

105796
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CENTRIFUGAL PUMP DATA SHEET (API 610-10th)										
CLIENT: D-Cok		ITEM NO.: G664A/B								
UNIT: Giant Yorktown, Inc.		LOCATION: Grafton, Virginia								
1 EQUIPMENT NAME: BFW CIRCULATION PUMPS				NUMBER OF ITEMS:						
2 APPLICABLE TO: ☒ PROPOSALS ☐ PURCHASE ☐ AS BUILT										
3 NOTES: INFORMATION BELOW TO BE COMPLETED: ☐ BY PURCHASER ☐ BY MANUFACTURER ☐ BY MANUFACTURER OR PURCHASER										
4 ☐ DATA SHEETS				REVISIONS						
5	ITEM NO.	ATTACHED	ITEM NO.	ATTACHED	ITEM NO.	ATTACHED	NO.	DATE	BY	
6	PUMP	G664A	☒	G664B	☒		1			
7	MOTOR	G664A	☐	G664B	☐		2			
8	GEAR		☐		☐		3			
9	TURBINE		☐		☐		4			
10	APPLICABLE OVERLAY STANDARD(S):									
11	☐ OPERATING CONDITIONS (5.1.3)				☐ LIQUID (5.1.3)					
12	FLOW, NORMAL	109,2 (GPM)	RATED	115,5 (GPM)	LIQUID TYPE OR NAME: BOILER FEED WATER					
13	OTHER									
14										
15	SUCTION PRESSURE MAX./RATED	87,5 / 67,9 (PSIG)	PUMPING TEMP. (°F)							
16	DISCHARGE PRESSURE	115,6 (PSIG)	VAPOR PRESS. (PSIA)							
17	DIFFERENTIAL PRESSURE	47,7 (PSI)	RELATIVE DENSITY (SG)							
18	DIFF. HEAD	121,1 (FT) NPSHA	7,4 (FT)	VISCOSITY (cP)						
19	PROCESS VARIATIONS (5.1.4)				SPECIFIC HEAT, Cp					
20	STARTING CONDITIONS (5.1.4)				CHLORIDE CONCENTRATION (6.5.2.4)					
21	SERVICE: ☒ CONT. ☐ INTERMITTENT (STARTS/DAY)				H ₂ S CONCENTRATION (PPM)					
22	☐ PARALLEL OPERATION REQ'D (5.1.13)				CORROSIVE / EROSION AGENT (5.12.1.9)					
23	☐ SITE DATA (5.1.3)				MATERIALS (5.12.1.1)					
24	LOCATION: (5.1.30)				ANNEX H CLASS (5.12.1.1)					
25	☐ INDOOR ☐ HEATED ☒ OUTDOOR ☐ UNHEATED				MIN DESIGN METAL TEMP (5.12.4.1)					
26	☒ ELECTRICAL AREA CLASSIFICATION (5.1.24 / 6.1.4)				REDUCED HARDNESS MATERIALS REQ'D. (5.12.1.12)					
27	CL 1 GR C,D DIV 2, T3				CASE					
28	☒ WINTERIZATION REQ'D. ☐ TROPICALIZATION REQ'D.				CASE/IMPELLER WEAR RINGS					
29	SITE DATA (5.1.30)				SHAFT					
30	☐ ALTITUDE (FT) BAROMETER				DIFFUSERS					
31	☒ RANGE OF AMBIENT TEMPS: MIN/MAX				PERFORMANCE:					
32	☐ RELATIVE HUMIDITY: MIN / MAX				PROPOSAL CURVE NO.					
33	UNUSUAL CONDITIONS: (5.1.30)				IMPELLER DIA. RATED					
34	☒ OTHER Refinery Service				IMPELLER TYPE					
35					RATED POWER					
36					MINIMUM CONTINUOUS FLOW:					
37	☐ DRIVER TYPE				THERMAL					
38	☒ INDUCTION MOTOR ☐ STEAM TURBINE ☐ GEAR				PREFERRED OPER. REGION					
39	☐ OTHER				ALLOWABLE OPER. REGION					
40					MAX HEAD @ RATED IMPELLER					
41	☐ MOTOR DRIVER (6.1.1 / 6.1.4)				MAX POWER @ RATED IMPELLER					
42	MANUFACTURER Reliance				NPSHR AT RATED FLOW					
43	10 (HP) 1800 (RPM)				MAX. SUCTION SPECIFIC SPEED:					
44	FRAME L215T ENCLOSURE TEFC-XEX+				MAX. SOUND PRESS. LEVEL REQ'D					
45	HORIZONTAL ☐ VERTICAL ☒ SERVICE FACTOR 1,15				EST MAX SOUND PRESS. LEVEL					
46	VOLTS/PHASE/HERTZ 460 / 3 / 60				EST MAX SOUND POWER LEVEL					
47	☐ TYPE				UTILITY CONDITIONS (5.1.3)					
48	☐ MINIMUM STARTING VOLTAGE (6.1.5)				ELECTRICITY					
49	☒ INSULATION F @ 1.15 s.f. ☐ TEMP. RISE				DRIVERS					
50	☐ FULL LOAD AMPS				HEATING					
51	☐ LOCKED ROTOR AMPS				SYSTEM VOLTAGE DIP					
52	☐ STARTING METHOD				STEAM					
53	☒ LUBE Grease				DRIVERS					
54					HEATING					
55	BEARINGS (TYPE/NUMBER):				COOLING WATER: (5.1.19)					
56	☐ RADIAL Ball				SUPPLY TEMP.					
57	☐ THRUST Ball				NORM. PRESS.					
58	☐ VERTICAL THRUST CAPACITY				MIN. RET. PRESS.					
59	UP (N) DOWN (N)				CHLORIDE CONCENTRATION:					
60										
61										
62										
63										
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ISSUE		DATE		SHEET		DOC NO.				
2		01-dic-06		2 OF 7		120653-DS-RE-G664A/B				

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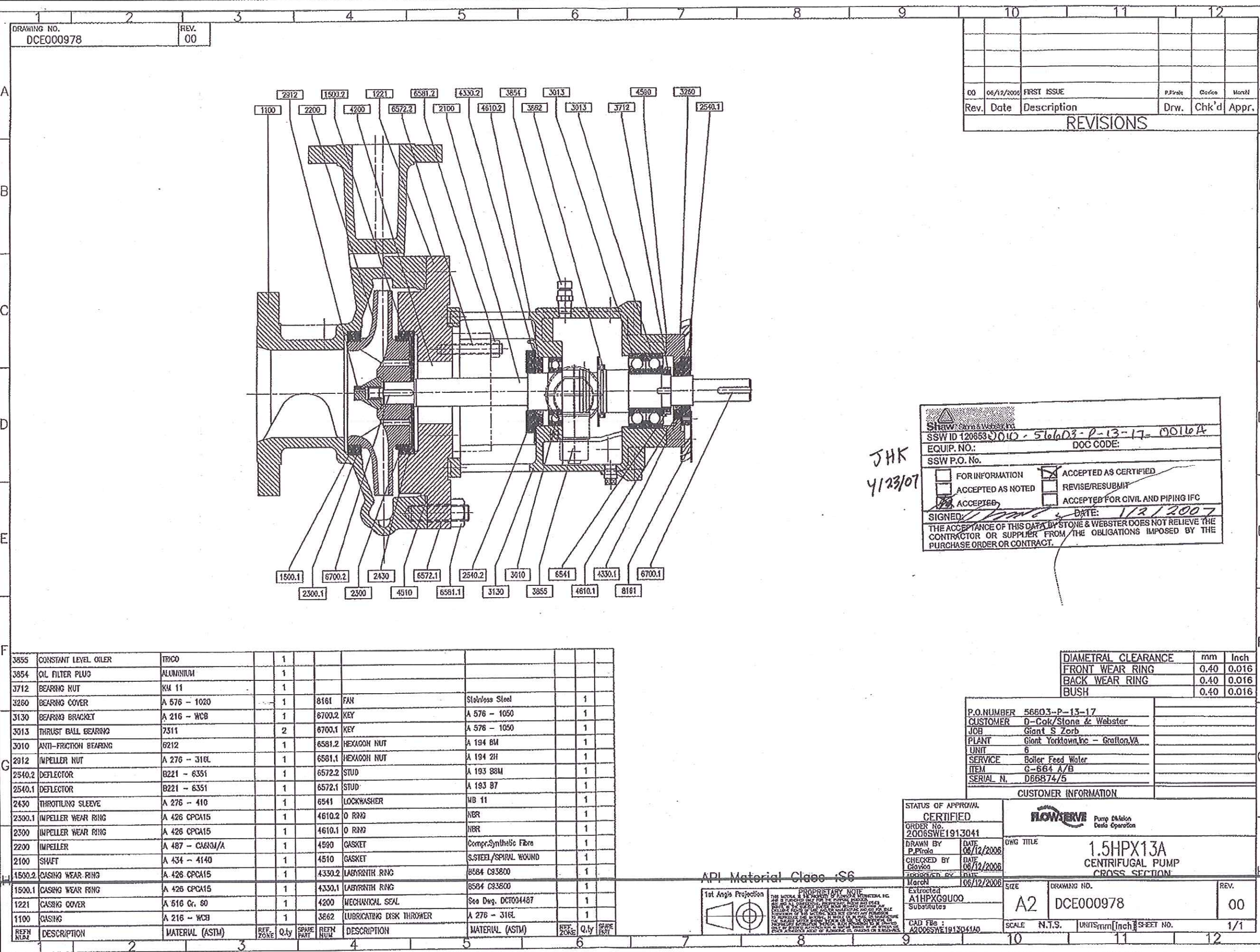
CENTRIFUGAL PUMP DATA SHEET - TYPE OH				
CLIENT: D-Cok		ITEM NO.: G664A/B		
UNIT: Giant Yorktown, Inc.		LOCATION: Grafton, Virginia		
1 EQUIPMENT NAME: BFW CIRCULATION PUMPS		NUMBER OF ITEMS:		
2 CONSTRUCTION		SURFACE PREPARATION AND PAINT		
3 ROTATION: (MEWED FROM COUPLING END) ☐ CW ☒ CCW		☒ MANUFACTURER'S STANDARD ☐ OTHER (SEE BELOW)		
4 PUMP TYPE: (4.1)		☐ SPECIFICATION NO.		
5 ☒ OH2 ☐ OH3 ☐ OH6 ☐ OTHER		PUMP:		
6 CASING MOUNTING:		☐ PRIMER SEE PAINTING PROCEDURE		
7 ☒ CENTERLINE ☐ IN-LINE ☐ OTHER		☐ FINISH COAT SEE PAINTING PROCEDURE		
8		BASEPLATE: (6.3.17)		
9 CASING TYPE:		☐ PRIMER SEE PAINTING PROCEDURE		
10 ☒ SINGLE VOLUTE ☐ MULTIPLE VOLUTE ☐ DIFFUSER		☐ FINISH COAT SEE PAINTING PROCEDURE		
11 CASE PRESSURE RATING:		☐ DETAILS OF LIFTING DEVICES (6.3.20)		
12 ☐ OH6 PUMP SUCTION REGION DESIGNED FOR MAWP (5.3.6)		SHIPMENT: (7.4.1)		
13 ☒ MAX ALLOWABLE WORKING PRESSURE 600.2 (PSIG)		☒ DOMESTIC ☐ EXPORT ☐ EXPORT BOXING REQUIRED		
14 @ (°F)		☐ OUTDOOR STORAGE MORE THAN 6 MONTHS		
15 ☒ HYDROTEST PRESSURE 900.3 (PSIG)		SPARE ROTOR ASSEMBLY PACKAGED FOR:		
16 ☐ NOZZLE CONNECTIONS: (5.4.2)		☐ HORIZONTAL STORAGE ☐ VERTICAL STORAGE		
17		☐ TYPE OF SHIPPING PREPARATION		
18		HEATING AND COOLING		
19 SUCTION		☐ HEATING JACKET REQ'D. (5.8.9)		
20 DISCHARGE		☒ COOLING REQ'D.		
21		☒ COOLING WATER PIPING PLAN (5.5.3.1)		
22 PRESSURE CASING AUX. CONNECTIONS: (5.4.3)		C.W. PIPING:		
23		☒ PIPE ☐ TUBING; FITTINGS		
24 ☒ DRAIN		C.W. PIPING MATERIALS:		
25 ☐ VENT		☒ S. STEEL ☐ C. STEEL ☐ GALVANIZED		
26 ☐ WARM-UP		COOLING WATER REQUIREMENTS:		
27		☐ BEARING HOUSING (GPM)		
28 ☐ MACHINED AND STUDDED CONNECTIONS (5.4.3.8)		HEAT EXCHANGER (GPM)		
29 ☐ CYLINDRICAL THREADS REQUIRED (5.4.3.3)		TOTAL COOLING WATER (GPM)		
30 ROTOR:		HEAT MEDIUM: ☐ STEAM ☐ OTHER		
31 ☐ COMPONENT BALANCE TO ISO 1940 G1.0 (5.9.4.4)		HEATING PIPING: ☐ TUBING ☐ PIPE		
32 COUPLINGS: (6.2.2)		BEARINGS AND LUBRICATION		
33 ☒ MANUFACTURER Autogard ☐ MODEL ECS11HVEII Autotlex		BEARING (TYPE/NUMBER) (5.10.1):		
34 ☐ RATING (HP per 100 RPM) 1.54		☒ RADIAL BALL /		
35 ☒ SPACER LENGTH 5.512 (in) ☐ SERVICE FACT. 1.5		☒ THRUST BALL /		
36 ☐ COUPLING BALANCED TO ISO 1940-1 G6.3 (5.2.3)		LUBRICATION (5.11.3, 5.11.4):		
37 ☐ COUPLING WITH PROPRIETARY CLAMPING DEVICE (5.2.11)		☒ FLINGER ☐ OIL		
38 ☐ COUPLING PER ISO 14691 (5.2.4)		☐ PURGE OIL MIST ☐ PURE OIL MIST		
39 ☐ COUPLING PER ISO 10441 (5.2.4)		☒ CONSTANT LEVEL OILER PREFERENCE (5.10.2.2): Trico		
40 ☐ COUPLING PER API 671 (5.2.4) ☐ ASME B15.1		☐ OIL VISC. ISO GRADE		
41 ☒ NON SPARK COUPLING GUARD (5.2.14c)		INSTRUMENTATION		
42 ☐ COUPLING GUARD STANDARD PER (5.2.14a)		☐ ACCELEROMETER (5.4.2.1)		
43 BASEPLATES:		☐ PROVISION FOR MOUNTING ONLY (5.10.2.11)		
44 ☐ API BASEPLATE NUMBER (ANNEX D)		☐ FLAT SURFACE REQ'D (5.10.2.12)		
45 ☐ NON-GROUT CONSTRUCTION (5.3.13)		☐ TEMP. GAUGES (WITH THERMOWELLS) (5.1.3.6)		
46 ☐ OTHER		☐ PRESSURE GAUGE TYPE		
47 MECHANICAL SEAL: (5.8.1)		REMARKS:		
48 ☐ SEE ATTACHED ISO 21049/API 682 DATA SHEET				
49				
50 Mechanical Seal API Code: BSTFN				
51				
52				
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Shaw Stone & Webster, Inc.		ISSUE 2	DATE - 01-dic-06	SHEET 3 OF 7
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CENTRIFUGAL PUMP DATA SHEET - TYPE OH				
CLIENT: D-Cok		ITEM NO.: G664A/B		
UNIT: Giant Yorktown, Inc.		LOCATION: Grafton, Virginia		
1 EQUIPMENT NAME: BFW CIRCULATION PUMPS		NUMBER OF ITEMS:		
2 SPARE PARTS (TABLE 18)		QA INSPECTION AND TESTING (CONT.)		
3 ☐ START-UP ☐ NORMAL MAINTENANCE		TEST		
4 ☐ OTHER PURCHASER REQUIREMENTS		NON-WIT WIT OBSERVE		
5 ☐ COORDINATION MEETING REQUIRED (9.1.3)		☒ HYDROSTATIC (7.3.2)		
6 ☐ MAXIMUM DISCHARGE PRESSURE TO INCLUDE (5.3.2) *		☒ PERFORMANCE (7.3.3)		
7 ☐ MAX RELATIVE DENSITY		☐ RETEST ON SEAL		
8 ☐ MAX DIA IMPELLERS AND/OR NO OF STAGES		☐ LEAKAGE (7.3.3.2d)		
9 ☐ OPERATION TO TRIP SPEED		☒ NPSH (7.3.4.2)		
10 ☐ OH3 BEARING HSG LIFTER (8.1.2.6)		☐ TRUE PEAK VELOCITY		
11 ☐ CONNECTION DESIGN APPROVAL (5.12.3.4)		☐ DATA (7.3.3.4d)		
12 ☐ TORSIONAL ANALYSIS REQUIRED (5.9.2.1)		☐ COMPLETE UNIT TEST (7.3.4.3)		
13 ☐ TORSIONAL ANALYSIS REPORT (5.9.2.6)		☐ SOUND LEVEL TEST (7.3.4.4)		
14 ☐ PROGRESS REPORTS (9.3.3)		☐ CLEANLINESS PRIOR TO		
15 ☐ OUTLINE OF PROCEDURES FOR OPTIONAL TESTS (9.2.5)		☐ FINAL ASSEMBLY (7.2.2.2)		
16 ☐ ADDITIONAL DATA REQUIRING 20 YEARS RETENTION (7.2.1.10)		☐ NOZZLE LOAD TEST (6.3.6)		
17 ☐ PIPING AND APPURTENANCES		☐ CHECK FOR CO-PLANAR		
18 ☐ MANIFOLD PIPING TO SINGLE CONNECTION (6.5.1.6)		☐ MOUNTING PAD SURFACES (6.3.3)		
19 ☐ VENT ☐ DRAIN ☐ COOLING WATER		☐ MECHANICAL RUN UNTIL OIL		
20 ☐ MOUNT SEAL RESERVOIR OFF BASEPLATE (6.5.1.4)		☐ TEMP. STABLE (7.3.4.7.1)		
21 ☐ FLANGES REQ'D IN PLACE OF SOCKET WELD UNIONS (6.5.2.8)		☐ 4 HR. MECHANICAL RUN AFTER		
22 ☐ INSTALLATION LIST IN PROPOSAL (9.2.3L)		☐ OIL TEMP. STABLE (7.3.4.7.3)		
23 CONNECTION BOLTING		☐ 4 HR. MECH. RUN TEST (7.3.4.7.2)		
24 ☐ PTFE COATING ☐ ASTM A153 GALVANIZED		☐ BRG HSG RESONANCE		
25 ☐ PAINTED ☐ SS		☐ TEST (7.3.4.6)		
26 QA INSPECTION AND TESTING		☐ AUXILIARY EQUIPMENT		
27 ☐ SHOP INSPECTION (7.1.4)		☐ TEST (7.3.4.5)		
28 ☐ PERFORMANCE CURVE APPROVAL		☒ IMPACT TESTING (5.12.4.3)		
29 ☐ TEST WITH SUBSTITUTE SEAL (7.3.3.2b)		☐ PER EN 13445		
30 ☒ MATERIAL CERTIFICATION REQUIRED (5.12.1.8)		☐ PER ASME VIII		
31 ☒ CASING ☒ IMPELLER ☒ SHAFT		☐ VENDOR KEEP REPAIR AND HT RECORDS (7.2.1.1c)		
32 ☒ OTHER ☐ COVER		☐ VENDOR SUBMIT TEST PROCEDURES (7.3.1.2 / 9.2.5)		
33 ☐ CASTING REPAIR PROCEDURE APPROVAL REQ'D (5.12.2.5)		☐ VENDOR SUBMIT TEST DATA WITHIN 24 HOURS (7.3.3.3a)		
34 ☐ INSPECTION REQUIRED FOR CONNECTION WELDS (5.12.3.4e)		☐ INCLUDE PLOTTED VIBRATION SPECTRA (5.9.3.3)		
35 ☐ MAG PARTICLE ☐ LIQUID PENETRANT		☐ SUBMIT INSPECTION CHECK LIST (7.1.6)		
36 ☐ RADIOGRAPHIC ☐ ULTRASONIC		☒ WITNESSED FINAL INSPECTION		
37 ☐ INSPECTION REQUIRED FOR CASTINGS (7.2.1.3 / 5.12.1.5)				
38 ☐ MAG PARTICLE ☐ LIQUID PENETRANT				
39 ☐ RADIOGRAPHIC ☐ ULTRASONIC				
40 ☐ HARDNESS TEST REQUIRED: (7.2.2.3)				
41 ☐ ADDITIONAL SUBSURFACE EXAMINATION FOR 7.2.1.3				
42 FOR				
43 METHOD				
44				
45				
46 REMARKS				
47 1. All process piping shall be schedule 160 (on pump only)				
48 2. All connections shall be socket-welded.				
49 3. Submit recommended spare parts list with pricing.				
50				
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SEE SHEET 1 OF THIS DOCUMENT FOR COPYRIGHT, CONFIDENTIALITY AND OTHER RESTRICTIONS				
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CENTRIFUGAL PUMP DATA SHEET			
CLIENT: D-Cok		ITEM NO.: G664A/B	
UNIT: Giant Yorktown, Inc.		LOCATION: Grafton, Virginia	
EQUIPMENT NAME: BFW CIRCULATION PUMPS		NUMBER OF ITEMS:	
2 APPLICABLE TO: ☐ PROPOSALS ☐ PURCHASE ☒ AS BUILT			
3 ☐ PRESSURE DESIGN CODES ☐ WELDING REQUIREMENTS ☒ PURCHASER DEFINED MATERIAL INSPECTIONS			
4 FOR		UNIT	
5 SITE		SERVICE	
6			
7 NOTES INFORMATION BELOW TO BE COMPLETED: ☐ BY PURCHASER ☐ BY MANUFACTURER ☒ BY MANUFACTURER OR PURCHASER			
8			
9 PRESSURE VESSEL DESIGN CODE REFERENCES.			
10 ☐ THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER			
11 CASTING FACTORS USED IN DESIGN (5.3.4) (TABLE 3)			
12 SOURCE OF MATERIAL PROPERTIES			
13			
14 WELDING AND REPAIRS (5.12.3)			
15 THESE REFERENCES MUST BE LISTED BY THE PURCHASER. (DEFAULT TO TABLE 10 IF NO PURCHASER PREFERENCE IS STATED)			
16 ☐ ALTERNATIVE WELDING CODES AND STANDARDS (5.12.3.1)			
17 Welding Requirement (Applicable Code or Standard)		Purchaser defined	Default per Table 10
18 Welder/operator qualification		☐	☐
19 Welding procedure qualification		☐	☐
20 Non-pressure retaining structural welding such as baseplates or supports		☐	☐
21 Magnetic particle or liquid penetrant examination of the plate edges		☐	☐
22 Postweld heat treatment		☐	☐
23 Postweld heat treatment of casing fabrication welds		☐	☐
24			
25 MATERIAL INSPECTION (7.2.2.1) (7.2.1.3)			
26 THESE REFERENCES MUST BE LISTED BY THE PURCHASER (DEFAULT TO TABLE 13 IF NO PURCHASER PREFERENCE IS STATED)			
27 ☐ ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 13)			
28 Type of inspection	Methods	For fabrications	Castings
29 Radiography	☐	☐	☐
30 Ultrasonic inspection	☐	☐	☐
31 Magnetic particle inspection	☐	☐	☐
32 Liquid penetrant inspection	☐	☐	☐
REMARKS			
33			
34			
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SEE SHEET 1 OF THIS DOCUMENT FOR COPYRIGHT, CONFIDENTIALITY AND OTHER RESTRICTIONS			
Shaw Stone & Webster, Inc.	ISSUE 2	DATE 01-dlc-06	SHEET 5 OF 7
		DOC NO. 120653-DS-RE-G664A/B	

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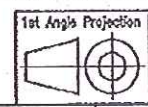
REF. NO.	DESCRIPTION	MATERIAL (ASTM)	REF. ZONE	QTY	SPARE PART	REF. NUM	DESCRIPTION	MATERIAL (ASTM)	REF. ZONE	QTY	SPARE PART
3855	CONSTANT LEVEL OILER	TRICO		1							
3854	OL FILTER PLUG	ALUMINUM		1							
3712	BEARING NUT	KM 11		1							
3260	BEARING COVER	A 576 - 1020		1		8161	FAN	Stainless Steel		1	
3130	BEARING BRACKET	A 216 - WCB		1		6700.2	KEY	A 576 - 1050		1	
3013	THRUST BALL BEARING	7311		2		6700.1	KEY	A 576 - 1050		1	
3010	ANTI-FRICTION BEARING	6212		1		6581.2	HEXAGON NUT	A 194 BM		1	
2912	IMPELLER NUT	A 276 - 316L		1		6581.1	HEXAGON NUT	A 194 2H		1	
2540.2	DEFLECTOR	B221 - 6351		1		6572.2	STUD	A 193 88M		1	
2540.1	DEFLECTOR	B221 - 6351		1		6572.1	STUD	A 193 87		1	
2430	THROTLING SLEEVE	A 276 - 410		1		6541	LOCKWASHER	WB 11		1	
2300.1	IMPELLER WEAR RING	A 426 CPCA15		1		4610.2	O RING	NBR		1	
2300	IMPELLER WEAR RING	A 426 CPCA15		1		4610.1	O RING	NBR		1	
2200	IMPELLER	A 487 - C4801/A		1		4590	GASKET	Compr.Synthetic Fibre		1	
2100	SHAFT	A 434 - 4140		1		4510	GASKET	S.S/STEEL/SPIRAL WOUND		1	
1500.2	CASING WEAR RING	A 426 CPCA15		1		4330.2	LABYRINTH RING	6584 C93800		1	
1500.1	CASING WEAR RING	A 426 CPCA15		1		4330.1	LABYRINTH RING	6584 C93800		1	
1221	CASING COVER	A 516 Gr. 80		1		4200	MECHANICAL SEAL	See Desg. DCT004487		1	
1100	CASING	A 216 - WCB		1		3862	LUBRICATING DISK THROWER	A 276 - 316L		1	
REF. NO.	DESCRIPTION	MATERIAL (ASTM)	REF. ZONE	QTY	SPARE PART	REF. NUM	DESCRIPTION	MATERIAL (ASTM)	REF. ZONE	QTY	SPARE PART

DIAMETRAL CLEARANCE	mm	Inch
FRONT WEAR RING	0.40	0.016
BACK WEAR RING	0.40	0.016
BUSH	0.40	0.016

P.O. NUMBER	56603-P-13-17
CUSTOMER	D-Cok/Stone & Webster
JOB	Giant S Zorb
PLANT	Giant Yorktown, Inc - Grafton, VA
UNIT	6
SERVICE	Boiler Feed Water
ITEM	G-664 A/B
SERIAL N.	D66874/5
CUSTOMER INFORMATION	

STATUS OF APPROVAL		CERTIFIED	
ORDER No.	2006SWE1913041	DATE	06/12/2006
DRAWN BY	P. Piro	CHECKED BY	06/12/2006
APPROVED BY	March	DATE	06/12/2006
Extracted	A1HPXG9U00	Substitutes	
CAD File	A2006SWE1913041A0	SCALE	N.T.S.
SIZE	A2	DRAWING NO.	DCE000978
REV.	00	UNITS	mm [Inch]
SHEET NO.	1/1		

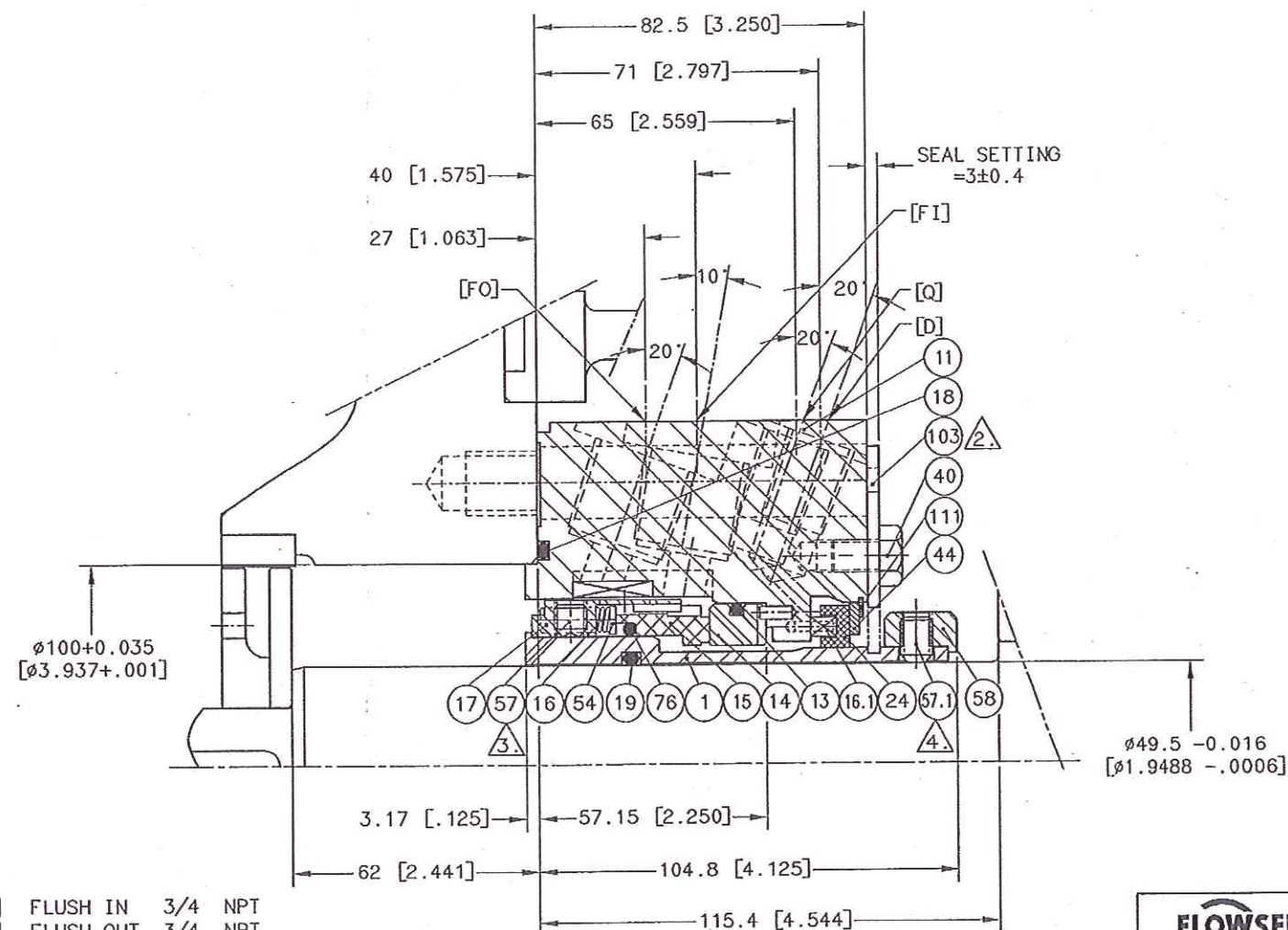
API Material Class: S6



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NO:	981531	REV A
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|-------|-----------|-----|-----|
| [F I] | FLUSH IN | 3/4 | NPT |
| [F O] | FLUSH OUT | 3/4 | NPT |
| [Q] | QUENCH | 3/8 | NPT |
| [D] | DRAIN | 3/8 | NPT |

NOTES:

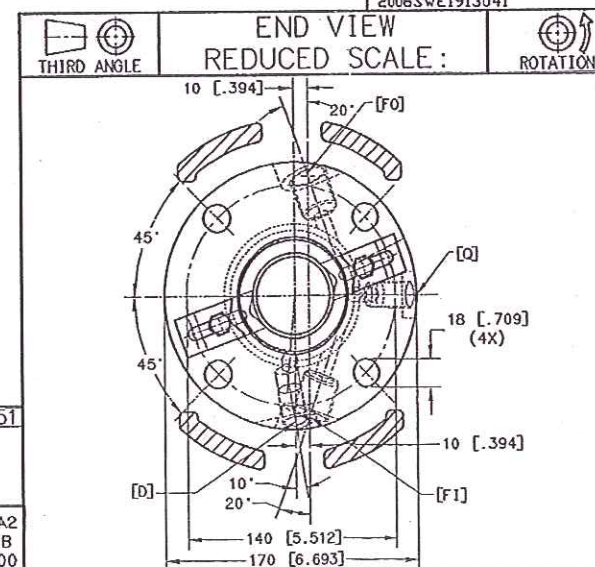
1. FOR INSTALLATION AND OPERATING INSTRUCTIONS SEE APPROPRIATE FLOWSERVE INSTALLATION SHEET (FIS).
2. DISENGAGE SETTING DEVICE(#103)BEFORE START-UP.
3. TIGHTEN SETSCREWS EQUALLY, CROSSWISE, IN 4 STEPS.
FINAL TORQUE: 4.5 Nm / 40 Lbf.inch.SECURE AT ASSEMBLY.
4. TIGHTEN SETSCREWS EQUALLY, CROSSWISE, IN 4 STEPS,
FINAL TORQUE: 18 Nm / 160 Lbf.inch.

REVISION: A	DATE: 10-MAY-2007	BY: VCHANDRAN	CHKD: SDASHNAMURTHY	ECN NO: 07-6051
REVISION NOTE: API CODE WAS BSAFN				

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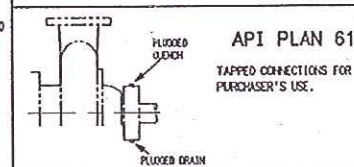
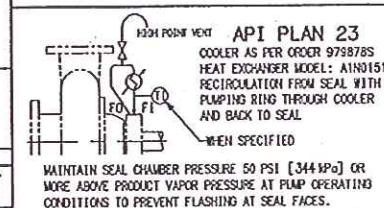
DIM'S ARE REF UNLESS SPECIFIED OTHERWISE.	C/A2
DIM'S IN: MM [INCHES]	FEB 2000

C/A2
FEB
2000



BILL OF MATERIAL NO: 981531-001						*SUGGESTED SPARE PARTS	
(NO)	PART NUMBER	CODE	QTY	DESCRIPTION	MATERIAL	*	ISS
1	2N46705DB		1	SLEEVE	316		
11	1N65940DB		1	GLAND	316		
13	568233GU		1	SEAT GASKET	FLUOROELASTOMER	*	X
14	668821SL		1	STATIONARY FACE	SILICON CARBIDE	*	X
15	154778RY		1	ROTATING FACE	CARBON	*	X
16	669124NL		8	COIL SPRING	ALLOY C-276	*	X
16.1	4N31723NL		6	COIL SPRING	ALLOY C-276	*	
17	154780DB		1	SPRING HOLDER	316		X
18	568243GU		1	GLAND GASKET	FLUOROELASTOMER	*	
19	568226GU		1	SLEEVE GASKET	FLUOROELASTOMER	*	
24	4N30966GE		1	GLAND BUSHING	CARBON		
40	4N02099CK		2	HHCS M8 X 12	18-8		
44	4N31738DB		1	BACKING RING	316		
54	668833DB		1	RETAINING RING	316		X
57	4R0432DB		4	SSCP 5/16-18X5/16	316	*	X
57.1	4R7959CI		6	SSCP 5/16-18X7/16	ALLOY STEEL, PLATED *		
58	666917DB		1	DRIVE COLLAR	316		
76	568230GU		1	ROT. FACE GASKET	FLUOROELASTOMER	*	X
103	4N09587DB		2	SETTING DEVICE	316		
111	UR312CK		1	SNAP RING	18-8		

 Staw Stone & Webster Inc.		13-17-0046 B	
SSW ID 1206530010-56603-P			
EQUIP. NO.:		DOC CODE:	
SSW P.O. No.			
☐	FOR INFORMATION	☐	ACCEPTED AS CERTIFIED
☐	ACCEPTED AS NOTED	☐	REVISE/RESUBMIT
☒	ACCEPTED	☐	ACCEPTED FOR CIVIL AND FIPING IFC
SIGNED: <i>[Signature]</i>		DATE: 6/19/07	
THE ACCEPTANCE OF THIS DATA BY STONE & WEBSTER DOES NOT RELIEVE THE CONTRACTOR OR SUPPLIER FROM THE OBLIGATIONS IMPOSED BY THE PURCHASE ORDER OR CONTRACT.			



PIPING REQUIREMENTS		PIPING REQUIREMENTS	
CUSTOMER: FLOWSERVE FPD DESIO ADDRESS: DESIO ITALY ULTIMATE USER: GIANT YORKTOWN INC. ADDRESS: GRAFTON, VA CUSTOMER P.O.: 2006008595 PRODUCT: BOILER FEED WATER TEMP: 310°F SPEC GRAVITY: 0.91 VISCOSITY: 0.177 CP VAPOR PRES: 77.76 PSIA SEAL CHAMBER PRES: 80 PSIG NORM / 90 PSIG MAX		SUCT PRES: 67.9 PSIG NORM / 87.5 PSIG MAX DISCH PRES: 115.6 PSIG NORM / 135.2 PSIG MAX RPM: 1770 INNER PLAN COOLANT: WATER PRES: 60 PSI NORM / 30-150 PSI TEMP: 90°F NORM / 150°F MAX EQUIP ITEM NO.: G-664 A/B API PLAN: 23/61 API CODE: BSTFN (A) PROJECT NO.: 60068	
SEAL TYPE: QB		SEAL SIZE: 2.500	
SEAL CONFIG: SINGLE INSIDE-CARTRIDGE		SIZE CODE:	
MATH CODE: 5U4X		WEIGHT:	
EQUIP MFR: FLOWSERVE FPD DESIO (ITALY)		INSTR: FTS135	
EQUIP MODEL: 1.5HPX13A / 1 STAGE			
EQUIP DWG: DBW905042 REV 01		DESIGN:	
SCALE: TO SCALE		OPTIONS:	
DRAWN: MNATARAJAN		REF DWG: 979878	
DATE: 19-DEC-2006		FORM DWG: A2N65887	
CHKD: RRAMANATHAN		REV: 1	
APPVD:		ASSY/ORDER NO: SHEET: 1 OF: 1	
F.O. NO: 981531		981531	