



**WORLD ENERGY PARAMOUNT**  
**World Energy Renewables Project**  
**Paramount, California**

**MECHANICAL EQUIPMENT DATASHEET**  
**Document Number A8KM-18-052-540130-A**  
**Rev. 2, 23-MAY-2023**

**EN203076-FLUOR-LD1-00113**



## **WORLD ENERGY RENEWABLES PROJECT**

### **MECHANICAL EQUIPMENT DATA SHEET FOR 18-P-1807**

#### **T-125001 RECIRCULATING PUMP**

**Document Number A8KM-18-052-540130-A**


**Fluor Project No: A8KM**

2	23-May-2023	AS BUILT	7	EL	CH	CG
1	16-Mar-2023	AS BUILT	7	EL	CH	CG
0	29-Dec-2022	AS BUILT	7	EL	CH	CG
D	8-Oct-2021	Issued for Purchase	11	CP	JF AD TD	BT
C	25-May-2021	Issued for Quotation	10	LV	JF AD TD	BT
B	5-May-2021	Issued for Client Review	10	LV	JF AD TD	BT
A	30-Apr-2021	Issued for Internal Review	10	LV	JF	
REV	DATE	DESCRIPTION	PAGES	ORIG	CHK'D	APPV'D



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SULZER CONFIDENTIAL

PAB1004564930020-01\_Z22\_000\_0604m17 di-gcp-4 MARTSAR 2023-05-23T18:56:09 1,000 NP

		<b>API 610</b> <b>CENTRIFUGAL PUMP DATA SHEET</b>		<b>Contract:</b> A8KM																					
				<b>Item No:</b> 18-P-1807																					
				<b>Revision:</b> 2 <b>Date:</b> 23-May-23																					
				<b>Unit:</b> North Tank Farm																					
		<b>Doc. No.:</b> A8KM-18-052-540130-A		<b>P.O. No.:</b> 4505551383																					
		Note: This data sheet has been modified from that in the annex of API Standard 610, 11th Edition.		<b>Inquiry No.:</b> 4-601D-RQ																					
		<b>Sheet</b> 2 <b>of</b> 7		<b>REV</b>																					
<b>CLIENT:</b> World Energy Paramount <b>PROJECT:</b> World Energy Renewables Project																									
<b>SERVICE :</b> T-125001 Recirculating Pump		<b>FACILITY:</b> World Energy Paramount		<b>SITE :</b> Paramount, CA																					
<b>NO. REQ'D :</b> 1 x 100% (Note 2.1)		<b>PUMP SIZE :</b> 4x6x7.5A-1		<b>API TYPE :</b> OH2 <b>NO. STAGES :</b> One (1)																					
<b>MANUFACTURER :</b> Sulzer		<b>MODEL :</b> OHH		<b>SERIAL NO. :</b> 649500																					
<b>APPLICABLE TO :</b> <input type="radio"/> PROPOSALS <input type="radio"/> PURCHASE <input checked="" type="radio"/> AS-BUILT																									
GENERAL																									
<b>PUMPS OPERATE IN :</b> Note 2.1		<b>NO. MOTOR DRIVEN :</b> One (1)		<b>NO. TURBINE DRIVEN :</b> N/A																					
<b>WITH :</b> Note 2.1		<b>PUMP ITEM NO. :</b> 18-P-1807		<b>PUMP ITEM NO. :</b>																					
<b>GEAR ITEM NO. :</b> N/A		<b>MOTOR ITEM NO. :</b> 18-P-1807M		<b>TURBINE ITEM NO. :</b>																					
<b>GEAR PROVIDED BY :</b>		<b>MOTOR PROVIDED BY :</b> Pump Supplier		<b>TURBINE PROVIDED BY :</b>																					
<b>GEAR MOUNTED BY :</b>		<b>MOTOR MOUNTED BY :</b> Pump Supplier		<b>TURBINE MOUNTED BY :</b>																					
<b>GEAR DATA SHEET NO. :</b>		<b>MOTOR DATA SHEET NO. :</b> Attached		<b>TURBINE DATA SHEET NO. :</b>																					
LIQUID CHARACTERISTICS																									
<b>UNITS</b> <b>MAXIMUM</b> <b>RATED</b> <b>MINIMUM</b>		<b>SERVICE :</b> CONTINUOUS																							
<b>LIQUID TYPE OR NAME:</b> Treated Feed		* IF INTERMITTENT, NO. OF STARTS / DAY :																							
<b>VAPOR PRESSURE :</b> psi (a)      0.0		<b>CORROSION DUE TO:</b> (6.12.1.9) :																							
<b>RELATIVE DENSITY :</b> 0.9		<b>EROSION DUE TO:</b> (6.12.1.9) :																							
<b>SPECIFIC HEAT :</b> BTU/lbm °F      0.47		<b>H<sub>2</sub>S CONCENTRATION</b>																							
<b>VISCOSITY :</b> cP      26.2		<b>WET (YES / NO) :</b>																							
<b>OPERATING CONDITIONS (6.1.2)</b>																									
<b>UNITS</b> <b>MAXIMUM</b> <b>RATED</b> <b>NORMAL</b> <b>MINIMUM</b>		<b>CHLORIDE CONCENTRATION (ppmw) :</b> ≤50ppmw																							
<b>NPSHa DATUM :</b>		<b>PARTICULATE SIZE (DIA. IN MICRONS) :</b>																							
<b>PUMPING TEMP. :</b> °F      200      120		<b>PARTICULATE CONCENTRATION (ppmw) :</b>																							
<b>FLOW :</b> gpm      800		<b>MECHANICAL DESIGN TEMPERATURE (°F) :</b> 250																							
<b>DISCHARGE PRESS. :</b> psi(g)      63.7																									
<b>SUCTION PRESSURE :</b> psi(g)      20.7      -0.9																									
<b>DIFFERENTIAL PRESS. :</b> psi      64.7																									
<b>DIFFERENTIAL HEAD :</b> ft      165																									
<b>NPSH<sub>A</sub> :</b> ft      (Note 2.2)      35.1      Excl. Req'd Margin (Note 2.2)																									
<b>HYDRAULIC POWER :</b> hp      30.2																									
SITE AND UTILITY DATA (6.1.2)																									
<b>LOCATION:</b>		<b>COOLING WATER :</b> <b>SOURCE :</b> COOLING TOWER																							
<b>OUTDOOR</b> <b>UNHEATED</b>		<b>SUPPLY TEMP. :</b> 80 °F <b>MAX. ALLOW. RETURN TEMP.:</b> 120 °F																							
<b>MOUNTED AT:</b> GRADE <input type="radio"/> TROPICALIZATION REQ'D		<b>NORM. PRESS. :</b> 45 psi(g) <b>DESIGN PRESS. :</b> 120 psi(g)																							
<b>ELECTRICAL AREA CLASSIFICATION:</b> <input type="radio"/> NON HAZARDOUS		<b>MAXIMUM RETURN PRESSURE :</b> 35 psi(g)																							
<b>CLASS :</b> Cl. I, Group. B/C/D <b>DIVISION :</b> 2 <b>TEMP CODE :</b> T3C		<b>MAXIMUM ALLOWABLE ΔP :</b> 10 psi																							
<b>SITE DATA:</b>		<b>CHLORIDE CONCENTRATION :</b> < 840 ppm <b>DESIGN T :</b> 150 °F																							
<b>ELEVATION (MSL):</b> 69 ft <b>BAROMETER :</b> 14.7 psia		<b>INSTRUMENT AIR :</b> MAX. : N/A psi(g)      MIN. :      psi(g)																							
<b>RANGE OF AMBIENT TEMPS: MIN. / MAX. :</b> 35 / 105 °F		<b>MECH. DESIGN:</b> psi(g)      °F																							
<b>RELATIVE HUMIDITY: MIN. / MAX. :</b> Average = / 54 %		<b>STEAM :</b>																							
<b>UNUSUAL CONDITIONS :</b>		<table border="1"> <thead> <tr> <th colspan="2">DRIVERS</th> <th colspan="2">HEATING</th> </tr> </thead> <tbody> <tr> <td>TEMP :</td> <td>°F</td> <td>MAX. :</td> <td>N/A</td> </tr> <tr> <td></td> <td></td> <td>MIN. :</td> <td></td> </tr> <tr> <td>PRESS. :</td> <td>psig</td> <td>MAX. :</td> <td></td> </tr> <tr> <td></td> <td></td> <td>MIN. :</td> <td></td> </tr> </tbody> </table>				DRIVERS		HEATING		TEMP :	°F	MAX. :	N/A			MIN. :		PRESS. :	psig	MAX. :				MIN. :	
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PRESS. :	psig	MAX. :																							
		MIN. :																							
<b>UTILITY CONDITIONS:</b>																									
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HERTZ :	60	60	60																						
NOTES																									
2.1	1 x 100% pump.																								
2.2	Pump centerline is assumed to be 19" above top of foundation. A minimum NPSH margin of 3 ft or 10% of NPSHR, whichever is higher, is required at 110% of Rated flow.																								
	Deleted.																								
2.3	Pump Control Method: Flow control valve.																								
2.4	Governing Project Specification: A8KM-PP-000-50626-A, Centrifugal Pumps for Petroleum and Natural Gas Industries - API 610.																								
2.5	Deleted.																								
	Deleted.																								
2.6	Pump will be electrically heat traced and insulated by Others, Fitted thermal blanket furnished by Sulzer.																								

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						Item No: <b>18-P-1807</b>			
		Doc. No.: <b>A8KM-18-052-540130-A</b>				Revision: <b>2</b>		Date: <b>23-May-23</b>	
						Unit: <b>North Tank Farm</b>			
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				Inquiry No.: <b>4-601D-RQ</b>					
Sheet <b>3</b> of <b>7</b>						REV			

<b>PERFORMANCE</b>										<b>DRIVER (7.1.5)</b>																																																																									
PROPOSAL CURVE NO.: <b>OHH 47-1-1-03</b> RPM <b>3560</b> TEST CURVE NO.: <b>M-13393</b> IMPELLER DIA.: RATED: <b>7.17</b> MAX: <b>7.5</b> MIN: <b>5.5</b> in RATED POWER: <b>41.60</b> hp EFFICIENCY: <b>72.54</b> % RATED CURVE BEP FLOW: (at rated impeller dia.) <b>801.34</b> gpm MIN. FLOW: THERMAL : gpm STABLE : <b>176.3</b> gpm PREFERRED OPERATING REGION: (6.1.12) <b>560.94</b> to <b>881.47</b> gpm ALLOWABLE OPERATING REGION: <b>177.72</b> to <b>1049.78</b> gpm MAX. HEAD @ RATED IMPELLER: <b>214.3</b> ft MAX. POWER @ RATED IMPELLER: (6.8.9) <b>45.19</b> hp NPSHR at CL IMPELLER for RATED FLOW : <b>18.5</b> ft CL PUMP TO LOWER SIDE OF BASEPLATE: <b>1.6</b> ft NPSH MARGIN at RATED FLOW : <b>16.6</b> ft SPECIFIC SPEED: gpm,rpm,ft <b>2093</b> SUCTION SPECIFIC SPEED LIMITATION: gpm,rpm,ft <b>(Note 3.1)</b> SUCTION SPECIFIC SPEED: (6.1.9): gpm,rpm,ft <b>10695</b> MAX. ALLOW. SOUND PRESS. LEVEL / EST.: (6.1.14) @ 3 ft <b>85 / 72</b> dBA MAX. ALLOW. SOUND POWER LEVEL / EST.: (6.1.14) @ 3 ft <b>/</b> dBA MAX. DISCHARGE PRESSURE: (6.3.2) <b>97</b> psig BASIS: (6.3.2.a, b or c)										DRIVER TYPE: <b>INDUCTION MOTOR</b> GEAR: <b>NO</b> VARIABLE SPEED REQUIRED: <b>NO</b> SOURCE OF VARIABLE SPEED: OTHER: <b>TEFC / IP56</b> MANUFACTURER: <b>Baldor - Reliance</b> NAMEPLATE POWER: <b>50</b> hp NOMINAL RPM: <b>3600</b> RATED LOAD RPM: <b>3560</b> FRAME OR MODEL: <b>364TS</b> ORIENTATION: <b>HORIZONTAL</b> LUBE: <b>GREASE</b> BEARING TYPE: <b>ANTI-FRICTION</b> RADIAL: (Qty / Brg. Number) <b>65BC03J30X</b> THRUST: (Qty / Brg. Number) <b>65BC03J30X</b> STARTING METHOD: <b>CLOSED VALVE (UNLOADED) START</b> DRIVER DATA SHEET: <b>ATTACHED</b> ACCESSORIES:																																																																									
<b>CONSTRUCTION</b>																																																																																			
API PUMP TYPE: <b>OH2</b> [Based on API 610 Definitions] NOZZLE CONNECTIONS: (6.4.2) <table border="1"> <thead> <tr> <th></th> <th>SIZE</th> <th>FACING</th> <th>RATING</th> <th>POSITION</th> </tr> </thead> <tbody> <tr> <td>SUCTION</td> <td><b>6"</b></td> <td><b>RF</b></td> <td><b>300</b></td> <td><b>END</b></td> </tr> <tr> <td>DISCHARGE</td> <td><b>4"</b></td> <td><b>RF</b></td> <td><b>300</b></td> <td><b>TOP</b></td> </tr> </tbody> </table> PRESSURE CASING AUX. CONNECTIONS: (6.4.1.2)(6.4.3.1)(6.4.3.2)(6.4.3.12) <table border="1"> <thead> <tr> <th></th> <th>NO.</th> <th>SIZE</th> <th>TYPE</th> <th>FACING</th> <th>RATING</th> <th>POSITION</th> </tr> </thead> <tbody> <tr> <td>BALANCE/LEAK OFF</td> <td>--</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DRAIN <b>(Note 3.2)</b></td> <td><b>1</b></td> <td><b>0.75"</b></td> <td><b>SWF</b></td> <td><b>RF</b></td> <td><b>300</b></td> <td><b>BOTTOM</b></td> </tr> <tr> <td>VENT (IF NOT SELF VENT)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PRESSURE GAUGE</td> <td>--</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TEMP GAUGE</td> <td>--</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>WARM-UP LINE*</td> <td>--</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> *VENDOR TO ADVISE WARM-UP FLOW IF REQUIRED: -- gpm DRAIN VALVE SUPPLIED BY: <b>PURCHASER</b> DRAINS MANIFOLDED: VENT VALVE SUPPLIED BY: VENTS MANIFOLDED: <b>N/A</b> THREADED CONNS FOR PIPELINE SERVICE & < 50°C:(6.4.3.2) <b>N/A</b> SPECIAL FITTINGS FOR TRANSITIONING: (6.4.3.3) <b>NO</b> CYLINDRICAL THREADS REQUIRED: (6.4.3.8) <b>NO</b> GUSSET SUPPORT REQUIRED: (6.4.3.10) <b>YES</b> MACHINED AND STUDDED CONNECTIONS: (6.4.3.12) <b>NO</b> TYPE VS6 DRAIN CONN.: (9.3.13.5) <b>N/A</b> DRAIN TO SKID EDGE: <b>YES</b> BOLTING CONFORMANCE:: (6.1.29.1) <b>YES</b> (ISO 261, ISO 262, ISO 724, ISO 965 OR ANSI/ASME B1.1) <b>ASME B1.1</b> SEAL FLUSH CASING CONNS. w/ SECONDARY SEALING REQD: (6.4.3.3) <b>NO</b> AUX. PIPING TERMINATIONS: <b>RF</b>											SIZE	FACING	RATING	POSITION	SUCTION	<b>6"</b>	<b>RF</b>	<b>300</b>	<b>END</b>	DISCHARGE	<b>4"</b>	<b>RF</b>	<b>300</b>	<b>TOP</b>		NO.	SIZE	TYPE	FACING	RATING	POSITION	BALANCE/LEAK OFF	--						DRAIN <b>(Note 3.2)</b>	<b>1</b>	<b>0.75"</b>	<b>SWF</b>	<b>RF</b>	<b>300</b>	<b>BOTTOM</b>	VENT (IF NOT SELF VENT)							PRESSURE GAUGE	--						TEMP GAUGE	--						WARM-UP LINE*	--						CASING MOUNTING: <b>CENTERLINE</b> CASING TYPE: <b>SINGLE VOLUTE</b> OH3 BACKPULLOUT LIFING DEVICE REQ'D: (9.1.2.6) <b>NO</b> CASE PRESSURE RATING: <b>(Note 3.3)</b> MAWP: (6.3.5) <b>574</b> psig @ <b>250</b> °F HYDROTEST: (8.3.2.6) <b>870</b> psig @ <b>AMB</b> °F <b>Hydrotest at 1.5 x MAWP of the Pump Assembly.</b> HYDROTEST OH PUMP AS ASSEMBLY: <b>YES</b> SUCTION PRESS. REGIONS DESIGNED FOR MAWP: <b>YES</b> ROTATION: (VIEWED FROM COUPLING END) <b>CCW</b> - IMPELLERS INDIVIDUALLY SECURED: <b>N/A</b> - BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION: <b>N/A</b> - PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS: <b>N/A</b> ROTOR: SHAFT FLEXIBILITY INDEX (SFI): (9.1.1.3) <b>N/A</b> RPM FIRST CRITICAL SPEED, WET: (MULTI-STAGE) <b>N/A</b> RPM COMPONENT BALANCE TO ISO 1940 G1.0: (6.9.4.4) <b>YES</b> SHRINK FIT LIMITED MOVEMENT IMPELLERS: (9.2.2.3) <b>N/A</b> COUPLING & GUARD: (7.2.2) <b>(Note 3.4)</b> MANUFACTURER: <b>Rexnord</b> MODEL: <b>0726 XTSR 71-XL</b> RATING: (POWER/100 RPM) SPACER LENGTH: <b>5</b> in ACTUAL SF AT MOTOR NAMEPLATE: <b>1.5 minimum</b> RIGID: <b>N/A</b> COUPLING WITH HYDRAULIC FIT: (7.2.10) <b>NO</b> COUPLING BALANCED TO ISO 1940-1 G6.3: (7.2.3) <b>G2.5</b> COUPLING WITH PROPRIETARY CLAMPING DEVICE: (7.2.11) <b>N/A</b> COUPLING IN COMPLIANCE WITH: (7.2.4) <b>API 610 COMPLIANT</b> COUPLING GUARD STANDARD PER: (7.2.13.a) <b>ANSI B15.1</b> WINDOW ON COUPLING GUARD: <b>YES</b>									
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3.1 Suction specific speeds greater than 11,000 for hydrocarbons and 9,000 for water (USC units) require specific approval by the Buyer.																																																																																			
3.2 Terminate drain piping with a gate valve at edge-of-skid. Customer connections shall be flanged.																																																																																			
Deleted.																																																																																			
3.3 Nameplate for MAWP at mechanical design temperature.																																																																																			
3.4 Coupling guards shall be non-sparking.																																																																																			
Deleted.																																																																																			
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**API 610  
CENTRIFUGAL PUMP DATA SHEET**

Doc. No.: A8KM-18-052-540130-A


Note: This data sheet has been modified from that in the annex of API Standard 610, 11th Edition.

Contract:	A8KM		
Item No:	18-P-1807		
Revision:	2	Date:	23-May-23
Unit:	North Tank Farm		
P.O. No.:	4505551383		
Inquiry No.:	4-601D-RQ		
Sheet	4	of	7

REV

CONSTRUCTION (CONT'D)			
<b>MATERIAL (6.12.1.1)</b>		<b>BASEPLATE OR SOLE PLATE</b>	
APPENDIX H CLASS:	A-8: 316L SS / 316L SS	API BASEPLATE NUMBER:	
MINIMUM DESIGN METAL TEMP: (6.12.4.1)	32 °F	BASEPLATE CONSTRUCTION: (7.3.14)	FULL TOP DECKING
REDUCED HARDNESS MATERIALS REQ'D: (6.12.1.12.1)	NO	BASEPLATE DRAINAGE: (7.3.1)	Sloped Deck Drain Pan
APPLICABLE HARDNESS STANDARD: (6.12.1.12.3)	N/A	MOUNTING:	GROUTED
BARREL:	--	NON-GROUT CONSTRUCTION: (7.3.13)	NOT REQUIRED
CASE:	A351 GR. CF3M	VERTICAL LEVELING SCREWS:	REQUIRED
DIFFUSERS:		HORIZONTAL DRIVER POSITIONING SCREWS:	REQUIRED
IMPELLER:	A743/A351 GR.CF3M	SUPPLIED WITH: - GROUT VENT HOLES	YES
IMPELLER / CASE WEAR RING:	316L / C6HF - A890 GR.1B	- DRAIN CONNECTION	YES
SHAFT:	A276 TYPE 316 COND. A	MOUNTING PADS SIZED FOR BASEPLATES LEVELING: (7.3.5)	YES
BOWL (IF VS TYPE):	--	MOUNTING PADS OR SOLE PLATE TO BE MACHINED: (7.3.6)	YES
INSPECTION CLASS: (API/ISO TABLE 14)	LEVEL 2	PROVIDE SPACER PLATE UNDER ALL EQUIP. FEET: (7.3.6)	
<b>BEARINGS AND LUBRICATION (6.10.1)</b>		OTHER: Furnish two (2) diagonally opposed grounding provisions per Note 6.9.	
BEARING (TYPE / NUMBER):		<b>NOTES</b>	
RADIAL:	BALL / 6310 C3	COATINGS REQ'D: (6.12.1.10) --	
THRUST:	BALL / 7311 BXLMPUB	4.1) SYNTHETIC OIL REQ'D: (6.10.2.12) NO	
REVIEW AND APPROVE THRUST BEARING SIZE: (9.2.5.2.4)	N/A	4.2) PROVISIONS FOR PURE OR PURGE MIST: (6.11.3) IF STD	
LUBRICATION TYPE: (6.11.3)(6.11.4)(9.2.6.1)	RING OIL	4.3) PRESS. / CIRC. LUBE SYSTEM: 9.2.6.1)	
PRESSURE LUBE SYSTEM TO ISO 10438- (9.2.6.4)	N/A	4.4) CONST. LEVEL OILER PREFERENCE: (6.10.2.2) (Note 4.6)	
ISO 10438 DATA SHEETS ATTACHED		4.5) Bearing housing isolators shall be Inpro or Equal.	
PRESSURIZED LUBE OIL SYSTEM MTD. ON PUMP BASEPLATE:	N/A	4.6) Bearing housing oilers shall be Trico 8-oz. constant-level sight feed.	
LOCATION OF PRESSURIZED LUBE OIL SYSTEM MOUNTED ON BASEPLATE:		Provide a minimum 1" NPS bullseye level gauge.	
INTERCONNECTING PIPING PROVIDED BY:	N/A	4.7) Oil drains shall be furnished with an ESCO single-piece sight glass.	
OIL VISC. ISO GRADE:	ISO VG 46 "OR" ISO VG 68		
CONSTANT LEVEL OILER: (6.10.2.2)	REQUIRED		
<b>INSTRUMENTATION</b>		<b>SEAL SUPPORT SYSTEM MOUNTING</b>	
SEE ATTACHED API-670 DATA SHEET:	NO	BARRIER/BUFFER RESERV. MTD ON PUMP BASEPL.: (7.5.1.4)	N/A
ACCELEROMETER OR VELOMETER: (7.4.2.1):	NO	IDENTIFY LOCATION ON BASEPLATE:	
QUANTITY:		INTERCONNECTING PIPING BY:	SUPPLIER
MOUNTING LOCATIONS:		RESERVOIR(S) SHIPPED SEPARATELY:	N/A
DETECTORS REQUIRED:		<b>MECHANICAL SEAL (6.8)</b>	
THRD'D PROVISIONS ONLY PER ANSI/API 670: (6.10.2.10)		SEE ATTACHED API 682 DATA SHEET: SEE PAGE 7	
QUANTITY:		ADDITIONAL CENTRAL FLUSH PORT: (6.8.9)	
MOUNTING LOCATIONS:		HEATING OR COOLING JACKET REQ'D:	
FLAT SURFACE REQ'D FOR MAGNETIC P/U's: (6.10.2.11)	YES	MAX. CHAMBER PRESS.: (6.8.13) STATIC: DYN.: psig	
QUANTITY:		SEAL CATEGORY: (6.8.1)	
MOUNTING LOCATIONS:		<b>HEATING AND COOLING</b>	
VIBRATION PROXIMITY PROBES FOR HYDRODYNAMIC BEARINGS:		COOLING REQUIRED: (6.1.17)	
PROVISION-ONLY FOR VIB. PROBES: (7.4.2.2)	N/A	COOLING WATER PIPING PLAN:	
QUANTITY PER RADIAL BEARING:		CLG WATER PIPING CONSTR.:	
QUANTITY PER THRUST BEARING:		FITTINGS TYPE:	
VIBR. MONITORS & CABLES SUPPLIED BY: (7.4.2.4)		COOLING WATER PIPING MATERIALS:	
		CLG WTR REQmnts: (BOTH ENDS IF DOUBLE ENDED)	
TEMP. DETECTORS FOR HYDRODYNAMIC BEARINGS: (7.4.2.3)		BEARING HOUSING(S): gpm	
PROVISION-ONLY FOR TEMPERATURE PROBES:	NO	SEAL SUPPORT: (HX, BUFFER, BARRIER, ETC.) gpm	
RADIAL BEARING TEMPERATURE PROBES:	N/A	TOTAL COOLING WATER: gpm	
QUANTITY PER RADIAL BEARING:		HEATING MEDIUM: N/A	
THRUST BEARING TEMPERATURE PROBES:	N/A	OTHER:	
QUANTITY PER THRUST BEARING ACTIVE SIDE:		HEATING MEDIUM PIPING CONSTRUCTION:	
QUANTITY PER THRUST BEARING INACTIVE SIDE:		<b>PIPING &amp; APPURTENANCES</b>	
THRD'D T/W's FOR GEARBOX TEMP GAGES: (9.1.3.6)	N/A	MANIFOLD PIPING SYS. FOR PURCHASER CONN.: (7.5.1.6)	
PRESSURE GAGE TYPE:		VENTS INCL. VALVES: N/A	
TEMP. MONITORS & CABLES SUPPLIED BY: (7.4.2.4)		DRAINS & WARM-UP PIPING WHEN REQ'D INCL. VALVES: N/A	
		COOLING WATER INCL. VALVES & SFI's: N/A	
		TAG ALL ORIFICES: (7.5.2.4) YES	
		SOCKET WELD CONN. ON SEAL GLAND: (7.5.2.8) NO	


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		<b>API 610</b>		<b>Contract:</b> A8KM	
		<b>CENTRIFUGAL PUMP DATA SHEET</b>		<b>Item No:</b> 18-P-1807	
		Doc. No.: A8KM-18-052-540130-A		<b>Revision:</b> 2 <b>Date:</b> 23-May-23	
				<b>Unit:</b> North Tank Farm	
		Note: This data sheet has been modified from that in the annex of API Standard 610, 11th Edition.		<b>P.O. No.:</b> 4505551383	
<b>Inquiry No.:</b> 4-601D-RQ					
		<b>Sheet</b>	5	<b>of</b>	7
					<b>REV</b>

<div style="background-color: #e0e0e0; text-align: center; font-weight: bold; padding: 2px;">SURFACE PREPARATION AND PAINT</div> <p>1 MANUFACTURER'S STANDARD: <span style="float: right;">NO</span></p> <p>2 OTHER (SEE BELOW) <span style="float: right;">YES</span></p> <p>3 SPECIFICATION NUMBER: <span style="float: right;">A8KM-PP-000-500520-A</span></p> <p>4 PUMP: <b>Meets ISO 12944-5, C4 Environment</b></p> <p>5 PUMP SURFACE PREPARATION:</p> <p>6 PRIMER:</p> <p>7 FINISH COAT:</p> <p>8 BASEPLATE OR SOLE PLATE: <b>Meets ISO 12944-5, C4 Environment</b></p> <p>9 SURFACE PREPARATION:</p> <p>10 PRIMER:</p> <p>11 FINISH COAT:</p> <p>12 DETAILS OF LIFTING DEVICES:</p> <p>13 SHIPMENT: (8.4.1) <span style="float: right;">(Note 6.8)</span></p> <p>14 EXPORT BOXING REQUIRED</p> <p>15 OUTDOOR STORAGE UP TO 6 MONTHS: <span style="float: right;">YES</span></p> <p>16 SPARE ROTOR ASSEMBLY PACKAGED FOR:</p> <p>17 ROTOR STORAGE ORIENTATION: (9.2.8.2) <span style="float: right;">N/A</span></p> <p>18 SHIP'G &amp; STORAGE CONTAINER FOR VERT. STORAGE: (9.2.8.3) <span style="float: right;">N/A</span></p> <p>19 N2 PURGE: (9.2.8.4) <span style="float: right;">N/A</span></p> <p>20 SPARE PARTS: (Note 6.1)</p> <p>21 START-UP: <span style="float: right;">YES</span></p> <p>22 NORMAL MAINTENANCE: <span style="float: right;">YES</span></p> <p>23</p> <p>24</p> <div style="background-color: #e0e0e0; text-align: center; font-weight: bold; padding: 2px;">WEIGHTS lb</div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>ITEM No.</th> <th>PUMP</th> <th>DRIVER</th> <th>AUXILIARY</th> <th>BASE</th> <th>TOTAL</th> </tr> <tr> <td>26 18-P-1807</td> <td>400</td> <td>900</td> <td>80</td> <td>900</td> <td>2280</td> </tr> <tr> <td>27</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>28</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>29</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>30</p> <div style="background-color: #e0e0e0; text-align: center; font-weight: bold; padding: 2px;">OTHER PURCHASER REQUIREMENTS</div> <p>31 COORDINATION MEETING REQUIRED: (10.1.3) <span style="float: right;">YES</span></p> <p>32 MAXIMUM DISCHARGE PRESSURE TO INCLUDE:</p> <p>33 MAX RELATIVE DENSITY: <span style="float: right;">YES</span></p> <p>34 OPERATION TO TURBINE TRIP SPEED OR ASD OVERSPEED: <span style="float: right;">NO</span></p> <p>35 MAX DIA. IMPELLERS AND / OR NO. OF STAGES: <span style="float: right;">NO</span></p> <p>36 CONNECTION DESIGN APPROVAL: (9.2.1.4) (BB Pumps) <span style="float: right;">N/A</span></p> <p>37 TORSIONAL ANALYSIS / REPORT: (6.9.2.10) (IF GEAR OR VFD) <span style="float: right;">NO</span></p> <p>38 PROGRESS REPORTS: <span style="float: right;">YES</span></p> <p>39 OUTLINE OF PROCEDURE FOR OPTIONAL TESTS: (10.2.5) <span style="float: right;">YES</span></p> <p>40 ADDITIONAL DATA REQUIRING 20 YEARS RETENTION: (8.2.1.1) <span style="float: right;">NO</span></p> <p>41 LATERAL ANALYSIS REQUIRED: (9.1.3.4)(9.2.4.1.3) <span style="float: right;">NO</span></p> <p>42 MODAL ANALYSIS REQUIRED FOR VS PUMPS: (9.3.9.2) <span style="float: right;">N/A</span></p> <p>43 DYNAMIC BALANCE ROTOR ASSEMBLY TO ISO G1.0: (9.2.4.2.3) <span style="float: right;">N/A</span></p> <p>44 INSTALLATION LIST IN PROPOSAL: (10.2.3.1) <span style="float: right;">NO</span></p> <p>45 VFD STEADY STATE DAMPED RESPONSE ANALYSIS: (6.9.2.3) <span style="float: right;">NO</span></p> <p>46 TRANSIENT TORSIONAL RESPONSE: (6.9.2.4) <span style="float: right;">NO</span></p> <p>47 BEARING SELECTION &amp; LIFE CALCS PER (6.10.1.1) &amp; (6.10.1.6): <span style="float: right;">YES</span></p> <p>48 IGNITION HAZARD ASSESSMENT TO EN 13463-1 FOR EXPLOSIVE ATM: (7.2.15) <span style="float: right;">N/A</span></p> <p>49 CASING RETIREMENT THICKNESS DWG: (10.3.2.3) <span style="float: right;">NO</span></p> <p>50 FLANGES REQ'D IN PLACE OF SOCKET WELD UNIONS: (7.5.2.8) <span style="float: right;">YES</span></p> <p>51 INCLUDE PLOTTED VIBRATION SPECTRA FOR PERF. TEST: (6.9.3.3) <span style="float: right;">YES</span></p> <p>52 CONNECTION BOLTING: (7.5.1.7) <span style="float: right;">PAINTED</span></p> <p>53 CADMIUM PLATED BOLTS PROHIBITED: <span style="float: right;">YES</span></p> <p>54 VENDOR TO KEEP REPAIR AND HT RECORDS: (8.2.1.1.c) <span style="float: right;">YES</span></p> <p>55 VENDOR TO SUBMIT TEST PROCEDURES: (8.3.1.1) <span style="float: right;">YES</span></p> <p>56 VENDOR SUBMIT INSPECTION CHECK LIST: (8.1.5) <span style="float: right;">YES</span></p> <p>57 TEST REQUIREMENTS PER 8.3.3.5a THROUGH 8.3.3.5d: <span style="float: right;">YES</span></p> <p>58 DISASSEMBLE AND INSPECT AFTER TEST: (8.3.3.8) <span style="float: right;">NO</span></p> <p>59</p> <p>60</p>	ITEM No.	PUMP	DRIVER	AUXILIARY	BASE	TOTAL	26 18-P-1807	400	900	80	900	2280	27						28						29						<div style="background-color: #e0e0e0; text-align: center; font-weight: bold; padding: 2px;">INSPECTION &amp; TEST</div> <p>SHOP INSPECTION: (8.1.1) <span style="float: right;">YES</span></p> <p>PERFORMANCE CURVE &amp; DATA APPROVAL PRIOR TO SHIPMENT: <span style="float: right;">YES</span></p> <p>TEST WITH SUBSTITUTE SEAL: (8.3.3.2.b) <span style="float: right;">---</span></p> <p>MATERIAL CERT. REQUIRED: (6.12.1.8) CASING: <span style="float: right;">YES</span></p> <p>IMPELLER: <span style="float: right;">YES</span></p> <p>SHAFT: <span style="float: right;">YES</span></p> <p>OTHER: <span style="float: right;">See Note 6.3</span> <span style="float: right;">YES</span></p> <p>CASTING REPAIR PROCED. APPROVAL REQ'D: (6.12.2.5)(6.12.3.1) <span style="float: right;">Note 6.7</span></p> <p>INSPECTION REQ'D FOR CONN. WELDS: (6.12.3.4.d,e)</p> <p>MAG PARTICLE: <span style="float: right;">YES</span></p> <p>RADIOGRAPHY: <span style="float: right;">NO</span></p> <p>LIQUID PENETRANT: <span style="float: right;">NO</span></p> <p>ULTRASONIC: <span style="float: right;">NO</span></p> <p>INSPECTION REQUIRED FOR CASTINGS: (TABLE 14)</p> <p>MAG PARTICLE: <span style="float: right;">YES</span></p> <p>RADIOGRAPHY: <span style="float: right;">NO</span></p> <p>LIQUID PENETRANT: <span style="float: right;">NO</span></p> <p>ULTRASONIC: <span style="float: right;">NO</span></p> <p>HARDNESS TEST REQUIRED: (8.2.2.7) (NACE, H2, etc.) <span style="float: right;">N/A</span></p> <p>ADDITIONAL SUBSURFACE EXAMINATION: (6.12.1.5)(8.2.1.3) <span style="float: right;">NO</span></p> <p>FOR: <span style="float: right;">---</span></p> <p>METHOD: <span style="float: right;">---</span></p> <p>PMI TESTING REQUIRED: (8.2.2.8) <span style="float: right;">YES</span></p> <p>COMPONENTS TO BE TESTED: <span style="float: right;">See Note 6.4</span></p> <p>RESIDUAL UNBALANCE TEST: (J.4.1.2) <span style="float: right;">N/A</span></p> <p>NOTIFICATION OF SUCCESSFUL SHOP PRELIM. TEST: (8.1.1.c)(8.3.3.5) <span style="float: right;">NO</span></p> <p>BASEPLATE TEST: (7.3.21) <span style="float: right;">NO</span></p> <p>HYDROSTATIC TEST OF CASING/HEAD: <span style="float: right;">NON-WIT</span></p> <p>HYDROSTATIC TEST OF BOWLS &amp; COLUMN: (9.3.13.2) <span style="float: right;">N/A</span></p> <p>PERFORMANCE TEST: <span style="float: right;">(Note 6.5)</span> <span style="float: right;">NON-WIT</span></p> <p>TEST IN COMPLIANCE WITH: (8.3.3.2) <span style="float: right;">8.3.3.2</span></p> <p>TEST DATA POINTS TO: (8.3.3.3) <span style="float: right;">8.3.3.3</span></p> <p>TEST TOLERANCES TO: (8.3.3.4) <span style="float: right;">TABLE 16</span></p> <p>NPSH TEST PTS/RETEST: (8.3.4.3.1)(8.3.4.3.4) <span style="float: right;">N/A</span></p> <p>NPSH TEST-1ST STAGE ONLY: (8.3.4.3.2) <span style="float: right;">N/A</span></p> <p>NPSH TESTING TO HI 1.6 : (8.3.4.3.3) <span style="float: right;">---</span></p> <p>PERFORMANCE TEST LIMITED TO 110% SITE NPSHA: (8.3.3.6) <span style="float: right;">NO</span></p> <p>RETEST ON SEAL LEAKAGE: (8.3.3.2.d) <span style="float: right;">NO</span></p> <p>RETEST REQUIRED AFTER FINAL HEAD ADJ.: (8.3.3.7.b)(Multistg) <span style="float: right;">N/A</span></p> <p>COMPLETE UNIT TEST: (8.3.4.4.1) <span style="float: right;">N/A</span></p> <p>SOUND LEVEL TEST: (8.3.4.5) <span style="float: right;">FOR INFORMATION ONLY</span> <span style="float: right;">NON-WIT</span></p> <p>CLEANLINESS PRIOR TO FINAL ASSEMBLY: (8.2.2.6) <span style="float: right;">NON-WIT</span></p> <p>LOCATION OF CLEANLINESS INSPECTION: <span style="float: right;">@ SUPPLIERS</span></p> <p>NOZZLE LOAD TEST: <span style="float: right;">NO</span></p> <p>CHECK FOR CO-PLANAR MOUNTING PAD SURFACES: <span style="float: right;">NON-WIT</span></p> <p>MECH. RUN TEST AT RATED CAPACITY UNTIL OIL TEMP STABLE: (8.3.4.2.1) <span style="float: right;">NON-WIT</span></p> <p>1 HR. MECH RUN TEST AT RATED CAPACITY AFTER OIL TEMP STABLE: <span style="float: right;">N/A</span></p> <p>1 HR. MECH RUN TEST AT RATED CAPACITY: (8.3.4.2.2) <span style="float: right;">NON-WIT</span></p> <p>BEARING HSG. RESONANCE TEST: (8.3.4.7) <span style="float: right;">---</span></p> <p>STRUCTURAL RESONANCE TEST: (9.3.9.2) <span style="float: right;">N/A</span></p> <p>REMOVE / INSPECT HYDRODYN. BRGS. AFTER TEST: (9.2.7.5) <span style="float: right;">N/A</span></p> <p>AUXILIARY EQUIPMENT TEST: (8.3.4.6) <span style="float: right;">NO</span></p> <p>EQUIP. TO BE INCLUDED IN AUX. TESTS: <span style="float: right;">---</span></p> <p>LOCATION OF AUX. EQUIPMENT TEST: <span style="float: right;">---</span></p> <p>IMPACT TEST: (6.12.4.3) <span style="float: right;">PER EN 13445</span> <span style="float: right;">N/A</span></p> <p><span style="float: right;">PER ASME SECTION VIII</span> <span style="float: right;">N/A</span></p> <p>REMOVE CASING AFTER TEST: <span style="float: right;">N/A</span></p>
ITEM No.	PUMP	DRIVER	AUXILIARY	BASE	TOTAL																										
26 18-P-1807	400	900	80	900	2280																										
27																															
28																															
29																															

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	<b>API 610</b> <b>CENTRIFUGAL PUMP DATA SHEET</b>		Contract:		A8KM	
			Item No:		18-P-1807	
	Doc. No.: A8KM-18-052-540130-A		Revision:	2	Date:	23-May-23
	Note: This data sheet has been modified from that in the annex of API Standard 610, 11th Edition.		Unit:		North Tank Farm	
			P.O. No.:		4505551383	
		Inquiry No.:		4-601D-RQ		
		Sheet	6	of	7	REV

<b>PRESSURE VESSEL DESIGN CODE REFERENCES</b>																											
THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER:																											
CASTING FACTORS USED IN DESIGN: (TABLE 3)																											
SOURCE OF MATERIAL PROPERTIES:																											
<b>WELDING AND REPAIRS</b>																											
THESE REFERENCES MUST BE LISTED BY THE PURCHASER (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED)																											
ALTERNATIVE WELDING CODES AND STANDARDS:																											
WELDING REQUIREMENT: (APPLICABLE CODE OR STANDARD)		DEFAULT PER TABLE 11																									
WELDER/OPERATOR QUALIFICATION:																											
WELDING PROCEDURE QUALIFICATION:																											
NON-PRESSURE RETAINING STRUCTURAL WELDING SUCH AS BASEPLATES OR SUPPORTS:																											
MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION OF PLATE EDGES:																											
POSTWELD HEAT TREATMENT:																											
POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS:																											
<b>MATERIAL INSPECTION</b>																											
THESE REFERENCES MUST BE LISTED BY THE PURCHASER		DEFAULT TO TABLE 14: YES																									
ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA:																											
<table border="1"> <thead> <tr> <th>TYPE OF INSPECTION</th> <th>METHOD</th> <th>FOR FABRICATIONS</th> <th>FOR CASTINGS</th> </tr> </thead> <tbody> <tr> <td>RADIOGRAPHY</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ULTRASONIC INSPECTION</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MAGNETIC PARTICLE INSPECTION</td> <td></td> <td></td> <td></td> </tr> <tr> <td>LIQUID PENETRANT INSPECTION</td> <td></td> <td></td> <td></td> </tr> <tr> <td>VISUAL INSPECTION (ALL SURFACES)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS	RADIOGRAPHY				ULTRASONIC INSPECTION				MAGNETIC PARTICLE INSPECTION				LIQUID PENETRANT INSPECTION				VISUAL INSPECTION (ALL SURFACES)			
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LIQUID PENETRANT INSPECTION																											
VISUAL INSPECTION (ALL SURFACES)																											
<b>NOTES</b>																											
6.1	Provide a Start-up Spare Parts List and 2-yrs. Operating Spares List, inclusive of coupling and motor parts.																										
6.2	Pump Supplier shall provide pump performance curves, General Arrangement drawing sized for the driver, completed data sheets & Bill of Material.																										
6.3	CMTR's are required for pressure casings & covers, impellers, wear rings & shaft. Include all QA documents in Quality Data Books.																										
6.4	PMI of any alloy pressure containment parts, incl. seal gland, pipe & valves, is req'd per Project Spec. A8KM-PP-000-500512-A, Positive Material Identification (PMI).																										
6.5	Mechanical run testing is required. Mechanical run test shall be until oil temperature stabilization at Rated point, for at least one (1) hour for single-stage pumps, with vibration recordings at 10-minute intervals.																										
	Deleted.																										
	Deleted.																										
6.6	Deleted.																										
	Deleted.																										
6.7	Minor defects of a surface nature in the pressure casting (amounting to less than 20% of the wall thickness and less than 10 in <sup>2</sup> [65 cm <sup>2</sup> ] in total area) may be repaired without Buyer's approval. See Project Pump Specification A8KM-PP-000-50626-A.																										
6.8	Export Boxing is required for Ocean Transit only. Supplier shall include as applicable to their scope and place of manufacture in relation to destination of equipment. All boxing shall be protective of the weather elements.																										
6.9	Baseplate grounding tabs shall be 1/4" thick steel with at least one (1) 9/16" dia. hole provided. If two (2) are provided, they shall be 9/16" dia. spaced 1-3/4" on center. Where Stainless Steel grounding pads are provided, they shall be threaded with one (1) 1/2"-13 hole, or either two (2), or four (4), 1/2"-13 holes, all spaced 1-3/4" on center.																										

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**FLUOR®**



**PUMP DATASHEET  
ANNEX**

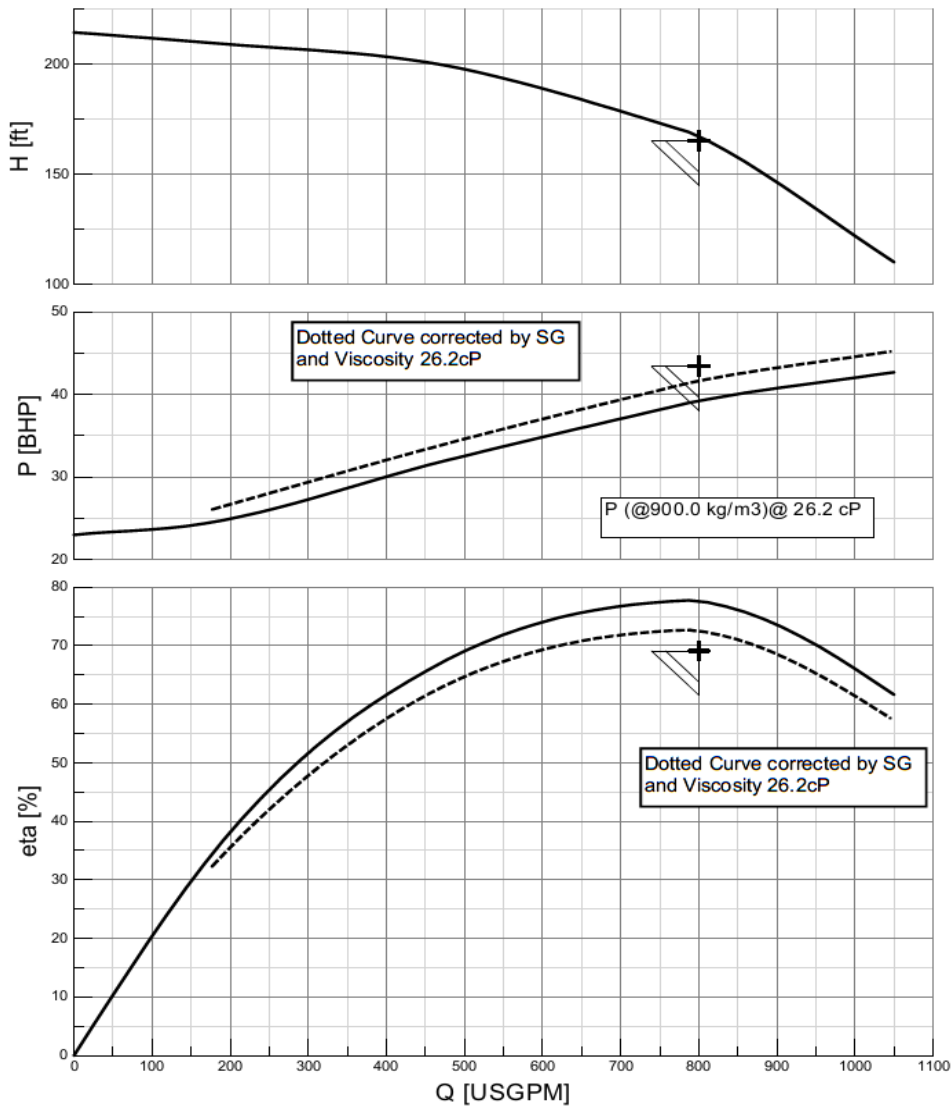
Contract:	A8KM		
Item No:	18-P-1807		
Revision:	2	Date:	23-May-23
Unit:	North Tank Farm		
P.O. No.:	4505551383		
Inquiry No.:	4-601D-RQ		
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REV

**TESTED PUMP CURVE**

1

SULZER		1er Paso 1st Stage		Series Series		No. Or 100456493-0020			
Curva de prueba <b>M-13393</b> Test Curve		Impulsor Impeller	D-15430		Sulzer Comm.Nr.				
Cliente Customer	World Energy Paramount LLC	Modelo Pattern	4130HH-02		Tipo Type				
Orden Compra	4505551383	Difusor Diffuser	EY-10097		4x6x7.5A-1 OHH				
No. Identif. Ident No.	18-P-1807	Modelo Pattern	4140HH-01						
No. Serie. Item No.	649500	D2 Diseño. D2 design.	ø7.17 in	Vanas Vane	Reporte No. Test Report No.		191/22	Fecha dated	..
Nombre Name	Gerardo Endoqui	D2 min. D2 min.	ø5.50 in		n =		3560	1/min.	j =
Fecha Date	2022-07-14	D2 max. D2 max.	ø7.50 in		DN <sub>s</sub>		6 in		DN <sub>d</sub>
								4 in	Stufen Stages



F-BP-002

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