

	Mechanical Data Sheet: LAW Melter 1			Data Sheet Number	24590-LAW-MOD-LMP-00001
				Component Tag Number	LMP-MLTR-00001
Site: Hanford Project: RPP-WTP Project No: 24590 Building: LAW Facility, Lower Melter Gallery, Room L-0112 System: LMP Function: Convert blended LAW slurry and glass formers into glass and deliver the glass to containers Quality Level/Seismic Classification: Q/SC-III (Note 1) Equipment/Environment Qualification: Reference 1 Corrosion Evaluation: Reference 18					
MECHANICAL (References)					
Melter Design Life (9, page 6)	years	5	Melter Base, Rail to Rail Center Distance (16)	ft-in	28 - 4
Melter Outside Envelope, installed condition, L x W x H (3, 4)	inch	256 x 367 x 190			
Estimated Maximum Assembled Weight, Empty, no glass, no cooling water (8, Table 7-3)	pounds	650,000			
Estimated Maximum Assembled Weight with Glass and Cooling Water (8, Table 7-3)	pounds	700,000			
PROCESS (References)					
Design Glass Production (9, page 7)	MT/D	15	Melt Pool Temperature, Maximum (13, page 24)	°F	2192
Maximum Operating Glass Pool Depth (13, page 72)	inch	31.5	Melter Cooling Water (15)	gal/min	316
Glass Tank Volume (13, page 30)	ft ³	270	Melter Cooling Water (15)	Delta T °F	8.5
Glass Tank Surface Dimensions, L x W (13, page 30)	inch	80 x 194	Beta/gamma dose rate from glass (17)	Rad/hr	260
Melt Pool Temperature, Operating (13, page 24)	°F	2102 +/- 45°F			
ELECTRICAL (References)					
Electrodes, kW (10)	1430 maximum				
Start-up Heaters, kW (11)	25.1 maximum per heater element, 452 total maximum				
Discharge Chamber, kW (11)	75 maximum per chamber				
MAJOR COMPONENTS - Materials Ref 14 (pages)					
Gas Barrier base, walls, and lid (44)	Alloy 690		Electrodes and extensions (34)	Alloy 690	
Discharge trough and dam (35)	Alloy 690		Cooling Panels (pages 44, 46)	C276, 316L	
Shielded Enclosure (46)	A36, A500				
Film Cooler (39)	Alloy 690, Alloy 625				
REPLACEABLE COMPONENTS Ref 12					
	Design Life (months)		Design Life (months)		
Glass pool and plenum thermocouples	6		Discharge Chamber Thermocouples	12	
Refractory Thermocouple	12		Bubblers	6	
Electrode Extension Thermocouples	12		Air Lift Lance	life of melter	
Electrode Extension Cooling Air Thermocouple	life of melter		Glass Level detector	life of melter	
Feed Nozzle	life of melter		Spare Lid Plugs	life of melter	
Film Cooler	life of melter		Discharge Chamber vent line and vent insert	life of melter	
Discharge Chamber Lid Assembly (incl heaters)	life of melter		Leak detectors	life of melter	
Discharge Chamber Thermowell	life of melter				

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NOTES					
<p>1. Subcomponents may be graded CM and SC-IV</p> <p>2. Contents of this document are Dangerous Waste Permit affecting.</p> <p>3. Incorporated 24590-LAW-M6N-M80T-00008 and further revised with updated dose values. Updated "Replaceable Components", added "Quality Level/Seismic Classification", added "Equipment/Environment Qualification", updated References. Deleted Controls and Instrumentation references, deleted elevation dimensional data. Complete revision, rev bars not shown.</p> <p>4. Updated references, cooling water data and added operating temperature. Design margin is not affected. This datasheet contains data developed in calculations where margin is addressed.</p>					
REFERENCES					
Reference #					
1	24590-LAW-M0Q-LMP-00003, Rev 0, Equipment Qualification Datasheet for Low Activity Waste (LAW) Melters				
2	24590-LAW-MF-LMP-00001, Rev 0, LAW Melter Assembly LAW-MLTR-00001/00002 Isometric View				
3	24590-LAW-MF-LMP-00002, Rev 0, LAW Melter Assembly LAW-MLTR -00001/00002 Plan View				
4	24590-LAW-MF-LMP-00003, Rev 0, LAW Melter Assembly LAW-MLTR -00001/00002 East, West And North				
5	24590-LAW-MF-LMP-00004, Rev 0, LAW Melter Assembly LAW-MLTR -00001/00002 Section A-A				
6	24590-LAW-M6-LMP-00012001, Rev 0, P&ID LAW - LAW Melter Process System - Melter 1 Feed Nozzles Cooling System and Feed Nozzles				
7	24590-LAW-M6-LMP-00042001, Rev 0, P&ID LAW - LAW Melter Process System - Melter 2 Feed Nozzles Cooling System and Feed Nozzles				
8	<u>24590-LAW-M2C-LMP-00002, Rev A, LMP-MLTR-00001 & LMP-MLTR-00002, LAW Melter Units, Structural and Seismic Analysis with ANSYS</u>				
9	24590-LAW-3PS-AE00-T0001, Rev 6, Engineering Specification for Low Activity Waste Melters				
10	24590-LAW-M6C-LMP-00011, Rev 1, Electrode Power Requirements for LAW Melter				
11	24590-LAW-RPT-E-03-002, Rev 1, LAW Electrical Requirements for Startup and Discharge Heaters				
12	24590-101-TSA-W000-0010-409-1137, Rev 00A, LAW Melter Life Report				
13	24590-101-TSA-W000-0010-409-359, Rev N/A, LAW Melter System Description				
14	24590-101-TSA-W000-0010-42-02 Rev 00B, Report - LAW Melter Materials Selection				
15	24590-LAW-MEC-PCW-00002, Rev 0, <u>Melter Panels Cooling Water Heat Exchangers PCW-HX-00004A/B and PCW-HX-00005A/B Sizing Calculation</u>				
16	24590-LAW-M0-LMH-00002001, Rev 3, LAW Vitrification System LMH Design Proposal Drawing LSM Rail Assembly				
17	24590-WTP-Z0C-W13T-00010, Rev F, Contact Dose Rates to Equipment from Beta and Gamma Emitters				
18	<u>24590-LAW-N1D-LMP-00001, Rev 1, Corrosion Evaluation of LMP-MLTR-00001 & LMP-MLTR-00002 - LAW Melter 1 and Melter 2 Gas Barrier and Cooling Panels</u>				
11/19/15	3	See Note 4. Changes are shown in bold/underline.			<i>P. Rajagopal</i>
3/5/2015	2	See Note 3.	Rich Peters	Matt Meyer	Prabhu Rajagopalan
10/15/2002	0	Issued for Design	M. Hall	L. Donovan	Will Eaton
Date	Rev	Reason for Revision	Originator	Checker	Approver

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