LA-UR-20-29874
Approved for public release; distribution is unlimited.

Title: Flanged Tritium Waste Containers Waste Characterization Information for Container FTWC-227

Author(s): Kelly, John C.

Intended for: Report

Issued: 2020-12-01

Disclaimer:
Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by Triad National Security, LLC for the National Nuclear Security Administration of U.S. Department of Energy under contract 89233218CNA000001. By approving this article, the publisher recognizes that the U.S. Government retains nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

Flanged Tritium Waste Containers

Waste Characterization
Information for
Container FTWC-227

December 1, 2020

Managed by Triad National Security, LLC for the U.S. Department of Energy's NNSA

Abstract

The following information packages present the radiological data as well as physical properties of the four Flanged Tritium Waste Containers currently stored at TA-54, Area G. Also included are summaries of the contents of each container (including waste logs) as well as photographs of the inner and outer portions of each container.

FTWC 227

Tritium curies	24,100

per year decay fraction for tritium	0.94531
Ci/gram	9619

		Duration years	Tritium curies
Start Date	Jun-07		24,100
Target date	Jan-11	3.52	19,770
	Feb-11	3.60	19,677
	Mar-11	3.69	19,585
	Apr-11	3.77	19,494
	May-11	3.85	19,403
	Jun-11	3.94	19,312
	Jul-11	4.02	19,222
	Aug-11	4.10	19,132
	Sep-11	4.19	19,042
	Oct-11	4.27	18,953
	Nov-11	4.35	18,865
	Dec-11	4.44	18,776
	Jan-12	4.52	18,689
	Feb-12	4.60	18,601
	Mar-12	4.69	18,514
	Apr-12	4.77	18,428
	May-12	4.85	18,341
	Jun-12	4.94	18,256
	Jul-12	5.02	18,170
	Aug-12	5.10	18,085
	Sep-12	5.19	18,001
	Oct-12	5.27	17,917
	Nov-12	5.35	17,833
	Dec-12	5.44	17,749
	Jan-13	5.52	17,666
	Feb-13	5.60	17,584
	Mar-13	5.69	17,502
	Apr-13	5.77	17,420
	May-13	5.85	17,338
	Jun-13	5.94	17,257
	Jul-13	6.02	17,177
	Aug-13	6.10	17,096
	Sep-13	6.19	17,016
	Oct-13	6.27	16,937
	Nov-13	6.35	16,858
	Dec-13	6.44	16,779

ATTACHMENT B. TSE MODERATE/HIGH-ACTIVITY TRITIUM-CONTAMINATED WASTE LOG

Circle one: Type A (< 500 Ci/container) Type A (< 1080 Ci) Type B (> 1080 Ci) Non Compliant

Container ID #: WETF-FTWC-227 Pre-Inspection: (signature) Wind Rumpf Date: 6/27/07

Container Description/Model/Type: Flanged Tritium Waste Container (FTWC)

Container Barcode #: 2337236

Container Capacity (m³): .195

Tare Weight: 262.5 Kg 578 lbs

Total Weight: 349.5 Kg 771 lbs

Date	TA/Bldg/Rm.	Bag/Item #	Description	Weight (kg)	Accum. Weight (kg)	Item Activity (Ci)	Inventory Method	Cumulative Activity (Ci)	Waste Packager
6/27/07	16/205/116	1	AL-MI-001-08-77	20.0	282.5	15200	A	15200	WR
		2	AL-MI-027-05-88	20.5	303.0	5900	A	21100	
		3	DRMS1-2	2.5	305.5	800	A	21900	
		4	DRMS2-1	3.0	308.5	300	A	22200	
		5	AL-MI Sieve 0500	22.5	331.0	1700	A	23900	
		6	WETF-MS-01	14.5	345.5	200	A	24100	
		7	Actuators: 3041-123-B1135,	3.0	348.5*	N/A	N/A	N/A	
		8	Model F-225 Lot # B1131,						
		9	157X106, 157X143,						
		10	067-1A-08, 117X037,						
		11	117X028, 34-2464-28						
		12	See - No #'s						
		13	Misc tubing/regulators	1.0	349.5				

Total Activity: 24100 Ci

Total Accum. Weight: 349.5

Container Closed by: Wind Rumpf Date: 6/27/07

OI/WI/Tech Manual used to close container: WETF-TM-335

Verification of closure by WMC: Albert Stadelmaier Date: 6-28-07

Container ready for shipment: (signature) Date:

Unique ID of torque wrench used (if needed): 034741 Calibration Expiration Date: 1/2/08

$\frac{24100}{86} = 280$ Ci/kg

*86

WETF-FTWC-227
and WETF-FTWC-227-OP

Estimated and Actual Contents Data

		Inventory Amount (cg) per DOE memo	Re-calorimeter required?	Current Mass Amount (cg)	Contents volume (Liters)	Comments	Curies (10,000/g)	Cummulative curies	Weight Estimate (kg)	Weight Actual (kg)
	MASS Items	1/31/06		5/23/2007						
1	AL-M1-001-08-77	179	NO	152	13.5	leaker LOGB	15200	15200	21.4	20.0
2	AL-M1-027-05-088	64	NO	59	13.5	leaker LOGB	5900	21100	21.4	20.5
3	**AL-M1-SIEVE0500**	**20**	NO	**17**	**34**	**(6) 1.5 gal cans**	1700	22800	14.0	22.5
4	DRMS1-2	8	**NO**	8	3.8	1 gal can	800	23600	2.3	2.5
5	DRMS2-1	3	NO	3	3.8	1 gal can	300	23900	2.3	3.0
12	**WETF-MS-01**	**2**	**NO**	**2**	**38**	**10 gals in bags**	200	24100	**20.0**	**14.5**
	Total	276		241	106.6		24100	24100	81.4	83.0
	Actuators									
1	304L-123-B1135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
2	Model-F-225 Lot. No. B1131	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
3	15Z X106	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
4	067-1A-08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
5	15Z X143	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
6	11Z X-037	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
7	11Z X-028	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
8	3U-2464-28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
9	no identification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
10	no identification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
11	no identification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	
								total	5.5	3.0

Grams Total = 2.76 | 2.41 | **Note: 10g maximum**

WETF-FTWC-227
and WETF-FTWC-227-OP

Grams Total =	2.76	2.41	Note: 10g maximum
Void Space calculation (liters)	Estimate	Actual	
Required void space =	35.88	31.33	
Fatwac volume =	195	195	
Contents volume =	106.6	106.6	
Void space total =	88.4	88.4	
Remaining Void Space Allowable =	52.52	57.07	Because of irregular shapes, these items "filled" container and would not allow any others to be inserted as originally planned. They will go into the next FATWAC

Weight Calculation (kg)	Estimate	Exact at Loading	
FATWAC =	270	262.5	tare weight
Contents =	87	87.0	add 1 kg trash weight
Total FATWAC + contents	357	349.5	actual
Wt Allowance 85 gallon drum =	440	440	
Remaining Weight Allowable =	83	90.5	

Additional Considerations

MASS Items approved by DOE for disposal?	Yes
All materials been characterized?	Yes
Is inerting required?	No
Classified contents?	No

Optional:

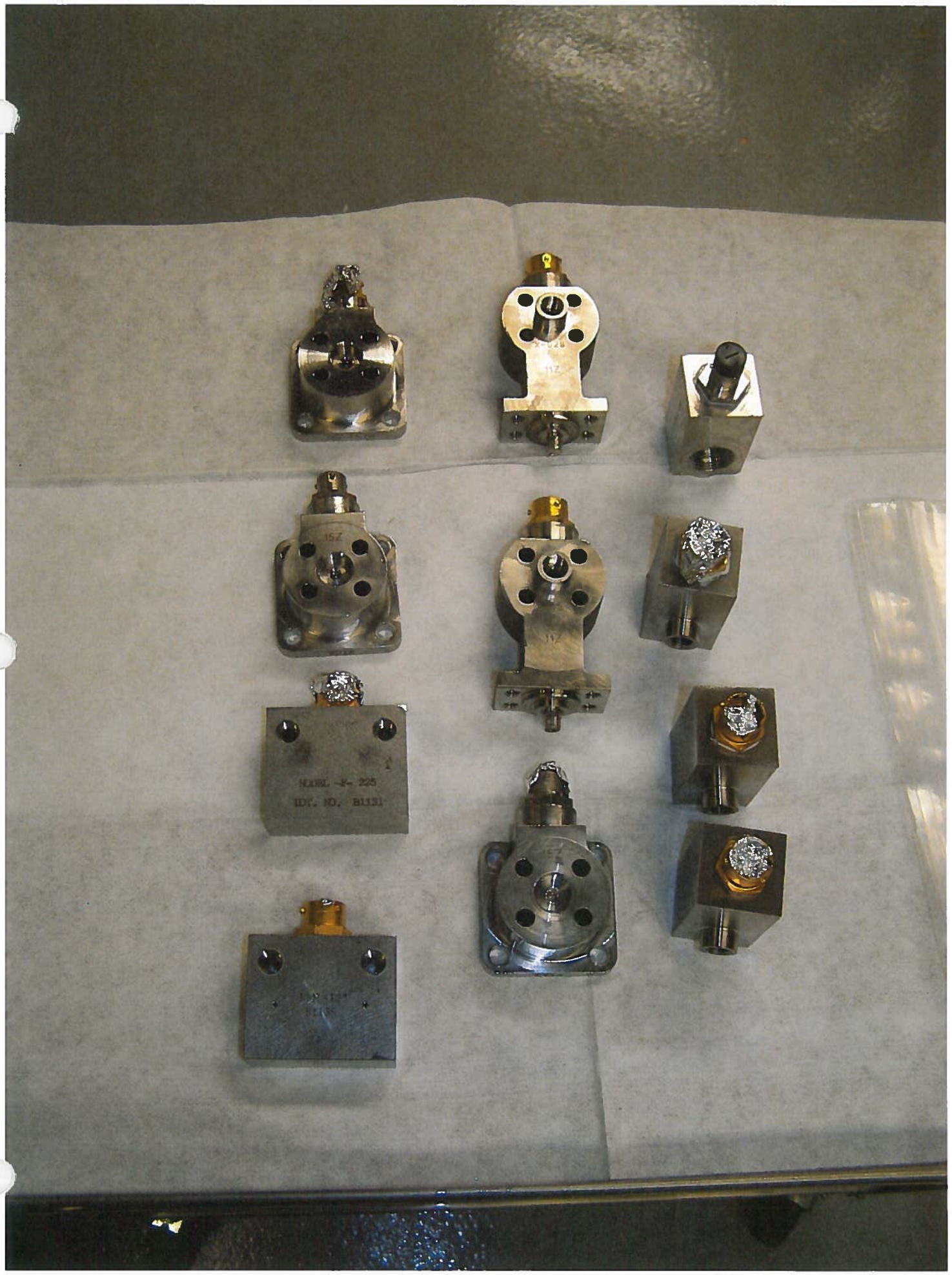
11 actuators from beige cabinet		Yes
1 liter of trash	1	Yes

7/19/2007 6:49 AM CIG

WETF-FTWC-227-OP
High-Activity Tritium
Contaminated Waste
Per TSE-OP-15
Contains: WETF-FTWC-227

Closed by
WHR 6/27/07
WETF-FTWC-227

001-8


MODEL -F- 225
IDT. NO. B1131