ISSUED BY
RPP-WTP PDC

R11204284

CENTRIFUGAL MULTI-STAGE BLOWER
Data Sheet:
24590-HLW-MAD-HOP-00018

MR No.
24590-QL-MRA-MACS-00004

Plant Item No.
24590-HLW-MA-HOP-FAN-00001A/B/C
24590-HLW-MA-HOP-FAN-00009A/B/C

Rev. No. **9**

1	Project:		RPP-WTP		Bldg./Room #		HLW / H-B001C	Manufacturer	*
2	Project No:		24590		Supporting Calculations			Manufacturer Part No	*
3	Site:		DOE Hanford				24590-HLW-M4C-HOP-00011		
4	Safety Class		SS		Supporting Drawings		24590-HLW-M6-HOP-00003	Quantity Required	6
5	Seismic Category (Note 26)		SC-III				24590-HLW-M6-HOP-20003		
6	SSC Characteristic		Air Permit		System Description		24590-HLW-3YD-HOP-00001	Quality Level	Q
7	System No.		HOP						
8	Description: **HLW Booster Extraction Fans - Note 15**								
9	**DESIGN CONDITIONS**								
10	Indoor Design Temperature		Minimum	59 °F	Maximum	83 °F	Relative Humidity	10% (min)	
11	Contamination Classification Area		C2				Elevation	661 ft above MSL	
12	Environmental Qualification		(See Attachment 2)		Hanford Standard Atmospheric Pressure			398	inches WC
13	**DESIGN OPERATING CONDITIONS**								
14	Design Blower Capacity (Note 23)		1600	ACFM	Inlet Air Temperature at Design Conditions			160	°F
15	Design Static Pressure (Note 12)		85	inches WC	Inlet Air Density at Design Conditions			0.0471	lbs/ft³
16	Minimum Blower Efficiency at Design Conditions		60	%	Inlet Pressure at Design Conditions			11.3	psia
17	Blower Efficiency at Design Conditions		*	%	Power at Design Conditions			*	BHP
18	Blower Speed at Design Conditions (Note 24)		*	RPM	Equipment Design Temperature (Note 21)			*	°F
19	Max. Discharge Temp. at Design conditions		*	°F	Critical Speeds (Note 20)		*		RPM
20	**CONSTRUCTION**								
21	Blower Manufacturer		*		Blower Model Number			*	
22	AMCA Drive Arrangement		7		AMCA Inlet Box Position			360	
23	AMCA Motor Position		Direct Drive		AMCA Discharge			CW 360	
24	AMCA Rotation (Note 9)		CW		Blower Scroll Type			*	
25	Blower Motor Operating Weight		*	pounds	Assembly Weight (Mtr+ Blower + Base)			*	pounds
26	Overall Skid Dimensions (Note 5)		Width	*	Height	*	Length *	inches	
27	Blower Bearing Type		Roller- Grease Lubricated		Blower Bearing Mfg.		* Bearing Part #	*	
28	Lubricant Mfg.	*	Part #	*	Bearing Special Features (Notes 18 & 19)			L10 Life 100 khr	
29	Mechanical Coupling Mfg.	*	Part #	*					
30	**BLOWER WHEEL**								
31	Blower Wheel Type (Note 4)		*		Blower Shaft Diameter			*	
32	Design Wheel Diameter		*		Actual Wheel Diameter			*	
33	Design Wheel Width		*		Actual Wheel Width			*	
34	Design Blower RPM		*		Actual Blower RPM			*	
35	Design Brake Horsepower		*		Actual Brake Horsepower			*	
36	**BLOWER MATERIALS**								
37	Housing (Note 14 & 27)	Cast Ductile Iron	Grade	*	Blower Wheel	Stainless Steel		Grade	*
38		N/A	Grade	N/A	Mounting Frame	Carbon Steel		Grade	*
39	Shaft	Stainless Steel	Grade	*	Inlet Box / Transition Piece	Cast Ductile Iron		Grade	*
40	Inlet Vane	N/A	Grade	N/A	Discharge Damper	N/A		Grade	N/A
41	Inlet Screen	N/A	Grade	N/A	OSHA Compatible Safety Guards	Carbon Steel		Grade	*
42	**BLOWER ACCESSORIES**								
43	Flanged Inlet		Yes		Flanged Inlet Dimensions			*	
44	Flanged Discharge		Yes		Flanged Discharge Dimensions			*	
45	Flanged Discharge Evase		No		Flanged Discharge Evase Dimensions			N/A	
46	Split Housing		No		Split Housing Type			N/A	
47	Inlet Box		No		Inlet Box Type			N/A	
48	Inlet Damper		No		Inlet Damper Type			N/A	
49	Inlet Transition Piece		No		Inlet Transition Piece Flange Dimensions			N/A	
50	Inspection Door (Note 7)		Yes		Inspection Door Size (Note 7)			1" NPT	
51	Drain Connection (Note 7)		Yes		Drain Connection Size (Note 7)			1" NPT	
52	Shaft Seals		Yes		Seal Type			Double Carbon Ring w/ purge	
53	Isolation Base		No		Isolation Base Type			N/A	
54					Isolation Base Manufacturer			N/A	
55	Isolation Springs		No		Isolation Springs Mfr and Model No			N/A	
56					Isolation Springs Minimum Diameter			N/A	
57					Isolation Springs Deflection			N/A	
58					Isolation Springs Restraint Features			N/A	
59	Flexible Connection Inlet (Note 6 & 25)		Yes		Insulation (Note 22)		Yes		
60	Flexible Connection Inlet Type		Braided SSTL flexible hose						
61	Flexible Inlet Connection Material		316L SS		braid constructed with 304 SST				
62	Flexible Connection Manufacturer and Model No		*						
63	Flexible Connection Outlet (Note 6 & 25)		Yes						
64	Flexible Connection Outlet Type		Braided SSTL flexible hose						
65	Flexible Outlet Connection Material		316L SS		braid constructed with 304 SST				
66	Flexible Connection Manufacturer and Model No		*						

CENTRIFUGAL MULTI-STAGE BLOWER
Data Sheet:
24590-HLW-MAD-HOP-00018

MR No.: **24590-QL-MRA-MACS-00004**

Plant Item No.: **24590-HLW-MA-HOP-FAN-00001A/B/C**
24590-HLW-MA-HOP-FAN-00009A/B/C

Rev. No.: **9**

1	Project:		RPP-WTP	Bldg./Room #	HLW / H-B001C	Manufacturer	*
2	Project No:		24590	Supporting Calculations		Manufacturer Part No	*
3	Site:		DOE Hanford		24590-HLW-M4C-HOP-00011		
4	Safety Class		SS	Supporting Drawings	24590-HLW-M6-HOP-00003	Quantity Required	6
5	Seismic Category	(Note 26)	SC-III		24590-HLW-M6-HOP-20003		
6	SSC Characteristic		Air Permit	System Description	24590-HLW-3YD-HOP-00001	Quality Level	Q
7	System No.		HOP				
8	Description: **HLW Booster Extraction Fans - Note 15**						
9	Inlet Screen		No				
10	Inlet Screen Features		N/A				
11	Blower Pedestal		Yes				
12	Blower Pedestal Description		Common mounting base for Blower, motor, and bearings				
13	Insulation Studs		No				
14	Silencer		No				

MOTOR AND DRIVE REQUIREMENTS

Driven Equipment / Motor / ASD relationship is as follows::

Blower Tag Number	Motor Tag Number	ASD Tag Number
HOP-FAN-00001A	HOP-MTR-00005A	HOP-ASD-00001A
HOP-FAN-00001B	HOP-MTR-00005B	HOP-ASD-00001B
HOP-FAN-00001C	HOP-MTR-00005C	HOP-ASD-00001C
HOP-FAN-00009A	HOP-MTR-00006A	HOP-ASD-00003A
HOP-FAN-00009B	HOP-MTR-00006B	HOP-ASD-00003B
HOP-FAN-00009C	HOP-MTR-00006C	HOP-ASD-00003C

Adjustable Speed Drive	Yes	Provided by others.
Special Drive Features	1. ASD to operate motor from 30% to 100% of required RPM within a 30 second time frame (max)	
	2. Provides ASD programming for motor RPM to pass through any critical speed dead bands to avoid excessive vibration.	

GAS COMPOSITION

Component	kg/hr	wt%
N_2	2138	6.73E+01
O_2	655.2	2.06E+01
H_2O	324.6	1.02E+01
Ar	36.5	1.15E+00
CO_2	20.5	6.46E-01
NO	5.79E-01	1.82E-02
Hg	1.25E-01	3.94E-03
NO_2	9.66E-02	3.04E-03
CO	1.70E-02	5.35E-04
N_2O	1.25E-02	3.94E-04
SO_2	6.70E-03	2.11E-04
HCl	6.58E-03	2.07E-04
NH_3	4.37E-03	1.38E-04
HF	3.99E-03	1.26E-04
H_2	3.53E-03	1.11E-04
VOC	2.76E-03	8.69E-05
I_2	1.11E-03	3.50E-05
Particulate	4.34E-11	1.37E-12
Total	3175.66	100

Source: 24590-HLW-M4E-HOP-00001 pages 14-16 row 35

Notes

1) * Denotes data to be provided / verified by vendor.
2) N/A denotes "Not Applicable".
3) TBD denotes "To Be Determined".
4) The impeller shall be anti-surge design developing continuously rising SP from free delivery thru shutoff.
5) Bounding dimensions not to exceed 68" W x 60" H x 105" L (Blower, Motor and Baseplate).
6) Connections shall match Buyer's supply pipe: 10 inch diameter, 316L SS, Schedule 40S, w/ 150 lb, RF Flange.
7) See Specification 24590-WTP-3PS-MACS-T0005 Rev. 0, Section 3.8.2 for requirements.
8) Deleted
9) Rotation is listed as viewed from drive side.
10) Deleted
11) Deleted
12) The External Static Pressure at design operating condition includes 2 in. WC maximum drop through the inlet box.
    The more conservative value of 85 inches WC was used rather than the minimum value 81 inches WC in 24590-HLW-M4C-HOP-00011 Rev. 1.
13) Deleted
14) Blower housing design pressure shall be -6 psi (-166 in WC).
15) Contents of this document are Dangerous Waste Permit affecting.
16) Deleted
17) Deleted
18) Provide each blower bearing with RTDs & 2 - directional (X and Y) vibration sensors for remote indication
19) Radial type roller bearings shall have labyrinth type seal.

CENTRIFUGAL MULTI-STAGE BLOWER
Data Sheet:
24590-HLW-MAD-HOP-00018

MR No.: **24590-QL-MRA-MACS-00004**

Plant Item No.: **24590-HLW-MA-HOP-FAN-00001A/B/C**
24590-HLW-MA-HOP-FAN-00009A/B/C

Rev. No.: **9**

1	Project:	RPP-WTP	Bldg./Room #	HLW / H-B001C	Manufacturer	*
2	Project No:	24590	Supporting Calculations	24590-HLW-M4C-HOP-00011	Manufacturer Part No	*
3	Site:	DOE Hanford				
4	Safety Class	SS	Supporting Drawings	24590-HLW-M6-HOP-00003 24590-HLW-M6-HOP-20003	Quantity Required	6
5	Seismic Category (Note 26)	SC-III				
6	SSC Characteristic	Air Permit	System Description	24590-HLW-3YD-HOP-00001	Quality Level	Q
7	System No.	HOP				

8 Description: **HLW Booster Extraction Fans - Note 15**

9 20) Critical speeds within operating ranges to be blocked in ASD programming

10 21) This temperature is required for material selection and corrosion analysis. The value is the average temperature of the inlet temperature in line 14 of page 1 and the Discharge Temperature on Line 19 of page 1.

11 22) Blowers shall be insulated (except bearing housings) by Buyer and heat traced to maintain casing metal temperature above the acid dewpoint of the process gas.

12 23) Design blower capacity is the predicted capacity from calculation, 24590-HLW-M4C-HOP-00011 Rev 1 page A-10 cell Y-32 divided by 2 (two blower running at capacity) plus a 30 % contingency. 2461 ACFM/2*1.3 = 1600 ACFM

13 24) Shaft speed shall not exceed 3600 rpm unless approved by Buyer. Tip speed of rotating assembly shall not exceed 530 fps unless approved by Buyer.

14 25) See Specification 24590-WTP-3PS-MACS-T0005 rev. 0, section 3.8.1.6 for flexible connection requirements.

15 26) See Specification 24590-WTP-3PS-MACS-T0005 rev. 0, section 6.3 for seismic testing requirements.

16 27) Housing will be fabricated from ductile iron or high chromium cast iron (or better).

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19 **SAFETY SCREENING** X Yes ___No

20 **Safety Screening / Evaluation Required? If yes per 24590-WTP-GPP-SREG-002, E&NS Signature required below.**

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9	**Revised to incorporate new specification 24590-WTP-3PS-MACS-T0005, Rev. 0 to remove ASME AG-1 requirements. Other minor clarifications are as noted with revision bars. This data sheet is issued for quote.**	M.O.	M. Summers	C. Meng	AM		R E Stevens	5/12/10
8	Reissued for Purchase. Minor Change (Inclusion of pages 5 & 6 which were omitted in Rev. 7).	M. O'Neill	M. Summers	C. Meng	D.Lamberd	S. Kretzschmar	R. E. Stevens	7/22/2009
	Reissued for purchase. Minor revisions to format for clarity. Revised the Material Requisition number from 24590-QL-MRA-MACS-00002 to the new 24590-QL-MRA-MACS-00004. Corrected tag numbers and updated revision number. Changed title to Centrifugal Multi-stage Blowers. Removed reference to cancelled calculation 25490-HLW-MAC-HOP-00001. Added field for SSC Characteristic.							

	CENTRIFUGAL MULTI-STAGE BLOWER Data Sheet: **24590-HLW-MAD-HOP-00018**			MR No. **24590-QL-MRA-MACS-00004**			
				Plant Item No. **24590-HLW-MA-HOP-FAN-00001A/B/C** **24590-HLW-MA-HOP-FAN-00009A/B/C**			Rev. No. **9**
1	Project:	RPP-WTP	Bldg./Room #	HLW / H-B001C		Manufacturer	*
2	Project No:	24590	Supporting Calculations	24590-HLW-M4C-HOP-00011		Manufacturer Part No	*
3	Site:	DOE Hanford					
4	Safety Class	SS	Supporting Drawings	24590-HLW-M6-HOP-00003		Quantity Required	6
5	Seismic Category (Note 26)	SC-III		24590-HLW-M6-HOP-20003			
6	SSC Characteristic	Air Permit	System Description	24590-HLW-3YD-HOP-00001		Quality Level	Q
7	System No.	HOP					
8	Description: **HLW Booster Extraction Fans - Note 15**						

Rev	Reason for Revision	System Engineer	Responsible Engineer	E&NS	Checker	Reviewer	Approver	Date
7	Added reference to Note 15. Updated design inlet conditions, capacity, and external static pressure to align with 24590-HLW-M4C-HOP-00011 Rev.1 ECCN 24590-HLW-M4E-HOP-00001. Added field for Inlet Pressure at Design Conditions in place of Total Static Pressure (Max) field. Added field for required minimum efficiency at design conditions per CCN 199933. Retitled field for Maximum Discharge Temperature and deleted Note 16. Retitled field from Natural Frequencies to Critical Speeds for clarity. Removed normal and minimum design conditions for clarity. Revised AMCA Drive Arrangement from 8 to 7 to align with industry offering. Specified inlet box position to 360. Relocated Blower Motor Operating Weight and Assembly Weight fields and ad Specified Roller grease lubricated bearings, added fields for Mfg. and Part # for bearing, lubricant, and couple+B121r. Changed coupler to vendor specified. Revised specified materials for housing, shaft, blower wheel, mounting frame, and inlet box/transistion piece to align with industry offering. Material grades to be specified by vendor. Revised inspection door size and drain from vendor specified to 1"NPT per specification, 24590-WTP-3PS-MACS-T0004 Rev. 5. Revised Split Housing, Inlet Box, & Inlet Transition Piece fields to No. Specified seal type as Double Carbon Ring w/ purge. Added Note 1 to Special Drive Features field. Added Gas Composition and Acid Dew Point. Deleted Notes 8, 10, 13, 16, 17, and revised Notes 7,12, 14, 18, 19, 20, 21, & 22 Added Notes 23, 24, 25, and 26 Change Nuclear Radiation field on motor data sheet to agree with EQD. Revised Design Life on EQD from 5 years to 40 years. Added Note in Additional DBE Information field to clarify equipment is not expected to operate submerged.	M. O'Neill	S. E. Anderson	C. Meng	A. Moretta	S. Kretzschmar	R. E. Stevens	6/11/2009
6	Reissued for purchase. Addition of insulation requirement. Incorporation of Vendor exceptions and clarifications.	M. O'Neill	S. E. Anderson	C. Meng	C. Knauss	S. Kretzschmar	R. E. Stevens	9/29/2008
5	Re-issued with updated design conditions, reformatted mechanical datasheet for clarity, attached motor and EQ datasheets. This document supersedes 24590-HLW-MUD-HOP-00001	M. O'Neill	S. E. Anderson	C. Meng	C. Knauss	S. Kretzschmar	R. E. Stevens	3/26/2008
4	Re-issued for purchase, added Note 14, and updated design conditions.	Y. Nurdogan	G. Dunn	C. Meng	D. Reinemann	J. Rouse	J. Julyk	3/21/2007
3	Re-issued for purchase	J.Rewari	N/A	N/A	R. Tometczak	N/A	E. Isern	3/7/2005
2	Re-issued for purchase	J. Rewari	N/A	N/A	R. Tometczak	N/A	E. Isern	12/13/2004
1	Updated design conditions and re-issued for purchase, superseded 24590-HLW-MAD-HOP-00019, 00020, 00035, 00036, and 00037.	J. Rewari	N/A	N/A	J. Medina	N/A	E. Isern	8/12/2004
0	Issued for purchase	D. Green	N/A	N/A	M. Ordona	N/A	H. Jalali	11/17/2003

	ATTACHMENT 1 **24590-HLW-MAD-HOP-00018** **ELECTRICAL DATA SHEET** **LOW VOLTAGE INDUCTION MOTOR**	MR No. **24590-QL-MRA-MACS-00004**	
		Plant Item No. **24590-HLW-EM-HOP-MTR-00005A/B/C** **24590-HLW-EM-HOP-MTR-00006A/B/C**	Rev No. **9**

Motor Tag No.: 24590-HLW-EM-HOP-MTR-00005A/B/C and 24590-HLW-EM-HOP-MTR-00006A/B/C

Driven Equipment No.: 24590-HLW-MA-HOP-FAN-00001A/B/C and 24590-HLW-MA-HOP-FAN-00009A/B/C

Service: HLW Booster Extraction Fans

Refer to "Primary Specification": 24590-WTP-3PS-MACS-T0005

LINE NO.	DESCRIPTION	USER SPECIFIED	SUPPLIER FURNISHED	UNITS
	BASIC DATA:			
1	RATED HORSEPOWER	-	*	HP
2	SYNCHRONOUS SPEED	-	*	RPM
3	VOLTAGE	460	*	V
4	PHASE	3	*	-
5	FREQUENCY	60	*	Hz
6	INSULATION CLASS	F	*	-
7	TEMPERATURE RISE ABOVE 40°C AMBIENT	80	*	deg. C
8	NEMA DESIGN TYPE (B, C, OTHER)	B	*	-
9	EFFICIENCY (STANDARD, PREMIUM)	PREMIUM	*	-
10	ENCLOSURE TYPE (TEFC - SEVERE DUTY PER IEEE Std. 841, TENV, WP1I)	TEFC IEEE Std. 841	*	-
11	SERVICE FACTOR	1.15	*	-
12	COUPLED DRIVE (DIRECT, BELT, GEAR)	Direct	*	-
13	BEARING (ANTI-FRICTION, SLEEVE)	Anti-Friction	*	-
14	BEARING SEAL (ONE END, BOTH ENDS)	Both Ends	*	-
15	SPACE HEATER (FOR MOTORS > 20 HP)	Yes	*	W
16	RTD FOR SLEEVE BEARING : 1 per bearing for Belt drive only	N/A	*	Ω
17	TERMINAL BOX LOCATION		*	-
18	WARRANTY (2 YEARS, 3 YEARS, 5 YEARS)	**see Terms and condition**	*	-
19	SHOP TESTS			
	- MFR STANDARD TEST (Yes / No)	Yes	*	
	- ROUTINE TEST (Yes / No)	Yes	*	
	- FULL TEST (Yes / No)	**No**	*	
20	UNUSUAL SERVICE CONDITIONS:	Inverter Duty		
21	FLAMMABLE OR EXPLOSIVE GASES	No	*	
22	COMBUSTIBLE, EXPLOSIVE, ABRASIVE OR CONDUCTIVE DUST	No	*	
23	WET OR DRY OPERATING CONDITIONS	Dry	*	
24	NUCLEAR RADIATION	0.5 mrad/hr.		
25	SPECIAL PAINTING REQUIREMENTS PER IEEE Std. 841	(Note 5)	*	
26	OTHER (SC,SS, APC, Non-ITS)	SS	*	
27	OTHER (SEISMIC CATEGORY I , II, III or IV)	SC-III	*	

	ATTACHMENT 1 **24590-HLW-MAD-HOP-00018** **ELECTRICAL DATA SHEET** **LOW VOLTAGE INDUCTION MOTOR**	MR No. **24590-QL-MRA-MACS-00004** Plant Item No. **24590-HLW-EM-HOP-MTR-00005A/B/C** **24590-HLW-EM-HOP-MTR-00006A/B/C** Rev No. **9**

Motor Tag No.: 24590-HLW-EM-HOP-MTR-00005A/B/C and 24590-HLW-EM-HOP-MTR-00006A/B/C

Driven Equipment No.: 24590-HLW-MA-HOP-FAN-00001A/B/C and 24590-HLW-MA-HOP-FAN-00009A/B/C

Service: HLW Booster Extraction Fans

Refer to "Primary Specification": 24590-WTP-3PS-MACS-T0005

LINE NO.	DESCRIPTION	USER SPECIFIED	SUPPLIER FURNISHED	UNITS
28	MANUFACTURER	-	*	-
29	NEMA FRAME	-	*	-
30	MODEL NUMBER	-	*	-
31	SERIAL NUMBER / MANUFACTURER DATE	-	*	-
32				
33	FULL LOAD CURRENT	-	*	A
34	FULL LOAD TORQUE	-	*	ft-lb
35	POWER FACTOR : - @ 50 % LOAD	-	*	%
	- @ 75 % LOAD	-	*	%
	- @ 100 % LOAD	-	*	%
36	EFFICIENCY : - @ 50% LOAD	-	*	%
	- @ 75% LOAD	-	*	%
	- @ 100% LOAD	-	*	%
37	LOCKED ROTOR CURRENT @ 100 % of RATED VOLTAGE	-	*	A
38	LOCKED ROTOR CURRENT @ 80% of RATED VOLTAGE	-	*	A
39	ALLOWABLE STALL TIME @ FULL VOLTAGE	-	*	SEC
40	ALLOWABLE STALL TIME @ 80% of VOLTAGE	-	*	SEC
41	LOSSES @ FULL LOAD	-	*	W
42	ROTOR WK2 @ MOTOR SHAFT SPEED (For > 250 hp only)	-	*	lb-ft²
43	STARTING POWER FACTOR (For > 75 hp only)	-	*	-
44	SUB TRANSIENT REACTANCE AND X/R (For > 250 hp only)	-	*	-
45	WEIGHT	-	*	lbs
46	ROTATION (CW, CCW, BI-DIR.) FACING DRIVEN EQUIPMENT	-	*	-
47	MEAN TIME BETWEEN FAILURE (MOTOR 100 HP AND ABOVE)		*	
48	STARTING METHOD (FULL/REDUCED VOLTAGE, ASD APPLICATION)	ASD		-
49				
50	RECOMMENDED BEARING LUBRICANT	-	*	

NOTES:

(1) DELETED

(2) Motor should be applied within its rating based on service factor of 1.0.

(3) Data Sheet Line no. from 35 to 47 are applicable for motor 100 HP and above.

(4) The fan and motor are subjected to the same environmental conditions.

(5) See specifcation **24590-WTP-3PS-MACS-T0005, Attachment B,** for requirements.

EQUIPMENT QUALIFICATION DATASHEET (EQD)

Equipment Identification			
Component Tag Number	24590-HLW-MA-HOP-FAN-00001A/B/C 24590-HLW-MA-HOP-FAN-00009A/B/C 24590-HLW-EM-HOP-MTR-00005A/B/C 24590-HLW-EM-HOP-MTR-00006A/B/C	Safety Classification	☐ SC ☒ SS ☐ APC ☐ SDC ☐ SDS ☐ RRC
Manufacturer / Supplier	Note 4		
Requisition Number	24590-QL-MRA-MACS-00004		
Model	Note 4	Seismic Category	☐ SC-I ☐ SC-II ☒ SC-III ☐ SC-IV
Description (Include descriptive text [e.g., location, elevation])	HLW Booster Extraction Fans.		
Safety Function(s)	Provides negative pressure on HLW melters and primary off-gas system. In conjunction with Stack Extraction Fans, provides motive force for off-gas flow through all off-gas equipment up to and including discharge at stack.		

Seismic Safety Function	☒ Yes ☐ No	Room Number(s):	H-B001C
Maintenance Accessible	☒ Yes ☐ No	Method of Maintenance Access:	☐ Remote ☒ Hands On ☐ None
Seismic Operability Requirements:	☒ During Seismic Event	☒ After Seismic Event	
ITS Equipment Type:	☐ Passive Mechanical	☒ Active Mechanical	☒ Electrical

Equipment Environmental Qualification (EEQ)

Environment ☒ Mild ☐ Harsh Contamination Class: C2 Radiation Class: R2	Hi Rad Service ☐ Yes ☒ No	Design Life (yrs) ☒ 40 ☐ Other _____ with required maintenance

Parameter Type/Units	Parameter Value	Time Duration (number)	Time Units	WTP Document Number (BUYER)	Submittal Number (SELLER)
Normal					
Normal High Temperature (°F)	83	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Normal Low Temperature (°F)	59	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Normal High Relative Humidity (%RH)	100	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Normal Low Relative Humidity (%RH)	10	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Normal High Pressure (in.-w.g.)	0	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Normal Low Pressure (in.-w.g.)	-0.1	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Normal Radiation Dose Rate (mR/hr)	0.5	40	yr	24590-HLW-U0D-W16T-00001	Note 4
Vibration Magnitude (g)	N/A	40	yr	N/A	Note 4
Vibration Frequency (Hz)	N/A	40	yr	N/A	Note 4
Additional Normal Information:					

EQUIPMENT QUALIFICATION DATASHEET (EQD)

Equipment Environmental Qualification (EEQ) *(continued)*

Parameter Type/Units	Parameter Value	Time Duration (number)	Time units	WTP Document Number (BUYER)	Submittal Number (SELLER)
Abnormal					
Abnormal High Temperature (°F)	95	8	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Abnormal Low Temperature (°F)	59	8	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Abnormal High Relative Humidity (%RH)	95	8	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Abnormal Low Relative Humidity (%RH)	10	8	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Abnormal High Pressure (in.-w.g.)	4	8	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Abnormal Low Pressure (in.-w.g.)	-6.7	8	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Abnormal Radiation Dose Rate (mR/hr)	0.5	0	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Wet Sprinkler System Present	YES	2	hr/yr	24590-HLW-U0D-W16T-00001	Note 4
Additional Abnormal Information					
Design Basis Events (DBE)					
DBE High Temperature (°F)	95	1000	hr	24590-HLW-U0D-W16T-00001	Note 4
DBE Low Temperature (°F)	59	1000	hr	24590-HLW-U0D-W16T-00001	Note 4
DBE High Relative Humidity (%RH)	95	482	hr	24590-HLW-U0D-W16T-00001	Note 4
DBE Low Relative Humidity (%RH)	10	1000	hr	24590-HLW-U0D-W16T-00001	Note 4
DBE High Pressure (in.-w.g.)	4	1000	hr	24590-HLW-U0D-W16T-00001	Note 4
DBE Low Pressure (in.-w.g.)	-6.7	1000	hr	24590-HLW-U0D-W16T-00001	Note 4
DBE Radiation Dose Rate (mR/hr)	0.5	0	hr	24590-HLW-U0D-W16T-00001	Note 4
Flood Height (ft)	22	1000	hr	24590-HLW-U0D-W16T-00001	Note 4
Submergence (ft)	N/A**	N/A**	N/A	24590-HLW-U0D-W16T-00001	Note 4
Chemical/Spray Exposure	Yes	12.5	hr	24590-HLW-U0D-W16T-00001	Note 4
Additional DBE Information	Spray exposure is composed of water from fire suppression system. **Equipment is not expected to operate submerged or after a DBE flood event				

EQUIPMENT QUALIFICATION DATASHEET (EQD)

DBE Chemical Exposure Details	
DBE Chemical Types/Concentrations	NONE

Interfaces (Electrical)	
Power Supply Voltage (VAC, VDC)	460 VAC
Power Supply Frequency (Hz)	60
Power Connection Method	Note 3
I/O Signals to/from Equipment	Note 3
I/O Connection Method	Note 3

Interfaces (Mechanical)	
Mounting Configuration (orientation)	Note 3
Mounting Method (bolts, welds, etc.)	Isolation springs / base to be welded to existing embeds or anchored into concrete depending on the Seller's anchorage configuration
Auxiliary Devices	None

Equipment Seismic Qualification (ESQ)

Parameter	Title	Reference/Document Number	Version / Revision	Remarks
WTP Seismic Design Specification (BUYER)	ENGINEERING SPECIFICATION FOR STRUCTURAL DESIGN LOADS FOR SEISMIC CATEGORY III & IV EQUIPMENT AND TANKS	24590-WTP-3PS-FB01-T0001	Rev. 3	N/A
Specified Seismic Load (BUYER)	ENGINEERING SPECIFICATION FOR STRUCTURAL DESIGN LOADS FOR SEISMIC CATEGORY III & IV EQUIPMENT AND TANKS	24590-WTP-3PS-FB01-T0001	Rev. 3	N/A
Design Seismic Load (SELLER	N/A	N/A	N/A	To be provided by the Seller via the G-321-E submittal process. (Note 2)
Qualification Method (SELLER)	N/A	N/A	N/A	To be provided by the Seller via the G-321-E submittal process. (Note 2)
Qualification Report Number (SELLER)	N/A	N/A	N/A	To be provided by the Seller via the G-321-E submittal process. (Note 2)
Submittal Number (BUYER)	TBD	TBD	TBD	N/A

EQUIPMENT QUALIFICATION DATASHEET (EQD)

Notes and Additional Information

Note 1: Where pressure is given in inches of water column (in-w.c.) in the source document, it is generally assumed that this is in reference to atmospheric pressure and is therefore equivalent to inches of water gage (in-w.g.).

Note 2: Supplier (Seller) shall perform Equipment Seismic and Environmental Qualification in accordance with the listed parameters and the applicable specification requirements.

Note 3: To be provided by Seller.

Note 4: Data to be provided by Seller through the submittal process as required on the G-321-E form.