

<h1>DEEP BLUE PUMP</h1>		Client: <u>N/A</u>		Project		Project No.													
		<b>MECHANICAL SPECIFICATION SHEET</b>						Rev. <u>A</u>	Date <u>7-Jan-17</u>	By	Chkd	App'd							
		CENTRIFUGAL PUMP ISO 13709 (API 610 11TH EDITION)						Doc #		Sheet: <u>1 of 5</u>									
MR / PO No.		Service: <b>Water with Coker fines</b>																	
REV	Description:	Tag No. <b>01P3008A</b>																	
1	NUMBER REQUIRED:	<b>3</b>						SPEC NO.:											
2	MANUFACTURER:	<b>DEEP BLUE PUMP</b>						PURCHASE ORDER NO.:											
3	SIZE & TYPE:	<b>VS4</b>		<b>L'YA 200-400</b>		SERIAL NO.:													
4	APPLICABLE TO:	<input checked="" type="radio"/> PROPOSALS <input type="radio"/> PURCHASE <input checked="" type="radio"/> AS BUILT																	
5	NOTES: INFORMATION BELOW TO BE COMPLETED:	<input type="radio"/> BY PURCHASER <input type="checkbox"/> BY MANUFACTURER <input checked="" type="checkbox"/> BY MANUFACTURER OR PURCHASER																	
6		<input checked="" type="radio"/> OPERATING CONDITIONS (5.1.3)						<input checked="" type="radio"/> LIQUID (5.1.3)											
7	CAPACITY, NORMAL	(m <sup>3</sup> /h) RATED		<b>340</b>		(m <sup>3</sup> /h)		LIQUID TYPE OR NAME		<b>Water with Coker fines</b>									
8	OTHER																		
9	SUCTION PRESSURE MAX./RATED			<b>NA</b>		(bar)		PUMPING TEMP (°C)		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>MIN.</th> <th>NORMAL</th> <th>MAX.</th> </tr> <tr> <td></td> <td style="text-align: center;"><b>AMB</b></td> <td></td> </tr> </table>		MIN.	NORMAL	MAX.		<b>AMB</b>			
MIN.	NORMAL	MAX.																	
	<b>AMB</b>																		
10	DISCHARGE PRESSURE			<b>NA</b>		(bar)		VAPOR PRESS. (bara)											
11	DIFFERENTIAL PRESSURE			<b>NA</b>		(bar)		RELATIVE DENSITY (SG):		<b>1</b>									
12	DIFF. HEAD	<b>56 + 2.45</b>		(m)		NPSHA		<b>NA</b>		(m)									
13	PROCESS VARIATIONS (5.1.4)																		
14	STARTING CONDITIONS (5.1.4)																		
15	SERVICE:	<input type="radio"/> CONT. <input type="radio"/> INTERMITTENT (STARTS/DAY)						SPECIFIC HEAT, Cp											
16	<input type="radio"/> PARALLEL OPERATION REQ'D (5.1.13)							<input type="radio"/> CHLORIDE CONCENTRATION											
17		<input checked="" type="radio"/> SITE DATA (5.1.3)						<input type="radio"/> H <sub>2</sub> S CONCENTRATION (6.5.2.4)											
18	LOCATION: (5.1.30)							CORROSIVE / EROSION AGENT		<b>Max. allowable solids 18 mm</b>									
19	<input type="radio"/> INDOOR <input type="radio"/> HEATED <input type="radio"/> OUTDOOR <input type="radio"/> UNHEATED							<input checked="" type="radio"/> MATERIALS											
20	<input checked="" type="radio"/> ELECTRICAL AREA CLASSIFICATION (5.1.24 / 6.1.4)							<input checked="" type="radio"/> ANNEX H CLASS (5.12.1.1)		<b>S-5</b>									
21	TEMP. CL <b>T4</b> GR <b>B</b> Zone <b>II</b>							<input type="radio"/> MIN DESIGN METAL TEMP (5.12.4.1)											
22	<input type="radio"/> WINTERIZATION REQ'D <input type="radio"/> TROPICALIZATION REQ'D.							<input type="radio"/> REDUCED HARDNESS MATERIALS REQ'D (5.12.1.11)											
23	SITE DATA (5.1.30)							BARREL/CASE		<b>A216 WCB</b>									
24	<input type="radio"/> ALTITUDE (m) BAROMETER (bar)							CASE/IMPELLER WEAR RINGS		<b>304 with nickel base alloy coating</b>									
25	<input checked="" type="radio"/> RANGE OF AMBIENT TEMPS: MIN/MAX. <b>5</b> / <b>40</b> (°C)							SHAFT		<b>A276 420</b>									
26	<input type="radio"/> RELATIVE HUMIDITY: MIN / MAX / (%)							<input type="checkbox"/> DIFFUSERS											
27	UNUSUAL CONDITIONS: (5.1.30) <input type="radio"/> DUST <input type="radio"/> FUMES							<input checked="" type="checkbox"/> PERFORMANCE:											
28	<input checked="" type="radio"/> OTHER <b>Dry and Dusty</b>							PROPOSAL CURVE NO.		<b>1775</b>									
29								<input checked="" type="checkbox"/> IMPELLER DIA. RATED <b>358</b> MAX. <b>409</b> MIN. <b>320</b> (mm)											
30								<input checked="" type="checkbox"/> IMPELLER TYPE <b>Closed</b>											
31	<input checked="" type="radio"/> DRIVER TYPE							RATED POWER <b>80.8</b> (kW) EFFICIENCY <b>67</b> (%)											
32	<input checked="" type="radio"/> INDUCTION MOTOR <input type="radio"/> STEAM TURBINE <input type="radio"/> GEAR							MINIMUM CONTINUOUS FLOW:											
33	<input type="radio"/> OTHER							THERMAL (m <sup>3</sup> /h) STABLE <b>102</b> (m <sup>3</sup> /h)											
34								<input checked="" type="checkbox"/> PREFERRED OPER. REGION <b>290.5</b> TO <b>498</b> (m <sup>3</sup> /h)											
35	<input checked="" type="radio"/> MOTOR DRIVER (6.1.1 / 6.1.4)							<input checked="" type="checkbox"/> ALLOWABLE OPER. REGION <b>102</b> TO <b>498</b> (m <sup>3</sup> /h)											
36	<input checked="" type="checkbox"/> MANUFACTURER <b>ABB or Equiv.</b>							<input checked="" type="checkbox"/> MAX HEAD @ RATED IMPELLER <b>65</b> (m)											
37	<input checked="" type="checkbox"/> <b>110</b> (kW) <input checked="" type="checkbox"/> <b>1800</b> (RPM)							<input checked="" type="checkbox"/> MAX POWER @ RATED IMPELLER <b>88</b> (kW)											
38	<input type="checkbox"/> FRAME <b>315 SM</b> <input checked="" type="checkbox"/> ENCLOSURE <b>IP55</b>							<input checked="" type="checkbox"/> NPSHR AT RATED CAPACITY <b>3</b> (m) (5.1.10)											
39	<input type="radio"/> HORIZONTAL <input checked="" type="radio"/> VERTICAL <input checked="" type="radio"/> SERVICE FACTOR							SUCTION SPECIFIC SPEED											
40	<input checked="" type="radio"/> VOLTS/PHASE/HERTZ <b>460</b> / <b>3</b> / <b>60</b>							MAX/ACTUAL / (5.1.11)											
41	<input checked="" type="radio"/> TYPE <b>Flame Proof</b>							<input checked="" type="checkbox"/> MAX. SOUND PRESS. LEVEL REQ'D <b>85</b> (dBA) (5.1.16)											
42	<input type="radio"/> MINIMUM STARTING VOLTAGE (6.1.5)							<input checked="" type="checkbox"/> EST MAX SOUND PRESS. LEVEL <b>85</b> (dBA) (5.1.16)											
43	<input checked="" type="checkbox"/> INSULATION <b>F</b> <input checked="" type="radio"/> TEMP. RISE <b>B</b>							<input checked="" type="radio"/> UTILITY CONDITIONS											
44	<input type="radio"/> FULL LOAD AMPS							ELECTRICITY		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>VOLTAGE</th> <th>PHASE</th> <th>HERTZ</th> </tr> <tr> <td style="text-align: center;"><b>460</b></td> <td style="text-align: center;"><b>3</b></td> <td style="text-align: center;"><b>60</b></td> </tr> </table>		VOLTAGE	PHASE	HERTZ	<b>460</b>	<b>3</b>	<b>60</b>		
VOLTAGE	PHASE	HERTZ																	
<b>460</b>	<b>3</b>	<b>60</b>																	
45	<input type="radio"/> LOCKED ROTOR AMPS							HEATING											
46	<input checked="" type="radio"/> STARTING METHOD <b>DOL</b>							SYSTEM VOLTAGE DIP <input type="radio"/> 80% <input type="radio"/> OTHER (6.1.5)											
47	<input checked="" type="radio"/> LUBE <b>GREASE</b>							STEAM		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>MAX. PRESS.</th> <th>MAX. TEMP.</th> <th>MIN. PRESS.</th> <th>MIN. TEMP.</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>		MAX. PRESS.	MAX. TEMP.	MIN. PRESS.	MIN. TEMP.				
MAX. PRESS.	MAX. TEMP.	MIN. PRESS.	MIN. TEMP.																
48	BEARINGS (TYPE/NUMBER):							COOLING WATER: (5.1.19) SOURCE											
49	<input type="checkbox"/> RADIAL /							SUPPLY TEMP. (°C) MAX. RETURN TEMP. (°C)											
50	<input type="checkbox"/> THRUST /							NORM. PRESS. (bar) DESIGN PRESS. (bar)											
51	<input type="checkbox"/> VERTICAL THRUST CAPACITY							MIN. RET. PRESS. (bar) MAX. ALLOW. D.P. (bar)											
52	UP (N) DOWN (N)							CHLORIDE CONCENTRATION: (PPM)											
53																			
54																			
55																			
56																			
57																			
58																			
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60																			
61																			
62																			

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		Doc #		Sheet: 2 of 5		1	7-Jan-17			
MR / PO No.		Service: Water with Coker fines								
REV	Description:	Tag No. 01P3008A								
1										
2	<b>NOTES:</b>									
3	1.Length of the pump is 2850 mm.									
4	2.Max. allowed solid size upto 18mm.									
5										
6										
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		Service: <b>Water with Coker fines</b>																																			
REV	Description:	Tag No. <b>01P3008A</b>																																			
1	<b>CONSTRUCTION</b>			<b>SURFACE PREPARATION AND PAINT</b>																																	
2	<b>ROTATION:</b> (VIEWED FROM COUPLING END) <input checked="" type="checkbox"/> CW <input type="checkbox"/> CCW			<input checked="" type="radio"/> MANUFACTURER'S STANDARD <input type="radio"/> OTHER (SEE BELOW)																																	
3	<b>PUMP TYPE: (1.3)</b> <input checked="" type="checkbox"/> VS1 <input type="checkbox"/> VS2 <input type="checkbox"/> VS3 <input checked="" type="checkbox"/> VS4 <input type="checkbox"/> VS5 <input type="checkbox"/> VS6 <input type="checkbox"/> VS7			<input type="radio"/> SPECIFICATION NO. _____																																	
4	<b>CASING MOUNTING:</b> <input type="checkbox"/> INLINE <input type="checkbox"/> SUMP COVER PLATE <input type="checkbox"/> SEPARATE MOUNTING PLATE <input checked="" type="checkbox"/> SEPARATE SOLE PLATE			<b>PUMP:</b> <input checked="" type="radio"/> PUMP SURFACE PREPARATION <u>Manufacturer's Standard</u> <input checked="" type="radio"/> PRIMER <u>Manufacturer's Standard</u> <input checked="" type="radio"/> FINISH COAT <u>Manufacturer's Standard</u>																																	
5	<b>CASING SPLIT:</b> <input checked="" type="checkbox"/> AXIAL <input checked="" type="checkbox"/> RADIAL			<b>BASEPLATE: (6.3.17)</b> <input checked="" type="radio"/> BASEPLATE SURFACE PREPARATION <u>Manufacturer's Standard</u> <input checked="" type="radio"/> PRIMER <u>Manufacturer's Standard</u> <input checked="" type="radio"/> FINISH COAT <u>Manufacturer's Standard</u> <input type="radio"/> DETAILS OF LIFTING DEVICES(6.3.20) _____																																	
6	<b>CASING TYPE:</b> <input type="checkbox"/> SINGLE VOLUTE <input checked="" type="checkbox"/> MULTIPLE VOLUTE <input type="checkbox"/> DIFFUSER			<b>SHIPMENT: (7.4.1)</b> <input type="radio"/> DOMESTIC <input checked="" type="radio"/> EXPORT <input checked="" type="radio"/> EXPORT BOXING REQUIRED <input checked="" type="radio"/> OUTDOOR STORAGE MORE THAN 6 MONTHS																																	
7	<b>CASE PRESSURE RATING:</b> <input checked="" type="checkbox"/> MAX ALLOWABLE WORKING PRESSURE <u>20</u> (bar) @ <u>AMB</u> (°C)			<b>SPARE ROTOR ASSEMBLY PACKAGED FOR:</b> <input type="radio"/> SHIPPING CONTAINER (8.2.8.3) <input type="radio"/> VERTICAL STORAGE (8.2.8.2) <input type="radio"/> TYPE OF SHIPPING PREPARATION <input type="radio"/> N2 PURGE (8.2.8.4)																																	
8	<input checked="" type="checkbox"/> HYDROTEST PRESSURE <u>30</u> (bar)			<b>HEATING AND COOLING</b> <input type="radio"/> HEATING JACKET REQ'D (5.8.9) <input checked="" type="checkbox"/> COOLING REQ'D.																																	
9	<input type="radio"/> SUCTION PRESS. REGIONS MUST BE DESIGNED FOR MAWP (5.3.6)			<input checked="" type="checkbox"/> COOLING WATER PIPING PLAN (6.5.4.1)																																	
10	<input checked="" type="checkbox"/> <b>NOZZLE CONNECTIONS: (5.4.2)</b>			<b>C.W. PIPING:</b> <input checked="" type="checkbox"/> PIPE <input type="checkbox"/> TUBING; FITTINGS _____																																	
11	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>SIZE</th> <th>FLANGE RATING</th> <th>FACING</th> <th>POSITION</th> </tr> </thead> <tbody> <tr> <td>SUCTION</td> <td></td> <td></td> <td>BOTTOM</td> </tr> <tr> <td>DISCHARGE</td> <td>8"</td> <td>150#</td> <td>RF TOP</td> </tr> <tr> <td>BALANCE DRUM</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			SIZE	FLANGE RATING	FACING	POSITION	SUCTION			BOTTOM	DISCHARGE	8"	150#	RF TOP	BALANCE DRUM				<b>C.W. PIPING MATERIALS:</b> <input checked="" type="checkbox"/> S. STEEL <input type="checkbox"/> C. STEEL <input type="checkbox"/> GALVANIZED																	
SIZE	FLANGE RATING	FACING	POSITION																																		
SUCTION			BOTTOM																																		
DISCHARGE	8"	150#	RF TOP																																		
BALANCE DRUM																																					
12	<b>PRESSURE CASING AUX. CONNECTIONS: (5.4.3)</b>			<b>COOLING WATER REQUIREMENTS:</b> <input type="checkbox"/> BEARING HOUSING _____ (m <sup>3</sup> /h) @ _____ (bar) <input type="checkbox"/> HEAT EXCHANGER _____ (m <sup>3</sup> /h) @ _____ (bar)																																	
13	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>SIZE (NPS)</th> <th>TYPE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>			NO.	SIZE (NPS)	TYPE																												<b>STEAM PIPING:</b> <input type="radio"/> TUBING <input type="radio"/> PIPE			
NO.	SIZE (NPS)	TYPE																																			
14	<input checked="" type="checkbox"/> DRAIN <input checked="" type="checkbox"/> VENT <input checked="" type="checkbox"/> PRESS. GAUGE <input checked="" type="checkbox"/> TEMP GAUGE <input checked="" type="checkbox"/> WARM-UP <input checked="" type="checkbox"/> BALANCE / LEAK-OFF <input checked="" type="checkbox"/> MACHINED AND STUDDED CONNECTIONS (5.4.3.8) <input type="checkbox"/> CYLINDRICAL THREADS REQUIRED (5.4.3.3)			<b>BEARINGS AND LUBRICATION</b> <b>BEARING (TYPE/NUMBER) (5.10.1):</b> <u>SKF</u> <input checked="" type="checkbox"/> RADIAL <u>Sleeve and Bushing</u> / <u>1 set</u> <input checked="" type="checkbox"/> THRUST <u>Anti-friction Bearing</u> / <u>1 pair</u> <b>LUBRICATION (5.11.3, 5.11.4):</b> <input checked="" type="checkbox"/> RING OIL <input type="checkbox"/> HYDRODYNAMIC <input checked="" type="checkbox"/> FLOOD <input type="radio"/> PURE OIL MIST <input checked="" type="checkbox"/> CONSTANT LEVEL OILER PREFERENCE (5.10.2.2): <input type="radio"/> PRESSURE LUBE SYS.ISO13709-3 <input type="radio"/> ISO 13709-2 (8.2.6.1/8.2.6.5) <input checked="" type="checkbox"/> OIL VISC. ISO GRADE <u>ISO VG46</u> <input type="radio"/> OIL PRESS. TO BE GREATER THAN COOLANT PRESSURE <input type="radio"/> REVIEW AND APPROVE THRUST BEARING SIZE(8.2.5.2.4) <input checked="" type="checkbox"/> OIL HEATER REQUIRED: <input type="radio"/> STEAM <input type="radio"/> ELECTRIC																																	
15	<b>ROTOR:</b> <input type="radio"/> COMPONENT BALANCE TO ISO 1940 G1.0 (5.9.4.4) <input type="radio"/> SHRINK FIT -LIMITED MOVEMENT IMPELLERS (8.2.2.3)			<b>INSTRUMENTATION (6.4.2)</b> <input type="radio"/> SEE ATTACHED API-670 DATA SHEET <input type="radio"/> ACCELEROMETER(S) (6.4.2.1) _____ <input type="radio"/> NONCONTACTING TRANSDUCERS (6.4.2.2) _____ <input type="radio"/> RADIAL _____ PER BRG. <input type="radio"/> AXIAL _____ PER BRG. <input type="radio"/> PROVISION FOR MOUNTING ONLY (5.10.2.10) _____ <input type="radio"/> FLAT SURFACE REQ'D (5.10.2.11) _____ <input type="radio"/> RADIAL BEARING METAL TEMP. <input type="radio"/> THRUST BRG METAL TEMP. <input type="radio"/> TEMP. GAUGES (WITH THERMOWELLS) _____ <input type="radio"/> PRESSURE GAUGE TYPE _____ <input type="radio"/> MONITORS AND CABLES SUPPLIED BY (6.4.3.3) _____																																	
16	<input checked="" type="checkbox"/> <b>COUPLINGS:(6.2.2)</b> <input checked="" type="checkbox"/> MANUFACTURER <u>Trumy</u> <input checked="" type="checkbox"/> MODEL <u>FLEXIBLE WITH SPACER</u> <input type="checkbox"/> RATING (kW/100 RPM) _____			<b>REMARKS</b> _____ _____ _____																																	
17	<input checked="" type="checkbox"/> SPACER LENGTH <u>140</u> (mm) <input checked="" type="checkbox"/> SERVICE FACTOR <u>&gt;1.5</u>			<b>WEIGHTS (kg)</b> PUMP <u>2500</u> BASEPLATE _____ DRIVER <u>920</u> TOTAL <u>3420</u> GEAR _____																																	
18	DRIVER HALF COUPLING MOUNTED BY: <input checked="" type="radio"/> PUMP MFR. <input type="radio"/> DRIVER MFR. <input type="radio"/> PURCHASER																																				
19	<input type="radio"/> COUPLING WITH HYDRAULIC FIT (6.2.9) <input type="radio"/> COUPLING BALANCED TO ISO 1940-1 G6.3 (6.2.3) <input type="radio"/> COUPLING PER ISO 14691(6.2.3) <input type="radio"/> COUPLING PER ISO 10441(6.2.3) <input type="radio"/> COUPLING PER API 671(6.2.3) <input checked="" type="radio"/> NON SPARK COUPLING GUARD (6.2.13) <input type="radio"/> COUPLING GUARD STANDARD																																				
20	<input type="radio"/> ASME B15.1 _____ OTHER _____																																				
21	<b>BASEPLATES:</b> <input type="checkbox"/> API BASEPLATE NUMBER _____ (ANNEX C) <input type="radio"/> NON-GROUT CONSTRUCTION (6.3.13) <input type="radio"/> OTHER _____																																				
22	<b>MECHANICAL SEAL:(5.8.1)</b> <input checked="" type="checkbox"/> SEE ATTACHED ISO 21049/API 682 DATA SHEET																																				
23	<input checked="" type="checkbox"/> SEAL TYPE <u>PACKING</u>																																				
24	<input checked="" type="checkbox"/> API SEAL CODE <u>NA</u>																																				
25	<input checked="" type="checkbox"/> API CONFIGURATION <u>NA</u>																																				
26	<input checked="" type="checkbox"/> Manufacturer <u>Burgmann</u>																																				

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MR / PO No.		Service:		Water with Coker fines							
REV		Description:		Tag No.		01P3008A					

1	<b>SPARE PARTS (TABLE 18)</b>	<b>VERTICAL PUMPS(CONT.)</b>				
	<input type="radio"/> START-UP <input type="radio"/> NORMAL MAINTENANCE	<input type="radio"/> PUMP AND STRUCTURE DYNAMIC ANALYSIS(8.3.5)				
2	<input type="radio"/> SPECIFY _____	<input type="radio"/> DRAIN PIPED TO SURFACE(8.3.13.5)				
3						
4	<b>OTHER PURCHASER REQUIREMENTS</b>	<b>QA INSPECTION AND TESTING</b>				
5	<input checked="" type="radio"/> COORDINATION MEETING REQUIRED (9.1.3)	<input checked="" type="radio"/> SHOP INSPECTION <input type="radio"/> PERF. CURVE APPROVAL				
6	<input checked="" type="radio"/> MAXIMUM DISCHARGE PRESSURE TO INCLUDE (5.3.2)	<input checked="" type="radio"/> TEST WITH SUBSTITUTE SEAL(7.3.3.2b)				
7	<input checked="" type="radio"/> MAX RELATIVE DENSITY	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:25%;">TEST</th> <th style="width:25%;">NON-WIT</th> <th style="width:25%;">WIT</th> <th style="width:25%;">OBSERVE</th> </tr> </table>	TEST	NON-WIT	WIT	OBSERVE
TEST	NON-WIT	WIT	OBSERVE			
8	<input type="radio"/> MAX DIA. IMPELLERS AND/OR NO OF STAGES	<input checked="" type="radio"/> HYDROSTATIC TEST OF BOWLS AND COLUMN(8.3.13.2)				
9	<input type="radio"/> OPERATION TO TRIP SPEED	<input checked="" type="radio"/> HYDROSTATIC(7.3.2)				
10	<input type="radio"/> CONNECTION DESIGN APPROVAL (5.12.3.4/8.2.1.4)	<input checked="" type="radio"/> PERFORMANCE (7.3.3)				
11	<input type="radio"/> INERT GAS INHIBITED STORAGE OF SPARE CARTRIDGE (8.2.8.3)	<input type="radio"/> RETEST ON SEAL LEAKAGE (7.3.3.2d)				
12	<input type="radio"/> TORSIONAL ANALYSIS REQUIRED (5.9.2.1)	<input type="radio"/> NPSH (7.3.4.2)				
13	<input type="radio"/> TORSIONAL ANALYSIS REPORT (5.9.2.6)	<input type="radio"/> COMPLETE UNIT TEST (7.3.4.3)				
14	<input checked="" type="radio"/> PROGRESS REPORTS (9.3.3)	<input type="radio"/> SOUND LEVEL TEST (7.3.4.4)				
15	<input checked="" type="radio"/> OUTLINE OF PROCEDURES FOR OPTIONAL TESTS (9.3.5)	<input type="radio"/> CLEANLINESS PRIOR TO FINAL ASSEMBLY (7.2.2.2)				
16	<input type="radio"/> ADDITIONAL DATA REQUIRING 20 YEARS RETENTION (7.2.2.1f)	<input type="radio"/> NOZZLE LOAD TEST (6.3.6)				
17	<input checked="" type="radio"/> LATERAL ANALYSIS REQUIRED (8.2.4.1 / 8.2.4.1.3)	<input type="radio"/> 4 HR. MECH. RUN TEST(7.3.4.7.2)				
18	<input checked="" type="radio"/> DYNAMIC BALANCE ROTOR (8.2.4.2)	<input type="radio"/> MECHANICAL RUN UNTIL OIL TEMP. STABLE				
19	MANIFOLD PIPING TO SINGLE CONNECTION (6.5.1.6)	<input type="radio"/> 4 HR. MECHANICAL RUN AFTER OIL TEMP. STABLE				
20	<input type="radio"/> VENT <input type="radio"/> DRAIN <input type="radio"/> COOLING WATER	<input type="radio"/> TRUE PEAK VELOCITY DATA (7.3.3.4d)				
21	<input checked="" type="radio"/> MOUNT SEAL RESERVOIR OFF BASEPLATE (6.5.1.4)	<input type="radio"/> RESONANCE TEST(8.3.9.2)				
22	<input checked="" type="radio"/> FLANGES REQUIRED IN PLACE OF SOCKET WELD UNIONS (6.5.2.8)	<input type="radio"/> AUXILIARY EQUIPMENT TEST (7.3.4.5)				
23	CONNECTION BOLTING	<input checked="" type="radio"/> IMPACT TESTING(5.12.4.3)				
24	<input type="radio"/> PTFE COATING <input type="radio"/> ASTM A153 GALVANIZED	<input type="radio"/> PER EN 13445				
25	<input type="radio"/> PAINTED <input type="radio"/> SS	<input type="radio"/> PER ASME VIII				
26	<input checked="" type="radio"/> INSTALLATION LIST IN PROPOSAL (9.2.3L)	<input type="radio"/> VENDOR KEEP REPAIR AND HT RECORDS (7.2.1.1c)				
27	<b>VERTICAL PUMPS</b>	<input type="radio"/> VENDOR SUBMIT TEST PROCEDURES (7.3.1.2 / 9.2.5)				
28	<input type="checkbox"/> PUMP THRUST:      (+) UP      (-) DOWN	<input type="radio"/> VENDOR SUBMIT TEST DATA WITHIN 24 HOURS (7.3.3.3c)				
29	AT MIN. FLOW      (N)      (N)	<input type="radio"/> INCLUDE PLOTTED VIBRATION SPECTRA (5.9.3.3)				
30	AT RATED FLOW      (N)      (N)	<input type="radio"/> RECORD FINAL ASSEMBLY RUNNING CLEARANCES				
31	MAX. THRUST      (N)      (N)	<input type="radio"/> COMPLETION OF INSPECTION CHECK LIST (7.1.6)				
32	<input checked="" type="checkbox"/> SOLEPLATE REQ'D(8.3.8.3.3) _____ (m) X _____ (m)	<input checked="" type="radio"/> MATERIAL CERTIFICATION REQUIRED(5.12.1.8)				
33	<input type="checkbox"/> SEPARATE MOUNTING PALTE REQUIRED(8.3.8.3.1)	<input type="radio"/> CASING <input checked="" type="radio"/> IMPELLER <input type="radio"/> SHAFT				
34	<input type="checkbox"/> SOLEPLATE THICKNESS _____ (mm)	<input type="radio"/> OTHER _____				
35	COLUMN PIPE: <input type="checkbox"/> FLANGED <input type="checkbox"/> THREADED	<input type="radio"/> CASTING REPAIR PROCEDURE APPROVAL REQ'D(5.12.2.5)				
36	<input type="checkbox"/> DIAMETER _____ (mm)      LENGTH _____ (mm)	<input checked="" type="radio"/> INSPECTION REQUIRED FOR CONNECTION WELDS(5.12.3.4)				
37	GUIDE BUSHINGS LUBE:	<input checked="" type="checkbox"/> MAG. PARTICLE <input checked="" type="checkbox"/> LIQUID PENETRANT				
38	<input type="checkbox"/> WATER <input type="checkbox"/> OIL	<input type="checkbox"/> RADIOGRAPHIC <input checked="" type="checkbox"/> ULTRASONIC				
39	<input type="checkbox"/> GREASE <input type="checkbox"/> PUMPAGE	<input checked="" type="radio"/> INSPECTION REQUIRED FOR CASTINGS(7.2.1.3)(5.12.1.5)				
40	LINESHAFT: <input checked="" type="checkbox"/> OPEN <input checked="" type="checkbox"/> ENCLOSED	<input type="checkbox"/> MAG. PARTICLE <input checked="" type="checkbox"/> LIQUID PENETRANT				
41	<input type="checkbox"/> LINE SHAFT DIAMETER: _____ (mm)	<input type="checkbox"/> RADIOGRAPHIC <input checked="" type="checkbox"/> ULTRASONIC				
42	<input type="checkbox"/> TUBE DIAMETER: _____ (mm)	<input checked="" type="radio"/> ADDITIONAL SUBSURFACE EXAMINATION(7.2.1.3)				
43	LINESHAFT COUPLING:	FOR <b>SHAFT</b>				
44	<input type="checkbox"/> LINE SHAFT DIAMETER: <input type="checkbox"/> SLEEVE&KEY <input type="checkbox"/> THREADED	METHOD <b>ULTRASONIC</b>				
45	<input type="checkbox"/> SUCTION CAN THICKNESS _____ (mm)					
46	<input type="checkbox"/> DIAMETER _____ (mm)					
47	<input type="radio"/> SUCTION STRAINER TYPE					
48	<input type="radio"/> FLOAT&ROD <input type="radio"/> FLOAT SWITCH					
49	<input type="radio"/> IMPELLER COLLETS ACCEPTABLE(5.6.3)					
50	<input type="radio"/> HARDENED SLEEVES UNDER BEARINGS(8.3.10.5)					

