID Administrator.
2. A signed copy must be retained in the TID Log Book.
3. The TID Administrator must notify the TID custodian and TID user of the change.
4. The TID Administrator will send an updated form MCA-F205 to the TID custodian with the current listing of authorized personnel for the TID account.

3.2.3 CHANGE OF TID CUSTODIAN/ALTERNATE

When a change of TID custodian/alternate is required, the following actions are required:

1. The existing TID custodian notifies the TID Administrator.
2. The incoming TID custodian/alternate must be appointed by the RLM. Form MCA-F201 must be completed, signed and sent to the TID Administrator.
3. The incoming and outgoing TID custodian/alternate must perform a 100% inventory of all TID holdings within the TID account.
4. The TID repository combinations/keys MUST be changed.

NOTE: If the outgoing TID custodian will remain as the TID alternate, a change of lock combinations/keys is not required.

5. When the inventory and the change of the repository combination/keys are complete, both incoming and outgoing TID custodian/alternate must note the inventory on the TID Inventory Form (MCA-F217, see Attachment 16) and sign. The form MCA-F201 is sent to the TID Administrator.
6. Changes are considered effective upon receiving notification from the TID Administrator.
7. The TID Administrator must send an updated form MCA-F205 to the TID custodian with the current listing of the TID account.

NOTE: The designated TID custodian/alternate/user must be qualified. If the requested TID user is new to the TID Program he or she must take the initial TID training.

3.2.4 DESIGNATING A NEW TID USER

When a TID user is requested, the following actions are required:

1. The incoming TID user must be appointed by the RLM. Form MCA-F202 must be completed, signed and sent to the TID Administrator.

NOTE: The designated TID custodian/alternate/user must be qualified. If the requested TID user is new to the TID Program, he or she must take initial TID training.

2. Changes are considered effective upon receiving notification from the TID Administrator.

3.4 FREQUENCEY AND METHOD OF TID VERIFICATION

TIDs require verification in a number of instances and under a variety of conditions.

TIDs must always be verified in the following instances:

- immediately before and after TID application,
- prior to removing, breaking, or voiding a TID,
- prior to receiving a container into a MBA,
- prior to shipping a container from an MBA,
- when selected (randomly or otherwise) during a physical inventory,
- as required during any occurrence investigation, and
- when a TID discrepancy has been reported.

NOTE: Receiver is not required to accept a shipment if a TID discrepancy exists.

NOTE: The verifier MUST be familiar with the contents of the container.

NOTE: If using RoboCrib, please see RoboCrib Verification.

3.5 NUCLEAR MATERIAL ACCOUNTABILITY SYSTEM DATABASE

Following application of a TID, the TID custodian/alternate must ensure that the TID serial number is entered into the nuclear material accountability system database.

Following removal of a TID, the TID custodian/alternate must ensure that the TID serial number is removed from the nuclear material accountability system database.

NOTE: The TID custodian/alternate/user assigned to the specific TID account and who is a nuclear material accountability system user is authorized to update the TID field on the nuclear material accountability system.

NOTE: If using RoboCrib, please see the TID User Responsibilities for RoboCrib.

3.6 CONDITIONAL VARIANCES

A conditional variance is any deviation from TID program requirements and may be granted in special cases. All requests for such variances must be forwarded to the TID Administrator and must include documentation justifying the request. The TID Administrator reviews and forwards the request to the NM Control and Performance Assurance Team Leader and SAFE-4 Group Leader for final approval.

NOTE: All conditional variances must be evaluated by the TID Administrator, NM Control and Performance Assurance Team Leader, and SAFE-4 Group Leader to

ensure no other graded safeguards requirements are diminished in any way and in order to maintain compliance with DOE Orders. Each variance must have an expiration date and must be in effect only until that date, unless a formal extension is requested and granted, prior to the expiration.

3.7 STORAGE

TIDs are not classified, however they are strictly controlled. The TID Administrator distributes TIDs to TID custodians/alternates, who are responsible for locked containment of the TIDs until they are to be applied. An approved safe is not a requirement for TID storage but at a minimum, a locked repository with controlled key or combination access must be provided to ensure detection should malevolent entry occur.

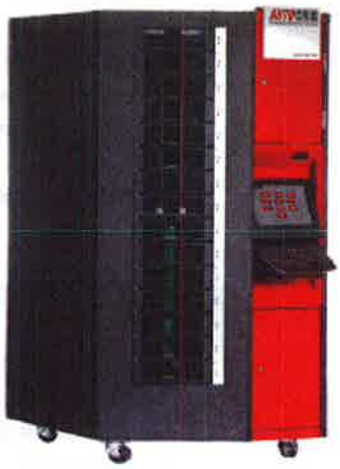
NOTE: Access to the locked repository is limited to TID Custodians/Alternates ONLY.

NOTE: All TID logbook documentation must be maintained and controlled by the TID custodian/alternate. The TID Log Book is stored in the locked repository along with assigned TIDs.

The TID custodian/alternates must maintain the TID Access Record form (MCA-F219, see Attachment 17), recording all access to the locked repository.

3.8 ROBOCRIB

The RoboCrib program allows only assigned personnel to use the RoboCrib to dispense TIDs. The Request for RoboCrib TID User form (MCA-F233, see Attachment 20), must be completed and submitted to the TID Administrator prior to attending the TID RoboCrib Initial training. All TID users using RoboCrib MUST have access to the nuclear material accountability system before they are allowed to dispense TIDs from RoboCrib. The TID user must maintain an active red crypto card, which will allow them to conduct activity within the nuclear material accountability system. Once the TID user successfully completes the RoboCrib Initial training the TID Administrator will notify the TID users that approval to use the RoboCrib has been granted.



3.8.1 TID USER RESPONSIBILITIES FOR ROBOCRIB

TID users are responsible for:

- **TID Use:** ensure appropriate type of TID issued for the intended use and is applied correctly.

NOTE: TID users CANNOT return unused TIDs. All unused TIDs MUST be physically destroyed and voided from the nuclear material accountability system.

- **TID Training:** ensure that TID training, RoboCrib Initial training and LANMAS/LAMCAS user training is complete. RoboCrib will only issue TIDs to qualified TID users whom have completed all training requirements.
- **TID Application, Removal, or Verification:** serve as the TID applicator, remover, or verifier when applying or removing TIDs. TID users may be authorized to conduct TID-related activities within TA-55 ONLY.

NOTE: The user who dispenses the TID MUST be the applicator of the TID.

- **Proper Procedural Operations:** ensure proper application, removal, voidance, destruction and/or disposal of TIDs.

NOTE: TID MUST be applied or voided as soon as possible, within the same working day.

- **Container Contents:** have knowledge of container contents.

NOTE: All TIDs MUST be accounted for within the nuclear material accountability system.

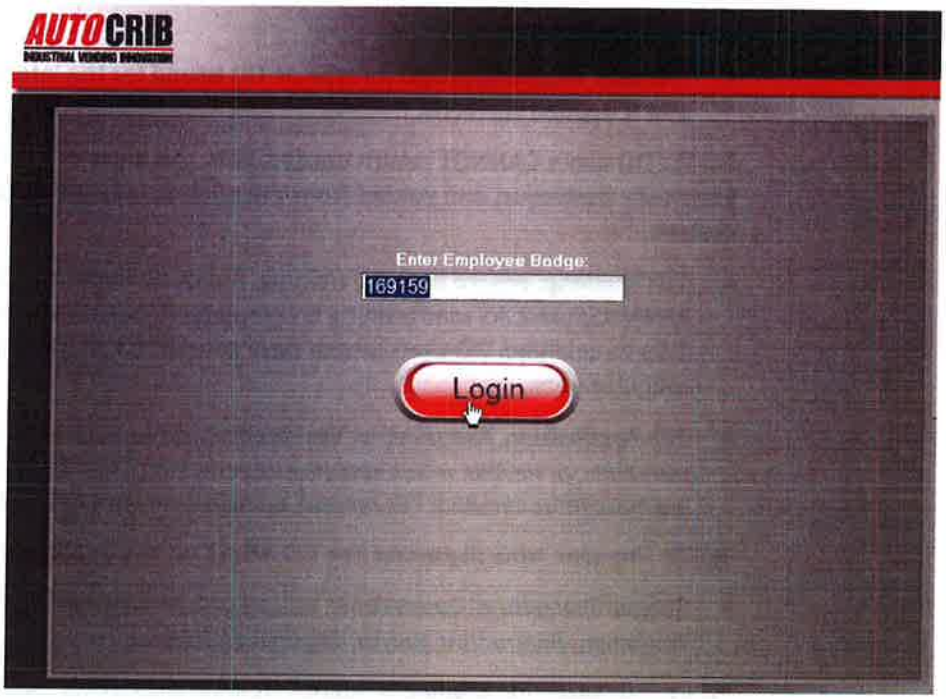
- **Intrinsically Tamper Indicating Items:** Have physical characteristics that, upon visual inspection, will immediately indicate tampering and violation of their integrity. When these items are created, the TID user will be responsible for providing the TID Administrator with the Intrinsically Tamper Indicating Item Form (MCA-F208). On the form, the TID user is required to complete the LOT ID, MBA #, Date, SNM, MT, Description of Item, Storage Location, Application Signature, Verifier Signature and the Derivative Classifier review. When the INTR item is altered the TID user is responsible for entering the removal into the nuclear material accountability system.

NOTE: TID users MAY NOT use any type of gloves when dispensing TIDs.

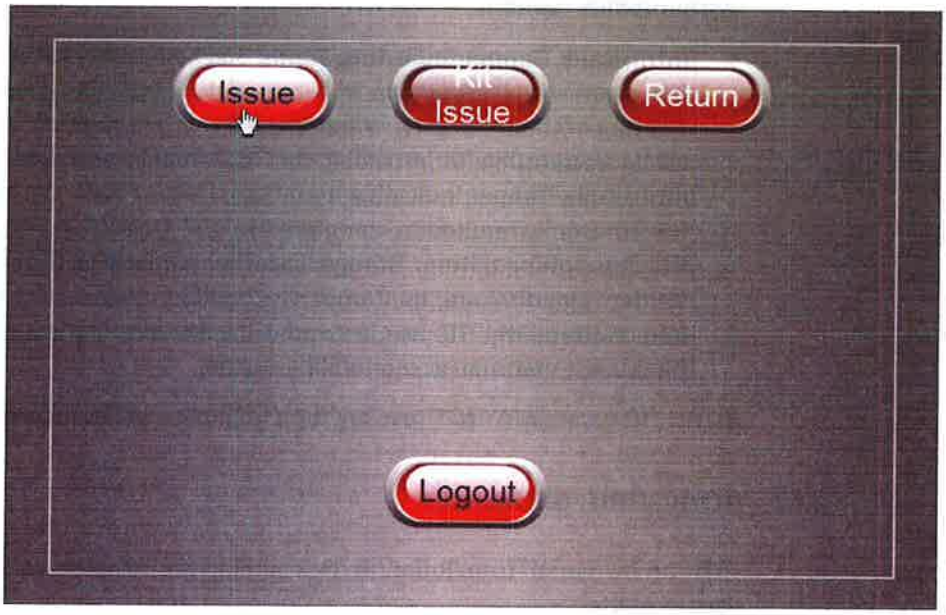
3.8.2 ROBOCRIB ISSUANCE

TIDs can be issued from RoboCrib by scanning the TID users badge on the badge reader.

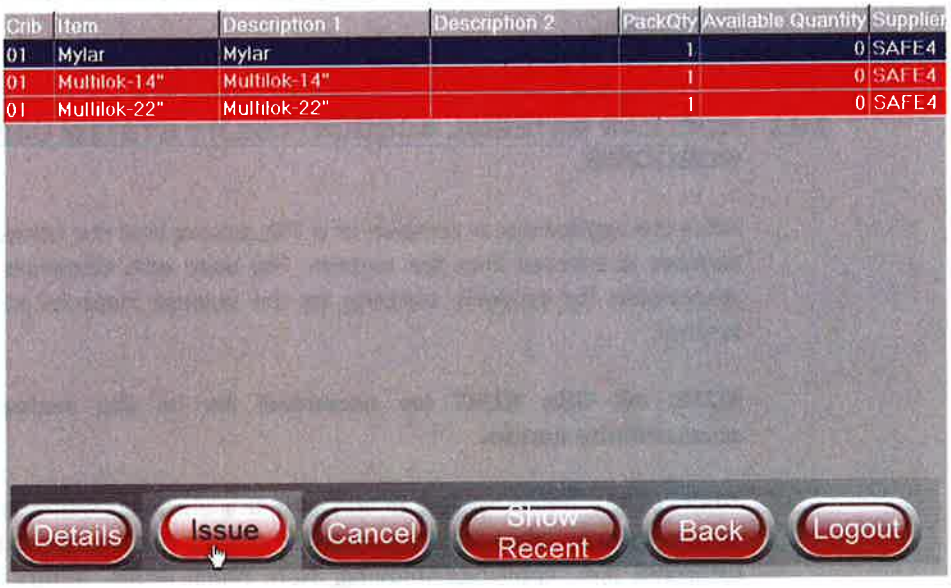
The z # will display and then the TID user can click on the "Login" button.



The TID user will need to click on the "Issue" button.



The TID user can select the type of TID (selected TID type will be highlighted). The TID user can click the "Issue" button.



Once this step has been completed the RoboCrib door will open and the TID user can retrieve the TID requested. Once the transaction is completed the login screen will display.

Transactions must be made one at a time.

NOTE: Multiple TIDs cannot be dispensed in a single transaction.

NOTE: TIDs must be applied or voided as soon as possible, within the same working day.

3.8.3 NUCLEAR MATERIAL ACCOUNTABILITY SYSTEM USING ROBOCRIB

After the application or removal of a TID, ensure that the correct TID serial number is entered into the system. The user who dispenses the TID is responsible for properly entering on the nuclear material accountability system.

NOTE: All TIDs MUST be accounted for in the nuclear material accountability system.

When a TID is being applied or removed to a container/material that is not on the nuclear material accountability system the transaction MUST be recorded. (i.e., applying/removing from pencil drops, empty containers, hoods, etc.)

When a TID has been voided the transaction MUST be recorded on the nuclear material accountability system as a void.

NOTE: A detailed description as to why the TID was voided MUST be entered.

If the TID user has a TID that has been dispensed from RoboCrib and is not being used, the TID user needs to physically destroy the TID and document it on the nuclear material accountability system as a "Void" with a detailed description as to why it was voided.

3.8.4 ROBOCRIB VERIFICATION

The TID Administrator will verify activities conducted through RoboCrib in conjunction with the nuclear material accountability system.

Verification of all activities will happen on a regular basis to ensure the TID users are entering the information accurately. If the TID users are not entering the nuclear material accountability system transactions accurately, further actions must be taken.

3.8.5 ROBOCRIB DISCREPANCY NOTIFICATION DOCUMENTATION

When a reportable TID discrepancy is discovered, the TID user is required to report the discrepancy to the RLM. Stop processing activities and segregate the discrepancy item.

The documentation of the investigation is forwarded to the TID Administrator.

If the TID discrepancy is not resolved within two hours from the time it was discovered then the TID user MUST notify the TID Administrator to initiate further investigation.

3.8 DISTRIBUTION

The TID Administrator distributes the TIDs to the TID custodian/alternates assigned to a specific TID account. The TID Administrator issues the TIDs to the TID account, the TID custodian/alternate verifies TID's that are being issued then signs the TID Administrator's TID Log Book.

It is the responsibility of the TID custodian/alternate to secure the TIDs in a locked repository and log the receipt of the SAFE-4 TIDs in the TID Log Book.

The TID custodian/alternate must complete the following steps when a TID user requests a TID:

1. The TID custodian/alternate must complete the TID Access Record Form (MCA-F219, see Attachment 17), indicating the date and time the repository is accessed.
2. The TID custodian/alternate must check the form (MCA-F200 or MCA-F205) to acknowledge the TID user and TID verifier are qualified and assigned to the specific TID account.
3. The TID custodian/alternate issues the appropriate type of TID in sequential order.
4. The TID user must sign the application form under the "Issued to" section next to the TID they are being issued. The TID verifier witnessing the issue must sign the "Issued Verifier" section. The TID custodian/alternate provides the TID user with the appropriate TID Application Form.
5. When the TID is applied and the application form is completed the TID user must return the form to the TID custodian/alternate.

NOTE: Once the TID user obtains the TID they must apply it, or maintain control of the un-used TID. If the TID is not applied it must be returned to the TID custodian/alternate.

NOTE: The TID Log Book must be kept in a locked repository along with the TIDs.

NOTE: TIDs may not be issued from one TID custodian's account to another TID custodian's account.

3.9 ABNORMAL EVENTS

If an abnormal event occurs during working hours please contact the TID Administrator.

If an abnormal event occurs outside normal working hours, the event must be documented and the TID Administrator must be notified the next business day. Unclassified documentation of the event must be provided to the TID Administrator via E-mail.

3.10 TID AUDITS

The TID Administrator audits the records and TID holdings of each TID custodian/alternate annually.

A schedule must be coordinated with the TID custodian/alternate and other affected personnel. Once a schedule is finalized, the TID Administrator provides the audit schedule to the TID custodian/alternate and the RLM.

The TID custodian will be audited on the following items:

- TID Access Record (MCA-F219),TID Application Forms (see Attachments),
- TID Removal Forms (see Attachments),
- TID Inventory Form (MCA-F217, see Attachment 16),
- Discrepancy File,
- TID Users List (MCA-F200, see Attachment 3 or MCA-F205, see Attachment 6),
- Intrinsically Tamper Indicating Item Forms (MCA-F208, see Attachment 8), and
- TID User Manual.

NOTE: A copy of 12 months of the above-listed TID records must be provided to the TID Administrator.

Upon completion of the TID audit, the TID administrator will send documentation to each RLM and TID custodian describing the results of the MC&A TID audit.

NOTE: If using RoboCrib, please see RoboCrib Verification.

3.11 TID INVENTORY

The TID custodian/alternate is required to conduct biannual TID inventories on un-used TIDs and document the results of the inventory on the TID Inventory Form (MCA-F217, see Attachment 16).

NOTE: TID records are kept INDEFINITELY.

3.12 TID GRAM

A TID GRAM (Attachment 1) is used by the TID Administrator to notify all TID custodian/alternates/users and RLMs that a change has been made to the TID Program. TID GRAMs also emphasize a requirement when a trend of deficiencies has been noted.

3.13 TID DISCREPANCIES

TID verification specifically requires an examination of each TID, sufficient to ensure that none of the TID discrepancies listed below exist:

- TID number discrepancy (i.e., missing, unreadable)
- Unauthorized TID
- Broken, damaged or deteriorating TID
- TIDs missing from TID custodian/alternate's inventory
- TIDs missing from NM containers
- Intrinsic discrepancies, such as prying, disassembling, or cutting the item to the point of violating its intrinsic characteristics
- Improperly applied TID
  - Mylar applied over tape or label
  - Mylar applied over old "voids"
  - Mylar applied less than 1 inch below lid
  - Mylar pulled too tightly and does not adhere to top of container
  - Mylar not applied on opposite sides of lid
  - Old "voids" not cleaned off container
  - Cup-Wire (Type E) Seal, Quickseals, and Multi-loks applied too loosely
  - Cup-Wire (Type E) Seal and Quickseals with no "figure eight"
  - Cup-Wire (Type E) Seal, Quickseals, and Multi-loks, where wire did not go through hole in bolt
  - Cup-Wire (Type E) Seal, where sleeve is not crimped properly

NOTE: If a discrepancy occurs, stop ALL processing activities for the item(s) in question, and segregate the item(s) in question, if possible.

The following actions are required:

1. Immediately notify a TID custodian/alternate and RLM. Stop processing activities and segregate the discrepancy item.

2. If the TID discrepancy cannot be resolved within two hours from the time of discovery, the TID custodian/alternate notifies the TID Administrator to initiate further investigative action.

3. A TID discrepancy requires the TID custodian/alternate to provide documentation of the incident to the TID Administrator detailing the incident, how it was resolved, and what steps will be taken to prevent future incidents.

4. The TID custodian/alternate must forward the documentation from the investigation and resolution of the TID discrepancy to the TID Administrator.

5. All TID discrepancies documentation must be maintained in the TID custodian/alternate records.

3.14 CONTAINER AND DEVICES

The TID user who applies TIDs to containers and devices must use the proper hardware (i.e., bolts, nuts, wire, copper collar, etc.) associated with TID application. This hardware is designed so that any unauthorized attempt to access the NM will compromise the TID.

To meet the requirements, a container must be constructed so that all means of access will violate the TID or the integrity of the container.

The following Table shows authorized containers on which TIDs can be applied:

Container Type	TID Type
Hagen Container	Multi-lok, Cup-Wire (Type E) Seal, Quickseal
5 gallon Metal Bolt-Ring Containers	Mylar
6M Shipping Drum	Multi-lok
DOT certified drums	Multi-lok, Cup-Wire (Type E) Seal, Quickseal
Pressure cooker	Multi-lok, Mylar
Solution bottles	Mylar
Doors	Mylar
Dressing jars	Mylar
Paint cans	Mylar
Glovebox doors	Mylar
Slip top containers	Mylar
Glass vials	Mylar
Nalgene bottles	Mylar
Waste drums	Multi-lok, Cup-Wire (Type E) Seal, Quickseal

3.14 TID RECORDS/ FILES

The TID custodian/alternate must maintain the following records/files in the TID repository. All required records/files are subject to audit by SAFE-4, DOE/Los Alamos Field Office and other auditing agencies.

The following forms must be in the TID Log Book:

- TID Access Record (MCA-F219),
- TID Application Forms (see Attachments),
- TID Removal Forms (see Attachments),
- TID Inventory Forms (MCA-F217, see Attachment 16),
- Discrepancy File,
- Current TID Users List (MCA-F200 or MCA-F205),
- Intrinsically Tamper Indicating Item Forms (MCA-F208, see Attachment 8), and
- TID User Manual.

NOTE: TID Log Book documentation is kept INDEFINITELY, access records are required to be kept for one year.

NOTE: The TID custodian/alternate must take old TID documentation to the TID Administrator for storage.

3.15 CHANGE OF DOCUMENTATION CUSTODY

When the TID logs books reach capacity the TID custodian/alternate can hand carry or mail their TID documentation to the TID Administrator.

The TID custodian/alternate must handle documentation according to LANL procedures. The TID custodian/alternate needs to pay particular attention to ensuring that OUO/UCNI/CLASSIFIED information is not included without being properly marked.

- If the documentation is sent through the mail, Change of Documentation Custody form (MCA-F231, see Attachment 19), must be included.
- If the documentation is hand carried, the TID Administrator will have the TID custodian/alternate sign the Change of Documentation Custody form (MCA-F231, see Attachment 19), acknowledging that they are relinquishing the custody of their documentation to the TID Administrator.

3.16 TID FORMS

All forms are located on the LANL homepage under- Security- Nuclear Materials- Tamper Indicating Devices- TID forms- Tamper Indicating Device (TID) Form.

3.17 TYPES OF TIDS

TIDs that are authorized in the LANL TID program are explained below and are documented in Attachment 2.

3.17.1 TIDS PREVIOUSLY USED

The following TIDs are still valid and are grandfathered into the TID program.

3.17.1.1 MYLAR

A Verified Nuclear Material TID contains a green border. This type of TID was applied to an item/container upon completion of a verification of accountability measurement.

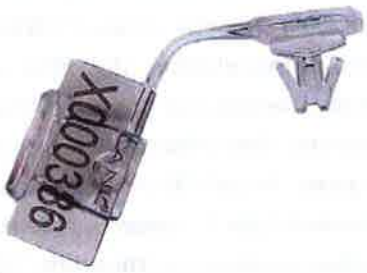
A Confirmed Nuclear Material TID contains a yellow border. This type of TID was applied to an item/container upon completion of a confirmation measurement.

A Nonverified Nuclear Material TID contains a red border. This type of TID was applied to an item/container upon completion of a measurement that had been determined to be non-defensible or if an item/container had received no measurement.

A Mylar TID is a pressure-sensitive adhesive TID. It is 1 ¼ X 13" inches, made of Mylar and has tamper indicating qualities when lifted or removed. Pressure-sensitive adhesive TIDs are uniquely serialized, color coded, and have specific usages. Mylar TIDs are color coded blue and are applied prior to any measurement.

3.17.1.2 QUICKSEAL

The Quickseal is a plastic mechanism that clasps with a self cut wire. It contains a unique serial number.



3.17.2 TIDS CURRENTLY IN USE

3.17.2.1 CUP-WIRE (TYPE E) SEAL

The Cup-Wire (Type E) Seal TID is made of 1 inch diameter copper that consists of two halves, with the same unique serial number on both halves.

3.17.2.2 MYLAR

Mylar TIDs are pressure-sensitive and are physically the same size as the previously used TIDs. When removal or attempted removal/defeat occurs, the Mylar TID shows a clear "VOID/OPEN" security message but does not leave a residue on the surface of the container. They also contain a barcode for inventory and tracking purposes. These TIDs are also uniquely serialized and contain six numerical digits followed by the letter "L." These adhesive TIDs are red in color with the words "NUCLEAR MATERIAL" printed in black along the adhesive strip.

The QUARANTINE Mylar TIDs provides the same concept as the red Mylar TID shown above. These TIDs are to be applied by the MC&A team and cannot be removed. When removal or attempted removal/defeat occurs, the Mylar TID shows a clear "VOID/OPEN" security message but does not leave a residue on the surface of the container. They also contain a barcode for inventory and tracking purposes. These TIDs are also uniquely serialized and contain six numerical digits followed by the letter "Q." These adhesive TIDs are blue in color with the words "QUARANTINE DO NOT TAMPER CONTACT MC&A" printed in white along the adhesive strip.

3.17.2.3 MULTI-LOK

The Multi-lok TID has a free end of twisted-wire cable. The cable is passed through a hasp on the container and then inserted into a hole in a metal box. The box has spring loaded balls which allow the wire to pass by when initially inserted but bind with attempts to retract the wire. The metal box contains a unique identifier, but the wire does not.

3.18 INTRINSICALLY SEALED ITEMS

The LANL TID Program defines intrinsically sealed items as items that have physical characteristics that upon visual inspection will immediately indicate tampering and violation of their integrity. The types of items that are considered to be intrinsically tamper indicating are:

- special form radioactive material, defined by 49 CFR,
- sealed sources, defined by Procedure (P)121, *Radiation Protection*,
- fuel elements/fuel rods,
- welded containers (e.g. 3013 container),
- weapon assemblies/subassemblies/artillery shells, and
- other sealed sources not defined by P121 (e.g. PuBe, AmBe).

3.18.1 DETERMINATION OF AN INTRINSICALLY SEALED ITEM

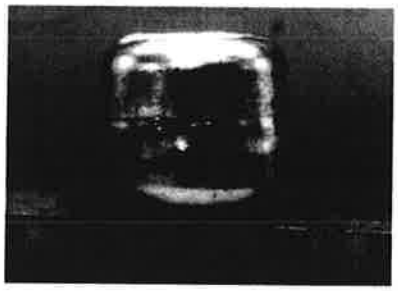
When an item is being considered for the determination "intrinsically sealed," the TID custodian/alternate/user will complete the Intrinsically Tamper Indicating Item Form (MCA-F208, see Attachment 8) and submit it to the TID Administrator. The TID Administrator or SAFE-4 Representative must visually inspect the item before making a determination. Once the item is determined to be intrinsically sealed, an "INTR####" will be assigned to the item on the nuclear material accountability system to identify the item as being intrinsically sealed.

If an intrinsically sealed item is altered (removed from a welded container, disassembled, and/or processed), the TID custodian/alternate/user must remove the INTR identifier from the seal field in the nuclear material accountability system.

NOTE: If using RoboCrib, please see the TID User Responsibilities for RoboCrib.

3.18.2 CONTAINERIZATION OF INTRINSICALLY SEALED ITEMS

Items identified as intrinsically sealed must be packaged in an outside container (if applicable), and can be containerized on the nuclear material accountability system with the approval of the TID Administrator. The outside packaging can have a conventional TID placed on it. Because intrinsically sealed items get the same safeguards credit as other items marked with conventional TIDs, this designation will aid SAFE-4 in selecting items to be inventoried during the physical inventories.



3.18.3 INTR FORM PROCEDURES

To submit an item to the TID Administrator for approval, the TID custodian/alternate/user must complete the portion indicated "To be filled out by TID custodian/alternate/user" on the Intrinsically Tamper Indicating Item Form (MCA-F208, see Attachment 8).

NOTE: The INTR form (MCA-F208) MUST be reviewed by a Derivative Classifier before it is submitted to the TID Administrator.

The TID custodian/alternate/user must complete the following sections of the form:

1. LOT ID -- Document the nuclear material accountability system LOTID
2. MBA #- The MBA/account where the item is currently located.
3. Date- The date of which the Intrinsically Tamper Indicating form is being completed.
4. SNM- Enter the element weight of the item.
5. Material Type (MT)- The item's material type(s)
6. Description of Item- Physical description of the item, what type of item it is (e.g., PuBe source, Rocky Flats pit, etc.), any other pertinent information that will aid in intrinsic determination.

7. Storage Location- Tech Area, building number, room and/or cabinet identifier.
8. TID Custodian/Alternate signature (if applicable)- The custodian/alternate requesting the designation or responsible for the item.
9. Applicator (signature) - The TID user that welded the item.
10. Verifier (signature) - The TID user that verified the weld.

When the TID custodian/alternate/user has completed the form (MCA-F208, see Attachment 8), the form must be sent to the TID Administrator for approval.

When the TID Administrator receives the Intrinsically Tamper Indicating Item form (MCA-F208, see Attachment 8), the TID Administrator or the SAFE-4 Representative shall contact the TID custodian/alternate/user to set up a time for the evaluation.

Once the item is approved the item will be assigned an "INTR####" by the TID Administrator.

If there are any questionable items that indicate INTR, the responsible TID custodian/alternate/user will be contacted to have the item investigated and/or validated.

3.19 NON-LANL TIDS

Items shipped from another facility with a Non-LANL TID are considered part of the LANL TID Program. Upon receiving the item, the receiving group must inspect the container and TID to verify that the container is sealed properly, to ensure the TID is not broken, damaged, or improperly applied, and to make sure the TID number corresponds to that provided by the shipper. The TID user must log the removal of the Non-LANL TID on the Non-LANL TID Removal Form (MCA-F220, see Attachment 18) and the TID verifier must verify the removal and destruction of the TID.

3.20 PROCEDURES FOR APPLICATION OF TIDS

3.20.1 CUP-WIRE (TYPE E) SEAL

When the Cup-Wire (Type E) Seal TID is attached to an object, it must be done in a manner that requires breaking the wire or destroying the TID to open the object.

Obtain the following equipment and material:

- Cup-Wire (Type E) Seal (top and bottom)
- Braided wire
- Crush-type sleeves/collars
- Pliers or a pair of wire cutters capable of crimping collars

NOTE: An authorized TID applicator and a TID verifier must be present when TIDs are applied.

The TID verifier must witness the application of the TID, verifying the following procedure has been followed by the TID applicator:

1. Verify that serial number of the TID bottom and top cups are identical.
2. Find a strategic location on the container where you will apply the TID. The location must ensure that the container cannot be opened without destroying the TID's integrity.
3. Estimate the length of wire needed and cut that amount from the roll. (Exact length will depend on the container).
4. Run the wire ends through the fixture and bring the ends together equally. For drums, insert wire through the hole in the bolt, into the gap in the split lug of the ring, and across one half of the lug (see photo). Remove any slack in the wire by pulling it "finger-tight." Then pull the end of the wire around the half lug, through the gap, and around the other half lug in a "figure-8."

5. Slip the TID bottom cup down the wire until it is in position near the fixture.
6. Thread the wire ends through the crimping sleeve.

7. Slide the crimping sleeve along the wire until it is in position near the TID bottom cup.
8. Use the pliers to crimp the sleeve firmly on the wire.

9. Trim the wire ends, leaving approximately ½ inch beyond the crimped sleeve end.
10. Loop the remaining ends of the wire into the inner cup area, then pull on the cup while pushing the wire and sleeve into the inner cup, ensuring that there will be no interference with closure of the TID.
11. Place the top cup over the bottom cup and apply firm pressure with fingers around the rim of the bottom cup to ensure full closure.

12. Tug on the applied cup seal to ensure that it has been applied correctly.
13. Inspect the Cup-Wire (Type E) Seal.

NOTE: If the wire was damaged during application or full closure was not achieved, cut the wire, remove the TID, and apply another Cup-Wire (Type E) Seal. The Cup-Wire (Type E) Seal that was removed must be voided and rendered unusable, and must be noted on the Cup-Wire (Type E) Seal TID Removal Form (MCA-F216, see Attachment 15) and removed from the nuclear material accountability system database.

14. The TID verifier must inspect the TID for proper application.
15. The TID applicator/verifier must complete the Cup-Wire (Type E) Seal TID Application Form (MCA-F212, see Attachment 11) and return the form to the TID custodian/alternate.

NOTE: Following application of a TID, the TID custodian/alternate must ensure the TID serial number is entered into the nuclear material accountability system database.

3.20.2 MYLAR

The Mylar TID consists of an adhesive strip that, when applied, acts as a seal on the item/container. It is applied in a manner that requires destroying the TID in order to open the object.

Obtain the following equipment and material:

- Mylar TID
- Scissors (if needed)

NOTE: An authorized TID applicator and a TID verifier must be present when TIDs are applied.

The TID verifier must witness the application of the TID, verifying the following procedure has been followed by the TID applicator:

NOTE: The container MUST be cleaned from any previous void markings before application.

1. Find a strategic location on the container where you will apply the TID. The location must ensure the container cannot be opened without destroying the TID's integrity.
2. Cut a Mylar TID in half for a large container if necessary. The Mylar TID must be located on the container so that it goes at least 1 inch down on each side and 1 inch across the top.

NOTE: If there is tape securing the container, be advised the Mylar TID must fit 1 inch below the tape down each side and 1 inch across the top.

3. If a Mylar TID is cut to fit on a large container, the ends must be placed on opposite sides of the container top from each other.
4. Inspect the Mylar TID.

NOTE: If the Mylar was damaged during application, remove the Mylar, and apply another Mylar. The Mylar that was removed must be voided and rendered un-usable, and must be noted in the Mylar TID Removal Form (MCA-F213, see Attachment 12) and removed from the nuclear material accountability system database.

5. The TID verifier must inspect the Mylar TID for proper application.
6. The TID applicator/verifier must complete the Mylar TID Application Form (MCA-F209, see Attachment 9) and return the form to the TID custodian/alternate.

NOTE: Following application of a TID, the TID custodian/alternate must ensure that the TID serial number is entered into the nuclear material accountability system database.

3.20.3 MULTI-LOK

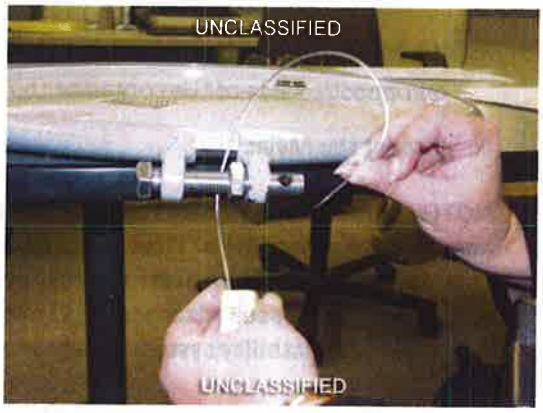
The Multi-lok TID is a metal TID made of 1-inch clasps, a wire and a unique serial number. When the wire is inserted into the 1-inch clasp, it tightly secures the mechanism. The wire is sealed in a manner that requires breaking the wire or destroying the TID to open the object.

Obtain the following equipment and material:

- Multi-lok TID

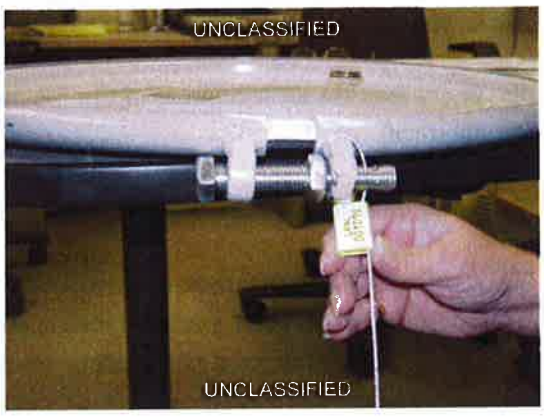
NOTE: An authorized TID applicator and a TID verifier must be present when TIDs are applied. The TID verifier must witness the application of the TID, verifying the following procedure has been followed by the TID applicator.

1. Find a strategic location on the container where you will apply the TID. The location must ensure that the container cannot be opened without destroying the TID's integrity.
2. Run the loose wire end through the fixture on the container.
3. Insert the loose end of the wire into the clasp and pull the wire through the clasp to tighten.



NOTE: For drums, insert the wire through the hole in the bolt, into the gap in the split lug of the ring, and across one half of the lug, and then insert it into the clasp.

4. Tug on the Multi-lok to ensure that it has been applied accurately.



5. Inspect the TID and wire.

NOTE: If the Multi-lok was damaged during application or full closure was not achieved, remove the Multi-lok, and apply another Multi-lok. The Multi-lok that was removed must be voided and rendered unusable, and must be noted in the Multi-lok TID Removal Form (MCA-F214, see Attachment 13) and removed from the nuclear material accountability system database.

6. The TID verifier must inspect the TID for proper application.

7. The TID applicator/verifier must complete the Multi-lok TID Application Form (MCA-F210, see Attachment 10) and return the form to the TID custodian/alternate.

NOTE: Following application of a TID, the TID custodian/alternate must ensure that the TID serial number is entered into the nuclear material accountability system database.

3.21 PROCEDURES FOR REMOVAL, VOIDING AND DISPOSAL OF TIDS

3.21.1 CUP-WIRE (TYPE E) SEAL

When removing, voiding, and destroying a TID, the two-person rule applies. The TID user must destroy the TID and the TID verifier must verify the destruction. The Cup-Wire (Type E) Seal TID Removal Form (MCA-F216, see Attachment 15) must be completed and marked as a void.

NOTE: An authorized TID user and a TID verifier must be present when TIDs are removed from NM containers.

Before a previously-applied Cup-Wire (Type E) Seal is removed, an authorized TID verifier inspects it as follows:

1. Verify that the serial number of the TID bottom and top cups are identical.

2. Verify the TID is not broken, damaged, or improperly applied.

3. Verify the TID serial number corresponds to the serial number recorded on the latest nuclear material accountability system listing, shipper back-up papers, or container label.

4. If the inspection fails to verify (1.) or (2.) above, the TID user notifies the TID custodian/alternate. The TID custodian/alternate immediately investigates and resolves the TID discrepancy. TID discrepancies that cannot be resolved within two hours require immediate notification of the TID Administrator.

Once the above four items are resolved, continue with the following:

5. Cut the wire at least two inches away from the TID (if possible) and remove the TID and wire from the container.

6. The TID verifier examines the TID to verify that both halves have the same serial number and that there is no evidence of tampering. If the numbers do not match or there is evidence of tampering, the TID user notifies the TID custodian/alternate. The TID custodian/alternate immediately investigates and resolves the TID discrepancy. TID discrepancies that cannot be resolved within two hours require immediate notification of the TID Administrator.

7. If everything is in order, the TID remover destroys the TID by poking holes in it and disposes of it as unclassified waste.

8. The TID remover and TID verifier complete and sign the Cup-Wire (Type E) Seal TID Removal Form (MCA-F216, see Attachment 15), and return the form to the TID custodian/alternate.

NOTE: Following the removal of a TID, the TID custodian/alternate ensures that the TID serial number is removed from the nuclear material accountability system database.

3.21.2 MYLAR

When removing, voiding, and destroying a TID, the two-person rule applies. The TID user must destroy the TID and the TID verifier must verify the destruction. The Mylar TID Removal Form (MCA-F213, see Attachment 12) must be completed and marked as a void.

NOTE: An authorized TID user and a TID verifier must be present when TIDs are removed from NM containers.

Before a previously applied Mylar TID is removed, an authorized TID verifier inspects it as follows:

1. Verify that the TID is not broken, damaged, or improperly applied.

2. Verify that the TID serial number corresponds to the serial number recorded on the latest nuclear material accountability system listing, shipper back-up papers, or container label.

3. If the inspection fails to verify (1.) or (2.) above, the TID user notifies the TID custodian/alternate. The TID custodian/alternate immediately

investigates and resolves the TID discrepancy. TID discrepancies that cannot be resolved within two hours require immediate notification of the TID Administrator.

Once the above three items are resolved, continue with the following:

4. The TID verifier examines the TID to verify that both halves have the same serial number and that there is no evidence of tampering. If the numbers do not match or there is evidence of tampering, the TID user notifies the TID custodian/alternate. The TID custodian/alternate must immediately investigate and resolve the TID discrepancy. TID discrepancies that cannot be resolved within two hours require immediate notification of the TID Administrator.

5. If the inspection verifies the integrity of the TID, it must be removed by peeling the Mylar from the container ("VOID" markings will appear).

NOTE: The Mylar TIDs that are currently being used does not leave a residue on the surface of the container.

6. To clean the "VOID" markings, use an approved solvent or eraser, or scrape them.

7. If everything is in order, the TID remover ensures that all removed/voided TIDs are rendered unsuitable for reuse by cutting them in small pieces and disposing them as unclassified waste or by shredding them in a paper shredder.

8. The designated TID remover and TID verifier complete and sign the Mylar TID Removal Form (MCA-F213, see Attachment 12), and return the form to the TID custodian/alternate.

NOTE: Following the removal of a TID, the TID custodian/alternate ensures that the TID serial number is removed from the nuclear material accountability system database.

3.21.3 MULTI-LOK

When removing, voiding, and destroying a TID, the two-person rule applies. The TID user must destroy the TID and the TID verifier must verify the destruction. The Multi-lok TID Removal Form (MCA-F214, see Attachment 13) must be completed and marked as a void.

NOTE: An authorized TID user and a TID verifier must be present when TIDs are removed from NM containers.

Before a previously-applied Multi-lok TID is removed, an authorized TID verifier inspects it as follows:

1. Verify that the TID is not broken, damaged, or improperly applied.
2. Verify that the TID serial number corresponds to the serial number recorded on the latest nuclear material accountability system listing, shipper back-up papers, or container label.
3. Verify that there is no evidence of tampering.
4. If the inspection fails to verify (1.), (2.), or (3.) above, the TID user notifies the TID custodian/alternate. The TID custodian/alternate immediately investigates and resolves the TID discrepancy. TID discrepancies that cannot be resolved within two hours require immediate notification of the TID Administrator.

Once the above four items are resolved, continue with the following:

5. Cut the wire at the base of the loop away from the TID (if possible) and remove the TID from the container.

6. If everything is in order, the TID remover renders the TID unsuitable for reuse by cutting the wire and disposes of it as unclassified waste.

7. The designated TID remover and TID verifier complete and sign the Multi-lok TID Removal Form (MCA-F214, see Attachment 13), and return the form to the TID custodian/alternate.

NOTE: Following the removal of a TID, the TID custodian/alternate ensures that the TID serial number is removed from the nuclear material accountability system database.

3.21.4 QUICKSEAL

Quickseal's have been phased out of the LANL TID Program and are no longer issued to TID accounts. However, they may still be on containers from previous applications. When removing, voiding or disposing of a TID,

the two-person rule applies. The TID user must destroy the TID and the TID verifier must verify the destruction. The Quickseal TID Removal Form (MCA-F215, see Attachment 14) must be completed and marked as a void.

NOTE: An authorized TID user and a TID verifier must be present when TIDs are removed from nuclear material containers.

Before a previously-applied Quickseal TID is removed, an authorized TID verifier inspects it as follows:

1. Verify that the TID is not broken, damaged, or improperly applied.

2. Verify that the TID serial number corresponds to the serial number recorded on the latest nuclear material accountability system listing, shipper back-up papers, or container label, whichever is appropriate.

3. Verify that there is no evidence of tampering.

4. If the inspection fails to verify (1.), (2.), or (3.) above, the TID user notifies the TID custodian/alternate. The TID custodian/alternate immediately investigates and resolves the TID discrepancy. TID discrepancies that cannot be resolved within two hours require immediate notification of the TID Administrator.

Once the above four items are resolved, continue with the following:

5. Cut the Quickseal on the loop, and remove the TID and wire from the container.

6. Destroy the Quickseal by slicing the numbers with pliers.

7. If everything is in order, the TID remover renders the TID unsuitable for reuse and disposes of it as unclassified waste.

8. The designated TID remover and TID verifier complete and sign the Quickseal TID Removal Form (MCA-F215, see Attachment 14), and return the form to the TID custodian/alternate.

NOTE: Following the removal of a TID, the TID custodian/alternate must ensure that the TID serial number is removed from the nuclear material accountability system database.

4.0 TRAINING

The level of training on this functional work instruction is determined by training analysis in accordance with P781-1, Conduct of Training Manual and recorded on the document action request form (DAR).

The TID Training Program is provided to ensure that TID custodians/alternates/ users are trained in regards to the TID program.

4.1 INITIAL TRAINING

Authorized personnel must attend an initial training and demonstrate proficiency in applying the information provided for TIDs.

4.2 RE-QUALIFICATION TRAINING

TID custodians/alternates/users are required to complete re-qualification training every two years to retain their work assignments for the TID Program.

4.3 ROBOCRIB INITIAL TRAINING

TID users identified to use RoboCrib must attend an initial training and demonstrate proficiency in distributing TIDs.

5.0 DEFINITIONS AND ACRONYMS

5.1 DEFINITIONS

See LANL Definition of Terms or the Security Policy Resource.

Application Form: Forms required for documenting the application of TIDs. (MCA-F209, MCA-F210, MCA-F211, MCA-F212)

Controlled Conditions: Storage conditions that prevent access to controlled documents and TIDs by unauthorized individuals.

Deface: The act of altering the physical appearance of a TID so that re-use and acceptance as a valid TID is precluded.

Intrinsically Sealed: Items that have physical characteristics that visually indicate an attempt to remove material.

Knowledgeable Personnel: Persons familiar with the operational and nuclear materials activities being performed, who must be trained and qualified to the TID Program.

Locked Repository: A toolbox with a combination or key lock, a locked cabinet, or a locked safe.

MC&A: Material Control & Accountability

Nuclear Material Accountability System: The material accountability safeguards system is the hub of LANL's NM graded safeguards program. It is an essential element in detecting, verifying, and evaluating gains or losses in the Laboratory's

NM inventory. NM accounting and report generation are performed using the nuclear material accountability system.

Removal Forms: Forms required for documenting the removal, or voiding of TIDs. (MCA-F213, MCA-F214, MCA-F215, MCA-F216)

Responsible Line Manager (RLM): An individual with management responsibility for a TID account.

RoboCrib: A machine that dispenses TIDs to qualified TID users.

Tamper Indicating Device (TID): A device that may be used on items such as containers and doors, which because of its uniqueness in design or structure, reveals violations of containment integrity (devices that indicate, upon inspection, whether tampering or entry has occurred).

TID Administrator: SAFE-4 staff member assigned the responsibility for procuring, controlling, distributing, inventorying, and destroying TIDs.

TID Custodian/Alternate: Authorized individual who maintains and issues TIDs to authorized TID users assigned to the specific TID account.

TID Discrepancy: Any condition that is a deviation from the normal control or use of TIDs.

TID GRAM: Documentation issued from the TID Administrator to TID custodians/alternate/users and RLMs, informing them of any changes in the TID program and also used to pass along useful information.

TID Inventory Form: Used by TID custodians/alternates when TIDs are received from the TID Administrator or are being inventoried. (MCA-F217, see Attachment 17)

TID Log Book: A binder or folder that contains TID information maintained by the TID custodian/alternate.

TID User: Qualified individual who can apply/remove/verify TIDs in an assigned TID account. The TID user must have knowledge of container content.

5.2 ACRONYMS

See LANL Acronym Master List or the Security Policy Resource

Acronym	Definition
DOE	Department of Energy
INTR	Intrinsically Sealed
LANL	Los Alamos National Laboratory
MAA	Material Access Area
MBA	Material Balance Area
MC&A	Material Control and Accountability
MT	Material Type
NM	Nuclear Material
P	Procedure
RLM	Responsible Line Manager
SNM	Special Nuclear Material
TID	Tamper Indicating Device

6.0 REFERENCES

1. DOEO 474.2 Chg 2, Attachment 1 CRD, *Nuclear Material Control and Accountability*LANL Nuclear Material Control & Accountability (MC&A) Plan
2. 49 CFR
3. P121, *Radiation Protection*

7.0 ATTACHMENTS

Attachment 1- TID GRAM (sample)

SAMPLE

TID GRAM

May, 2010
TID GRAM #19

Subject: Change of TID Custodian/Alternate Responsibilities

There has been a change to the TID custodian/alternate responsibilities. TID custodians and alternates can no longer apply or remove TIDs in the TID account in which they are designated as a TID custodian or alternate. The TID custodian and alternate can however, verify TID application or removal in their TID account.

A TID custodian or alternate that is designated as a TID user in another TID account may perform TID user functions (apply/remove/verify) in that account.

An initial TID user course will be held on May 19th. To designate other TID users please, fill out the TID user form and sign up on the following link:

http://www.hr.lanl.gov/tiocourses/coursesearch.aspx?CourseNo=7273&scope=here&category_path=%252FOrganization%2523Operations%252FTraining%2523Education

Dana Sandoval
SAFE-4 Material Control & Accountability
Los Alamos National Laboratory
Phone: 5-3108
Email: danam@lanl.gov

UNCLASSIFIED

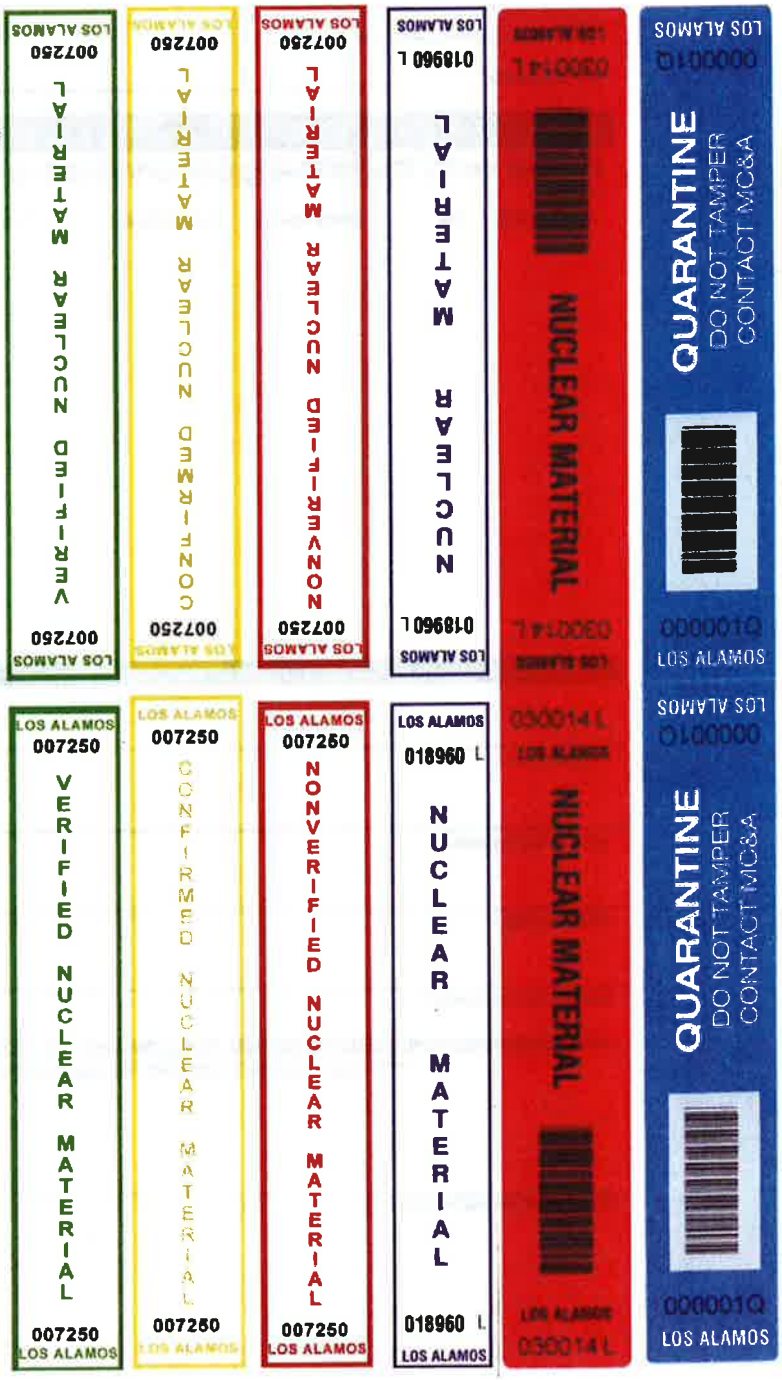
Authorized LANL TIDs

Nuclear Material Multi-lok

Nuclear Material Quickseal

Nuclear Material Cup-Wire (Type E) Seal

Nuclear Material Mylar



Attachment 3- MCA-F200 – Verification of TID Account

Los Alamos NATIONAL LABORATORY EST. 1943

Verification of TID Account

Date _____ TID Account # _____

TID Custodian _____

Please verify the following personnel are on your TID account

Account #	Z#	First Name	Last Name	Group	TID	Expiration Date

Signatures

TID Custodian *Date*

TID Alternate Custodian *Date*

MBA Custodian *Date*

Responsible Line Manager *Date*

WHEN FORM IS COMPLETED AND SIGNED, MAIL ORIGINAL TO: TID ADMINISTRATOR, MS-G735, SAFE-4
*****A copy must be kept in the TID Log Book for the TID Account*****

NMControl Form MCA-F200 January 22, 2009

Los Alamos NATIONAL LABORATORY EST. 1943

Change of TID Custodian/Alternate

Date _____ TID Account # _____

Group _____

Existing TID Custodian _____ Z# _____

New TID Custodian / Alternate _____ Z# _____

Outgoing TID Custodian / Alternate _____ Z# _____

INCOMING AND OUTGOING TID CUSTODIANS/ALTERNATES MUST PERFORM A 100% INVENTORY OF THE UNUSED TID HOLDING

Has a 100% inventory been completed?	☐ Yes	☐ No
Have all TID's been accounted for?	☐ Yes	☐ No
Has the combinations/lock on the repository been changed?	☐ Yes	☐ No

Signatures

_____ *Existing TID Custodian* *Date*

_____ *New TID Custodian / Alternate* *Date*

_____ *Outgoing TID Custodian / Alternate* *Date*

_____ *Responsible Line Manager* *Date*

_____ *TID Administrator* *Date*

WHEN FORM IS COMPLETED AND SIGNED, MAIL TO: TID ADMINISTRATOR, MS-G736, SAFE-4

NMControl Form MCA-F201 May 17, 2010

Los Alamos NATIONAL LABORATORY EST. 1943

Request for New TID User

[redacted]

Date _____

Group _____

[redacted]

TID Custodian (Print Name) _____ Z# _____

_____

TID Custodian Signature *Date*

[redacted]

Responsible Line Manager (Print Name) _____ Z# _____

_____

Responsible Line Manager Signature *Date*

[redacted]

New TID User (Print Name) _____ Z# _____

TID Account User will be assigned to _____

_____

New TID User Signature *Date*

WHEN FORM IS COMPLETED AND SIGNED, MAIL TO: TID ADMINISTRATOR, MS-G735, SAFE-4

NMControl Form MCA-F202 May 17, 2010

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TID Account

Date _____ TID Account # _____

TID Custodian _____

The following personnel are assigned to your TID account

Z#	First Name	Last Name	Group	TID	Training Expiration

A copy must be kept in the TID Log Book for the TID Account

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TID User Removal Request

Date _____

Group _____

TID Custodian (Print Name) _____ Z# _____

TID Custodian Signature *Date*

Responsible Line Manager (Print Name) _____ Z# _____

Responsible Line Manager Signature *Date*

Remove TID User (Print Name) _____ Z# _____

TID Account User will be removed from account _____

Will the TID User be assigned to a TID account?

☐ Yes **(TID user must complete form MCA-F202)**

☐ No **(TID user will be removed from the TID program)**

To remain on the TID program you must be assigned to a specific TID account.

TID User Removal Signature *Date*

WHEN FORM IS COMPLETED AND SIGNED, MAIL TO: TID ADMINISTRATOR, MS-G735, SAFE-4

NMControl Form MCA-F207 May 17, 2010

Los Alamos NATIONAL LABORATORY EST. 1943

Intrinsically Tamper Indicating Item Form

LANMAS Entry

Date _____ LANMAS Transaction # _____ INTR ID _____

To be filled out by TID Custodian/Alternate/User

LOT ID _____ MBA # _____ Date _____

SNM _____ MT _____

Description of Item _____

Storage Location (TA, Bldg, Room, Safe and/or Cabinet Identifier) _____

Signatures

TID Custodian/Alternate Signature (if applicable)	*Z number*	*Date*
Applicator Signature	*Z number*	*Date*
Verifier Signature	*Z number*	*Date*

Derivative Classifier

☐ Unclassified ☐ Confidential ☐ Secret ☐ Official Use Only	☐ Restricted Data ☐ Formerly Restricted Data ☐ National Security Information	☐ Unclassified Controlled Nuclear Information Not for Public Dissemination Unauthorized dissemination subject to civil and criminal Sanctions under section 148 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2168). Guidance Used: _____

DC Print Name/Z#:	Organization:	Signature:	Date:

SAFE-4 Evaluation (To be filled out by TID Administrator or SAFE-4 Representative)

Evaluation and Comment _____

Approved ☐ Yes ☐ No (If no, explain in comment section reason for rejection)

Signatures

TID Administrator or SAFE-4 Representative Signature	*Z number*	*Date*

MCA-F208 Rev. 0 March 2013

Attachment 9- MCA-F209 – Mylar TID Application Form

UNCLASSIFIED

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MYLAR TID Application Form

TID Account #_____

TID NUMBER	LOT ID	LOCATION	SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				

UNCLASSIFIED

NMControl Form MCA-F209 May 14, 2010

Attachment 10- MCA-F210 – Multi-lok TID Application Form

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

MULTI-LOK TID Application Form

TID Account #_____

TID NUMBER	LOT ID	LOCATION	SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				

UNCLASSIFIED

May 14, 2010

NMControl Form MCA-F210

Attachment 11- MCA-F212 – Cup-Wire (Type E) Seal TID Application Form

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

Cup-Wire (Type E) Seal TID Application Form

TID Account #_____

TID NUMBER	LOT ID	LOCATION	1. APPLICATOR SIGNATURE 2. VERIFIER SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				
			Issued to				N/A
			Issued Verifier				
			Applicator				
			Verifier				

UNCLASSIFIED

NMControl Form MCA-F212 May 14, 2010

Attachment 12- MCA-F213 – Mylar TID Removal Form

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

MYLAR TID Removal Form

TID Account #_____

TID NUMBER	LOT ID	REMOVE (R) VOID (V)	LOCATION	1. REMOVER SIGNATURE 2. VERIFIER SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				

UNCLASSIFIED

May 14, 2010

NMControl Form MCA-F213

Attachment 13- MCA-F214 – Multi-Lok TID Removal Form

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MULTI-LOK TID Removal Form

TID Account #_____

TID NUMBER	LOT ID	REMOVE (R) VOID (V)	LOCATION	1. REMOVER SIGNATURE 2. VERIFIER SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				

UNCLASSIFIED

NMControl Form MCA-F214 May 14, 2010

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

QUICKSEAL TID Removal Form

TID Account #_____

TID NUMBER	LOT ID	REMOVE (R) VOID (V)	LOCATION	1. REMOVER SIGNATURE 2. VERIFIER SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				

UNCLASSIFIED

NMControl Form MCA-F215 August 21, 2008

Attachment 15- MCA-F216 – Cup-Wire (Type E) Seal TID Removal Form

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

Cup-Wire (Type E) Seal TID Removal Form

TID Account #_____

TID NUMBER	LOT ID	REMOVE (R) VOID (V)	LOCATION	1. REMOVER SIGNATURE 2. VERIFIER SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				
				1.				
				2.				

UNCLASSIFIED

NMControl Form MCA-F216 August 21, 2008

Attachment 16- MCA-F217 – TID Inventory Form

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

TID Inventory Form

TID Account #_____

DATE	TIDs RECEIVED FROM SAFE-4	UNAPPLIED TIDs INVENTORIED	SIGNATURE	Z #	VERIFIER SIGNATURE	Z#

INVENTORIES ON THE TIDs MUST BE PERFORMED BIANNUALLY.

UNCLASSIFIED

February 10, 2014 _____

NMControl Form MCA-F217

Attachment 17- MCA-F219 – TID Access Record

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

TID Access Record

TID Account #_____

DATE	TIME IN	TIME OUT	INITIAL	Z#

UNCLASSIFIED

NMControl Form MCA-F219 February 23, 2010

UNCLASSIFIED

Los Alamos NATIONAL LABORATORY EST. 1943

Non-LANL TID Removal Form

TID Account # _____

TID NUMBER	LOT ID	REMOVE (R) VOID (V)	LOCATION	1. REMOVER SIGNATURE 2. VERIFIER SIGNATURE	Z #	GROUP	DATE	TRANS.# MASS UPDATE
				1. 2.				
				1. 2.				
				1. 2.				
				1. 2.				
				1. 2.				

UNCLASSIFIED

August 28, 2008

NMControl Form MCA-F220

Los Alamos NATIONAL LABORATORY EST. 1943

Change of Documentation Custody Form

LANMAS Entry

Date _____ TID Account _____ Group _____

I (TID custodian/alternate) acknowledge that I am giving the LANL TID Administrator the documentation from my TID Log Book. I am acknowledging that it does not contain ANY classified documentation. If classified documentation needs to be transmitted to the LANL TID Administrator, I will follow the LANL Policy on transmitted classified documentation.

Signatures

TID Custodian/Alternate Signature _____ Z Number _____ Date _____

Derivative Classifier

☐ Unclassified ☐ Confidential ☐ Secret ☐ Official Use Only	☐ Restricted Data ☐ Formerly Restricted Data ☐ National Security Information	☐ Unclassified Controlled Nuclear Information Not for Public Dissemination Unauthorized dissemination subject to civil and criminal Sanctions under section 148 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2168) Guidance Used: _____

DC Print Name/Z#	Organization:	Signature:	Date:

MCA-F231 Rev. 0 March 2013

Los Alamos NATIONAL LABORATORY EST. 1943

Request for RoboCrib TID User

Date _____

Group _____

Responsible Line Manager (Print Name) _____ Z# _____

_____

Responsible Line Manager Signature *Date*

Are the following courses completed:

TID curricula #1550 ☐ Yes ☐ No

LANMAS / LAMCAS curricula #10982 ☐ Yes ☐ No

Do you have an active red crypto card? ☐ Yes ☐ No

To enroll in the TID RoboCrib course you must have all curricula's above completed. You MUST maintain a red crypto card which, allows you to conduct TID activity within LANMAS.

TID User (Print Name) _____ Z# _____

_____

TID User Signature *Date*

WHEN FORM IS COMPLETED AND SIGNED, SEND TO: TID ADMINISTRATOR, MS-G735, SAFE-4

To be filled out by SAFE-4

_____

TID Administrator *Date*

NMControl Form MCA-F233 March 12, 2013

Attachment 4

EP-AREAG-PLAN-1248, R.0

TA-54 Area G Nitrate-Salt Waste Container Response Instructions

Effective Date: 5/28/2014

The Responsible Manager has determined that the following organizations' review/concurrence is required for the initial document and for major revisions a same type and level review is required. Review documentation is contained in the Document History File:

EWMO Engineering
LANL TRU Programs – Shipping and Safe Storage Disposition
LANL TRU Programs – Drum Disposition Project
LANL TRU Programs – Oversized Container Disposition Project
Subject Matter Expert
EWMO Environmental, Safety, and Health Manager
Emergency Response
Emergency Management
Regulatory Support and Performance

Responsible Manager, EWMO Facility Operations Director

Steven M. Henry	/ 219172	/ Andy Baumer for Steve Henry	/5/28/2014
Name (print)	Z#	Signature	Date

Classification Review: ☐ N/A ☒ Unclassified ☐ UCNI ☐ Classified

Teri Tingey	/ 200975	/ /s/ Teri Tingey	/ 05/28/14
Name (print)	Z#	Signature	Date

This document fully satisfies the requirements of P300, Integrated Work Management, in order to systematically describe the work activity, the associated hazards, and the controls that MUST be employed to mitigate the risks.

LA-UR-14-23795

HISTORY OF REVISIONS

Document No./Revision No.	Issue Date	Action	Description
EP-AREAG-PLAN-1248, R.0	May 28, 2014	New Document	

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6. LTP PERSONNEL 6
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1. PURPOSE

The purpose of this plan is to provide pre-planning and initial entry requirements for potential release scenarios from the nitrate salt-bearing waste containers. This plan is intended to minimize the consequences to personnel and the environment from a potential incident.

2. HISTORY

On February 14, 2014 there was a radiological release in the underground at the Waste Isolation Pilot Plant (WIPP). It was postulated that an energetic chemical reaction occurred. On May 15, 2014 WIPP released photographs which showed a Los Alamos National Laboratory (LANL) drum containing remediated nitrate salt-bearing waste had breached in Panel 7, Room 7. The cause of the breach and other potentially impacted drums is currently unknown, but is being actively investigated.

The current inventory of nitrate salt-bearing waste containers fall into 3 categories: 1) remediated, 2) un-remediated, and 3) cemented. Only the remediated containers have been "treated" and therefore are suspected of possible reactions. The remediated drums have all been placed in standard waste boxes (SWBs) and are located in a HEPA-ventilated, temperature-controlled PermaCon with a fire suppression system. The un-remediated drums have all been placed in 85-gal overpacks and will be transferred to a HEPA-ventilated, temperature-controlled PermaCon with a fire suppression system. The layouts of the TA-54-231 and TA-54-375 fire suppression systems within the PermaCons are illustrated on Appendix 1, TA-54-231 PermaCon Fire Protection System, and Appendix 2, TA-54-375 PermaCon Fire Protection System.

All of the remediated drums in SWBs are located in the PermaCon in TA-54-375. Appendix 3, TA-54-375 SWB Storage Plan, is a diagram of the SWB layout in TA-54-375. The un-remediated drums are located in TA-54-230 and will be moved into the TA-54-231 PermaCon.

The cemented waste containers are <u>not</u> considered to present any risk and are therefore <u>not</u> addressed here.

3. SITE CONSIDERATIONS

The drums and SWBs are spaced to satisfy the Resource Conservation and Recovery Act (RCRA) requirements, which require a minimum of two feet between containers. Until the final configuration for the un-remediated drums is achieved a list of drum locations will be kept and provided to Emergency Management (EM). EM is the central point of distribution and will provide appropriate information to responders, including Emergency Response (ER) and Los Alamos Fire Department (LAFD). When the final configuration is achieved, a diagram with drum locations within the TA-54-231 PermaCon will be produced, provided to EM, and posted in the TA-54 Operations Center. A preliminary walkdown of TA-54-230, TA-54-231, TA-54-375 and TA-54-412 has been completed with EM and ER. A walkdown with LAFD will be completed. Photos of the final configuration will be provided to EM.

Appendix 4, TA-54 Structure Location Map, is a map showing the 100-meter initial standoff distance from all affected facilities and a copy of it will be posted in the TA-54 Operations Center and the Emergency Operations Center (EOC).

The primary access into Area G will be the west entrance adjacent to the TA-54 Operations Center. Due to wind conditions, response organizations may have to enter Area G through the east gate. That road is not paved, but is maintained and it will be regularly inspected by appropriate personnel, including Emergency Operations (EO) and LAFD, to ensure accessibility. The road is inspected in accordance with EP-AREAG-WO-DOP-1246, TA-54 Area G Nitrate Salt-bearing Waste Container Monitoring, and repaired after each significant rain event.

4. BUILDING CONSIDERATIONS

Domes TA-54-231 and TA-54-375 have PermaCons installed within them. PermaCons are stainless steel enclosures designed for contamination control. Each has high-efficiency particulate air (HEPA) filtration and has been tested to ensure adequate airflow through the PermaCon. Each has several Continuous Air Monitors (CAMs) to monitor for airborne radioactive contamination. Two remotely monitored CAMs are installed in the TA-54-375 PermaCon which provides notification when there is a significant airborne release. Each structure has HVAC for heating and cooling within the PermaCons. All combustibles and flammable liquids have been removed from the domes, and the PermaCons. There are no hazardous materials, other than those in the waste containers, within the domes or PermaCons. The domes are not routinely occupied although daily and hourly inspections are performed. Access to the PermaCons is restricted by Standing Order.

Dome TA-54-230 is a fabric dome with fire suppression. It is considered short-term storage and all un-remediated drums will be moved to the TA-54-231 PermaCon the week of May 26.

5. VENTILATION STATUS

Because the HEPA ventilation is a key component of the contamination control within the PermaCon, if it were to be non-functional, the contamination control provided by the PermaCon would be compromised. Therefore, its status should be monitored and mitigative actions implemented if non-functional. The procedure on the hourly inspections of the containers contains a requirement to verify the HEPA ventilation is operating. Therefore any failure of the system would be known within an hour. If the ventilation system is found to be non-functional, the inspector will notify the Shift Operations Manager (SOM) who will coordinate with appropriate resources to repair the system as soon as possible. If the ventilation is non-functional for an extended period of time, the temperature measurements of the containers will be increased from daily to twice daily.

6. LTP PERSONNEL

LANL Transuranic (TRU) Waste Program (LTP) is currently transitioning to a 4 x 10 schedule (Monday - Thursday) with the TA-54 Operations Center manned 5 x 10 (Monday - Friday). Core work hours are 0630 - 1700. All normal support personnel are available during those hours. The Abnormal Operating Procedures and Emergency Response Procedure (see references) rely on the TA-54 Operations Center personnel to make notifications, contact Subject Matter Experts (SMEs), and coordinate with response organizations. EP-AREAG-FO-DOP-1246 provides direction to personnel performing hourly inspections on the backshift and weekends since they will not have access to TA-54 Operations Center personnel.

To support a backshift or weekend response, the TA-54 Operations Center will maintain an on-call list with the following personnel:

- Facility Operations Director (FOD)
- Operations Manager (OM)
- SOM
- Shift Operations Supervisor (SOS)
- Radiological Control Technician (RCT) Foreman
- RCT (2)
- Industrial Hygiene (IH)
- Operations Center Operator (OCO)
- Nuclear Operator

In accordance with company procedure, on-call LTP personnel are required to be on site within two hours.

APPENDIX 2
Page 1 of 2
TA-54-375 PERMACON FIRE PROTECTION SYSTEM

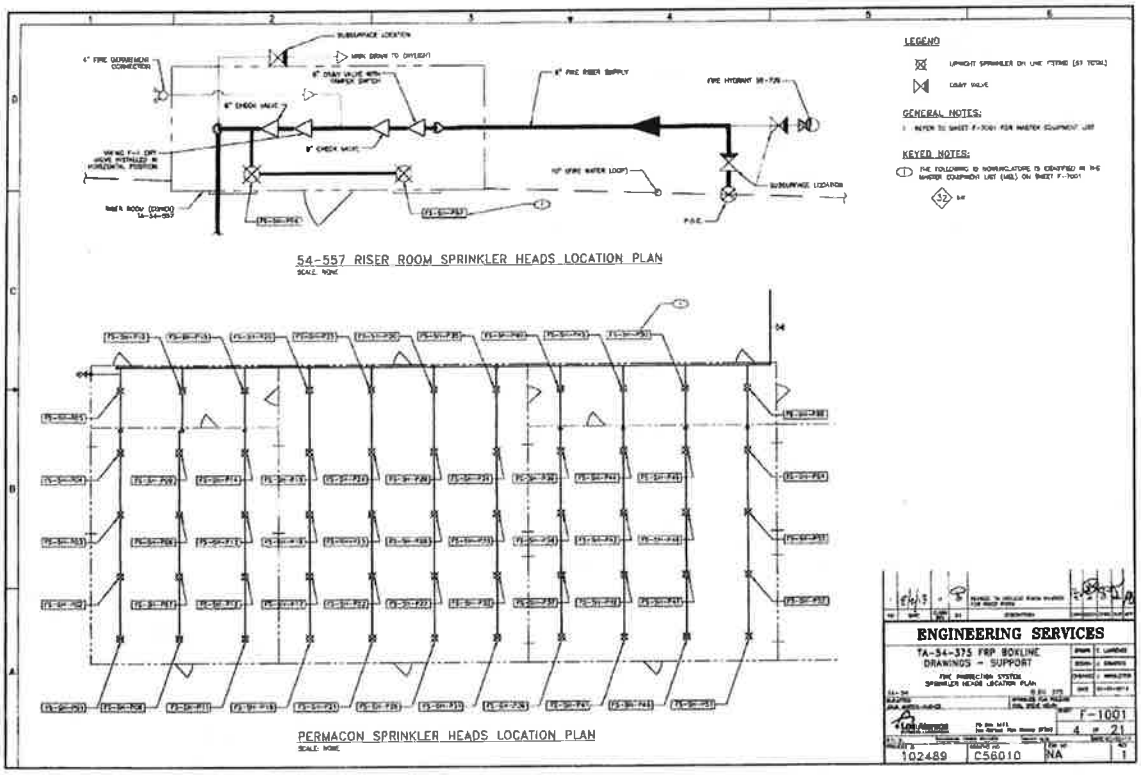

Figure 2-1, TA-54-375 PermaCon Sprinkler Heads Location Plan

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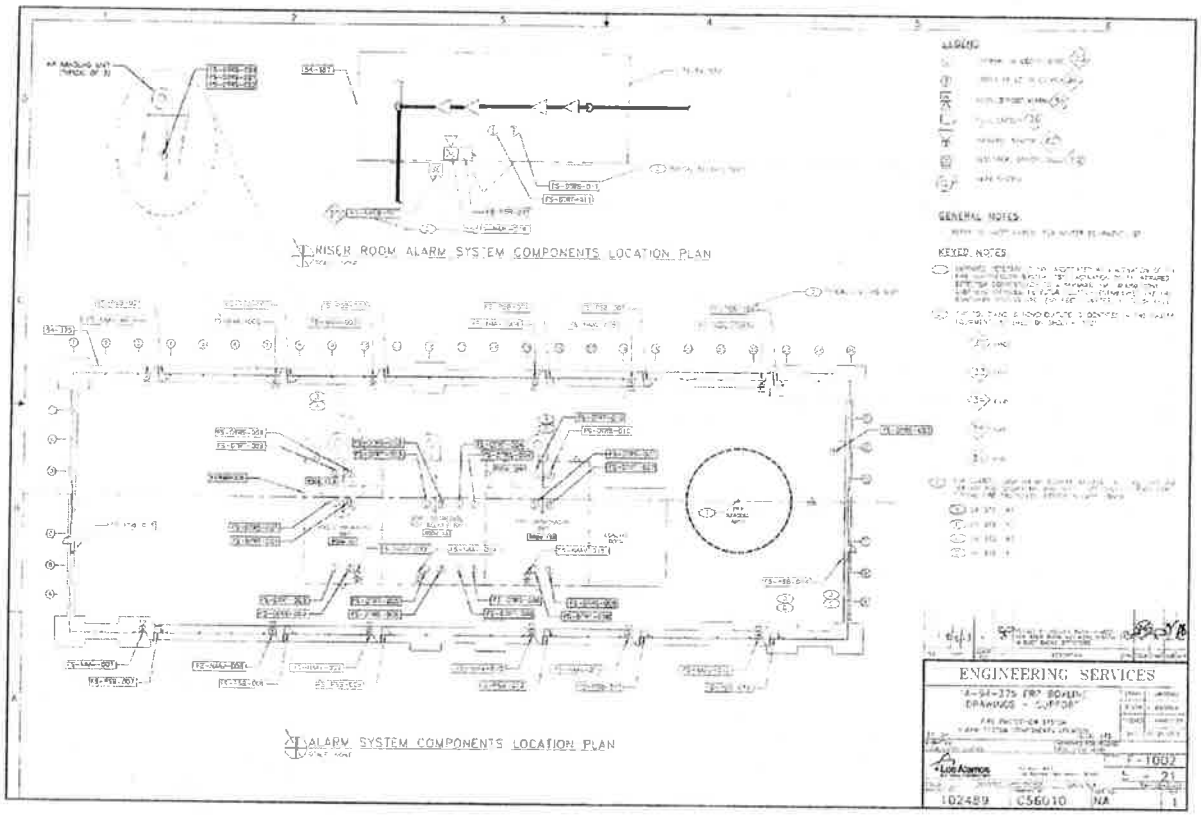

Figure 2-2, TA-54-375 PermaCon Alarm System Component Location Plan

7. RESPONSE ACTIONS

The following actions will initiate a response action requiring notification to LAFD via 911 and the Emergency Operations Support Center (EOSC) 667-6211:

1. Loss of container integrity such as evidence of leakage and/or lid or lid container gasket compromised
2. Bulging such as expansion of side walls or top
3. Chemical reaction such as smoke or release of internal contents to atmosphere
4. Evidence of fire or smoke
5. Blistering paint on a container
6. A container temperature measurement that is greater than 15 °F higher than the control temperature in accordance with EP-AREAG-FO-DOP-1246
7. A verified CAM alarm

Response personnel will initially mobilize to 100 meters from the affected facility as shown on the figure in Appendix 4. If specialized tools are identified (none have been to date), they will be staged in a central location more than 100 meters from any of the potential facilities. The forklift with blast protection will be staged between TA-54-231 and TA-54-375 as shown in Appendix 4. The Hazardous Material (HazMat) team will develop an incident specific response plan and safety plan per EO procedures (see references), which will be approved by the Incident Commander (IC) prior to any mitigation. LAFD, LTP SMEs, HazMat, and the Field Monitor Team (FMT) from Emergency Response will be involved in the planning for any mitigation and will be included in the pre-job briefing. In addition, the FMT has pre-planned the placement of additional monitoring equipment if it is needed. EO has personnel on call to support the IC including chemists, modelers, health physicists, samplers, etc.

8. REFERENCES

EP-DIV-BEP-20048, EWMO Division Building Emergency Plan (BEP)

EP-DIV-RM-AOP-20201, Discovery of an Airborne, Liquid and/or Solid Material Release or Spill

EP-DIV-RM-AOP-20204, Waste Container Questionable Integrity

EP-DIV-RM-ERP-20200, EWMO Area Emergency Response

EP-AREAG-FO-DOP-1246, TA-54 Area G Nitrate Salt-bearing Waste Container Monitoring

8. REFERENCES (continued)

EP-AREAG-SO-1247, TA-54 Area G Domes TA-54-231 and TA-54-375 PermaCon Access Restrictions

EO-ER-600-005, EO-ER Emergency Response Plan

EO-ER-630-003, Hazmat Safety Officer Guidelines

EO-ER-630-001, Hazmat Group Supervisor Guidelines

LANL Hazardous Waste Permit, Attachment D, Contingency Plan

APPENDIX 1
Page 1 of 2

TA-54-231 PERMACON FIRE PROTECTION SYSTEM

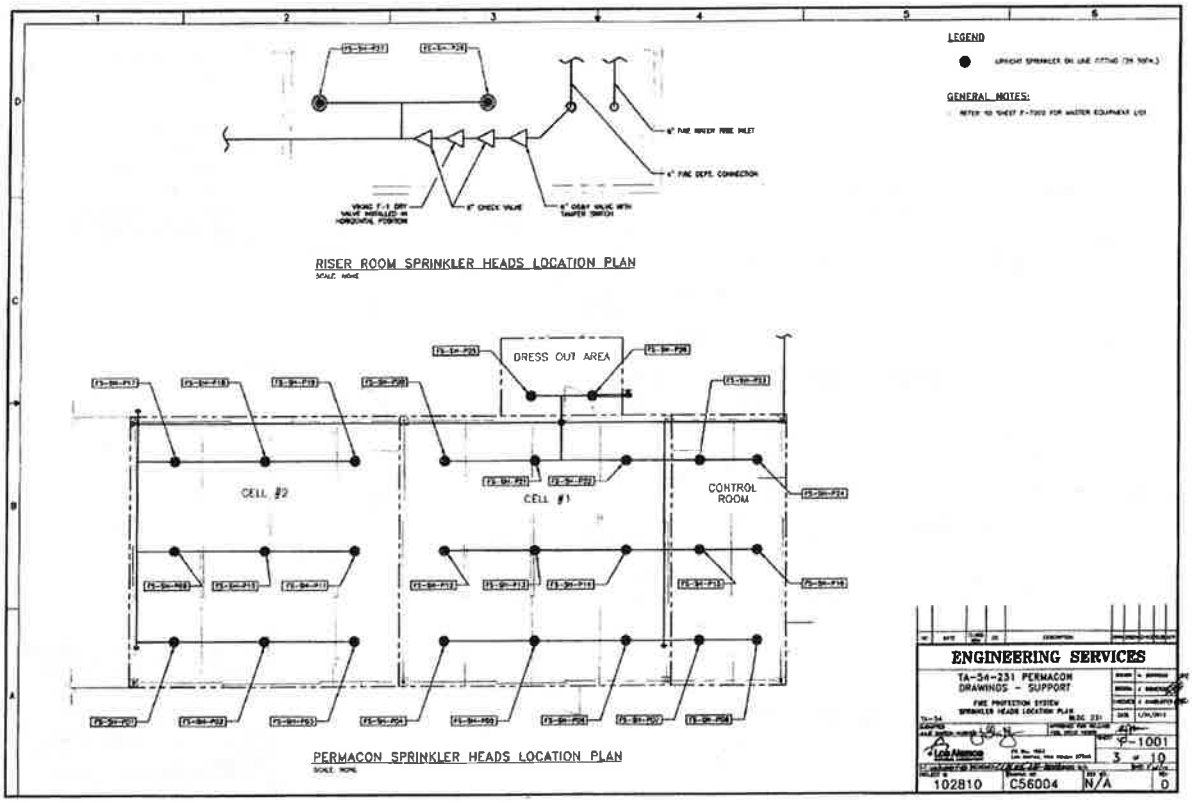

Figure 1-1, TA-54-231 PermaCon Sprinkler Heads Location Plan

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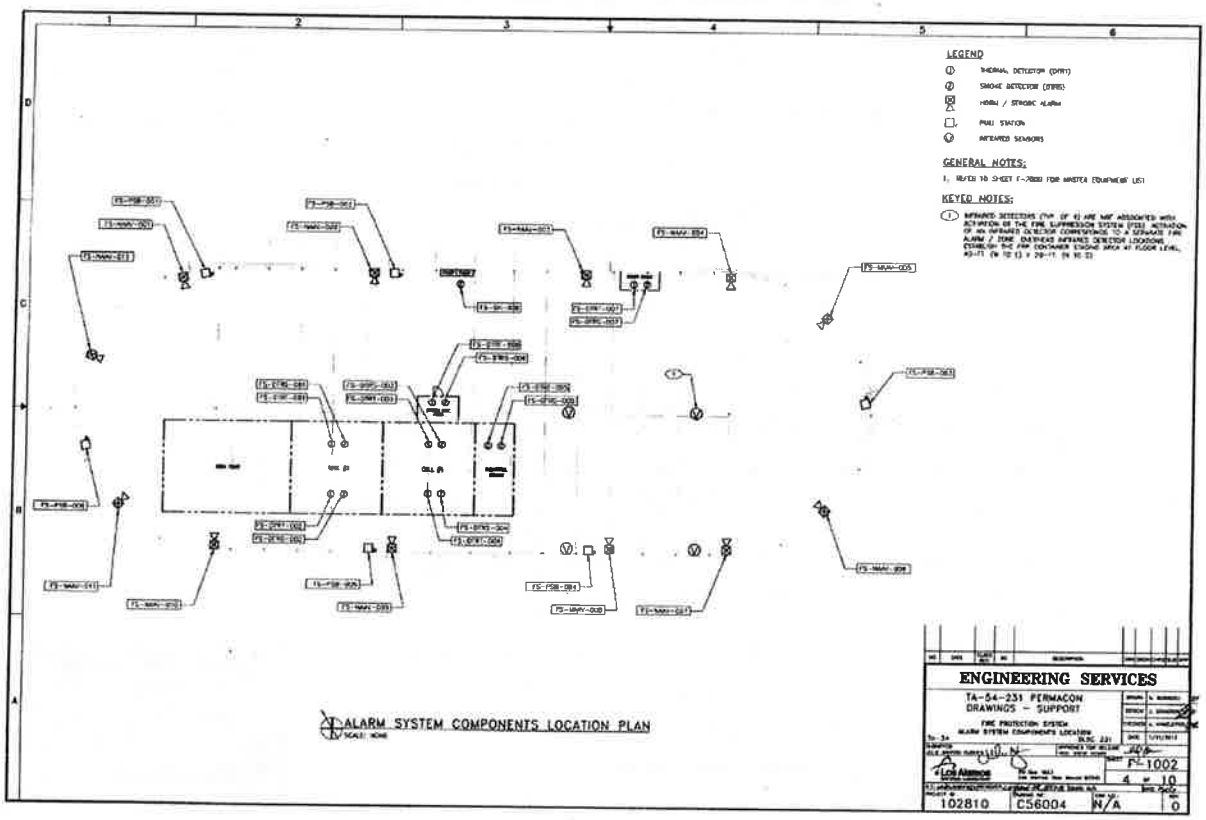

Figure 1-2, TA-54-231 PermaCon Alarm System Component Location Plan

APPENDIX 3
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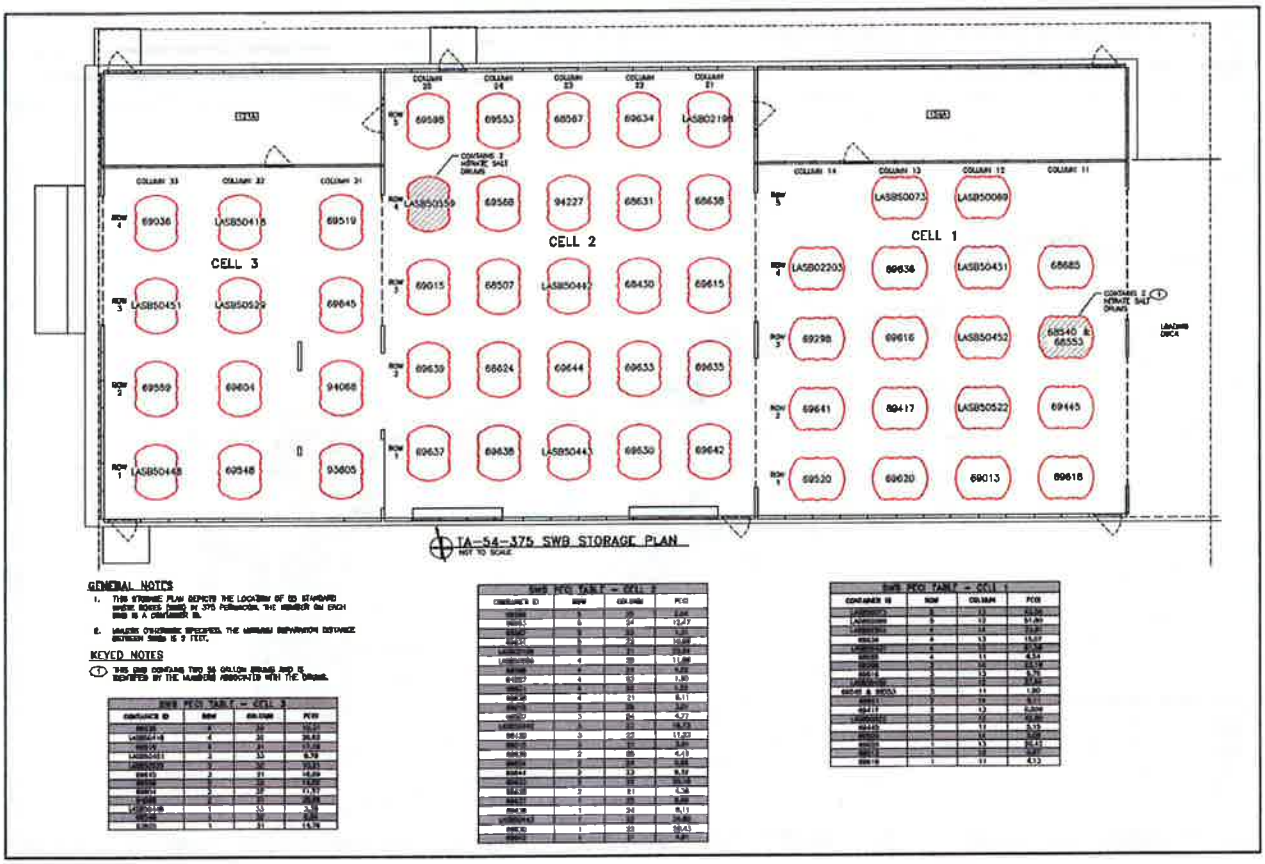
TA-54-375 SWB STORAGE PLAN



APPENDIX 4
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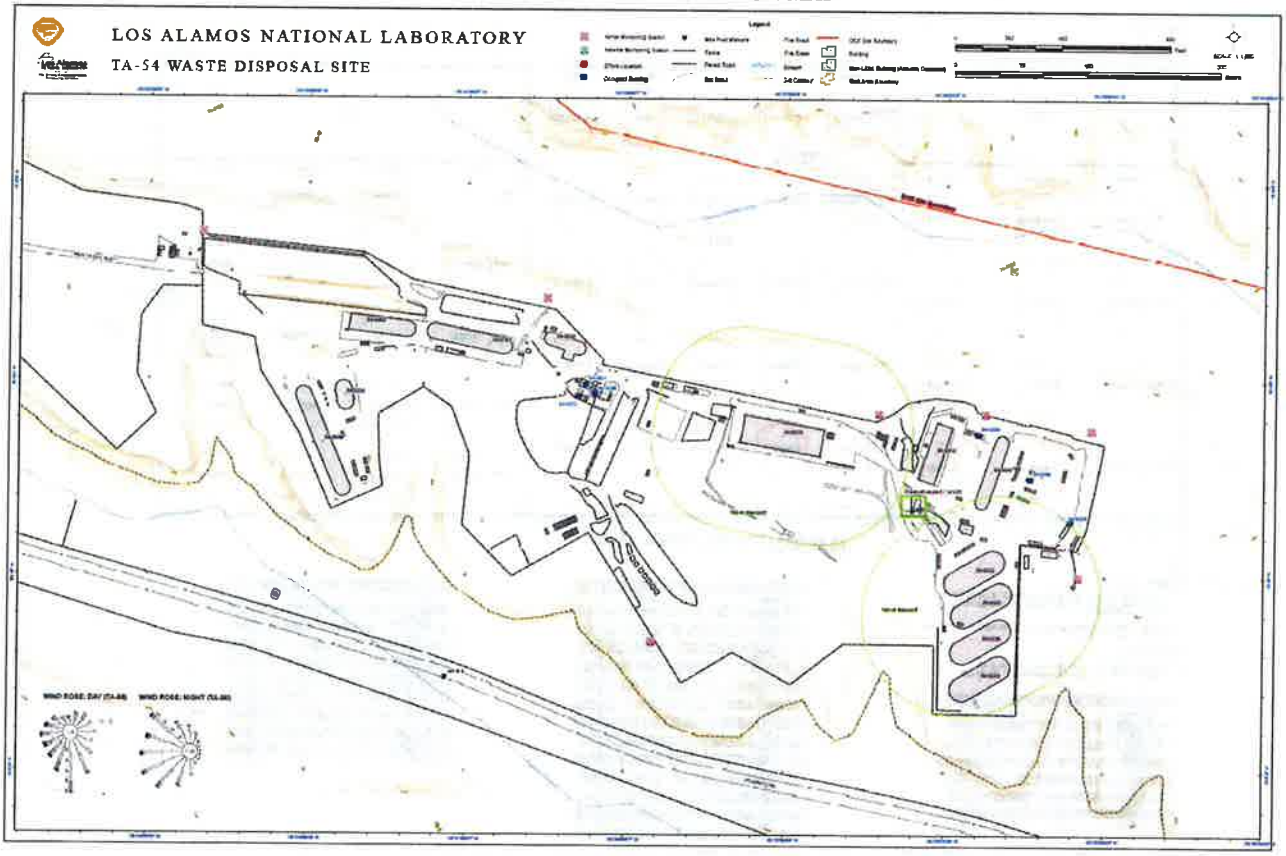
TA-54 STRUCTURE LOCATION MAP



Attachment 5

EP-AREAG-FO-DOP-1246, R.0

Nitrate Salt-bearing TRU Waste Container Monitoring

Effective Date: 05/29/14

Hazard Class:	☐	Low	☒	Moderate	☐	High/Complex	
Usage Mode:	☐	Reference	☒	UET	☐	Both UET & Reference	

The Responsible Manager has determined that the following organizations' review/concurrence is required for the initial document, and for major revisions a same type and level review is required. Review documentation is contained in the Document History File:

LTP-Operations Support
LTP- Engineering
Quality Assurance
Radiation Protection
Industrial Hygiene and Safety
Criticality Safety
Waste Management Coordinator
Facility Operations Director (FOD)
Shift Operations Manager
Subject-Matter Expert

Responsible Manager, LTP-SSS Operations Manager

Gail M. Welsh	/ 114849	/ /s/ Gail Welsh	/ 05/29/14
Name (print)	Z#	Signature	Date

Classification Review: ☐ N/A ☐ Unclassified ☐ UCNI ☐ Classified _____

Kari Vitaletti	/ 245399	/ /s/ Kari Vitaletti	/ 02/29/14
Name (print)	Z#	Signature	Date

Working Copy / Information Only (circle one)
Initials / Date: _____/_____

This document fully satisfies the requirements of P300, Integrated Work Management, in order to systematically describe the work activity, the associated hazards, and the controls that **MUST** be employed to mitigate the risks.

LA-UR-14-23822

REVISION HISTORY

Document No./Revision No.	Issue Date	Action	Description
EP-AREAG-FO-DOP-1246, R.0	May 29, 2014	Major	Generated to incorporate EP-AREAG-SO-1237, TA-54 Area G Temperature Readings of Remediated Nitrate Salt Containers, EP-AREAG-SO-1244, TA-54 Area G Nitrate Waste Container Inspection. A Job hazard analysis was developed and controls incorporated into the procedure through precautions, limitations, warnings, cautions and notes.

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4.2.1 Measuring and Test Equipment (M&TE) 6

5. INSTRUCTIONS—NITRATE SALT TRU WASTE CONTAINER INSPECTIONS 7

6. INSTRUCTIONS—TA-54 AREA G TEMPERATURE READINGS OF NITRATE SALT TRU WASTE CONTAINERS 10

7. INSTRUCTIONS—TA-54 AREAG EAST ENTRANCE/ROAD INTO AREA G MONITORING 14

8. POST-PERFORMANCE ACTIVITY 15
8.1 Disposition 15
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Attachment 1, Nitrate Salt TRU Waste Container Visual Inspection Data Sheet 17
Attachment 2, TA-54 Area G Nitrate Salt TRU Waste Container Daily Temperature Data Sheet 19
Attachment 3, TA-54 Area G Nitrate Salt TRU Waste Container Hourly Temperature Data Sheet 23

1. PURPOSE

This procedure provides the instructions and directions for performing Nitrate Salt-bearing Transuranic (TRU) WASTE container monitoring (i.e., temperature readings of nitrate salt, nitrate salt waste container inspections).

2. SCOPE

This procedure applies to Los Alamos National Laboratory (LANL) Transuranic Programs Shipment and Safe Storage Project (LTP-SSS) Project personnel that will be conducting the nitrate salt TRU WASTE container monitoring. Activities associated with the nitrate salt-bearing TRU WASTE containers and the associated storage locations other than identified in this procedure will require prior approval from the Environmental and Waste Management Facility Operations Director (EWMO FOD) and the Associate Director of Environmental Programs (ADEP)

3. PRECAUTIONS AND LIMITATIONS

- Activities, items, and containers **SHALL** satisfy approved design specifications, regulatory requirements, process-specific parameters, and procedural requirements. Activities, items, or containers that do not conform to the approved specifications and requirements are considered nonconforming and Nonconformance Reports (NCRs) **SHALL** be generated in accordance with P330-6, Nonconformance Reporting, as required.

- When a worker observes an unsafe condition or act that may pose an imminent danger or other safety concern/hazard, the worker has the authority and responsibility to inform the worker engaged in the work and request that the work activity be paused and/or stopped based on the risk posed to the individual, the employees, the environment, or the facility in accordance with P101-18, Procedure for Pause/Stop Work.

- Not Applicable (N/A) is documented on the attachments during the performance of this procedure indicating information that is not required to be recorded.

- Personnel associated with this procedure **SHALL** review and understand the requirements of the Radiological Work Permit (RWP).

- Personal protective equipment (PPE) **SHALL** be worn as required by the Radiological Work Permit (RWP) and Industrial Hygiene personnel.

3. PRECAUTIONS AND LIMITATIONS (continued)

- To comply with the intent of the ALARA Program, all personnel **SHALL** apply the principles of time, distance, and shielding when working with radiological materials.
- Infrared thermometer is equipped with a laser, care should be taken to prevent pointing beam to eyes. Do not allow eyes of user or observers to become exposed to the beam.
- Waste containers with liquids (any amount or configuration) that have not been solidified (absorbed) and are stored or staged for a period longer than 24 hours **SHALL** be labeled "Free Liquids" and managed on secondary containment pallets or in structures designed to satisfy the secondary containment requirements, (e.g., Sheds, Bldg. TA-54-1027, 1028, 1030, 1041, 144, 145, 146, and 177, and Dome 230).
- Support Services Subcontractors executing this procedure **SHALL** comply with the safety and health requirements documented in contractual agreements with the LANL.

4. PREREQUISITE ACTIONS

NOTE *The listed prerequisite actions may be completed in any order.*

4.1 Planning and Coordination

PIC/Designee

[1] **ENSURE** that the performance of this procedure has been scheduled on the TA-54 Area G schedule.

[2] **ENSURE** that a pre-job briefing is conducted for all personnel involved in the performance of this procedure, in accordance with EP-DIV-AP-0112, EWMO Pre-Job Briefing.

[3] **ENSURE** that the procedure is the latest revision, and **IDENTIFY** this document as Working Copy or Information Only on the Title Page.

[4] **ENSURE** that, as a minimum, the following personnel trained to the use of this procedure are available for the performance of this procedure, as required:

- Two Operators
- One Radiological Control Technician (RCT) (when performing operations in Contamination Area (CA)

4.1 Planning and Coordination (continued)

Operator/Designee

[5] **IF** performing Section 6, TA-54 Area G Temperature Readings of Nitrate Salt TRU Waste containers,
THEN:

[A] **ENSURE** the applicable PermaCon round sheet (i.e., Dome 231, Dome 375) was completed.

[B] **ENSURE** that a Radiological Work Permit (RWP) has been issued for the planned activity, as applicable.

4.2 Materials and Equipment

4.2.1 Measuring and Test Equipment (M&TE)

Operator/Designee

[1] **ENSURE** that a calibrated infrared thermometer is available, and **RECORD** the brand name, model, calibration due date, and file number on the applicable attachments (Attachment 2 or 3).

[2] **IF** the MT&E has exceeded the calibration due date,
THEN:

[A] **IDENTIFY** the item is not to be used (e.g., apply a Calibration Expired label) and segregate the item to prevent use.

[B] **NOTIFY** supervision for the applicable actions.

5. INSTRUCTIONS—NITRATE SALT TRU WASTE CONTAINER INSPECTIONS

This section is a stand-alone section and may be performed independently of or in conjunction with other sections of this procedure.

This activity will be performed at a minimum of once an hour.

Operator/Designee

[1] **ENSURE** that the prerequisite actions have been completed.

NOTE *Waste containers that are stored in a PermaCon (e.g., TA-54-231 or TA-375) will be visually inspected from a point outside of the PermaCon without entering the Contamination Area (CA).*

[2] **RECORD** the following information on Attachment 1, Nitrate Salt TRU Waste Container Visual Inspection Data Sheet:

- Time (24 hours)
- Location (e.g., Storage Areas: Dome TA-54-230, Dome TA-54-231, Dome TA-54-232, or Dome TA-54-375 Permacon)

[3] **VERIFY** the following applicable PermaCon (TA-54-231 or TA-54-375) exhaust fans are operating, and **CHECK** (√) SAT or UNSAT on Attachment 1:

Dome 375

- FE-001, VFD-001 is ON and set to RUN, 30 to 60 Hz
- FE-002, VFD-002 is ON and set to RUN, 30 to 60 Hz

Dome 231

- FE-1000, ON and operating
- FE-2000, ON and operating
- FE-3000, ON and operating
- FE-4000, ON and operating

[4] **IF** UNSAT was checked in the previous step,
THEN:

[A] **SUSPEND** inspection activity.

[B] **NOTIFY** TA-54 Operations Center and Shift Operation Manager for applicable actions.

5. INSTRUCTIONS—NITRATE SALT TRU WASTE CONTAINER INSPECTIONS (continued)

[5] **VISUALLY INSPECT** nitrate salt waste containers for indications of an abnormal condition including an internal reaction (e.g., chemical/thermal) and/or loss of container integrity:

- Evidence of deterioration such as signs of discoloration, paint peeling or yellowing
- Loss of container integrity such as evidence of leakage, or lid compromised
- Bulging such as pressurized, expansion of side walls, or round bottom
- Chemical reaction such as smoke or release of internal contents to atmosphere
- Signs of smoking and fire from a container

NOTE 1 *During back-shifts or off-shifts, or if the TA-54 Operations Center is not available, the Shift Operations Manager (SOM) can be notified directly at 505-231-8289. Additional notifications to the Emergency Operations Support Center (EOSC), 505-667-6211, or 911, are performed based upon the severity of the situation or per the direction from the SOM.*

NOTE 2 *A follow up call to 911 should be conducted at a safe location from the incident after the activation of a manual pull.*

[6] **IF** a chemical reaction such as smoke or release of internal contents to the atmosphere **OR** signs of smoking and fires from a container are discovered,
THEN:

[A] **ACTIVATE** the manual pull station in the general area of the incident if safe to do so.

[B] **PERFORM** an Emergency response in accordance with EP-DIV-BEP-20048, EWMO Division Level Building Emergency Plan, to include:

1. **SUSPEND** work.
2. **WARN** others.
3. **ISOLATE** immediate area.
4. **EVACUATE** to an upwind Assembly/Muster area from the incident.
5. **MAKE** notifications (e.g., SOS, OC, EOSC, 911).

[C] **CHECK** (√) UNSAT for the inspection location, and **DOCUMENT** the condition on Attachment 1 when in a safe area and at a time when operationally convenient.

5. INSTRUCTIONS—NITRATE SALT TRU WASTE CONTAINER INSPECTIONS (continued)

[D] **GO** to Section 8.1, Disposition.

[7] **IF** evidence of deterioration is discovered, such as signs of discoloration, paint peeling or yellowing, loss of container integrity such as evidence of leakage or a compromised lid, bulging such as pressurized, expansion of side walls, or round bottom are discovered, **THEN:**

[A] **PERFORM** an off-normal response in accordance with EP-DIV-BEP-20048, EWMO Division Level Building Emergency Plan,

1. **SUSPEND** work.
2. **WARN** others.
3. **ISOLATE** the immediate area.
4. **MOVE-AWAY** upwind from the area of concern
5. **MAKE** Notifications (e.g., Operations Center and SOS).

[B] **CHECK** (√) UNSAT for the inspection location, and **DOCUMENT** the condition on Attachment 1 when in a safe area and at a time when operationally convenient.

[C] **GO** to Section 8.1, Disposition.

[8] **CHECK** (√) SAT for the affected inspection location on Attachment 1.

[9] **RECORD** initials and Z number on Attachment 1.

[10] **REPEAT** Steps 5.[2] through 5.[9] for each nitrate salt TRU WASTE container storage location.

6. INSTRUCTIONS—TA-54 AREA G TEMPERATURE READINGS OF NITRATE SALT TRU WASTE CONTAINERS

This section is a stand-alone section and may be performed independently of, or in conjunction with other Instructions sections.

This section provides the instructions for performing hourly or daily temperature readings.

Operator/Designee

[1] **ENSURE** that the all pre-requisite actions have been completed.

NOTE 1 *This section provides the instructions for performing hourly or daily temperature readings.*

NOTE 2 *Attachment 2, TA-54 Area G Nitrate Salt TRU Waste Container Daily Temperature Data Sheet, is setup to perform daily temperature readings. Attachment 3, Area G Nitrate Salt TRU Waste Container Hourly Temperature Data Sheet, is set up for documenting hourly readings of one or more containers as directed by the LTP SSS-Management.*

[2] **DETERMINE** whether the daily or hourly temperature readings to be conducted as directed by the SOM.

[3] **RECORD** the date range, location of the containers (e.g., Dome TA-54-230), and start time on applicable attachments (Attachment 2 or 3).

NOTE 1 *Multiple copies of Attachment 2 or 3 may be printed, as needed.*

NOTE 2 *A separate Attachment 2 or 3 should be used for each location where nitrate salt containers are stored.*

[4] **IF** non-nitrate control drums are available,
THEN:

[A] **MEASURE** the temperature (in °F) on the top center of each of the four control drums using an infrared thermometer, and **RECORD** the temperatures on the applicable attachments (Attachment 2 or 3).

6. INSTRUCTIONS—TA-54 AREA G TEMPERATURE READINGS OF NITRATE SALT TRU WASTE CONTAINERS (continued)

[B] **CALCULATE** the average temperature (in °F) of the four control drums, and **RECORD** the average temperature on the applicable attachments (Attachment 2 or 3). [Drum #1 temp. + Drum #2 temp. + Drum #3 temp. + Drum #4 temp.) ÷ 4 = Average temp. of control drums].

[5] **IF** control drums are **NOT** available,
THEN MEASURE the ambient temperature (e.g., the wall of the contamination control enclosure or designated location) using an infrared thermometer, and **RECORD** the ambient temperature (in °F) on the applicable attachments (Attachment 2 or 3).

[6] **MEASURE** the temperature (in °F) on the top center of each nitrate salt waste container using an infrared thermometer, and **RECORD** the container number and temperature on the applicable attachments (Attachment 2 or 3).

Second Operator/Designee

[7] **ENSURE** that the container number and temperatures recorded for the containers and control drums is correct.

[8] **IF** container number and temperature are recorded incorrectly
THEN RECONCILE on the applicable attachments (Attachment 2 or 3).

Operator/Designee

[9] **IF** a container's temperature is more than 10 °F higher than the control group average or ambient temperature, as applicable,
THEN:

[A] **NOTIFY** the TA-54 Operations Center and **REQUEST** direction.

TA-54 Operations Center

[B] **NOTIFY** Operations Manager and EOSC at 505-667-6211.

Operator/Designee

[10] **IF** a container's temperature is greater than 15 °F higher than the control group average or ambient temperature, as applicable,
THEN:

[A] **NOTIFY** the TA-54 Operations Center.

6. INSTRUCTIONS—TA-54 AREA G TEMPERATURE READINGS OF NITRATE SALT TRU WASTE CONTAINERS (continued)

TA-54 Operations Center

[B] **REQUEST** support from EOSC at 505-667-6211 and **NOTIFY** Operations Manager.

NOTE *The control group of non-nitrate drums, or the ambient temperature of the contamination control enclosure, will be measured a second time after measuring the temperature of the last nitrate salt waste container.*

[11] **MEASURE** the temperature (in °F) on the top center of each of the four control drums (non-nitrate), or ambient temperature of the contamination control enclosure, using an infrared thermometer, and **RECORD** the temperatures on the applicable attachments (Attachment 2 or 3).

[12] **IF** measuring the temperature of control drums,
THEN CALCULATE the average temperature (in °F) of the four control drums, and **RECORD** the average temperature on the applicable attachments (Attachment 2 or 3).
[Drum #1 temp. + Drum #2 temp. + Drum #3 temp. + Drum #4 temp.) ÷ 4 = Average temp. of control drums]

[13] **IF** control drums are **NOT** available,
THEN MEASURE the ambient temperature (e.g., the wall of the contamination control enclosure or designated location) using an infrared thermometer, and **RECORD** the ambient temperature (in °F) on the applicable attachments (Attachment 2 or 3).

[14] **IF** any abnormalities, such as smoke or odor, are noticed,
THEN:

[A] **PERFORM** an off-normal response in accordance with EP-DIV-BEP-20048, to include:

1. **SUSPEND** work.
2. **WARN** others.
3. **ISOLATE** the immediate area.
4. **MOVE-AWAY** upwind from the area of concern
5. **MAKE** Notifications (e.g., Operations Center and SOS).

6. INSTRUCTIONS—TA-54 AREA G TEMPERATURE READINGS OF NITRATE SALT TRU WASTE CONTAINERS (continued)

[B] **DOCUMENT** the UNSAT condition and **PROVIDE** comments on the applicable attachments (Attachment 2 or 3) when in a safe area and at a time when operationally convenient.

[15] **RECORD** the end time on the applicable attachments (Attachment 2 or 3).

[16] **RECORD** "N/A" (not applicable) for temperature readings that were not recorded (e.g., if the ambient temperature was measured, then "N/A" control drum and average temperature entries) on the applicable attachment (Attachment 2 or 3).

Operator and SOM

[17] **INITIAL** on the applicable attachment (Attachment 2 or 3).

7. INSTRUCTIONS—TA-54 AREAG EAST ENTRANCE/ROAD INTO AREA G MONITORING

This section is a stand-alone section and may be performed independently of, or in conjunction with other Instructions sections.

This section is performed in response to significant precipitation (greater than 0.25 inches within 30 minutes or greater than a 0.5 in 24 hours of rain fall) that may cause damage or road deterioration of east entrance/road into TA-54 Area G. Weather information may be obtained from TA-54 Meteorological Station or National Oceanic and Atmospheric Administration (NOAA).

Shift Operation Manager

[1] **VISUALLY INSPECT** the TA-54 Area G East entrance/road for deterioration (e.g., washout).

[2] **IF** deterioration is observed,
THEN:

[A] **NOTIFY** Maintenance and Site Services.

[B] **GENERATE** a Facility Service Request (FSR) to repair roadway as applicable.

[B] **NOTIFY** the Los Alamos Fire Department (LFPD) of road condition.

8. POST-PERFORMANCE ACTIVITY

8.1 Disposition

Operator

[1] **SIGN** and **DATE** on the applicable attachments (Attachment 1 and 2).

OM or designee

[2] **REVIEW** the applicable attachments (Attachment 1 through 3) for accuracy and completeness.

[3] **SIGN** and **DATE** on the applicable attachments (Attachment 1 through 3).

NOTE *Completing a Post-Job Review may be accomplished using the applicable P300 form or online (the preferred method since the institution has access to feedback and lessons learned http://int.lanl.gov/safety/iwmc/ [Click on the Submit IWD Part 4 Post-Job Review]).*

[4] **IF** any of the following occur:

- A new activity was completed for the first time
- A request was made by anyone involved with the performance of this procedure to perform a post-job review
- An abnormal event occurred
- A revision to an existing procedure was issued and it has been determined by the procedure owner or designee that a Post-Job Review is required

THEN PERFORM a Post-Job Review in accordance with P300.

[5] **IF** the Post-Job Review identified any necessary changes to this procedure,
THEN INITIATE a revision to this procedure.

8.2 Records Processing

Operator/Designee

[1] Ensure that documents generated by the performance of this procedure are processed as follows:

Record Identification	Record Type Determination	Protection/Storage Methods	Processing Instructions
Attachment 1, Nitrate Salt TRU Waste Container Inspection Data Sheet Attachment 2, TA-54 Area G Nitrate Salt TRU Waste Container Temperature Data Sheet Attachment 3, TA-54 Area G Nitrate Salt TRU Waste Container Hourly Temperature Data Sheet	QA Record	Supervision **SHALL** implement a reasonable level of protection to prevent loss and degradation. Records should be maintained in a one-hour fire rated metal file cabinet when not in use.	When the records are ready for final disposition, the record is transferred to Records Management in accordance with EP-DIR-AP-10003, Records Management Procedure For ADEP Employees.

9. REFERENCES

ABD-WFM-002, Technical Safety Requirements (TSRs) for TA-54, Area G.

EP-DIV-AP-0112, EWMO Pre-Job Briefings

EP-DIR-AP-10003, Records Management Procedure For ADEP Employees

P101-18, Procedure for Pause/Stop Work

P121, Radiation Protection

P300, Integrated Work Management

P330-6, Nonconformance Reporting

EP-DIV-BEP-20048, EWMO Division Building Emergency Plan (BEP)

ATTACHMENT 1
Page 1 of 2

NITRATE SALT TRU WASTE CONTAINER VISUAL INSPECTION DATA SHEET

Time (24hrs) (5.[2])	Storage Area (e.g., 230, 231, 232, 375) (5.[2])	Ventilation Checks (5.[3]) (375 FE-001, and FE-002) (231 FE-1000, 2000, 3000, 4000)	Status (5.[4][B]/5.[5]/5.[6]	Operator Initials and Z# (5.[7])
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
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		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	
		☐ SAT ☐ UNSAT	☐ SAT ☐ UNSAT	

ATTACHMENT 1
Page 2 of 2

Comments: _____

8.1[1] Performed By: _____ / _____ / _____ / _____
Operator — Print — Signature — Z # — Date

8.1[3] Reviewed By: _____ / _____ / _____ / _____ / _____
OM/Designee — (print) — Signature — Z # — Initials — Date

ATTACHMENT 2
Page 1 of 4

TA-54 AREAG NITRATE SALT TRU WASTE CONTAINER DAILY TEMPERATURE DATA SHEET

6.[3] Date: From _____ to _____ Location: _____ Page _____ of _____

Container ID	Mon 6.[3] Start Time: _____	Tue 6.[3] Start Time: _____	Wed 6.[3] Start Time: _____	Thu 6.[3] Start Time: _____	Fri 6.[3] Start Time: _____	Sat 6.[3] Start Time: _____	Sun 6.[3] Start Time: _____
Calibrated Infrared Thermometer 4.2.1.[1]	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____
Control drum #1 6.[4][A]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
Control drum #2 6.[4][A]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
Control drum #3 6.[4][A]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
Control drum #4 6.[4][A]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
6.[4][B]	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F
Ambient Temperature 6.[5]	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F

ATTACHMENT 2

Page 2 of 4

6.[3] Date: From __________ to __________ Location: __________________ Page _____ of _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
CONTAINER ID #	Temp (°F) (6.[6])	Temp (°F) (6.[6])	Temp (°F) (6.[6])	Temp (°F) (6.[6])	Temp (°F) (6.[6])	Temp (°F) (6.[6])	Temp (°F) (6.[6])

ATTACHMENT 2

Page 3 of 4

6.[3] Date: From _____ to _____ Location: _____ Page _____ of _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Control drum #1 6.[11]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
Control drum #2 6.[11]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
Control drum #3 6.[11]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
Control drum #4 6.[11]	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)	Temp _____(°F)
2]	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F
Ambient Temperature 6.[13]	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F
	End Time: _____	End Time: _____	End Time: _____	End Time: _____	End Time: _____	End Time: _____	End Time: _____
	Operator: _____ SOM: _____	Operator: _____ SOM: _____	Operator: _____ SOM: _____	Operator: _____ SOM: _____	Operator: _____ SOM: _____	Operator: _____ SOM: _____	Operator: _____ SOM: _____

Comments: _____

ATTACHMENT 2
Page 4 of 4

Date: From _____ to _____ Location: _____ Page ____ of _____

Performed by:

Operator (print)	Signature	Z#	Initials	Date
Operator (print)	Signature	Z#	Initials	Date
Operator (print)	Signature	Z#	Initials	Date
Operator (print)	Signature	Z#	Initials	Date
Operator (print)	Signature	Z#	Initials	Date
Operator (print)	Signature	Z#	Initials	Date
Operator (print)	Signature	Z#	Initials	Date

Reviewed by:

SOM (print)	Signature	Z#	Initials	Date

ATTACHMENT 3
Page 1 of 4

TA-54 AREAG NITRATE SALT TRU WASTE CONTAINER HOURLY TEMPERATURE DATA SHEET

Date: From _____ to _____ Location: _____ Page _____ of _____

	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)	Start Time: _____ Temp (°F)
Calibrated Infrared Thermometer 4.2.1.[1]	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____	Brand: _____ Model: _____ Cal. Due Date: _____ File Number _____
Control drum #1 6.[4][A]	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)
Control drum #2 6.[4][A]	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)
Control drum #3 6.[4][A]	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)
Control drum #4 6.[4][A]	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)	Temp _____ (°F)
	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = _____ °F
Ambient Temperature 6.[4][B]	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F	_____ °F

ATTACHMENT 3

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Container ID #	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)	Temp (°F)

ATTACHMENT 3
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Control drum #1 6.[11]	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)
Control drum #2 6.[11]	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)
Control drum #3 6.[11]	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)
Control drum #4 6.[11]	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)	Temp ____ (°F)
6.[12]	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F	Average control drum temperature (Drum 1 + Drum 2 + Drum 3 + Drum 4) ÷ 4 = ____ °F
Ambient Temperature 6.[13]	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F	____ °F
	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____	End Time: ____
	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____	Operator: ____ SOM: ____

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Comments:

Reviewed by:

SOM (print) / Signature / Z# / Initials / Date

Attachment 6

EP-DIV-BEP-20048, R.1

EWMO Division Building Emergency Plan (BEP)

Effective Date: 12/10/13

The Responsible Manager has determined that the following organizations' review/concurrence is required for the initial document, and for major revisions, a same type and level review is required. Review documentation is contained in the Document History File:

Emergency Planning and Preparedness
Operations Center SME
Engineering
Facility Operations Director (FOD)
Fire Protection Engineering
Industrial Hygiene and Safety
Operations Managers
Quality Assurance
Training
Radiation Protection
Shift Operations Managers
SME WCRRF, RANT, TA-54 SOSs

Responsible Manager, EWMO Facility Operations Director

Steve M. Henry	/ 219172	/ /s/ Steve Henry	/ 12/10/13
Name (print)	Z#	Signature	Date

Classification Review: ☐ N/A ☒ Unclassified ☐ UCNI ☐ Classified _____

Teri Tingey	/ 200975	/ /s/ Teri Tingey	/ 12/10/13
Name (print)	Z#	Signature	Date

Working Copy / Information Only (circle one)
Initials / Date: _____/_____

LA-UR-14-23780

REVISION HISTORY

Document No./Revision No.	Issue Date	Action	Description
EP-DIV-BEP-20048, Rev. 0	December 9, 2013	New Procedure	This new Division-level building emergency plan supersedes the following facility-level BEPs: • EP-DIV-PLAN-10, Radioassay and Nondestructive Testing Facility Emergency Plan • EP-DIV-PLAN-05, Waste Characterization, Reduction, and Repackaging Facility Building Emergency Plan • EP-DIV-PLAN-01, TA-54 Areas G, H, J, L, and Administrative Area Building Emergency Plan • TA-21-PLAN-00008, TA-21 Emergency Plan • EP-DIV-BEP-0102, TA-54 Buildings 1009 and 1014 Building Emergency Plan EP-AREAG-RM-AOP-0421, Security Incident Notifications, EP-WCRR-RM-AOP-0208, Special Shapes, EP-AREAG-RM-ARP-0302, Evacuation Alarm, EP-RANT-RMC-ARP-0303, Evacuation Alarm, EP-AREAG-RM-EOP-0206, Seismic Event, EP-AREAG-RM-EOP-0207, Vehicle Accident, EP-RANT-RMB-EOP-0207, Vehicle Accident, EP-RANT-RMB-EOP-0208, Seismic Event, EP-RANT-RM-EOP-0206, Injured Person with Contamination, EP-WCRR-RM-EOP-0304, Security Threat, EP-WCRR-RM-EOP-0308, Seismic Event, EP-WCRR-RM-EOP-0309, Injured Person at WCRRF. This procedure also supersedes EP-DIV-AP-20045, EWMO Abnormal Event Notification Process. EP-DIV-AP-20045 requirements were incorporated into EWMO Response procedure and references LANL Site Requirements. Nuclear Environmental Site (NES) are also included in the BEP. No hazardous analysis was required; this is considered and administrative procedure.
EP-DIV-BEP-20048, Rev. 1	December 10, 2013	Minor Revision	Revise procedure to remove the OUO designation in accordance with SAFE-1. This revision does not introduce any new hazards.

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1. PURPOSE

The Environmental and Waste Management Operations (EWMO) Division Building Emergency Plan (BEP) captures the Site Emergency Management and Response program requirements from Los Alamos National Laboratory (LANL) procedure P1201-4, Emergency Procedures and Protective Actions and P315, Conduct of Operations Manual. In addition, the EWMO BEP identifies area-specific response requirements for (1) Technical Area (TA)-50-69 Waste Characterization, Reduction, and Repackaging Facility (WCRRF) complex, (2) TA-54 Area G, H, J, L and TA-54 Administrative areas, (3) TA-54 Radioassay and Nondestructive Testing (RANT) Building 54-38 complex, (4) TA-21, and (5) Nuclear Environmental Sites (NES).

2. SCOPE

The EWMO BEP requirements apply to all personnel, subcontractors, tenants, and visitors entering the TA-54, RANT, WCRRF complex, TA-21, and NES.

Building residents who are assigned and qualified for escorting visitors assume the responsibility for ensuring that visitors possess the appropriate level of area-specific information (e.g., rules, regulations, exits, evacuation routes, assembly/muster areas, area specific alarms, and response procedures) necessary to respond appropriately in the event of an off-normal or emergency situation that may arise. Management has the overall responsibility for personnel accountability during an off-normal/emergency event.

The EWMO Division BEP will be reviewed on an annual basis and updated as necessary for changes that alter the scope of this document, corrections based on internal and audit findings, emergency drill and exercise lessons learned external changes in governing standards and references, and changes to facility operations and associated hazards.

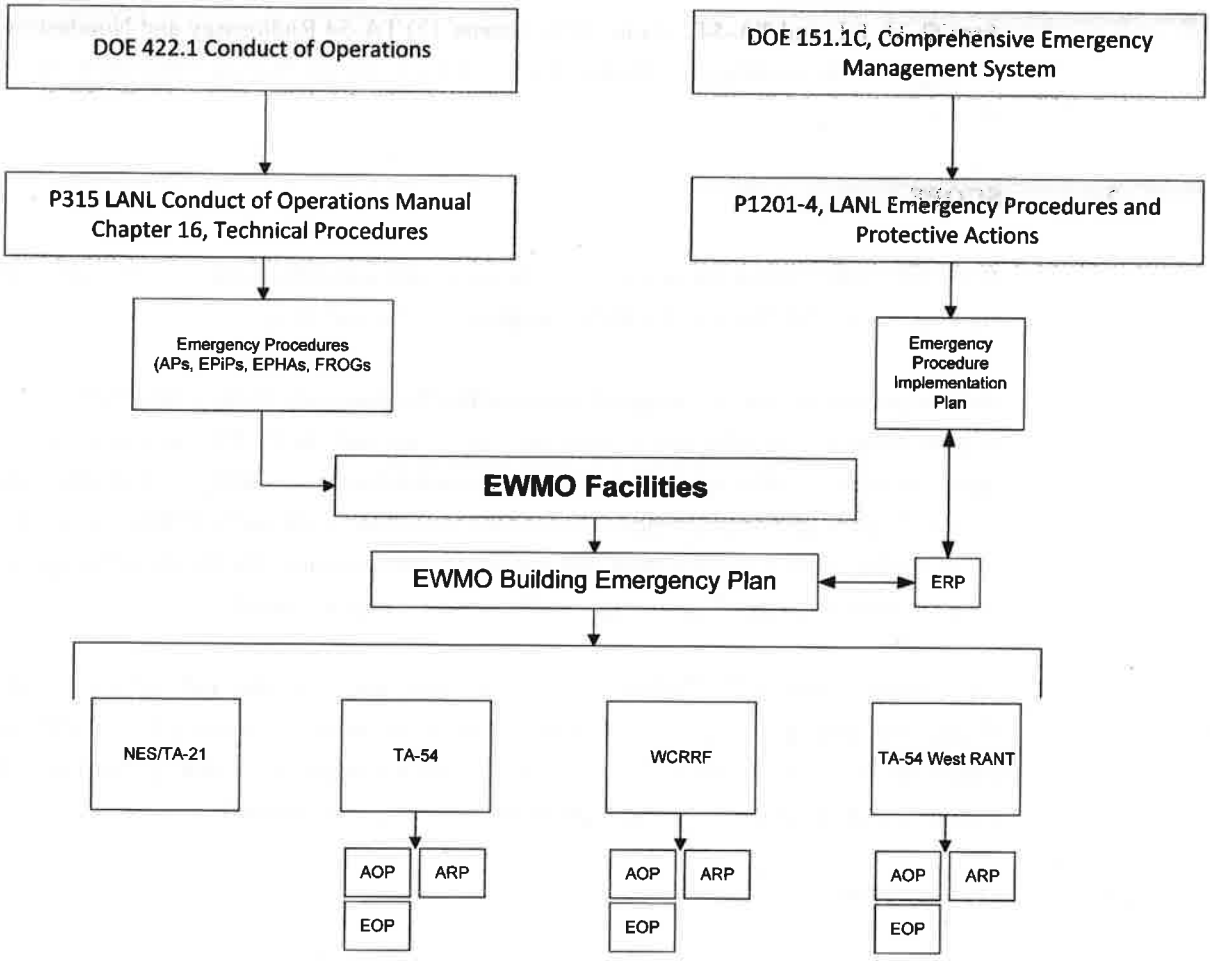
3. OVERVIEW

The EWMO Division BEP plays a key role in the successful implementation of the Site Emergency Management and Response program, Conduct of Operations, and area-specific response procedures for TA-54, WCRRF, RANT, TA-21 and NES. This plan also defines roles and responsibilities that are necessary to ensure that the chain of command is established and to ensure that employees respond correctly and consistently in a safe and timely manner when off-normal/emergency situations arise. Section 5, BEP Requirements, provides the requirements, roles, protective equipment, and standardized responses (i.e., Notification, Off-Normal, and Emergency) for employees working in EWMO facilities. Sections 6 through 10 provide building/area-specific requirements for WCRRF, TA-54, RANT, TA-21 and NES.

3. OVERVIEW (continued)

Figure 1, Emergency Management Process Requirements Flow-down illustrates the requirements derived from Department of Energy to LANL and into the EWMO BEP.

FIGURE 1, EMERGENCY MANAGEMENT PROCESS REQUIREMENTS FLOW-DOWN



4. RESPONSIBILITIES

4.1 First Responder at the Awareness Level

The first responder at the awareness level has the following responsibilities (i.e., first person at the scene of an off-normal/emergency event):

- Stops or suspends work
- Activates the appropriate alarm (i.e., fire, evacuation), as necessary
- Warns others in the immediate area of the off-normal/emergency event
- Secures the incident area to prevent others from entering
- Makes notifications to the Operation Centers, Emergency Operations and Support Center (EOSC) 7-6211, and/or 911 as appropriate

4.2 Shift Operations Manager/Facility Lead (SOM/FL)

NOTE *In EWMO facilities, the Shift Operations Manager (SOM) is the Facility Operations Director (FOD) designee in the field and assumes responsibilities as the Facility Leader (FL). The SOM/FL assumes the role of the FOD in the field. However, an Operations Manager (OM) may also conduct FL duties as long as the OM is trained, qualified, and knowledgeable of the area operations.*

The SOM/FL is the person in charge of the facility during an off-normal/emergency event and/or up until transfer to the Incident Commander (IC).

The SOM/FL has the following responsibilities:

- Coordinates with the Assembly/Muster Area Leader for personnel accountability, condition, and locations
- Ensures that 911 or EOSC 7-6211 has been called as necessary
- Updates the OM/designee of the situation
- Evaluates the event and potential hazards and determines whether additional evacuations are necessary
- Works with support personnel to mitigate the event within the EWMO facility

4.2 Shift Operations Manager/Facility Lead (SOM/FL) (continued)

- Available on-call outside normal working hours including nights, weekends, and holidays when assigned
- Determines appropriate actions for mitigation and notifications during an off-normal event
- Ensures appropriate actions are completed to protect the safety of workers, facility, equipment, records, and the environment
- Authorizes elevation of an off-normal event to an emergency event as necessary
- Makes notifications in accordance with respective response procedure
- Ensures that employees who may need special assistance are identified, and designates personnel to assist these employees
- Ensures accountability of all personnel
- Evaluates the potential hazards and determines the protective actions
- Briefs emergency responders and management personnel during an emergency
- Assists the IC in recovery and reentry efforts
- Transfers command and control to the IC and notifies Operations Center personnel when command and control is transferred

4.3 Incident Commander

Incident Commander is the formal title for the individual who is designated as the person in charge of an emergency response for the Site. This person will be a member of a designated emergency response organization and have completed formal training in emergency management and incident command.

NOTE *The IC will be from one of the formally designated and trained emergency response organizations from the Emergency Operations and Emergency Management (EO-EM), Los Alamos Fire Department (LAFD), SOC, or in unusual cases, from the Federal Bureau of Investigation (FBI) or other Federal agency, and will formally declare that he/she has assumed the IC role.*

- Manages the emergency event until mitigated or transferred back to the SOM/FL
- Authority to call out other response personnel and additional resources
- Assumes the role of IC during an emergency event

4.4 Shift Operations Supervisor

- Assists the SOM/FL to determine appropriate actions for mitigation and notifications during off-normal events
- Serves as a resource for the FL/IC and offsite responders during off-normal/emergency events
- Ensures that actions are initiated to protect the safety of site workers, programmatic equipment, records, and the environment
- Ensures that employees who require special assistance during an emergency are supported

4.5 Operations Center Operator

- Notifies personnel through various communication systems (e.g., E-pagers, public address system, land-line, two-way radio, cell phone, and face to face) on initial off-normal/emergency activities at WCRRF, TA-54, and TA-54 West RANT.
- Notifies adjacent facilities of off-normal/emergency events as applicable
- Facilitates command and control functions under the direction of the SOM/FL until turned over to the IC
- Records and logs initial and ongoing notifications in accordance with this plan
- Acts as a liaison between SOM/FL, IC, and the workers
- Coordinates accounting of personnel at the Assembly/Muster areas
- Assists in directing emergency response personnel and equipment to emergency site/areas
- Monitors the two-way radio base station and the Site Wide Alert Notification System (SWANS) radio
- Maintains a written log of off-normal and/or emergency events in the Operations Center log book
- Ensures that the SWANS radio is operational
- Develops and maintains the Emergency Contact List at the respective Operations Center (Appendices 3, 5, and 8)

4.6 Support Personnel (Environment, Safety, and Health)

The support personnel receive notification from the Operations Center and/or SOM/FL when an off-normal/emergency event arises as necessary.

- Acts a subject matter in their field of expertise (e.g., Industrial Hygiene/Safety) during off-normal/emergency events
- Supports IC or SOM/FL in developing remedial and recovery plans

4.7 Assembly/Muster Area Leader

- Assumes command of Assembly/Muster area
- Collects and gathers information from personnel who were at the incident site
- Liaison between Operations Center and personnel
- Initiates the accountability of personnel
- Makes notification to the respective Operations Center
- Ensures that personnel who may be radiologically contaminated are segregated from the general population
- Delegates tasks as necessary to employees at the Assembly/Muster area during an emergency event
- Directs vehicle traffic on roadways to ensure emergency response vehicles have an open route to the event area as necessary

4.8 Facility Resident

- Notifies Operations Center of off-normal/emergency events
- Notifies EOSC 7-6211 and/or 911 for emergency events
- Responds to off-normal/emergency events in accordance with the requirements of this plan and the facility-specific off-normal/emergency response procedures
- Performs assigned duties from Assembly/Muster Area Leader
- Performs escort responsibilities if assigned

4.9 Visitor

- Responds to alarms and notifications in the event of an off-normal/emergency event
- Stays with their designated escort during off-normal/emergency events

5. BEP REQUIREMENTS

5.1 Site Events

The Laboratory has identified several abnormal/emergency events (e.g., chemical, biological, radiological, fire, security, weather, vehicular accident, and personnel injury) that may affect the general laboratory population, the public, and the environment. These events and their responses are captured in LANL policies and procedures Table 1, General Site Events and References.

NOTE *Unless otherwise recommended or directed by EWMO management, the events listed in Table 2 below provide specific events and the associated reference that contains the response actions.*

TABLE 1, GENERAL SITE EVENTS AND REFERENCES

Bomb threat	P1201-4, LANL Emergency Procedures and Protective Actions
COOP	P1201-4
Fire, Smoke and Explosion	P1201-4
Flood	P1201-4
Hazardous Substance/Chemical Spill	P1201-4
Lightning	P1201-4
Power Outage	P1201-4
Security Concern	P1201-4
Seismic Event (Earthquake)	P1201-4
SIP/Stay Put	P1201-4
Snow and Ice	P1201-4
Suspicious/Unattended Packages	P1201-4
Unexploded Ordnance	P1201-4
Vehicle Accidents	P101-7, Vehicles and Pedestrian Safety
Work Related Injury, Illness	P102-2, Occupational Medicine
Workplace Violence	P724, Workplace Violence

5.2 Facility Specific Procedures

TA-54 and WCRRF Operations Centers maintain controlled copies of the facility-specific response procedures that apply to TA-54, WCRRF, and RANT. Four types of response procedures are used in accordance with P315, Conduct of Operations Manual, Section 16, Technical Procedures.

5.2.1 Abnormal Operating Procedure (AOP)

AOPs provide instructions for responding to events that affect several systems, threaten the safety envelope, or require action to mitigate damage.

5.2.2 Alarm Response Procedure (ARP)

ARPs direct the response of personnel to visible and audible alarms.

5.2.3 Emergency Operating Procedure (EOP)

EOPs provide instructions for responding to events that result in operation outside the safety envelope.

5.2.4 Emergency Response Procedure (ERP)

ERPs provide instructions for responding to an emergency in progress. ERPs include steps or reference other procedures that define the response to additional casualties that could result from the initial event.

5.3 Response Actions

EWMO has developed the following three worker response actions.

5.3.1 Notification Response

The notification response is a notification by the worker of an upset condition. Notification response does not require immediately exiting or evacuating. Once the worker has completed the notification response steps, the SOM/FL and/or support team will provide guidance and protective measures for the worker via the applicable Operations Center.

The notification response action is as follows;

1. **MAKE** Notifications (i.e., Operations Center).
2. **WARN** others.
3. **WAIT** for directions and guidance from the Operations Center and FL/IC.

5.3.1 Notification Response (continued)

The following events have been categorized as requiring a Notification Response:

TA-54 Area G	RANT	WCRRF
• Loss of Electronic Badge Reader • 231 Permacon HVAC LOW Cell D/P • 375 Permacon HVAC LOW Cell D/P • Fire Department Manning Less than 50 Percent	• Loss of Electronic Badge Reader • Fire Department Manning Less than 50 Percent	• Loss of Electronic Badge Reader • Fire Department Manning Less than 50 Percent • WCRRF Loss of Confinement Ventilation System (CVS) • WCRRF Glovebox Fire Suppression Inadvertent Initiation • WCRRF WCG High Pressure Alarms • WCRRF Confinement Ventilation System (CVS) Low Flow Alarms • WCRRF Confinement Ventilation System (CVS) Room 102 High Pressure Alarms • WCRRF CVS HEPA Filter Alarms • WCRRF Confinement Ventilation System (CVS) GBE High Pressure Alarms • WCRRF TE/TI-001 and 002 Low Temperature Alarms • WCRRF Confinement Ventilation System HVA Low Flow Alarm

5.3.2 Off-Normal Response

An off-normal response is an action taken by the worker in a timely manner to ensure they back away from the immediate area (e.g., out of harm's way) until the event can be evaluated and appropriate actions taken to mitigate the situation to prevent it from elevating to an emergency.

The off-normal response steps are:

1. **SUSPEND** work.
2. **WARN** others.
3. **ISOLATE** the immediate area.
4. **MOVE-AWAY** upwind from the area of concern
5. **MAKE** Notifications (e.g., Operations Center and SOS).

Once the worker has performed the off-normal response steps listed above, there are no further actions taken by the worker to mitigate the incident at this time. The SOM/FL and the support team will provide guidance and protective measures to the workers via the applicable Operations Center.

The following list below provides events that have been categorized as response procedures requiring an off-normal response:

TA-54 Area G	RANT	WCRRF
• Discovery of an Airborne, Liquid or Solid Material Release or Spill • Unplanned Loss of Electrical Power • Waste Container • Questionable Integrity • CSLA Non-Compliance	• Discovery of an Airborne, Liquid or Solid Material Release or Spill • Unplanned Loss of Electrical Power • Waste Container • Questionable Integrity • CSLA Non-Compliance	• Discovery of an Airborne, Liquid or Solid Material Release or Spill • Loss of Glovebox Integrity • Unplanned Loss of Electrical Power • Waste Container • Questionable Integrity • CSLA Non-Compliance

5.3.3 Emergency Response

Emergency response actions taken by the operator in the event of an emergency to ensure personnel safety and prompt notification to management and/or Emergency Management. There are no actions taken by the worker to attempt to mitigate the event. Once the worker has performed the emergency response steps listed below, the EOSC, 911, SOM/FL, and the support team will provide guidance and protective measures to the workers via the applicable Operations Center.

The emergency response activities are as follows:

1. **SUSPEND** work.
2. **WARN** others.
3. **ISOLATE** immediate area.
4. **EVACUATE** to an upwind Assembly/Muster area from the incident.
5. **MAKE** Notifications (e.g., SOS, OC, EOSC, 911).

TA-54 Area G	RANT	WCRRF
• EWMO Area Emergency Response	• EWMO Area Emergency Response	• EWMO Area Emergency Response

5.4 Operations Center Response Protocol

Upon entering the abnormal or emergency response procedure (i.e., AOP, EOP, or ERP) the SOM will designate roles and responsibilities (record keeping, log keeping, phones, communications systems) to members of the Operations Center as necessary. The SOM's primary duty during an off-normal/emergency event is to act as the facility leader and overall controller of activities and operations in order to maintain attention to the incident. The response procedure is used to document all event activities (e.g. times, dates, actions) and is a quality record. The OCO logbook is the official logbook that requires documenting the entry into, and exit from, the response procedure and other important non-incident specific information. The SOS and SOM are not required to keep logs during the incident. When a facility enters an ARP, the Operations Center will be notified, but other activities at the facilities will continue normal operations, including the Operations Center, unless deemed otherwise by the SOM.

5.5 Responsibilities Assembly/Muster Areas

Assembly/Muster areas are designated areas for workers and visitors to gather in the event of an emergency or as directed by the SOM/FL.

The Assembly/Muster areas are identified by a large yellow metal box and an orange and white striped wind sock on a pole. Assembly/Muster areas maps for WCRRF, TA-54, RANT, and TA-21 are illustrated in the appendices of this procedure. Assembling/Mustering to a secondary location after initial evacuation if necessary is directed by the Operations Center/SOM/FL and/or the IC.

NOTE *Assembly/Muster area equipment and supplies are inspected weekly in accordance with EP-DIV-DOP-0102, EWMO RCRA Inspections.*

Assembly/Muster areas contain at a minimum the following equipment and supplies for use during off-normal/emergency events:

- A clipboard with roll-call checklists and two-way radio instructions (shown in Appendix 2)
- A copy of the Division Building Emergency Plan
- Assembly/Muster area lead vest (blue)
- Assembly/Muster Area Leader Checklist (instructions for Assembly/Muster Area Leader)
- First aid kit
- Grease pens and pencils
- Instruction card and "Gone to Assembly/Muster area #" card
- Two-way radio
- Wind sock
- Orange vest (for personnel performing traffic control)

The first person to arrive at the Assembly/Muster area during an emergency who is knowledgeable and willing to perform the duties assigned, acts as the Assembly/Muster Area Leader. A checklist is available at each Assembly/Muster area that provides actions to be performed by the Assembly/Muster Area Leader.

5.6 Accountability

Each worker has the primary responsibility to report to the Assembly/Muster Area Leader for accountability.

In EWMO organizations, there are three methods for obtaining personnel accountability during an off-normal/emergency event:

- Badge reader
- Sweep process
- Sign-in sheets at Assembly/Muster areas

The electronic badge reader system records and tracks personnel who enter and exit TA-54 Area G, TA-54 Area L, RANT, and WCRRF. If a situation arises where personnel accountability is required, the applicable Operations Center can generate a personnel accountability report from the badge reader system which provides a list of personnel currently logged into a specific area (e.g., TA-54 G, L, RANT, and WCRRF).

The sweep process is used primarily in administration areas and other areas that do not possess an electronic accountability system. When personnel are required to evacuate, each person will perform a visual sweep and verbal communications (e.g., is anyone here? the area is being evacuated) for personnel in the exit route out of the building. The last person to egress the facility will provide personnel accountability information to the Assembly/Muster Area Leader. Once employees assemble at the Assembly/Muster areas, they will complete a sign-in sheet/roster to document their location.

In all three methods, personnel not accounted for will be communicated to the FL/IC.

5.7 Protective Actions

5.7.1 Shelter-In-Place (SIP)

SIP means to make a shelter where workers are currently located. It is a method to protect occupants until help arrives or otherwise directed by Operations Center and FL. This type of sheltering is for hazardous material events (chemical, biological, radiological). Taking cover in any building will provide some shelter, and is safer than staying outside and potentially receiving a greater exposure to the hazard. Personnel are instructed to remain inside and follow instructions from the SOM/FL or IC. SIP is a temporary protective action and is short-term (1 to 3 hours) until the hazardous situation has passed, and the "All Clear" has been announced. The SOM/FL or IC will make the decision to SIP. Notifications will be communicated via one or more of the following: Public Address system, two-way radio, e-pagers, cell phones, and/or face to face.

General guidelines to SIP include:

- If a SIP kit is not available: assign workers to shut all windows (if any), doors, and assemble in a location away from windows and doors (hallway) for SIP
- Turn building thermostats off to stop outside airflow into building
- Conduct accountability and report results to respective Operations Center/FL/SOM
- Remain in shelter location until the Operations Center/FL/SOM informs personnel it is safe and the sheltering order has been lifted

5.7.2 Stay-Put

The type of sheltering utilized most often by the LANL population is Stay-Put sheltering. Stay-Put sheltering is the protective action used during non-hazardous material events (terrorism event, inclement weather, wild fire). This protective action calls for personnel to move or remain indoors due to an event that may place personnel in harms way outside. Examples of these events are wild land fire, a terrorism event, or inclement weather. The SOM/FL or IC will make the decision to Stay-Put.

Recommended actions to Stay-Put include:

- Stay inside
- Notify building personnel and visitors of the protective action and information about the event (if provided)
- Contact the applicable Operations Center and provide personnel status and accountability

5.7.3 Lightning

If lightning is sighted, employees **SHALL** use the 30/30 rule:

- Seek shelter if lightning is within 6 miles (flash to bang count is 30)
- Move away from any metal objects and grounding system components
- Do not remain upright in an open area or seek shelter near tall, upright objects (trees), take cover in a vehicle or building
- Shelter for at least 30 minutes after the last lightning strike within 6 miles

5.8 Chain of Command Process

The chain of command is the process that identifies positions, roles, and responsibilities for those individuals who are designated and authorized as the person-in-charge during an off-normal/emergency event.

The FL (e.g., SOM, OM) directs the initial command and control during an Off-normal/emergency event. The SOM/FL is a person who possesses the experience and knowledge associated with the area to lead the facility management and workers in an off-normal/emergency response and/or until relieved by the Site IC. An IC will be a designated Emergency Management person who responds as the individual authorized by the institution with the authority and responsibility for command and control at the incident scene.

When the responsibility for command and control is transferred to the IC, the SOM/FL remains available to the IC for area-specific technical support and assistance. A formal transfer of duty from the SOM/FL to the IC is required in a timely manner. Transferring command and control back to the SOM/FL is also a formal process. The level of formality is based upon the severity level of the event.

EWMO utilizes the Operations Center model at WCRRF and TA-54 as part of the EWMO organizational structure which acts as a liaison between LTP management, Facility Lead, IC, Emergency Operations and Emergency Management (EO-EM), and the workers. The TA-54 and WCRRF Operations Centers are staffed during normal operations. The notification process for off-normal hours is performed through the EWMO on-call list and Emergency Operations and Support Center (EOSC) 7-6211.

5.8 Chain of Command Process (continued)

Figure 2, Chain of Command Model

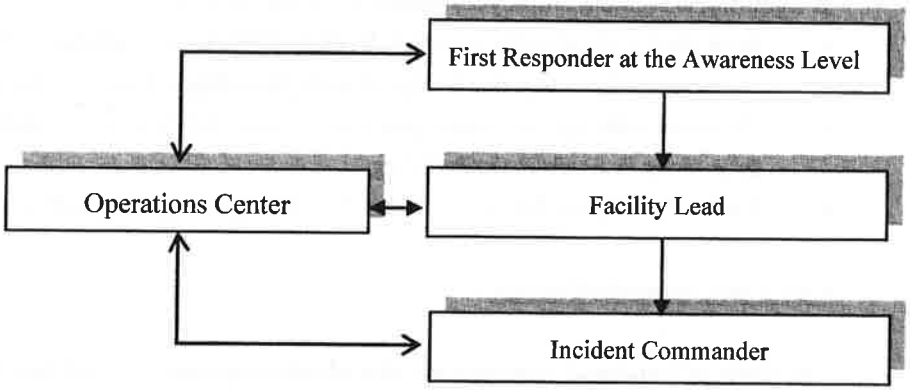
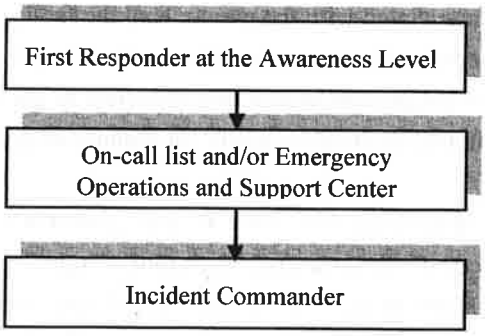


Figure 3, Chain of Command Model Off-Hours



5.9 EWMO Communication Equipment and Warning Systems

EWMO maintains a variety of communication equipment and warning systems to effectively communicate with personnel and emergency responders when off-normal/emergency situations arise.

Cell Phones – Cell phones may be used for notifying the applicable Operations Center, EOSC 7-6211, and 911. Cell phones may also be set-up to receive emergency text messages the same as E-Pagers. If cell phones are used to contact 911, callers must communicate their location and the location of the event. Cell phones are a primary means of communication during an off-normal/emergency event.

Conventional Telephones – Conventional telephones may be used to notify the Operations Center, EOSC, and 911 in the event of an off-normal/emergency event.

5.9 EWMO Communication Equipment and Warning Systems (continued)

Continuous Air Monitor (CAM) – CAMs are used in areas that require continuous air monitoring for radiological airborne contamination. If radiological airborne contamination reaches the pre-determined level, the CAM will produce an audible and visual alarm warning personnel that radiological airborne contamination is present thus requiring personnel not wearing respiratory protection to exit the area and follow the instructions of a supporting Radiological Control Technician (RCT).

E-Pagers – E-pagers are electronic devices set-up to receive text messages from a variety of sources (e.g., LANL phone book, LAN line, EOSC) for the purposes of communicating general information to employees. E-Pagers are limited to 140 characters. E-pagers can also be set-up to receive broadcast emergency messages from Operations Center and LANL.

Evacuation Alarm – The evacuation alarm provides an audible alarm that can be heard throughout the area to alert workers to evacuate to the nearest upwind Assembly/Muster areas. An evacuation alarm system is available at TA-54 Area G, L, and the Administrative area, and an additional independent system for the RANT complex. The evacuation alarm can be activated from several locations as illustrated on Appendix 7, TA-54 Area G Evacuation Alarm Button Locations, and Appendix 10, RANT Evacuation Alarm Button Locations. Any worker who determines an emergency situation that endangers all workers in the area can activate the evacuation alarm. The evacuation alarm is a local alarm, and is not connected to Central Alarm Systems (CAS).

Fire Alarms – Fire alarm systems and warning devices are engineered for facilities and a structure's specific needs (e.g., sprinkler head, heat sensors, and manual pull station). Fire alarms emit an audible long whooping tone that warns personnel in the immediate area to evacuate to the nearest upwind Assembly/Muster area and the alarm transmits and signals to CAS. See Sections 6, 7, and 8 for area-specific fire system information.

Conventional Phones – Land lines can be used for communicating off-normal and emergency information to the Operations Center, EOSC, and 911.

PA System – Public address systems are installed in the TA-54 and RANT facilities to provide a means for broadcasting audio communication to employees for off-normal/emergency events. Use of the PA for non-emergency announcements SHALL require approval from the Operations Center and the SOM.

5.9 EWMO Communication Equipment and Warning Systems (continued)

Two-Way Radios –Two-way radios are another method to communicate between Assembly/Muster areas, SOS, Operations Center, SOM/FL and EOSC. Each Assembly/Muster area is equipped with a two-way radio.

Site Wide Area Notification System (SWANS) Radio – The SWANS Radio is a LANL-wide emergency radio system designed primarily as a back-up communication system in the event normal communication systems are diminished or unavailable. SWANS radios are monitored in the Operations Center. Instructions for proper testing and operation are listed in Appendix 2, Site Wide Area Notification System (SWANS).

Wind Sock – Wind socks are placed strategically placed throughout LANL site to provide a visual means for employees to determine the wind direction. There are two different colors schemes. Wind socks that are solid orange are placed throughout the site in areas that are populated with workers that would require a reference point to determine wind direction. Wind socks that are orange with white strips denote the location of an Assembly/Muster area. Wind socks are especially important when an abnormal/emergency event occurs which requires employees to quickly determine wind direction for the purposes of staying upwind from the event to prevent unnecessary exposure to potential hazardous materials.

5.10 Support Personnel

Support personnel are subject matter experts (SMEs) in their field who assist the SOM/FL or IC during an off-normal/emergency event as necessary.

The following personnel groups may support the FL/IC in an off-normal/emergency event:

- Industrial Safety and Hygiene
- Radiological Protection

Additional organizations that may provide assistance:

- Criticality Safety Officer
- Criticality Safety Engineer
- Emergency Management
- Engineering
- Environmental
- Hazardous Waste
- Maintenance
- On-Site Transportation
- Operations Manager
- Security
- Utilities
- Waste Coordinator

5.11 Emergency Access Control

During an emergency, saving life **SHALL** take precedence. Emergency personnel **SHALL** be allowed to enter the area without delay. Personnel **SHALL** not leave the incident area unless directed to do so by the IC.

5.12 Adjacent Facilities

Off-normal/emergency events have the potential to impact adjacent facilities (e.g., response vehicles, road closures). Notification to adjacent facilities will normally be accomplished by the Operations Center, SOM/FL and/or the EOSC.

5.13 EWMO Abnormal Event Notification Process

The first communication is defined as Initial Notification. During an off-normal/emergency event, the initial notification from the first responder (awareness) to the respective Operations Center and/or 911 initiates the process. The Operations Center will in turn notify the Shift Operations Manager.

The SOM/FL is responsible for notifying the Operations Manager who in turn will at a minimum notify the FOD, ES&H Manager, and the Project Manager as necessary.

Communications up the chain of command are required in accordance with P322-3 and with directorate-level reporting requirements as described in SOP-5228, ADEP Reporting Requirements for Abnormal Events.

5.14 Recovery Plan

The recovery plan is a process to determine actions required to return the facility/area to normal operations. The Recovery Manager will develop the requirements for resuming normal operations. A graded approach to the level of formality should be applied based upon the type of event/incident and hazards involved; extent of damage to facility, equipment, and environment; cause of the emergency/event; and actions required to prevent a re-occurrence. For an off-normal event, the SOM/FL has the authorization to return operations to normal. If the event is considered an emergency event, reentry and return to normal operation **SHALL** be at the discretion of the IC.

5.14 Recovery Plan (continued)

If the Duty Emergency Manager has categorized the emergency as an Operational Emergency, reentry and return to normal operations will be at the discretion of the Emergency Director at the EOSC. The FOD will generally be appointed as the Recovery Manager for returning the facility to normal operations.

When an emergency is over, then the IC will declare that the emergency has ended and direct that the "All Clear" be announced.

- Only the IC may declare an emergency is over
- Each Assembly/Muster area may be released individually
- Some Assembly/Muster areas may be released prior to others if the hazards are localized
- Assembly/Muster area **SHALL** be released only if the release will not endanger personnel or present problems for mitigating the situation

Each event will be evaluated independently for reentry and return to normal operation. Under no circumstances are personnel authorized to reenter the affected area, in an emergency unless given the "All Clear" by the IC.

An off-normal/emergency event **SHALL** not be considered over when an alarm is silenced or acknowledged.

6. WCRRF SPECIFIC REQUIREMENTS

The WCRRF Operations Center is the access control point for entry to WCRRF Building TA-50-69 and WCRRF 50-69 yard.

Assembly/Muster Areas
The Assembly/Muster areas are illustrated on Appendix 4, WCRRF Assembly/Muster Area Locations.

Fire Alarms – WCRRF Building TA-50-69 is equipped with automatic fire suppression and manual pull stations to notify personnel of a fire. The automatic and manual stations are connected to the Digital Alarm Communication System (DACS) which in turn will communicate the alarm with the Central Alarm Station (CAS). There is one DACS panel for Building TA-50-69: Fire Alarm Control Panel DACS 1522 (-1).

Fire alarm manual pull stations are distinctive red metal boxes mounted on walls inside Building TA-50-69. In the event of a fire or explosion, personnel should activate the manual fire alarm pull stations and call 911 and the WCRRF Operations Center at 665-2797, or the Maintenance on Call (MOC) pager 500-6965 (after hours). When an automatic or manual fire manual pull station is activated at WCRRF, the LAFD is automatically notified of the location. The WCRRF Operations Center will notify personnel of the situation using one or more of the communication systems (Public address, two-way radio, e-pagers, cell phones, and/or face to face).

Additional requirements when an off-normal or emergency event occurs:

- If wearing a respirator, do not attempt to remove the respirator until given direction by a RCT.
- If working with classified or sensitive material, and the area is established as a Temporary Limited Area, and if safe to do so, cover up the material prior to exiting the facility, and inform the Assembly/Muster Area Lead and Supervisor of the situation.
- When working in a facility/structure that is designed with a Confinement Ventilation System (e.g., TA-50-69) for the purpose of maintaining a negative differential pressure, employees **SHALL** ensure that one set of personnel airlocks remains closed upon exiting
- If working in a radiological controlled area during an off-normal event, follow the instructions of an RCT.
- During an emergency event, all personnel who may be potentially contaminated should not commingle with other personnel at the Assembly/Muster area prior to being surveyed by an RCT.

7. TA-54 SPECIFIC REQUIREMENTS

TA-54 consists of the TA-54 Administrative Area, and Areas G, H, J, and L. RANT complex is known as TA-54 West RANT and is described in Section 8, RANT Specific Requirements.

The TA-54 Operations Center is the access point for Area G is located at the entrance of the TA-54 Area G Controlled Area TA-54-315, Room 105). The Operations Center is staffed during day shift (0700) to 1730 hours). The Operations Center may be staffed to support after-hour activities as determined by management. The TA-54 Operations Center maintains a phone number for regular business activities at extension 665-2735. When notifying the TA-54 Operations Center of an abnormal/emergency event the following number **665-1288 SHALL** be used. The Operations Center will ensure this phone number receives priority over all other calls.

TA-54 maintains a database of the hazardous constituents contained within the waste at TA-54 Area G. The database is accessible from the Waste Services group and the Information Management group. Emergency Planning and Preparedness maintains Building Run Sheets that contain limited information on hazardous material inventories for the FL/IC and emergency responders.

The fire alarms are zoned into five areas, which operate independently.

TABLE 2, DACS IN TA-54

Zone 1, Fire Alarm Control Panel DACS 6148(-1) (located in 54-48)	Structures 54-48, 54-229, 54-230, 54-231, 54-232, 54-289
Zone 2, Fire Alarm Control Panel DACS 6146(-1) (located in 54-412)	Structure 54-412
Zone 3, Fire Alarm Control Panel DACS 6149(-1) (located in 54-11)	Structures 54-2, 54-11, 54-33, 54-49, 54-153, 54-224, 54-273, 54-283, 54-287, 54-302, 54-321, 54-322, 54-323, 54-375, 54-491, 54-1027, 54-1028, 54-1030, 54-1041,
Zone 4, Fire Alarm Control Panel DACS 6147(-1) (located in 54-51)	Structures 215 (Area L), Admin. Bldgs: 54-22, 54-37, 54-51, 54-60, 54-64, 54-244, 54-245, 54-246, 54-247, 54-290, 54-434, 54-1050,
Zone 5, Fire Alarm Control Panel DACS 6144 (-1), Structure 54-38	Structures 54-38

7. TA-54 SPECIFIC REQUIREMENTS (continued)

Building 54-532 and 54-533 do not have fire alarms. Areas J and H do not possess automated fire alarms systems.

Additional TA-54 requirements during an off-normal or emergency event

- If wearing a respirator, do not attempt to remove the respirator until given direction by the RCT.
- The location of the safe zone may vary depending on whether the event is inside or outside the facility.
- If working in a radiological controlled area during an off-normal event, follow the instructions of an RCT.
- During an emergency event, all personnel who may be potentially contaminated should not commingle with other personnel at the Assembly/Muster area prior to being surveyed by a RCT.
- If working with classified or sensitive material, and the area is established as a Temporary Limited Area, and if safe to do so, cover up the material prior to exiting the facility, and/or inform the Assembly/Muster Area Lead of the situation.
- When working in a facility/structure that is designed as a contamination control enclosure (e.g., TA-54-412 Tent, TA-54-231 PermaCon, and TA-54-375 PermaCon), employees **SHALL** ensure that all doors to the contamination control enclosure remain closed upon exiting.

TA-54 is divided into eight response zones that correspond to locations where the fire alarm was initiated or activated (see Appendix 6). Emergency response zones were developed because of the size of the work areas at TA-54, thus allowing the worker to exit to the nearest upwind Assembly/Muster Area and to provide pertinent information to the TA-54 Operations Center for the zone in which the alarm was activated.

Area G Controlled Area Domes Buildings Structures	Zones I – IV
Area G Operations Center	Zone IV
Main Administrative Area	Zone V
Area L Storage Yard	Zone V
Building 54-532 and 54-533	Zone VI
Area between Area J and Building 54-533	Zone VI
Area J and Area H	Zone VII
Radioassay and Nondestructive Testing Facility (RANT)	Zone VIII

Other Alarms – TA-54 Area G maintains additional alarms (such as Tritium, O2, low flow) in certain areas that warn personnel in the immediate vicinity.

8. RANT SPECIFIC REQUIREMENTS

RANT is equipped with an Evacuation Alarm system that may be activated from several strategic locations in the RANT facility for the purpose of alerting all employees to evacuate to the nearest upwind Assembly/Muster area (see Appendix 9, RANT Assembly/Muster Area Locations). This alarm is not connected to the CAS.

Additional requirements at RANT during an off-normal or emergency event:

- Workers in a facility/structure that is designed with ventilation (e.g., TA-54-38) for the purpose of personnel comfort (heating, cooling) **SHALL** ensure that exterior doors of the facility are closed upon exiting during an off-normal event.
- Alarms are considered actual unless notified by TA-54 Operations Center or Facility Lead.
- Personnel who are trained and qualified to use fire extinguishers may attempt to mitigate small incipient fires.
- If working in a radiological controlled area during an off-normal event, follow the instructions of an RCT.
- During an emergency event, all personnel who may be potentially contaminated should not commingle with other personnel at the Assembly/Muster area prior to being surveyed by an RCT.

Fire Alarm System – RANT Building TA-54-38 is equipped with automatic fire suppression and manual pull stations in the event a fire develops. The automatic and manual stations are connected to Digital Alarm Communication System (DACS) which in turn will communicate the alarm with Central Alarm Station (CAS). There is one DACS panel for Bldg. TA-54-38: Fire Alarm Control Panel DACS 6144 (-1).

Fire alarm manual pull stations are distinctive red metal boxes mounted about 4 feet above the ground on walls inside Building TA-54-38. In the event of a fire or explosion, personnel should activate the manual fire alarm pull stations and notify 911 and call either the TA-54 Operations Center at **665-1288**, or the Maintenance on Call (MOC) pager **500-6965** (after hours). The TA-54 Operations Center maintains a phone number for regular business activities at extension **665-2735**. When an automatic or manual pull station is activated at RANT, the LAFD is automatically notified of the location. The TA-54 Operations Center will notify personnel of the situation using one or more communication systems (Public address, two-way radio, e-pagers, cell phones, and/or face to face).

9. TA-21 SPECIFIC REQUIREMENTS

TA-21 is a secured and locked area. Access and work activities are controlled through the TA-64 Operations Center. Any work conducted at TA-21 will be performed under an approved Integrated Work Document (IWD). The IWD at a minimum **SHALL** identify the following requirements for personnel entering and/or conducting work activities at TA-21:

- Assembly/Muster station locations
- Process for accountability of personnel in an abnormal/emergency event
- Type of communications systems (e.g., two-way radio, cell phones)

The following types of activities are conducted at TA-21 under an approved IWD

- Maintenance of lights on water towers
- PMIs
- Stormwater/Pollution Prevention
- Vegetation control
- Water/Air Quality activities

10. NES SPECIFIC REQUIREMENTS

Any work conducted at Nuclear Environmental Sites will be under an approved Integrated Work Document (IWD). The IWD at a minimum **SHALL** identify the following requirements for personnel entering and/or conducting work activities at NES:

- Assembly/Muster station locations
- Process for accountability of personnel in an abnormal/emergency event
- Type of communications systems (e.g., two-way radio, cell phones)

11. TRAINING

Workers will be trained to the information in this BEP as determined by analysis to be commensurate with their job, access, and duty requirements.

12. RECORD PROCESSING

None

13. REFERENCES

EP-DIV-DOP-0102, EWMO RCRA Inspections

P101-7, Vehicles and Pedestrian Safety

P102-2, Occupational Injury and Illness reporting and Investigation

P201-3, Reporting Known and Potential Incidents of Security Concern

P315, Conduct of Operations Manual

P322-3, Performance Improvement for Abnormal Events

P724, Workplace Violence

P1201-4, LANL Emergency Procedures and Protective Actions

SOP-5228, ADEP Reporting Requirements for Abnormal Events

APPENDIX 1
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DEFINITIONS AND ACRONYMS

Definitions

Assembly Muster Station – A designated rallying point away from the work area equipped with communication equipment and first aid supplies. Personnel evacuate to the upwind Assembly/Muster areas in response to emergency situations.

Chain of Command – The chain of command is the formal process of establishing authority to manage an off-normal or emergency event.

Controlled Area – Any area to which access is controlled in order to limit access of the general public to radiation and radioactive materials. A Controlled Area is an area in which elevated radiation and/or contamination levels may exist as a consequence of routine or non-routine site operations.

Emergency Management & Response – A Laboratory organization tasked with directing and coordinating response actions to emergencies throughout the Laboratory.

Emergency Management Group – A Laboratory organization tasked with directing and coordinating response actions to emergencies throughout the Laboratory.

Emergency Operations and Support Center – LANL's Emergency Operations Center (EOC) runs the 24/7 Emergency Operations Support Center staffed by communications specialists and on-call emergency managers, LANL personnel can call the Center for assistance with or information about all non-life-threatening situations that involve off-normal or unusual circumstances.

Facility Leader – The FL is the TA-54 Facility person in charge of emergency operations until transferred to the incoming IC.

First Responder at the Awareness Level – The first person to become aware of an abnormal/emergency event.

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DEFINITIONS AND ACRONYMS

Incident Commander – A trained and qualified emergency professional from emergency management, SOC Los Alamos (the Laboratory's protective force), Los Alamos County Fire Department, Los Alamos County Police Department, or other federal authority having jurisdiction that takes command and control of the event.

Stay-Put – The type of sheltering utilized most often by the LANL population is stay-put sheltering. Stay-put sheltering is the protective action used during non-hazardous material events. This protective action calls for personnel to move or remain indoors due to an event that puts personnel in harm's way outside. The SOM/FL or IC will make the decision to Stay-Put.

Shelter-in-Place – A protective action taken by personnel to isolate themselves from a hazard.

Spill – An intentional or unintentional release of oil, PCBs, liquid hazardous substances, or liquid radioactive substances to the environment that is not permitted under Laboratory, state, or federal permits.

APPENDIX 1
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DEFINITIONS AND ACRONYMS

Technical Area 54 – Technical Area 54 is comprised of process and administrative support areas. Contained in TA-54 are the following Area G, H, J, L, 54 Administrative areas, and RANT complex.

Visitor – Any individual, including Laboratory employees or subcontractors, who requires access to RANT but does not have authorized access to the specific area he/she wishes to enter.

Acronyms

A/MAL	Assembly/Muster Area Lead
BEP	Building Emergency Plan
CAM	Continuous Air Monitor
CAS	Central Alarm Station
EO-EM	Emergency Operations and Emergency Management
EOSC	Emergency Operations and Support Center
EWMO	Environmental Waste Management Organization
FL	Facility Leader
FOD	Facility Operations Director
IC	Incident Commander
IS&H	Industrial Safety and Hygiene
LAFD	Los Alamos Fire Department
LAPD	Los Alamos Police Department
LTP	LANL TRU Programs
NES	Nuclear Environmental Sites
OCO	Operations Center Operator
OM	Operations Manager
PA	Public Address
RANT	Radioassay and Nondestructive Testing Facility
RCT	Radiological Control Technician
SIP	Shelter in Place
SP	Stay-Put
SOM	Shift Operations Manager
SWANS	Site Wide Alert Notification System
TA	Technical Area
WCRRF	Waste Characterization, Reduction, and Repackaging Facility

APPENDIX 2
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SITE WIDE AREA NOTIFICATION SYSTEM (SWANS)

Radio Instructions

The Site Wide Area Notification System (SWANS) Radio is a LANL-wide emergency radio system for the purpose of back-up communications, in the event normal communications protocols are diminished or not available. Emergency Operations and Emergency Management (EO-EM) monitors the SWANS frequency during normal working hours. The Central Alarm Station (CAS) monitors the frequency continuously.

WARNING

Do not use the SWANS Radio instead of calling 911. Always call 911 first if needed.

To Contact Emergency Operations and Support Center

[1] **TURN** up the volume.
[2] **DEPRESS** the Push-To-Talk button.
[3] **SPEAK** after the solid tone ends.
[4] **SAY**, "EOSC, EOSC, this is [*your name*] at TA-__, Building____."
[5] **LET GO** of the Push-To-Talk button to hear response.
[6] **IF** evacuation to an Assembly/Muster area is necessary,
THEN the Operations Center will take the SWANS radio.

Daily Monitoring with the SWANS Radio (Operations Center)

[1] **LEAVE** radio turned on and sitting in charger and on Channel 1.
[2] **ENSURE** the volume is turned up enough to hear radio traffic.
[3] **IF** you receive an alert tone (4 beeps, pause, 4 beeps, continuously)
THEN:
  [A] **PRESS** the Push-To-Talk button to stop the alert tone.
  [B] **TURN** the volume up.
  [C] **FOLLOW** the directions that are given on the radio.
  [D] **RELAY** message as applicable.
  [E] **IF** your building or organization is addressed directly,
  THEN respond immediately.
[4] **IF** you return to the office and hear an alert tone,
THEN:
  [A] **PRESS** the Push-To-Talk button to stop the alert tone.
  [B] **CONTACT** EOSC by radio or phone (7-6211).
  [C] **INFORM** EO-EM the alert tone was sounding on your radio, and they will relay the alert tone message.

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Radio Testing Instructions

Use of the Orange Panic Button

If the orange panic button located on the top of the radio is pushed, EOSC will try to call you on the radio. If there is no response, EOSC will try to call you on the phone. If there is still no response, the duty Emergency Manager will respond to your location.

Testing and Maintenance

[1] **PERFORM** a radio check once a week by calling EOSC and saying, "TA--- _____Facility to EOSC, radio check"

[2] **CALL** EOSC at 7-6211 if you have any problems with the radio. (A warbling tone may indicate the battery is failing)

[3] **IF** you are getting excessive static or poor reception,
THEN notify EOSC so a test can be run.

WARNING

Use the orange panic button for extreme emergency only.

Two-Way Radio Instructions

[1] **TURN** the radio on.

[2] **SWITCH** the radio to Channel 1.

[3] **PRESS** the button on the side of the radio to transmit.

[4] **ESTABLISH** contact with the Operations Center. Speak slowly and clearly.

[5] **IF** you do not receive an immediate response,
THEN remain calm and **REPEAT** steps [3] and [4].

[6] **WHEN** contact is established,
THEN transmit your name and location AND **WAIT** for the Operations Center to ask for additional information.

[7] **UPON** request from the Operations Center,
THEN transmit the names and condition of personnel at your location. Only relevant and essential information should be given.

APPENDIX 3
Page 1 of 1

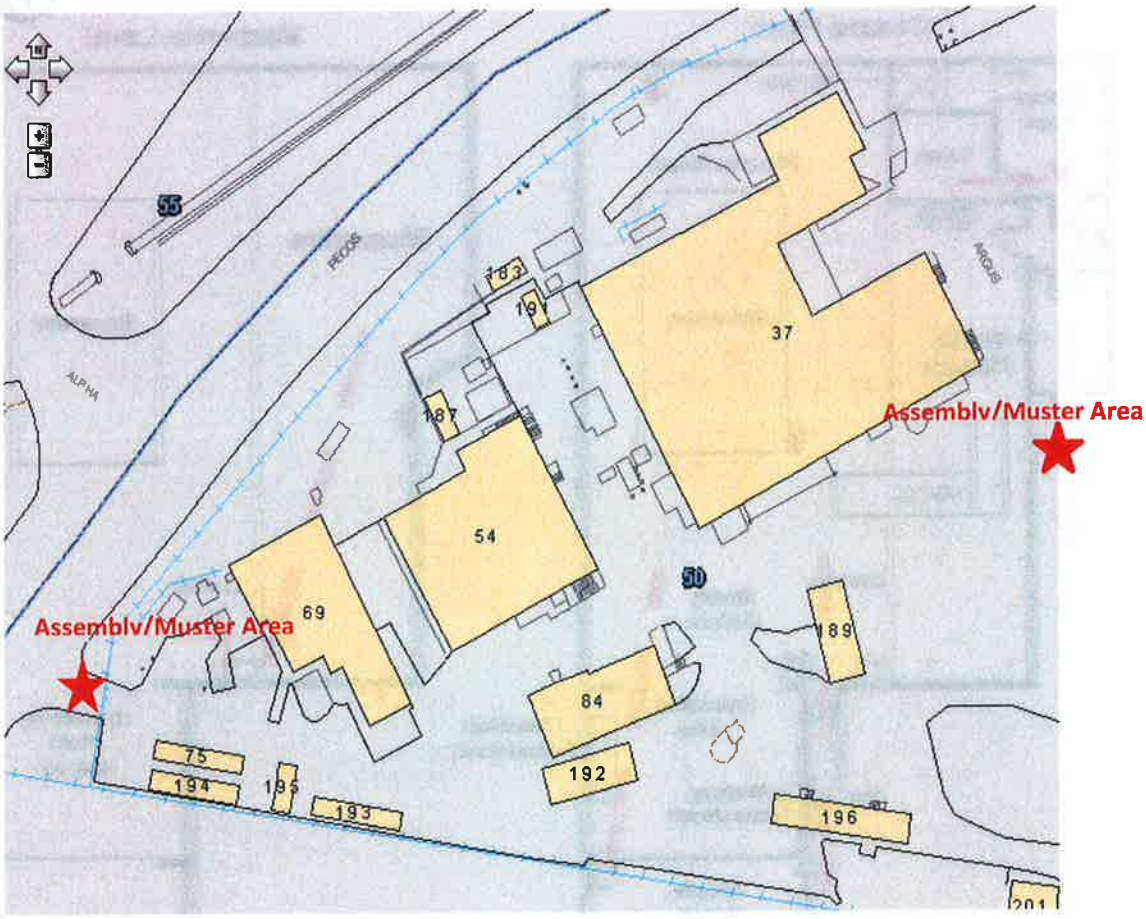
WCRRF TA-50-69 EMERGENCY CONTACT LIST

Organizations
Emergency Operations Support Services 7-6211
Engineering
Environmental
EWMO FOD
Fire/Ambulance
Fire Protection Engineer
Industrial Safety/Hygiene
Maintenance Manager
On-call list
Occupational Medicine Nurse's Station
Operations Manager
Radiation Protection
RP Supervisor
Security
Shift Operations Manager
Site Services Subcontractor (EnergySolutions)
Transportation
Utilities
Waste Coordinator
*Surrounding facilities contacts

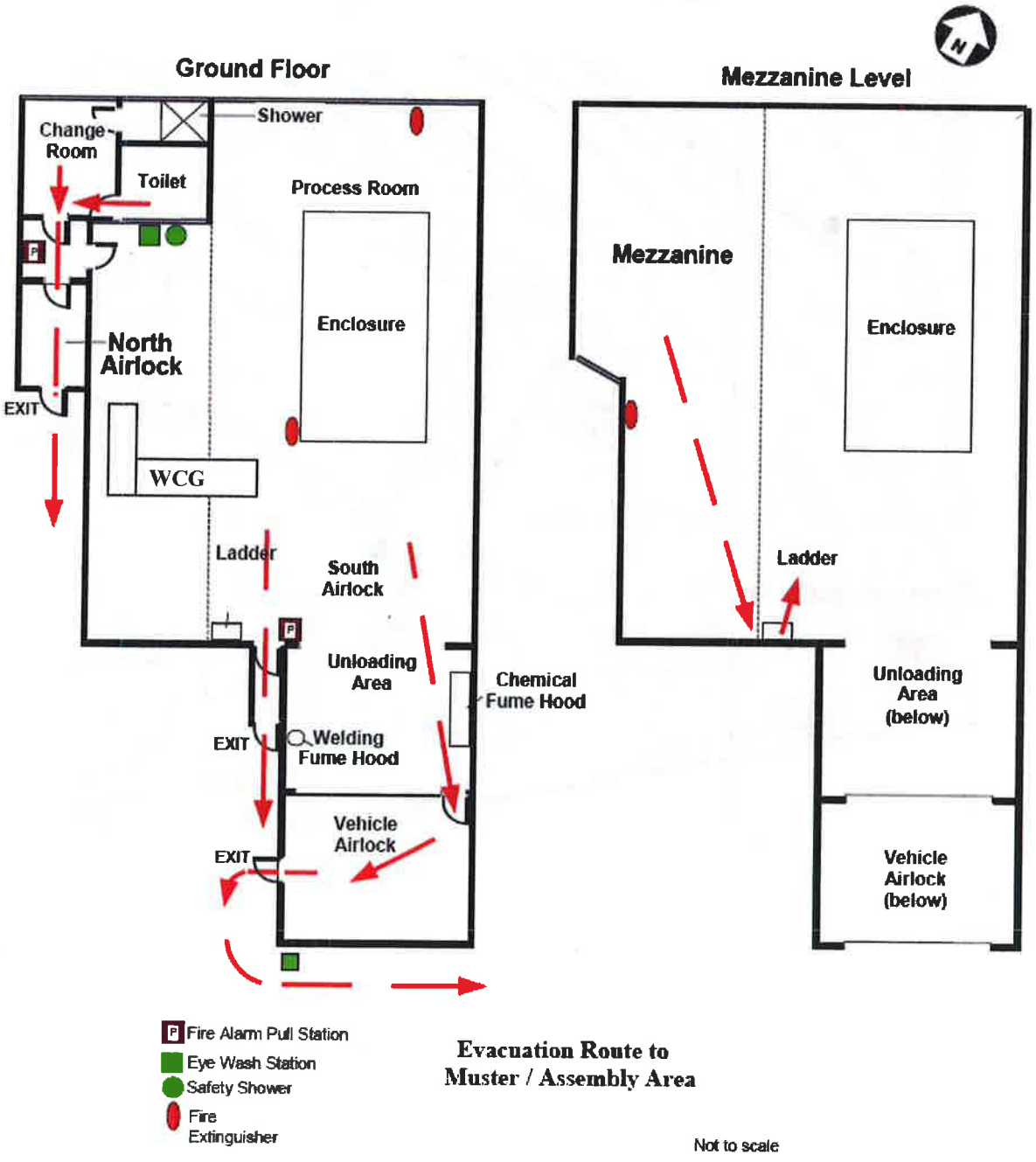
* Identify surrounding facilities for performing notifications of an off-normal/emergency event

APPENDIX 4
Page 1 of 2

WCRRF ASSEMBLY/MUSTER AREA LOCATIONS



APPENDIX 4
Page 2 of 2



APPENDIX 5
Page 1 of 2

TA-54 AND RANT EMERGENCY CONTACT LIST

Organizations
Emergency Operations Support Services 7-6211
Engineering
Environmental
EWMO FOD
Fire Protection Engineer
Fire/Ambulance
Industrial Safety/Hygiene
Maintenance Manager
On-call list
Occupational Medicine Nurse's Station
Operations Manager
Radiation Protection
RP Supervisor
Security
Shift Operations Manager
Shift Operations Supervisor
Transportation
Utilities
Waste Coordinator
LTP-SOS
HMLW
Site Services Contractor
Operations Center SOS
*Surrounding facilities contacts

* Identify surrounding facilities for performing notifications of an off-normal/emergency event

APPENDIX 5
Page 2 of 2

TA-54 AND RANT EMERGENCY CONTACT LIST

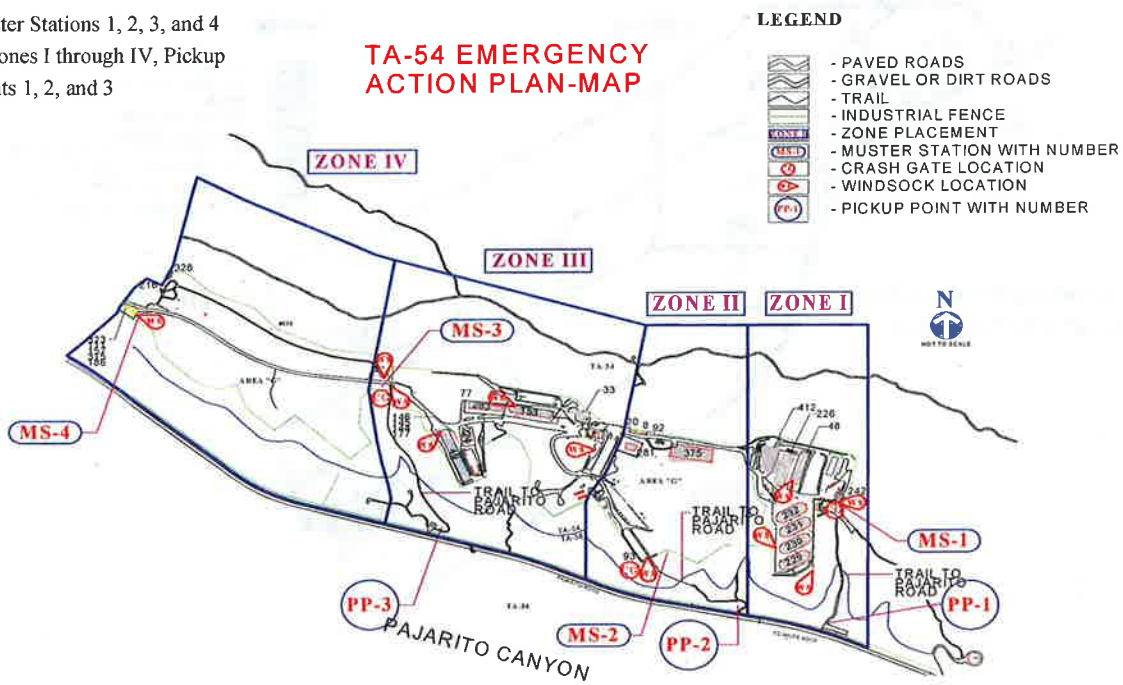
Organizations
Emergency Operations Support Services 7-6211
Engineering
Environmental
EWMO FOD
Fire/Ambulance
Fire Protection Engineer
Industrial Safety/Hygiene
Maintenance Manager
On-call list
Occupational Medicine Nurse's Station
Operations Manager
Radiation Protection
RP Supervisor
Security
Shift Operations Manager
Shift Operations Supervisor
Transportation
Utilities
Waste Coordinator
*Surrounding facilities contacts

* Identify surrounding facilities for performing notifications of an off-normal/emergency event

APPENDIX 6
Page 1 of 2

TA-54 ZONE BORDERS, PICKUP POINTS, AND ASSEMBLY/MUSTER AREA LOCATIONS

Muster Stations 1, 2, 3, and 4 in Zones I through IV, Pickup Points 1, 2, and 3



APPENDIX 6
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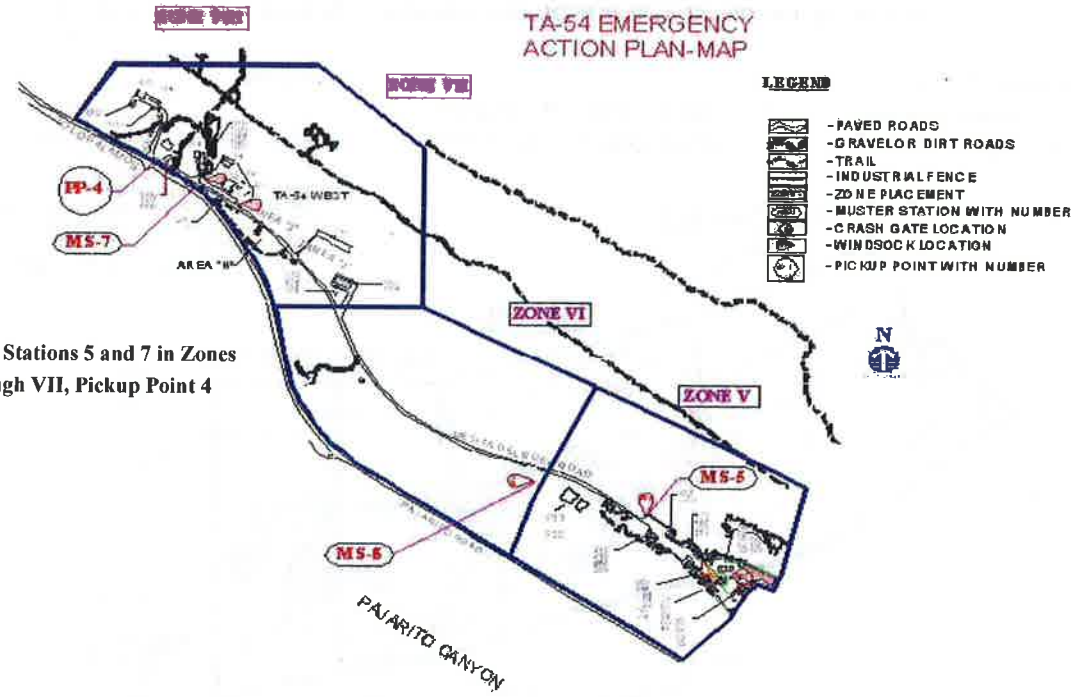
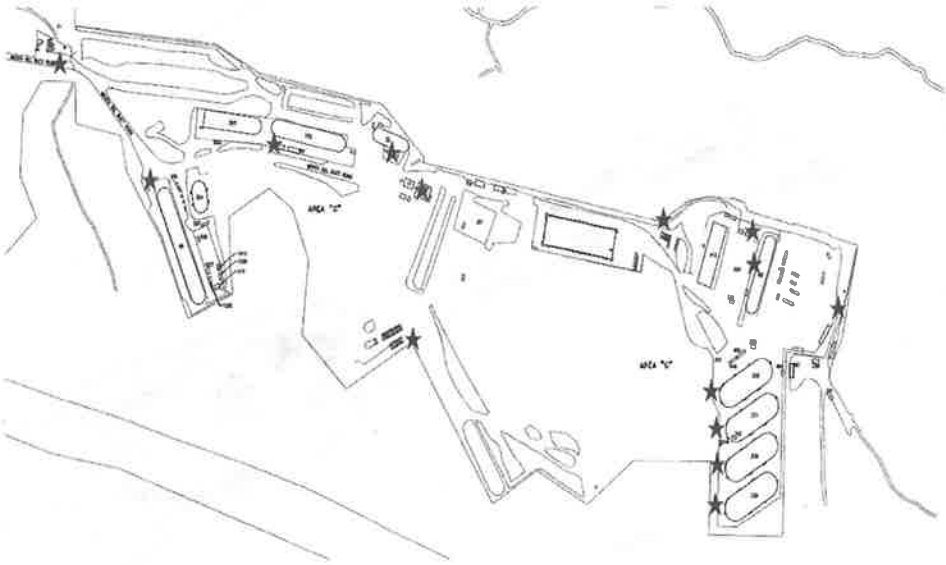


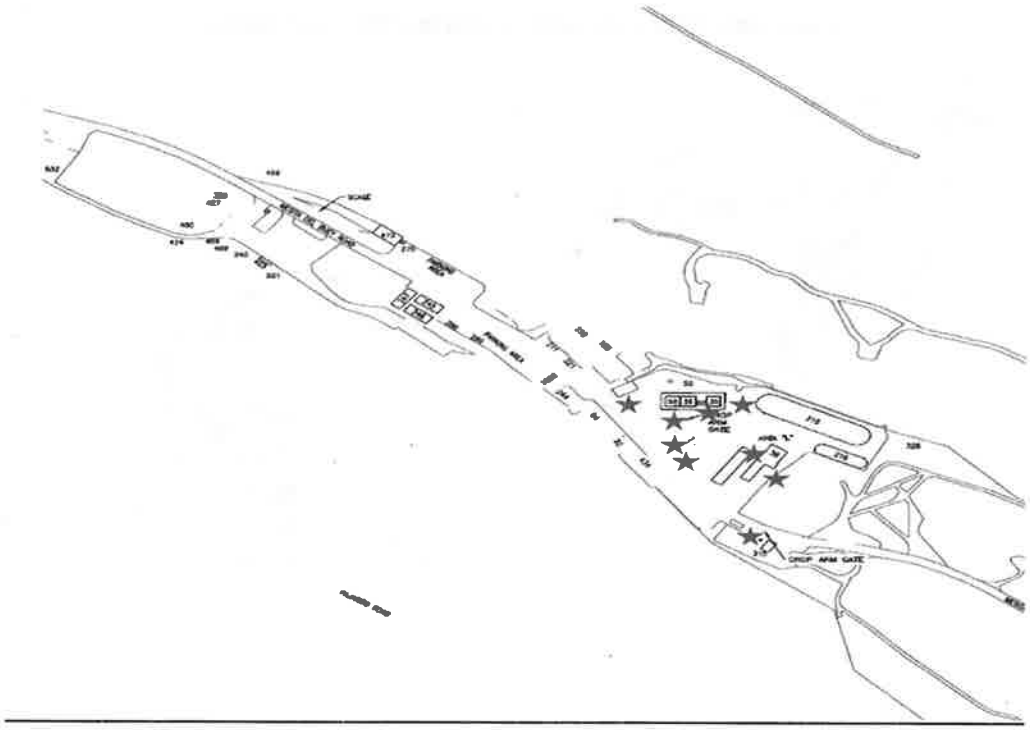
Muster Stations 5 and 7 in Zones V through VII, Pickup Point 4

APPENDIX 7
Page 1 of 2

TA-54 AREA G EVACUATION ALARM BUTTON LOCATIONS

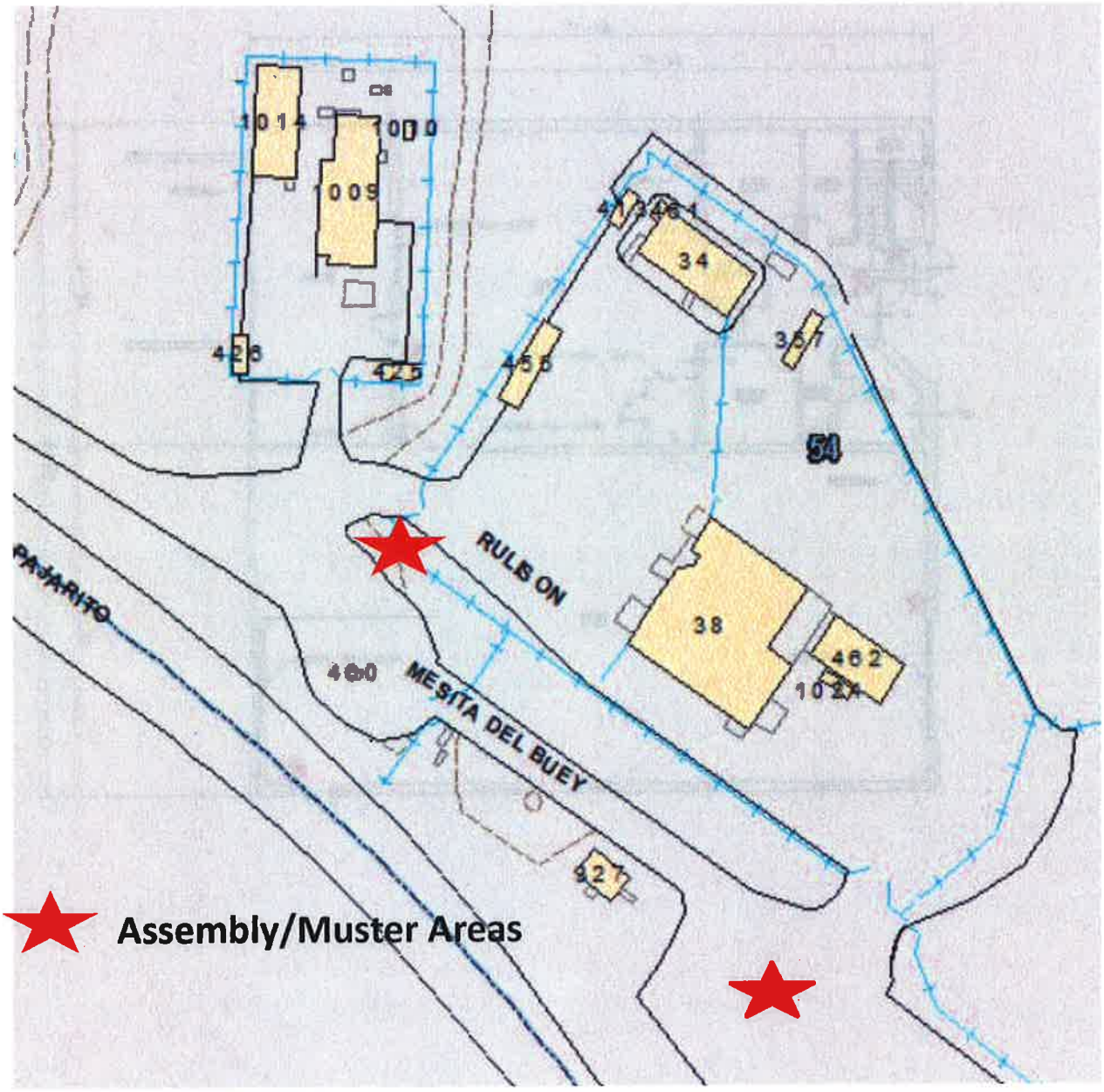


APPENDIX 7
Page 2 of 2



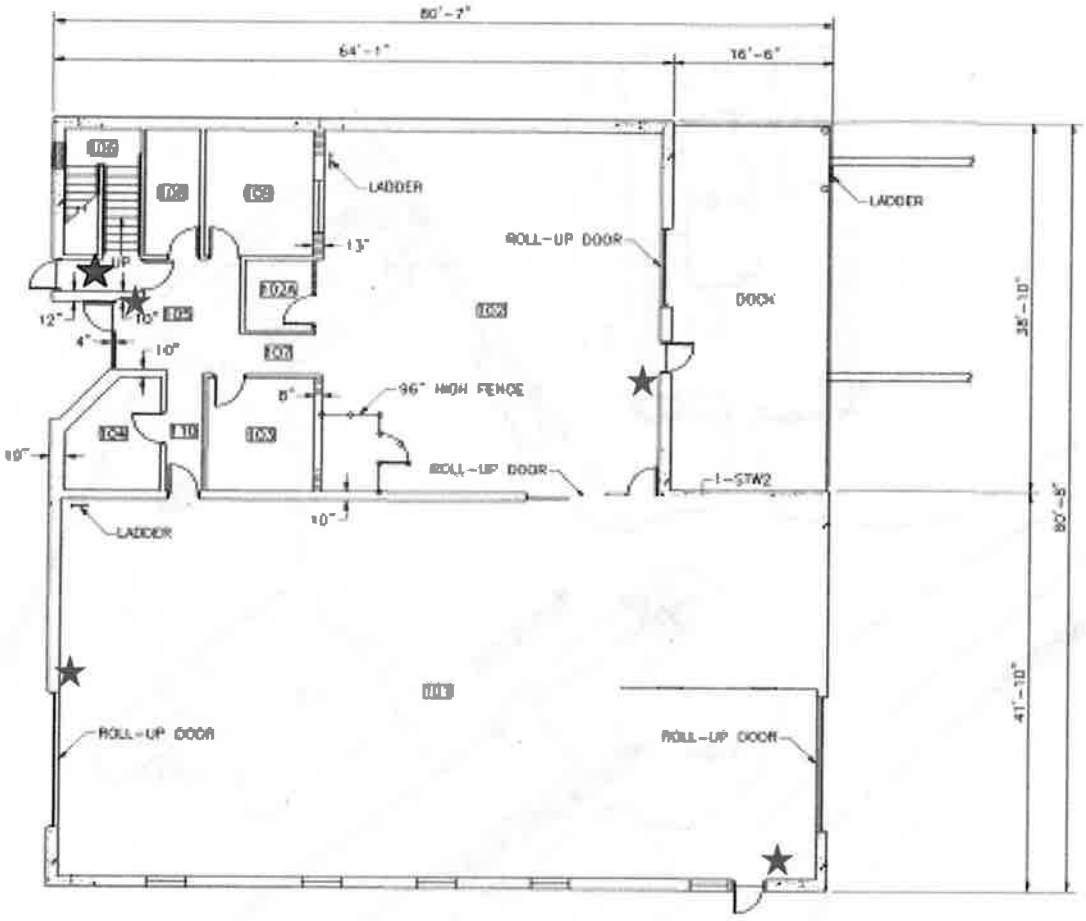
APPENDIX 8
Page 1 of 1

RANT ASSEMBLY/MUSTER AREA LOCATIONS



APPENDIX 9
Page 1 of 1

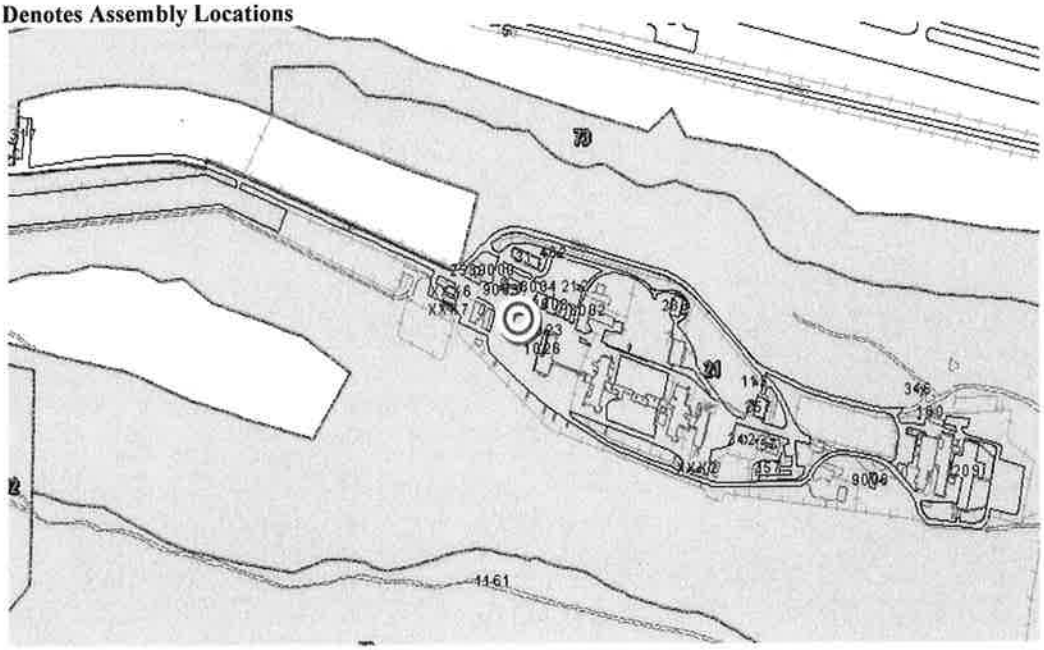
RANT EVACUATION ALARM BUTTON LOCATIONS



APPENDIX 10
Page 1 of 1

TA-21 ASSEMBLY AREA LOCATIONS

◎ - **Denotes Assembly Locations**



Attachment 7

EP-DIV-RM-ERP-20200, R.0

EWMO Area Emergency Response

Effective Date: 12/09/13

The Responsible Manager has determined that the following organizations' review/concurrence is required for the initial document, and for major revisions a same type and level review is required. Review documentation is contained in the Document History File:

Emergency Operations
Engineering
IH&S
Operations Managers
Quality Assurance
Radiation Protection
Shift Operations Managers

Responsible Manager, EWMO Facility Operations Director

Steve M. Henry	/ 219172	/ /s/ Andy Baumer for	/ 12/04/13
Name (print)	Z#	Signature	Date

Classification Review: ☐ N/A ☒ Unclassified ☐ UCNI ☐ Classified _____

Art Crawford	/ 080070	/ /s/ Art Crawford	/ 12/05/13
Name (print)	Z#	Signature	Date

Working Copy / Information Only (circle one)
Initials / Date: _____ / _____

LA-UR-14-23782

1.0 ENTRY CONDITIONS

- Request is made for Emergency Response Personnel support
- Visual observation of a Fire, smoke
- Audible fire alarm
- Manual fire pull station activated
- Serious personnel injury (job related)
- Utility (water, gas, electricity) outages or leaks (water, fuel, sewer, oil) with significant impact to the facility or the environment
- Situations where the likely potential for involvement of more than one emergency response elements

2.0 IMMEDIATE RESPONSE ACTIONS

√	Time/Date	#	ACTIONS
Operations Center			
		2.1	**ENSURE** personnel have completed the Emergency Response in accordance with EWMO-DIV-BEP-20048, Building Emergency Plan, and **OBTAIN** incident information from the caller. (e.g., location, inside/outside building/structure). Narrative/Comments:
		2.2	**NOTIFY** personnel of incident. (e.g., Public address, 2-way radio, E-Pagers, cell phones, and face to face)
		2.3	**NOTIFY** the Shift Operations Manager/Facility Lead (SOM/FL). Name:_____
NOTE			*The following steps may be performed out of sequence.*
		2.4	**ENSURE** that Emergency Operations and Support Center (7-6211), Fire Department, and/or 911 was notified.

2.0 IMMEDIATE RESPONSE ACTIONS (continued)

√	Time/Date	#	ACTIONS
		2.5	**PERFORM** accountability of the personnel in affected area.
		2.6	**DISPATCH** a Nuclear Operator/Waste Handler to meet the Emergency Response vehicles and **OPEN** access gates if safe to do so.
		2.7	**NOTIFY** the support personnel to assist Shift Operations Manager. (e.g., Environmental, Safety and Health)
Shift Operations Manager/Facility Lead			
NOTE			*When the Operations Manager is not physically present and/or on shift, the SOM will conduct the minimum notifications up the chain of command (e.g., FOD, ES&H Manager, and Project Manager).*
		2.8	**NOTIFY** the applicable Operations Manager of the event, and **REQUEST** the Operations Manager to conduct the minimum notifications (e.g., FOD, ES&H Manager and Project Manager).
		2.9	**BRIEF** support personnel and the emergency responders upon arrival to incident site.
		2.10	**CONDUCT** formal transfer of command and control to the Incident Commander (IC).
		2.11	**ENSURE** EWMO support team is available to assist IC as necessary.

3.0 SUBSEQUENT ACTIONS

Shift Operations Manager/Facility Lead			
√	Time/Date	#	**ACTIONS**
		3.1	**ENSURE** a formal transfer of command and control from IC is performed once the emergency has been downgraded.
Operations Center			
		3.2	**IF** actions were developed after transfer from IC, **THEN IMPLEMENT** actions to return area/operations to normal. Actions:
		3.3	**PROCESS** the procedure as a quality record in accordance with EP-DIR-AP-10003, Records Management Procedure For ADEP Employees.

Narrative/Comments:

Completed By:

Printed Name	Signature	Z#	Date/Time

Attachment 8

Discovery of an Airborne, Liquid, and/or Solid Material Release or Spill

Effective Date: 12/9/2013

The Responsible Manager has determined that the following organizations' review/concurrence is required for the initial document, and for major revisions a same type and level review is required. Review documentation is contained in the Document History File:

Engineering
IH&S
Operations Managers
Quality Assurance
Radiation Protection
Shift Operations Managers

Responsible Manager, EWMO Facility Operations Director

Steve M. Henry	/ 219172	/ /s/ Andy Baumer 234651 for SMH	/ 12/3/13
Name (print)	Z#	Signature	Date

Classification Review: ☐ N/A ☒ Unclassified ☐ UCNI ☐ Classified _____

Teri Tingey	/ 200975	/ /s/ Teri Tingey	/ 12/3/13
Name (print)	Z#	Signature	Date

Working Copy / Information Only (circle one)
Initials / Date: _____/_____

LA-UR-14-23781

1.0 ENTRY CONDITIONS

- Discovery of airborne, liquid, and/or solid material release
- Uncontrolled release of hazardous and/or radioactive material into the environment
- Hazardous material release or spill in an area that does not possess controls to mitigate the consequences
- Strong chemical odor (e.g., acid, ammonia, liquefied petroleum, gasoline)

2.0 IMMEDIATE RESPONSE ACTIONS

√	Time/Date	#	ACTIONS
Operations Center			
		2.1	**ENSURE** personnel have completed the Off-Normal Response in accordance with EWMO-DIV-BEP-20048, Building Emergency Plan and **OBTAIN** incident information from the caller (e.g., location, odor, gas, liquid, amount, inside/outside building/structure). Narrative/Comments:
		2.2	**NOTIFY** personnel of incident. (e.g. Public address, 2-way radio, E-Pagers, cell phones, and face to face)
		2.3	**NOTIFY** the Shift Operations Manager/Facility Lead (SOM/FL). Name:_____
	NOTE *The following steps may be performed out of sequence.*		
		2.4	**NOTIFY** the support personnel to assist Shift Operations Manager. (e.g., Environmental, Safety, and Health)

2.0 IMMEDIATE RESPONSE ACTIONS (continued)

√	Time/Date	#	ACTIONS
Shift Operations Manager/Facility Lead			
	NOTE		*When the Operations Manager is not physically present and/or on shift, the SOM will conduct the minimum notifications up the chain of command (e.g., FOD, ES&H Manager, and Project Manager).*
		2.5	**NOTIFY** the applicable Operations Manager of the event, and **REQUEST** the Operations Manager to conduct the minimum notifications (e.g., FOD, ES&H Manager and Project Manager).
		2.6	**CONDUCT** information gathering, such as the following applicable items: • Container number and contents • Inside/outside facility structure • Location and amount • Spills or release • Temporary Limited Area • Weather conditions
		2.7	**DETERMINE** and **EVALUATE** the incident to develop actions as applicable.
		2.8	**IF** Emergency Response Personnel are required, **THEN GO** to EP-DIV-RM-ERP-20200, EWMO Area Emergency Response and **EXIT** this procedure as necessary.

3.0 SUBSEQUENT ACTIONS

Operations Center			
		3.1	**IF** actions were developed, **THEN IMPLEMENT** actions to return area/operations to normal. Actions:
		3.2	**PROCESS** the procedure as a quality record in accordance with EP-DIR-AP-10003, Records Management Procedure For ADEP Employees.

Narrative/Comments:

Completed By:

Printed Name	Signature	Z#	Date/Time

Attachment 9

Waste Container Questionable Integrity

Effective Date: 12/9/2013

The Responsible Manager has determined that the following organizations' review/concurrence is required for the initial document, and for major revisions a same type and level review is required. Review documentation is contained in the Document History File:

Engineering
IH&S
Operations Managers
Quality Assurance
Radiation Protection
Shift Operations Managers

Responsible Manager, EWMO Facility Operations Director

Steve M. Henry	/ 219172	/ /s/ Andy Baumer 234651 for SMH	/ 12/3/13
Name (print)	Z#	Signature	Date

Classification Review: ☐ N/A ☒ Unclassified ☐ UCNI ☐ Classified _____

Teri Tingey	/ 200975	/ /s/ Teri Tingey	/ 12/3/13
Name (print)	Z#	Signature	Date

Working Copy / Information Only (circle one)
Initials / Date: _____/_____

LA-UR-14-23782

1.0 ENTRY CONDITIONS

- Visual indication of a fallen/dropped waste container
- Visual inspection of a waste container indicates an unanticipated loss of waste container integrity (e.g., missing or broken filter, puncture, corrosion, missing drum locking ring, external contamination
- Visual indication of a bulging waste drum
- Visual indication of a bulging inner waste drum

2.0 IMMEDIATE RESPONSE ACTIONS

√	Time/Date	#	ACTIONS
Operations Center			
		2.1	**ENSURE** personnel have completed the Off-Normal Response in accordance with EWMO-DIV-BEP-20048, Building Emergency Plan and **OBTAIN** incident information from the caller (e.g., location, position, container information, visual damage to exterior of container, leaking, personnel injury, inside/outside building/structure). Narrative/Comments:
		2.2	**NOTIFY** personnel of incident. (e.g., Public address, 2-way radio, E-Pagers, cell phones, and face to face)
		2.3	**NOTIFY** the Shift Operations Manager/Facility Lead (SOM/FL). Name:_____

2.0 IMMEDIATE RESPONSE ACTIONS (continued)

√	Time/Date	#	ACTIONS
	NOTE		*The following steps may be performed out of sequence.*
		2.4	**NOTIFY** the support personnel to assist Shift Operations Manager. (e.g., Environmental, Safety and Health, Engineering, Waste Coordinator, and Security)
Shift Operations Manager/Facility Lead			
	NOTE		*When the Operations Manager is not physically present and/or on shift, the SOM will conduct the minimum notifications up the chain of command (e.g., FOD, ES&H Manager, and Project Manager).*
		2.5	**NOTIFY** the applicable Operations Manager of the event, and **REQUEST** the Operations Manager to conduct the minimum notifications (e.g., FOD, ES&H Manager and Project Manager).
		2.6	**CONDUCT** information gathering, such as the following applicable items: • Container number and contents • Spills/release • Temporary Limited Area • Weather conditions
		2.7	**DETERMINE** and **EVALUATE** the incident to develop actions in accordance with the applicable compliance documents (e.g., Safety Basis, RCRA, Radiation Protection).
		2.8	**IF** Emergency Response Personnel are required, **THEN GO** to EP-DIV-RM-ERP-20200, EWMO Area Emergency Response and **EXIT** this procedure as necessary.

3.0 SUBSEQUENT ACTIONS (continued)

√	Time/Date	#	ACTIONS
Operations Center			
		3.1	**IF** actions were developed, **THEN IMPLEMENT** actions to return area/operations to normal. Actions:
		3.2	**PROCESS** the procedure as a quality record in accordance with EP-DIR-AP-10003, Records Management Procedure For ADEP Employees.

Narrative/Comments:

Completed By:

Printed Name	/ Signature	/ Z#	/ Date/Time

Attachment 10

STANDING ORDER

1. Standing Order Number: EP-AREAG-SO-1247, R.0

2. Standing Order Type: (check one) ☐ **Division** ☒ **Facility**

3. Applicable Facilities: TA-54 Area G

4. Standing Order Title: TA-54 Area G Domes TA-54-231 and TA-54-375 PermaCon Access Restrictions

5. Distribution List: (By Functional Title)

TA-54 Timely Order Book and Environmental Programs (EP) Document Control

6. Approval:

Gail Welsh	/s/ Gail Welsh	5/28/14
Print name	Signature	Date

(Approval Authority for division-level standing orders is the FOD, for facility-level, the OM or designee.)

Standing Order Effective Date: 5/29/2014

Convert this Standing Order to a procedure? ☐ Yes, by _____ (Date) ☒ No

7. Purpose:

This standing order restricts access to the PermaCons in Domes TA-54-231 and TA-54-375 to prevent workers from coming into unnecessary contact with the waste containers.

8. Actions and Duration:

8.1 Requirement

Shift Operations Manager (SOM) approval is required to access the PermaCons in Domes TA-54-231 and TA-54-375, except for inspections performed in accordance with EP-AREAG-FO-DOP-1246, Nitrate Salt-bearing TRU Waste Container Monitoring.

Appendix 1, Restricted Access to PermaCon, **SHALL** be posted on the outside of each access door of the PermaCons in Domes TA-54-231 and TA-54-375, instructing personnel to obtain SOM approval before entering the PermaCon, unless they are performing EP-AREAG-FO-DOP-1246.

8.2 Duration

This standing order will remain in effect until cancelled or superseded.

9. Unreviewed Safety Question (USQ) Review:

USQ process complete? ☒ Yes ☐ N/A

USQ No. (if applicable): AREAG-14-278-S

If "N/A" is checked, then justify below:

USQ Qualified Evaluator (QEV)

Art Crawford	/s/ Art Crawford	5/28/14
Print name	Signature	Date

10. Derivative Classifier Review:

This document was reviewed to ensure proper classification and is classified as:

☒ Unclassified ☐ Unclassified Controlled Nuclear Information (UCNI)

☐ Official Use Only (OUO) ☐ Classified

NOTE: If this document is OUO, UCNI, and/or classified, add the appropriate markings, distribution limitation statement, and guidance data block(s).

Derivative Classifier (DC)

Art Crawford	/s/ Art Crawford	5/28/14
Print name	Signature	Date

11. Standing Order Cancellation:

Choose one of the following: ☐ USQ complete ☐ N/A

USQ No. (if applicable): _____

Responsible Manager (FOD for division-level standing orders, OM or designee for facility-level)

Print name	Signature	Date

(Attach Attachment 2, Timely Order Reviewer Signoff Sheet, to document reviews of this standing order.)

Appendix 1

RESTRICTED ACCESS TO PERMACON

Obtain Shift Operations Manager (SOM) approval before entering the PermaCon.

Exception: Authorized personnel may perform waste container inspections in accordance with EP-AREAG-FO-DOP-1246, Nitrate Salt-bearing TRU Waste Container Monitoring, without prior SOM approval.