

CENTRIFUGAL PUMP HORIZONTAL, VERTICAL AND VERTICAL IN - LINE

SPEC NO.

67-807/8108

FOR: ☐ QUOTATION, SH 2 OF 4, NO. (DATE)
☒ PURCHASE, SH 2 OF 4, P O NO 6014-D2P1-J390-02
☐ PROCESS, SH 2 OF 4

26. POWER COSTS: ELECTRIC 1/HP. STEAM 1/1000 LBS
PAYOUT PERIOD

NOTE: POWER CALCULATION IS TO BE BASED ON THE HIGHEST SPECIFIC GRAVITY, IF VARIABLE
SPECIFIC GRAVITY, HEAD AND PRESSURE CALCULATIONS ARE TO BE BASED ON LOWEST
SPECIFIC GRAVITY, IF VARIABLE SPECIFIC GRAVITY.

27. CONSTRUCTION: ~~(API-610)~~ ~~(ANSI)~~ (MANUFACTURER'S STANDARD).

28. STYLE: (HORIZONTAL) (VERTICAL) ~~(MIXED)~~.

29. STYLES NOT ACCEPTABLE: 2 STAGE OVERHUNG, DOUBLE SUCTION OVERHUNG, REGENERATIVE
TURBINE, AND HORIZONTAL CLOSE COUPLED.

30. CASE SUPPORT: (FOOT) ~~(BASE MOUNTING)~~ ~~(MOUNTING PLATE)~~ ~~(CENTER LINE MOUNTED, PRE-
FLANGED OVER BASE)~~.

31. CASE SPLIT: (AXIAL) ~~(RADIAL)~~.

32. CASE NOZZLES: SUCTION AND DISCHARGE CONNECTIONS SHALL BE FLANGED. ANSI CLASS 800
AND 900 FLANGES FOR 800F RATED TEMPERATURE SHALL BE FINISHED TO 125 RMS.

33. CASE VENT REQUIRED (YES) ~~(NO)~~, CASE VENT VALVED (YES) ~~(NO)~~.

34. CASE DRAIN REQUIRED (YES) ~~(NO)~~, CASE DRAIN VALVED (YES) ~~(NO)~~.

35. ROTOR-BACK PULL-OUT: ~~(YES)~~ (NO).

36. SUCTION POSITION: ~~(TOP)~~ (SIDE) ~~(BOTTOM)~~.

37. DISCHARGE POSITION: (SIDE) ~~(TOP)~~.

38. IMPELLER SHALL BE ONE PIECE CASTING. CAST IRON IMPELLER IS NOT ACCEPTABLE.

39. RPM: ~~(4000)~~ ~~(3600)~~ (BY MANUFACTURER) 1200

40. COOLING WATER PIPING PLAN: API N/A, (COPPER) (CARBON STEEL)
(STAINLESS) (TUBING) (PIPE) (GALVANIZED PIPE) (SIGHT FLOW), SIZE AND SCHEDULE

41. PACKING REQUIRED (YES) ~~(NO)~~.

MECHANICAL SEAL
42. MFR AND MODEL CRANE R31/CARTRIDGE MTD.

1. MATERIAL CODE: API BSTFM SEAL MFR CRANE
TYPE (SINGLE) ~~(DOUBLE)~~ ~~(RANDOM)~~ (BALANCED).

44. SEAL FLUSH API PLAN 11, PIPING BY VENDOR
SEAL FLUSH PIPING (THREADED) ~~(SOCKET WELD)~~ (FLANGED) (TUBING), SIZE AND SCHEDULE
1/2" OD, 0.065" THICK, 316S/S, SWAGelok

45. AUXILIARY SEAL FLUSH API PLAN N/A, SUPPLIED BY
SEAL FLUSH COOLER (YES) ~~(NO)~~: (WATER) (AIR FIN), FURNISHED BY (PURCHASER) (VENDOR)
SEAL FLUSH PIPING (COPPER) (CARBON STEEL) (STAINLESS) (PIPE) (TUBING) (THREADED)
(SOCKET WELD) (FLANGED), SIZE AND SCHEDULE

RESERVOIR MATERIAL FOR TANDEM/DOUBLE SEALS TO BE (STEEL) (STAINLESS).

OUTSIDE DRIVE, OUTSIDE SETTING SLEEVE IS PREFERRED.

GLAND (END PLATE) SHALL BE 316 STAINLESS STEEL WITH O-RING GROOVE IN PLATE.
STANDARD CROSS-SECTION SEALS (NOT THIN SECTION) SHALL BE USED.
SQUARE CROSS-SECTION SEAT SHALL BE USED.

46. THROTTLE BUSHING REQUIRED (YES) ~~(NO)~~.

BEARINGS AND LUBRICATION
47. BEARINGS: (API 810) (ANSI) (ANTI-FRICTION) (SLEEVE) ~~(HYDROSTATIC TYPE)~~.

48. LUBRICATION: (FLINGER) (RING OIL) (FLOOD) ~~(OIL MIST GENERATOR)~~ (PRESSURE) ~~(API 810)~~
~~(40Z MINTRICO OPT-MATIC GLASS OILER WITH GUN)~~.
OIL MIST GENERATOR FURNISHED BY ~~(PURCHASER)~~ ~~(VENDOR)~~.

BASE PLATE
49. BASE PLATE TO BE EXTENDED UNDER DRIVER(S): (1/16 TO 1/8 INCH SHIM ALLOWANCE UNDER
DRIVER) (MFR STD) (API 810) (DRIP RIM) (LEVELING SCREWS) (DRIVER POSITIONING
SCREWS) (DRILLED AND TAPPED FOR DRIVER, VERTICAL IN-LINE PUMP FLAT MTG SURFACE)
(SUITABLE FOR EPOXY GROUT) WILSON SNYDER HEAVY DUTY W/
DRIP RIM

COUPLING
50. COUPLING TYPE: (SPACER) ~~(MOUNTING PLATE)~~ (NON-LUBE) (STRAIGHT BORE) ~~(STAINLESS BORE)~~
~~(DISC)~~ ~~(MOUNTING PLATE)~~ ~~(MOUNTING PLATE)~~

MFR AND MODEL THOMAS 71

DRIVER HALF MOUNTED BY: (PURCHASER) ~~(MANUFACTURER)~~ (DRIVER)

COUPLING GUARD (YES) ~~(NO)~~ NON-SPARK ALUMINUM

VERTICAL
51. VERTICAL PUMP: PIT OR SUMP DEPTH FEET
FLOAT AND ROD ~~(YES)~~ (NOT) (CARBON STEEL) (STAINLESS) (BRONZE).
FLOAT SWITCH BASKET STRAINER (YES) ~~(NO)~~.

118. NPSH REQUIRED, FEET WATER 1975' FOUNDATION EFFICIENCY AT RATED POINT 90%

120. BHP AT RATED POINT 456.9, MAXIMUM BHP ON CURVE 452.6
 , CURVE NO. M-CP82-7R3

121. MINIMUM CONTINUOUS STABLE USGPM WITH ALLOWABLE API 810 VIBRATION 4,000

122. MINIMUM CONTINUOUS THERMAL FLOW USGPM 1,100

					MISC. CONNECTIONS		
NOZZLES	SIZE	RATING	FACING	LOCATION	DRAIN	VENT	GAGE
SUCTION	20"	150"	FF	SIDE			
DISCHARGE	16"	150"	FF	SIDE			

123. VENDOR SHALL FURNISH MAXIMUM ALLOWABLE FORCES AND MOMENTS ON NOZZLES, WITH
X-AXIS PARALLEL TO PUMP SHAFT, Y-VERTICAL, Z-TRANSVERSE TO SHAFT AXIS

SUCTION			DISCHARGE				
FORCE	LBS.	MOMENT FT. LBS.	FORCE	LBS.	MOMENT FT. LBS.		
FX	1265	MX	3590	FX	1012	MX	2875
FY	975	MY	2660	FY	780	MY	2130
FZ	1530	MZ	1800	FZ	1225	MZ	1440

CASE DESIGN
124. CASE MOUNT: ~~(CENTER LINE)~~ ~~(NEAR CENTER LINE)~~ (FOOT)
~~(MOUNTING PLATE)~~ ~~(MOUNTING PLATE)~~ ~~(MOUNTING PLATE)~~

125. SPLIT: ~~(RADIAL)~~ (AXIAL), TYPE: ~~(DIFFERENTIAL)~~ (SINGLE VOLUTE) (DBL VOLUTE), VENT
CONN: (YES) ~~(NO)~~ (VALVED), DRAIN CONN: (YES) ~~(NO)~~ (VALVED).

126. PRESSURE: PSIG MAXIMUM ALLOWED AT 60F 150
AT PUMP TEMP. 150, AND HYDROTEST 225

127. CORROSION ALLOWANCE 1/8 INCHES, MINIMUM THICKNESS 1 INCHES.

IMPELLER DESIGN
128. TYPE: (OPEN) (SEMI-OPEN) (CLOSED) ~~(SHAW-WORTH)~~ (DBL SUCT) ~~(WATER-INDUCED)~~

129. IMPELLER DIA. INCHES: RATED 20.75, MAX. 21.5, MIN 18.0

130. WEAR RINGS: (FRONT) (BACK), EYE AREA LATER INCHES²

131. MOUNT: (BETWEEN BEARINGS) ~~(OVERHUNG)~~.

132. SHAFT DIAMETER INCHES 3 3/8", THROUGH COUPLING 3 3/8"
BEARINGS 3.347 I.D. SLV. OR STUFF. BOX 4 1/4"
SHAFT SLEEVE: (YES) ~~(NO)~~.

MATERIALS
133. API-810 CLASS I-1, CASE OUTER ASTM A315, ~~(MOUNTING PLATE)~~
IMPELLER BRONZE, IMPELLER WEAR RING BRONZE
CASE WEAR RING C.I., SHAFT SAE 4140 H.T.
SLEEVE 316S/S, THROAT BUSH 11-13% CHL.
INTERSTAGE SLEEVE-BUSH , GLAND 316S/S
THROTTLE BUSHING NON-SPARKING BRONZE

134. BEARING HOUSING MATERIAL IS STEEL: ~~(YES)~~ (NO).

135. BEARING HOUSING ADAPTER IS STEEL: ~~(YES)~~ (NO).

COUPLING
136. COUPLING MFR, TYPE AND MODEL THOMAS 71

137. DRIVER HALF MOUNTED BY: (PUMP MFR) (DRIVER MFR) (PURCHASER).

138. SPACER COUPLING FURNISHED (YES) ~~(NO)~~.

BEARING
139. BEARING(S) RADIAL: (BALL) ~~(TAPERED ROLLER)~~ ~~(CYLINDRICAL ROLLER)~~.

140. BEARING THRUST: ~~(TWO ANGULAR CONTACT)~~ ~~(TAPERED ROLLER)~~.

141. MFR BEARING NUMBER: RADIAL 7317, THRUST 5317

142. BEARINGS PER API-810, RADIAL (YES) ~~(NO)~~, THRUST (YES) ~~(NO)~~.

143. LUBRICATION: ~~(OIL)~~ (RING OIL) ~~(MOUNTING PLATE)~~ ~~(MOUNTING PLATE)~~ ~~(DISCHARGE)~~.

144. OIL MIST GENERATOR: ~~(YES)~~ (NO), WATER COOLING: ~~(YES)~~ (NO).

STUFFING BOX
145. STUFFING BOX, DIAMETER (INCHES): BORE 6 3/8", SHAFT 4 1/4"
 , SLEEVE 4 7/8"

146. PACKING: MFR AND TYPE , QUENCH GLAND: (YES) (NO).

147. MECHANICAL SEAL: MFR AND MODEL CRANE R31, CODE XF10 16-1
CARTRIDGE MTD.

148. TYPE: (SINGLE) ~~(DOUBLE)~~ ~~(RANDOM)~~ (BALANCED).

149. ADJUSTMENT: ~~(MOUNTING PLATE)~~ ~~(MOUNTING PLATE)~~ (OUTSIDE DRIVE SLEEVE).

150. GLAND MATERIAL: (316 SS) ~~()~~ OTHER

151. GLAND TYPE: ~~(MOUNTING PLATE)~~ (THROTTLE BUSH).

152. SEAL FLUSH PLAN API-810 11, ~~(RANDOM)~~ ~~(MOUNTING PLATE)~~ (STAINLESS)

CENTRIFUGAL PUMP HORIZONTAL, VERTICAL AND VERTICAL IN - LINE

FOR: ☐ INQUIRY, SH 3 OF 4, NO. _____ (DATE) _____
☐ QUOTATION, SH 3 OF 4, NO. _____
☒ PURCHASE, SH 3 OF 4, P O NO 6014-02D1-390-02
☐ PROCESS, SH 3 OF 4

SPEC NO. 67-8107/8108

MATERIALS	CODE	MATERIAL
CI	CAST IRON	
DI	DUCTILE IRON	
NR	NI-RESIST	
STL	STEEL	
4140	4140	
BRZ	BRONZE	
M	MONEL	
18-8	STN. STEEL	
SS	STN. STEEL (316)	
5CHR	5% CHROME	
12CHR	12% CHROME	
H	HARDENED	
F	HARD FACED	
X	SPECIFY	

53. API-610 CLASS I-1 EXCEPTION (YES) (NO) _____
 54. CASE: (OUTER) D.T. A398
 55. IMPELLER BRZ
 56. *WEAR RINGS: CASE C.I., IMPELLER BRZ
 57. BASKET STRAINER _____
 58. SHAFT SAB 4140 H.T.
 59. PUMP BOWL (VERTICAL) _____
 60. SHAFT SLEEVE (MECH SEAL) 316 S/S
 61. *THROAT BUSHING 11-13% CHR.
 62. *INTERSTAGE: SLEEVE(S) _____
 BUSHING(S) _____
 63. GLAND, MECH SEAL 316 S/S
 THROTTLE BUSH BRONZE

64. BEARING HOUSING ADAPTER D.T.
 65. BEARING HOUSING (STEEL PREFERRED) _____
 66. *MATING WEAR SURFACES OF HARDENABLE MATERIALS SHALL HAVE A MINIMUM HARDNESS DIFFERENCE OF 50 BHN, UNLESS BOTH SURFACES HAVE A HARDNESS OF AT LEAST 400 BHN.

67. PIPING AND APPURTENANCES PER API-610 MODIFIED (YES) (NO).
 68. THE FOLLOWING ARE UNACCEPTABLE FITTINGS WITH SUBSTITUTES SHOWN:
 A. BUSHINGS (USE SWAGE NIPPLES)
 B. ALL-THREAD OR CLOSE NIPPLE (USE 3 INCH MINIMUM LENGTH).
 C. HEX HEAD PLUGS (USE SOLID PLUGS)
 D. STREET ELBOW.
 69. VENT AND DRAIN VALVES SHALL BE SEAL WELDED. PIPING OFF PUMP TO THE FIRST VALVE SHALL BE SCHEDULE 160 AND STAMPED WITH A SHARP FACE STEEL HAND STAMP. PIPING SHALL BE 3/4 INCH NPS EXCEPT 1/2 INCH NPS IS ACCEPTABLE FOR PUMPS WITH DISCHARGE FLANGE 2 INCHES OR SMALLER. DRAIN VALVE SHALL BE 800# GATE.

VIBRATION MONITORING
 J. VIBRATION MONITORING: (NO), FURNISHED BY (PURCHASER) (VENDOR).
 TYPE DETECTOR: (ACCELEROMETER) (VELOCITY) (ACOUSTICAL) (PROX. PROBE).
 FURNISHED BY (PURCHASER) (VENDOR), MOUNTED BY (PURCHASER) (VENDOR).
 MONITOR INBOARD END: (YES) (NO), PLANE: (X) (Y), MONITOR OUTBOARD END (YES) (NO), PLANE (X) (Y), (THRU), APPROVED (YES) (NO), ALL REFINING EQUIPMENT VIBRATION MONITORING REQUIREMENT MUST BE APPROVED BY REFINING ROTATING EQUIPMENT SECTION. SPECIAL NOTE TO PARTY FILLING OUT INQUIRY. APPROVAL SHALL BE OBTAINED BEFORE RELEASING INQUIRY TO PURCHASING.

SHOPTEST, INSPECTION AND PROCEDURES
 71. HYDROSTATIC: (NON-VII) (YES) (NO).
 72. PERFORMANCE: (NON-VII) (YES) (NO).
 73. *MECHANICAL RUN: (NON-VII) (YES) (NO) HOURS 4
 74. NPSH: (NON-VII) (YES) (NO).
 75. INSPECT LONG TERM STORAGE PACKAGING BEFORE SHIPMENT: REQUIRED (YES) (NO).
 76. DISMANTLING AND INSPECTION AFTER TEST: REQUIRED (YES) (NO), (YES) (NO).
 77. PREPRODUCTION ENGINEERING MEETING: REQUIRED (YES) (NO).
 78. WELD MAPS AND PROCEDURES APPROVAL BEFORE START OF FABRICATION: REQUIRED (YES) (NO).
 79. **WELD MAPS AND PROCEDURES APPROVAL BEFORE START OF CASTING REPAIR: REQUIRED (YES) (NO).
 80. MATERIAL CERTIFICATION: REQUIRED (YES) (NO), (YES) (NO).
 81. INSPECTION REQUIRED FOR CASTINGS: REQUIRED (YES) (NO).
 82. **REPAIR OF LEAKS AND DEFECTS, OTHER THAN MINOR BLENDING BY GRINDING, OF PRESSURE CONTAINING CASTINGS OR FORGINGS SHALL NOT BE DONE UNTIL REPAIR PROCEDURE HAS BEEN SUBMITTED TO AND APPROVED BY BUYER'S INSPECTION GROUP. ALREADY REPAIRED, IN STOCK PRESSURE CONTAINING CASTINGS OR FORGINGS MAY BE USED IF THE REPAIR PROCEDURE THAT WAS USED IN MAKING THE REPAIRS IS SUBMITTED AND APPROVED BY BUYER'S INSPECTION GROUP. THE PROCEDURE SHALL BE FOR THE SPECIFIC PUMP AND MATERIAL INVOLVED AND SHALL INCLUDE THE REQUIREMENTS AS SET OUT IN SECTION IX OF ASME UNFIRE PRESSURE VESSEL CODE.

153. (TUBING) (THREADED) (SOCKET-WELD) (FLANGED) WITH SWAGELOCK FITTINGS
 154. SEAL FLUSH COOLER: (YES) (NO).
 155. EXTERNAL SEAL FLUSH TO BE REQUIRED: (YES) (NO) _____ GPM. _____ PSIG.
 156. COOLING WATER PIPING API-610 N/A _____ GPM. REQUIRED
 157. COOLING WATER PIPING MATERIAL: (COPPER) (CARBON STEEL) (STAINLESS STEEL) (TUBING) (PIPE) (SCREWED) (TUBE-FITTINGS) (FLANGED).
 BASEPLATE
 158. TYPE PER API-610: (CAST IRON) (FABRICATED) (STEEL) (1/16-1/8 INCH SHIM ALLOWANCE UNDER DRIVER) (LEVELING SCREWS) (DRIVER POSITIONING SCREWS FOR LATERAL AND AXIAL ALIGNMENT MOVES), DRILLED AND TAPPED FOR DRIVER: (YES) (NO). WILSON SNYDER HEAVY DUTY W/DRAIN RIM
 159. INLINE PUMP HAS FLAT MOUNTING SURFACE: (YES) (NO) (N/A).
 DRIVER
 160. RECOMMENDED HP 500 RPM 1200 FURNISH DETAIL INFORMATION ON DRIVER SPEC-FORM IF DRIVER TO BE FURNISHED WITH PUMP
 VERTICAL PUMP
 161. MINIMUM SUBMERGENCE REQUIRED _____ FEET, COLUMN PIPE: (ELANGED) (THREADED)
 162. PUMP, LINE AND TOP SHAFT: (ALL ONE PIECE) (COUPLED).
 163. LINE SHAFT COUPLINGS ARE LOCKED (YES) (NO), LINE SHAFTS ARE (OPEN) (CLOSED).
 164. IMPELLER ATTACHMENT: (COLLETS) (KEYED) (SCREWED).
 165. BOWLS ARE: (FLANGED) (SCREWED).
 166. GUIDE BUSHINGS, MATERIAL: BOWL _____, LINE SHAFT _____
 167. GUIDE BUSHINGS, NUMBER: BOWL _____, LINE SHAFT _____
 168. DIAMETRICAL CLEARANCE: BOWL _____, LINE SHAFT _____
 169. GUIDE BUSHING LUBE: (WATER) (OIL) (GREASE).
 170. PUMP THRUST IN LBS: AT MINIMUM FLOW _____, AT DESIGN FLOW _____
 VENDOR DOCUMENTS REQUIRED WITH QUOTATION
 171. IT IS PURCHASER'S INTENT TO BUY SOME OR ALL OF THE SPARE PARTS AND/OR REAR PARTS ALONG WITH THE BASIC EQUIPMENT COVERED BY THIS SPECIFICATION. PURCHASER ALSO INTENDS TO BUY OPERATIONAL SPARES WELL AHEAD OF ACTUAL UNIT OPERATION.
 172. QUOTATIONS SHALL COVER THE BASIC EQUIPMENT PLUS THE FOLLOWING AS CHECKED:
☐ RECOMMENDED LIST OF CONSTRUCTION SPARES, ITEMS AS RECOMMENDED BY VENDOR, INCLUDING GASKETS, SEALING COMPOUND, BOLTS, NECESSARY TO INSURE THAT EQUIPMENT CAN BE MECHANICALLY COMPLETED. LIST SHALL BE COMPLETE WITH ORIGINAL MANUFACTURER, PART NUMBERS, DESCRIPTIONS, PRICE AND DELIVERY; ☐ LIST OF SPARE ROTATING ELEMENTS (TESTED) (NOT TESTED) COMPLETE WITH DESCRIPTIONS, PRICE AND DELIVERY; ☐ WEAR PARTS PACKAGE SHALL BE PARTS REQUIRED FOR EQUIPMENT CHECK OUT AND START UP FOR MECHANICAL EQUIPMENT ONLY, COMPLETE WITH ORIGINAL MANUFACTURER PART NUMBER SUCH AS BEARINGS, SEALS, ETC., DESCRIPTIONS, PRICE AND DELIVERY; ☐ EXPENDABLE PARTS PACKAGE, PARTS REQUIRED FOR EQUIPMENT CHECK OUT AND START UP, FOR ELECTRICAL AND INSTRUMENTATION COMPLETE WITH ORIGINAL MANUFACTURER PART NUMBERS, DESCRIPTIONS, PRICE AND DELIVERY; ☐ OPERATIONAL SPARE PARTS (SHAFTS, SLEEVES, BEARINGS, WEAR RINGS, PKG. OR MECH. SEAL, GASKETS) ARE ALSO TO BE QUOTED IF POSSIBLE. VENDOR QUOTATION SHOULD INDICATE WHAT, IF ANY, ECONOMIC BENEFIT THERE WILL BE IF ALL OR PART OF THESE ARE MANUFACTURED AT THE SAME TIME AS THE EQUIPMENT. INCLUDE THE LATEST DATE OPERATIONAL SPARE PARTS CAN BE ORDERED TO TAKE ADVANTAGE OF LOWER PRICE AND/OR BETTER DELIVERY.
 173. TWO SETS OF THE ABOVE DOCUMENTS SHALL BE SUBMITTED WITH YOUR QUOTATION. SOME OR ALL OF THIS INFORMATION MAY BE INCLUDED ON ONE OR MORE OF THE FOLLOWING DOCUMENT CATEGORIES: (DOCUMENT CODE 03-PARTS LIST) (DOCUMENT CODE 04-CROSS-SECTIONAL DRAWINGS) (DOCUMENT CODE 06-RECOMMENDED SPARE PARTS) (DOCUMENT CODE 10-BILL OF MATERIAL).
 174. SEE TABLE IN VENDOR DOCUMENTS REQUIRED FOR P.O./CONTRACT FOR FULL DESCRIPTION OF THE DATA CONTAINED IN THE ABOVE DOCUMENT CODES.
 175. THE DOCUMENTS DESIGNATED AS VENDOR DOCUMENTS REQUIRED WITH P.O./CONTRACT WILL BE REQUIRED AS SOON AS POSSIBLE AFTER A PURCHASE ORDER IS ISSUED TO SUCCESSFUL VENDOR. EACH VENDOR SHALL INDICATE NUMBER OF DAYS AFTER COMMITMENT THAT WILL BE REQUIRED TO FURNISH THOSE DOCUMENTS TO PURCHASER. DOCUMENTS FURNISHED WITH YOUR BID ARE IN ADDITION TO VENDOR DOCUMENTS REQUIRED WITH P.O. CONTRACT.

CENTRIFUGAL PUMP HORIZONTAL, VERTICAL AND VERTICAL IN LINE

SPEC NO.

67-8107/8108

☐ QUOTATION, SH 4 OF 4, NO.
☒ PURCHASE, SH 4 OF 4, P O NO 6014-02D-J390-02
☐ PROCESS, SH 4 OF 4

(DATE)

83. MECHANICAL RUN SHALL BE DEFINED AS A STEADY STATE ENDURANCE RUN OF _____ HOURS DURATION. DURING THE RUN, VIBRATION LEVEL, AND BEARING (OIL) TEMPERATURES SHALL BE LOGGED EVERY _____ MINUTES FROM START TO END OF RUN.

84. VIBRATION READINGS ARE TO BE PER API 810 AND UNFILTERED.

PAINTING SHALL BE: (NONE STANDARD) (SPECIAL) (OTHER EPOXY, SMILS THE, MIN)

85. PAINTING SHALL BE: (NONE STANDARD) (SPECIAL) (OTHER EPOXY, SMILS THE, MIN)

86. DRIVER TYPE: (MOTOR) (STEAM TURB) (GAS TURB) (ENGINE) (HYD TURB) SPEC NO(S) _____

ELECTRIC MOTOR

ATTACHED.

87. SPEC FORM(S) IV-E ATTACHED. 88. DIMENSIONAL PRINT ATTACHED (YES) (NO).

89. MOTOR ENCLOSURE: (NONE) (TEFC) (VEMPROOF) (NEMA) (TEAC) VOLTS 4000

PHASE 3, HERTZ 60, FRAME 5810 US

90. FURNISHED BY: (PURCHASER) (VENDOR), MOUNTED BY: (PURCHASER) (VENDOR).

91. MOTOR SHALL BE SIZED AS FOLLOWS:

DRIVER HORSEPOWER RATING FOR THE RATED POINT (WITH THE IMPELLER DIAMETER SELECTED.) SHALL BE AS FOLLOWS: (NOTE: END OF CURVE SHALL BE DEFINED AS 1.25 TIME CAPACITY AT B.E.P. ON PUMP CURVE.)

92. FOR U-FRAME MOTORS: PUMPS REQUIRING 3HP OR LESS AT THE END OF THE PUMP CURVE, THE DRIVER SHALL BE THE NEXT SIZE LARGER THAN THAT REQUIRED FOR THE END OF THE PUMP CURVE. SELECTED MOTOR SHALL NOT BE LARGER THAN REQUIRED FOR THE END OF MAXIMUM IMPELLER DIAMETER CURVE.

93. FOR RATED POINT HORSEPOWER REQUIREMENTS OVER 3.1 BHP THRU 99 BHP THE MOTOR SHALL BE SIZED FOR END OF CURVE OR 115% OF RATED BHP WHICHEVER IS LARGER.

94. FOR RATED POINT REQUIREMENTS OVER 100 BHP, THE MOTORS SHALL BE SIZED 110% RATED BHP MINIMUM, OR UP TO THE END OF CURVE BHP WHICHEVER IS SMALLER.

95. WHEN T-FRAME MOTORS: IF REQUIRED BY THE PUMP DESIGN AND APPROVED BY THE COMPANY, ARE USED THEY SHALL BE SIZED AS FOLLOWS: a. DERATE T-FRAME MOTORS BY MULTIPLYING NAMEPLATE HP BY 0.87. b. USING THE DERATED HP APPLY ABOVE GUIDE FOR U-FRAME MOTORS TO OBTAIN SIZE MOTOR REQUIRED. c. MOTORS QUOTED IN BASE BID SHALL BE U-FRAME. T-FRAME MOTORS SIZED AS ABOVE MAY BE QUOTED AS ALTERNATE, BUT WILL BE GIVEN CONSIDERATION ONLY IF MOTOR DELIVERIES ARE A PROBLEM.

96. PREPARATION AND PACKAGING FOR DOMESTIC SHIPMENT SHALL BE MFR'S STANDARD PLUS FOLLOWING: FLANGED OPENINGS TO BE CLOSED WITH 3/16 INCH MINIMUM THICKNESS METAL COVERS WITH RUBBER GASKET AND A MINIMUM OF 4 FULL DIAMETER BOLTS. THREADED OPENINGS TO BE CLOSED WITH STEEL CAPS OR SOLID ROUND PLUGS WITH 1 1/2 INCH MINIMUM LONG SHANK OF SAME MATERIAL AS PUMP CASE EXCEPT USE STEEL PLUGS ON CAST IRON CASES.

97. PREPARATION AND PACKAGING FOR OVERSEAS SHIPMENT SHALL BE MFR'S STANDARD "EXPORT BOXING" PLUS CLOSURE REQUIREMENTS AS ABOVE FOR DOMESTIC SHIPMENT.

98. LONG TERM STORAGE PROTECTION SHALL BE APPLIED BY VENDOR. IN-SHOP INSPECTION BY PURCHASER'S INSPECTOR IS REQUIRED PRIOR TO ITS SHIPMENT: (YES) (NO).

99. FOR ENGINEERING DETAILS CONTACT: _____

100. OTHER INFORMATION _____

A. FLANGE PRESSURE RATING SHALL BE DE-RATED BY 20%.

SUCTION & DISCHARGE - 100 PSI RATING

B. MAXIMUM ALLOWABLE RISE IN DIFFERENTIAL HEAD FROM RATED TO SHUTOFF IS 30% (1.30 X 142' = 184.6') TO AVOID OVER-PRESSURING DOWNSTREAM EQUIPMENT.

C. VENDOR SHALL PROVIDE ON ALL PUMP BEARING HOUSINGS:

~ DURALMETALLIC BGM MAGNETIC TYPE BEARING GUARDS

~ BULL'S EYE LEVEL INDICATOR AND DIAPHRAGM VENT.

D. VENDOR SHALL PROVIDE "AS BUILT" PUMP IMPELLER DIAMETER PRIOR TO SHIPMENT OF PUMP. IMPELLER DIAMETER HYDRAULIC PERFORMANCE SHALL NOT EXCEED 197' TDH.

VENDOR DOCUMENTS REQUIRED WITH PURCHASE ORDER/CONTRACT 178. AS A PART OF YOUR QUOTATION, YOU HAVE AGREED TO FURNISH THE VENDOR DOCUMENTS BELOW IN THE TIMES AND QUANTITIES INDICATED. THESE DOCUMENTS ARE NECESSARY FOR THE PURCHASER TO MEET DESIGN AND OPERATING SCHEDULES.

A. VENDOR SHALL MARK APPLICABLE PURCHASE ORDER NUMBER, EQUIPMENT SPECIFICATION NUMBER, AND DOCUMENT CODE ON ALL DOCUMENTS.

B. DO NOT DUPLICATE DOCUMENTS FOR IDENTICAL EQUIPMENT ON THE SAME PURCHASE ORDER.

C. IF VENDOR'S NORMAL METHOD OF FURNISHING DOCUMENTS COMBINES TWO OR MORE OF THE REQUIRED DOCUMENT CODES FOR EXAMPLE, AN 04 MIGHT ALSO INCLUDE 03, 06 AND 10 DOCUMENT CODES, VENDOR SHALL FURNISH THE MAXIMUM QUANTITY OF DOCUMENTS REQUIRED FOR ANY ONE OF THE COMBINATIONS. IN THE ABOVE EXAMPLE, ASSUME 10 DOCUMENT CODE REQUIRED THE MOST COPIES-FURNISH THAT NUMBER, BUT CODE ALL DOCUMENTS 03, 04, 06 AND 10.

D. A TRANSPARENCY MAY BE FURNISHED IN LIEU OF THE QUANTITY OF CERTIFIED DOCUMENTS REQUIRED.

E. MAIL DOCUMENTS TO:

VENDOR TO COMPLETE AS PART OF BID: SHOW NUMBER OF CALENDAR DAYS VENDOR REQUIRES FOR DELIVERY OF DOCUMENTS AFTER COMMITMENT.			
DOC- CODE	CR	DOCUMENT DESCRIPTION	APPROVAL QTY DAYS
01		DIMENSIONAL DRAWINGS:	
02		INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS	
03		PARTS LIST, CONSTRUCTION AND QUANTITIES.	
04		CROSS SECTIONAL DRAWINGS:	
06		RECOMMENDED SPARE PARTS: SUPPLY AND DELIVERY.	
07		PERFORMANCE DATA/PERFORMANCE CURVES COVERING CAPABILITY, HEAD, HP, NPSH AND EFFICIENCY FOR FURNISHED, MAXIMUM AND MINIMUM DIAMETER IMPELLERS.	
10		BILL OF MATERIAL	
12		FOUNDATION DESIGN DATA: ANCHOR BOLT LAYOUT, BOLT DETAIL AND LOADING REQUIRED FOR FOUNDATION DESIGN.	
18		SEAL SYSTEM: DIMENSIONAL DRAWINGS, PARTS LISTS AND BILLS OF MATERIAL FOR MECHANICAL SEALS AND SEAL FLUSH PIPING.	
36		COUPLING	

THE DOCUMENTS DESCRIBED ABOVE ARE PART OF THE PURCHASE AND MUST BE FURNISHED BEFORE RENDERING FINAL INVOICE

REMARKS

177. NET WEIGHT EACH: WITH DRIVER _____ LBS, LESS DRIVER _____ LBS

PRICE FOR ORIGIN 178. COMPLETE UNIT AS SPECIFIED, LESS DRIVER EACH.....0

179. EXTRA FOR DRIVER, EACH.....0

180. TOTAL PUMP UNIT WITH DRIVER, EACH.....0

181. COST TO MOUNT DRIVER FURNISHED BY PURCHASER.....0

182. DELIVERY, WEEKS: LESS DRIVER _____, WITH DRIVER _____

183. COST FOR TESTS, ITEMIZE _____

184. EXCEPTIONS SHOULD BE NOTED BELOW OR ATTACHED SEE "WILSON SNYDER" (2 PAGE) NOTES COMMENTS AND EXCEPTIONS (ATTACHED)

185. OTHER INFORMATION _____

ELECTRIC MOTOR POLYPHASE INDUCTION

SPEC
NO.

30-18107/8108

SPEC FOR: ☐ INQUIRY, SH 5 OF 7, NO. 6014-0221-3390-01
☐ QUOTATION, SH 1 OF 2, NO.
☒ PURCHASE, SH 1 OF 2, NO. 6014-0221-3390-01
☐ PROCESS, SH 1 OF 2

(AFE) (INV. UNIT) (CLASS) (ITEM NO. OR NO'S)

USED WITH 67-8107/8108

QUANTITY 2 UNIT(S)

SERVICE COOLING TOWER PUMPS

PLANT AND UNIT DSPC GPH-1

DWG
NO.

INSTRUCTIONS TO BIDDER

1. COMPLETE ITEMS 86 THRU 101 ON THIS INQUIRY. RETURN THIS INQUIRY PLUS 3 COPIES.

INCLUDE 3 SETS OF INFORMATION AND CATALOG DRAWINGS THAT ADEQUATELY DESCRIBE THE BID ITEMS, AND SPECIFICALLY INCLUDE A BEARING LIST WITH SUPPLY LOCATIONS AND DELIVERY TIME.

2. MOTOR WILL BE SUBJECTED TO A CRITICAL NOISE EVALUATION BASED ON UNPROTECTED EXPOSURE OF HOURS PER DAY. OTHER EQUIPMENT (WILL X WILL NOT) CONTRIBUTE TO THE PROBLEM. THE ATTACHED NOISE DATA FORM 3782 IS TO BE COMPLETED AND SUBMITTED BY BIDDER WITH THE QUOTATION. RETURN THIS FORM PLUS 3 COPIES.

3. SHOW SPEC NO. ON ALL ENGINEERING DOCUMENTS AND CORRESPONDENCE.

4. CHECK THE BOX OPPOSITE QUOTATION AND ENTER YOUR QUOTATION NUMBER. THIS COMPLETED INQUIRY IS YOUR QUOTATION TO THE PURCHASER. THE COMPLETED INQUIRY WILL BE ISSUED AS A PURCHASE SPEC WITH THE PURCHASE ORDER TO THE SUCCESSFUL BIDDER.

5. IN ADDITION TO BIDDING THE MATERIAL SPECIFIED, BIDDER MAY PROPOSE EQUALLY SUITABLE, BUT LESS COSTLY MATERIALS AS AN ALTERNATE. IF SO THEN NOTE THIS UNDER ITEM 101.

INSTRUCTIONS TO VENDOR

6. STENCIL SPEC NO. AND P.O. NO. ON PACKING CASE OR, IF PACKING CASE IS NOT USED, ON PLASTIC OR METAL TEMPORARY TAG WIRED CONSPICUOUSLY TO EQUIPMENT.

7. AN AUSTENITIC STAINLESS STEEL NAMEPLATE OF MANUFACTURER'S STANDARD SHALL BE ATTACHED PERMANENTLY TO THE MOTOR AND STAMPED TO INCLUDE THE SPEC NO.

8. IF CHANGES OCCUR, ADVISE PURCHASING IN TRIPPLICATE, OF ANY CHANGES IN PRICE OR DELIVERY RESULTING FROM SUCH CHANGES.

MOTOR DATA
9. RATED: 500 HP, 4000 VOLTS, 3 PHASE, 60 HERTZ

10. FRAME NO. 5810 US 11. SYN SPEED 1200 RPM

12. (HORIZONTAL) 13. TYPE ENCLOSURE TEAAC

14. TYPE BEARINGS SPLIT SLEEVE

15. TYPE LUBRICATION OIL

16. STARTING VOLTAGE: FULL ☒ REDUCED 80% ☒

17. NEMA DESIGN: ☒ OTHER N/A ☒

18. STARTING TORQUE: NORMAL ☒ HIGH ☒

19. SLIP: 0-5% ☒ 5-8% ☒ 8-13% ☒

20. DUTY: CONTINUOUS ☒ INTERMITTENT ☒

21. TEMPERATURE: RISE 55 C BY RESISTANCE, AMBIENT 40

22. INSULATION CLASS F 23. SERVICE FACTOR 1.15

24. ALTITUDE ABOVE SEA LEVEL 0

25. NOISE 83 dBA @ 1 METER

26. MAX. VIBRATION AT BEARING HOUSING 0.04 in/sec

27. ROTATION VIEWED FROM END OPPOSITE COUPLING (CLOCKWISE X COUNTER-CLOCKWISE).

28. TYPE ASSEMBLY (NEMA F-1, W-1, ETC.)

29. TYPE DRIVE (DIRECT, V-BELT, ETC.)

30. LOCKED ROTOR KVA SHALL NOT EXCEED 5.59 TIMES MOTOR HP. CODE F

31. TYPE SHAFT 32. TYPE BASE

33. MAX THRUST: UP LBS. DOWN LBS

34. THRUST BEARINGS: REQUIRED AVERAGE LIFE

35. THRUST BEARINGS TO BE LOCATED

MULTISPEED MOTORS
36. NO. OF SPEEDS 37. NO. OF WINDINGS

38. CONSTANT HP 39. TORQUE: CONSTANT VARIABLE

66. VENDOR COMPONENTS INC., TULSA OK.

67. MFR SIEMENS

68. FRAME NO. 5810 US TYPE TEAAC

69. FULL LOAD SPEED 1188

70. MODEL NO. RAZ

71. EFFICIENCY
(TYPICAL) 94.0 % AT 1/2 LOAD, 94.4 % AT 3/4 LOAD, 94.3 % AT FULL LOAD
GUARANTEED EFFICIENCY PER IEEE NO.

72. FACTOR 81.4 % AT 1/2 LOAD, 85.8 % AT 3/4 LOAD, 86.6 % AT FULL LOAD
112. METHOD B

73. CURRENT (MAX) FULL LOAD 65.9 AMPS, LOCKED ROTOR 362 AMPS

74. NEMA DESIGN LETTER B

75. LOCKED ROTOR KVA CODE LETTER G

76. MOTOR TIME CONSTANT FOR MOTORS ABOVE 447 FRAME .9 SECONDS.

77. LOCKED ROTOR STALL TIME NOT 11 SECONDS ON MOTORS ABOVE 100 H.P.

78. NOISE 83 dBA 1 METER UNLOADED

79. FULL LOAD AT FULL LOAD SPEED 2210 FOOT-POUNDS

80. STARTING AT FULL VOLTAGE 110% % FULL LOAD

81. BREAKDOWN 200% % FULL LOAD

82. SPEED-TORQUE CURVE ATTACHED (YES) (NO)

83. U.L. APPROVED (YES) (NO)

84. JUNCTION BOX MATERIAL CAST IRON

85. SHAFT DIAMETER

86. SHAFT MATERIAL 1045 CARBON STEEL

87. BEARING TYPE: COUPLING END SLEEVE

OPPOSITE END SLEEVE

88. VERTICAL MOTORS
89. THRUST BEARING: IN TOP

IN BOTTOM

90. ALLOWABLE EXTERNAL THRUST: LBS DOWN LBS UP

91. THRUST BEARING MAKE

92. NUMBER

93. THRUST BEARING AVERAGE LIFE

94. TYPE SHAFT

DELIVERY (AFTER COMMITMENT)

95. EQUIPMENT WILL BE ON JOB SITE WEEKS

POINT OF ORIGIN NORWOOD OHIO

96. NET WEIGHT OF MOTOR 7000 LBS.

97. VENDOR'S DOCUMENTS:

- VENDOR SHALL MARK APPLICABLE PURCHASE ORDER NUMBER, EQUIPMENT SPECIFICATION NUMBER, AND DOCUMENT CODE ON DOCUMENTS.
- DO NOT DUPLICATE DOCUMENTS FOR IDENTICAL EQUIPMENT ON THE SAME PURCHASE ORDER.
- IF NORMAL METHOD OF FURNISHING DOCUMENTS COMBINES TWO OR MORE OF THE REQUIRED DOCUMENTS DESCRIPTIONS, VENDOR SHALL FURNISH THE MAXIMUM QUANTITY REQUIRED FOR ANY ONE DESCRIPTION IN THE COMBINATION.
- A TRANSPARENCY MAY BE FURNISHED IN LIEU OF THE QUANTITY OF CERTIFIED DOCUMENTS REQUIRED. TRANSPARENCY ON APPROVAL DOCUMENTS NOT ACCEPTABLE.
- MAIL DOCUMENTS 181

PREPARED DJS DATE APR 93 PROCESS APPD DATE
DESIGN APPD DATE REV APPD DJS/SEA DATE MAR 94
FORM 2438-S 8-85 REPRODUCTION OF STANDARD NO. 25-08-11

INQUIRY APPD DATE APR 93 PURCH APPD DATE
REV APPD DATE MAR 94 REV APPD DATE OCT 95
RC-ORIGINAL PRINTED IN U.S.A.

ELECTRIC MOTOR POLYPHASE INDUCTION

SPEC FOR: ☐ INQUIRY, SH 1 OF 7 .NO. 6014-02D1-J390-01
☐ QUOTATION, SH 2 OF 2 .NO. _____ (DATE)
☒ PURCHASE, SH 2 OF 2 .P O NO 6014-02D1-J390-02
☐ PROCESS, SH 2 OF 2

SPEC NO.

30-8107/8108

DESIGNATE THE FOLLOWING ITEMS: (IF REQUIRED)

- ☒ SPACE HEATERS 115 VOLTS 200° C MAXIMUM SURFACE TEMPERATURE
- ☒ STAINLESS STEEL BREATHING AND DRAIN
42. ☒ SPEED TORQUE CURVE WITH QUOTATION.
44. ☒ BEARING TEMP. ELEMENT. A
46. ☒ WINDING TEMP. ELEMENT. A
48. ☒ STANDARD SLIDING BASE. MARK ON SHAFT TO
50. ☒ SHOW MAGNETIC CENTER.
52. ☒ CHEMICAL TYPE MOTOR WITH CAST IRON YOKE & END BELLS.
54. ☐ SPECIAL ENCLOSURE.
56. ☐ SPECIAL LEADS OR CONNECTORS.
58. ☐ SOLE PLATES.
60. ☒ DIE STAMPED STAINLESS STEEL NAMEPLATES WITH BEARING MANUFACTURER'S NUMBERS
- ☒ STAMPED ON IT (MOUNT WITH STAINLESS STEEL SCREWS).
61. ☐ LEADS FROM MOTOR TO JUNCTION BOX TO BE SEALED AGAINST INTRUSION OF FOREIGN PARTICLES.
62. ☐ GREASE FILL AND DRAIN PIPES (STAINLESS STEEL)(GALVANIZED).
- (IF DESIGNATED DESCRIBE IN ITEM 65 OR ON SEPARATE SHEET)
63. MOTOR MFR SHALL TRANSMIT DIMENSIONAL DRAWINGS TO PHILLIPS (PER ITEM 86.E.) AT THE SAME TIME DRAWINGS ARE SENT TO THE EQUIPMENT VENDOR. MOTOR MFR SHALL FURNISH 2 COPIES OF MOTOR DIMENSION PRINTS TO _____ VENDOR. AT THE FOLLOWING ADDRESS: _____

THESE ARE IN ADDITION TO PHILLIPS COPIES, FURNISH COPY OF TRANSMITTAL LETTER ALONG WITH PHILLIPS COPIES. IN ADDITION TO MARKING THE DRAWINGS ITEM 86.A., TAG THE DRAWINGS WITH FOLLOWING: FOR (DRIVEN EQUIPMENT)

SPEC NO. _____ P.O. NO. _____

64. FOR ENGINEERING DETAILS CONTACT: _____

OTHER INFORMATION: ELECTRICAL AREA HAZARDOUS
CLASSIFICATION: CLASS E, GROUP D, DIV 2

APPLICABLE SPECS: IV-E, QCP 30-1

NOTE: 1) A HALF COUPLING WILL BE FURNISHED BY THE DRIVEN EQUIPMENT VENDOR FOR INSTALLATION BY THE MOTOR VENDOR. THE MOTOR WILL BE VIBRATION TEST MOTOR WITH THE COUPLING HALF MOUNTED

87. VENDOR'S DOCUMENTS (CON'T)

VENDOR TO COMPLETE AS PART OF BID: SHOW NUMBER OF CALENDAR DAYS* VENDOR REQUIRES FOR DELIVERY OF DOCUMENTS AFTER COMMITMENT.

DOC- CODE	CR	DOCUMENT DESCRIPTION	APPROVAL		CERTIFIED	
			QTY	DAYS	QTY	DAYS
01		DIMENSIONAL DRAWINGS: GENERAL OUTLINE DRAWINGS THAT INCLUDE A COMPLETE SET OF DETAILS WITH WEIGHT.				
02		INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS				
06		RECOMMENDED SPARE PARTS, INCLUDE PRICES, POINTS OF SUPPLY, AND DELIVERY. STATE BEARING MANUFACTURER'S BEARING NUMBER.				
07		PERFORMANCE DATA: FULL LOAD CURRENTS, LOCKED ROTOR CURRENT, AND FULL LOAD SPEED, EFFICIENCY, POWER FACTOR AND CURRENT VERSUS LOAD CURVES, TORQUE AND CURRENT VERSUS SPEED CURVE, MOTOR OPEN CIRCUIT TIME CONSTANT, SPACE HEATER WATTAGE.				

THE DOCUMENTS DESCRIBED ABOVE ARE PART OF THE PURCHASE AND MUST BE FURNISHED BEFORE RENDERING FINAL INVOICE.

REMARKS: SEE VDR FORMS, ATTACHED

98. COMPLETE UNIT WITH ACCESSORIES, ETC..... \$

99. EXTRA FOR \$

100. INVOICE TERMS

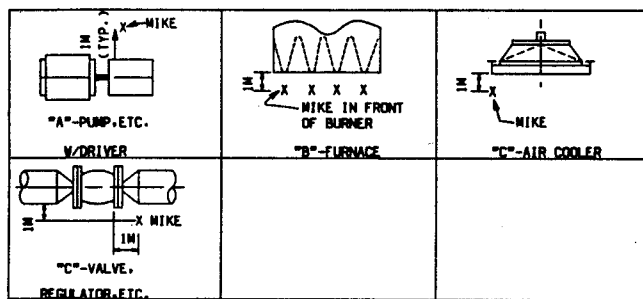
101. EXCEPTIONS SHOULD BE NOTED BELOW OR ATTACHED:

NOISE DATA FOR:

SPEC FOR: ☐ INQUIRY, SH 7 OF 7, NO. 604-02DI-J390-01 (DATE)
☐ QUOTATION, SH OF .NO.
☒ PURCHASE, SH OF .P O NO. 604-02DI-J390-02

SPEC NO. (AFF) (INV. UNIT) (CLASS) 67 (ITEM NO. OR NOS.) 8107/8108
 INSTRUCTION TO VENDOR
 1. CERTIFIED DATA SECTION SHALL BE COMPLETELY FILLED IN.
 2. THE ACTUAL NOISE PRODUCED BY THE EQUIPMENT SHALL BE MEASURED IN ACCORDANCE WITH RECOGNIZED TEST STANDARDS.
 3. ATTACH SKETCH SHOWING THE MEASURING POINTS AND THE POINT AT WHICH THE MAXIMUM SOUND LEVEL OCCURS.
 4. COMPLETE TABLE WITH ACTUAL SOUND LEVELS REGARDLESS OF WHAT SOUND LEVELS ARE CERTIFIED.
 5. THE VALUE OF B FOR EACH OCTAVE BAND SHALL BE INSERTED INTO ABOVE TABLE WHEN FREE FIELD CORRECTION PROCEDURE DESCRIBED IN NOISE LEVELS OF STANDARD NO. 15.07-4 IS UTILIZED.
 6. PHILLIPS STANDARD NO. 15.07-4, NOISE-INDUSTRIAL EQUIPMENT, BECOMES A PART OF THIS SPECIFICATION.

PROJECT EQUIPMENT
 7. MAXIMUM PERMISSIBLE SOUND LEVEL MEASURED AS INDICATED SHALL BE:
 _____ dBA RE 20 MICROPASCALS, _____ dBA RE 10⁻¹² WATT (TOTAL A-WEIGHTED SOUND POWER LEVEL).
 8. THE MAXIMUM PERMISSIBLE A-WEIGHTED SOUND LEVEL APPLIES TO THE EQUIPMENT DURING ITS RANGE OF OPERATION: ☐ MICROPHONE LOCATION DURING MEASUREMENT SHALL BE AS SHOWN IN SKETCH _____ BELOW, ☐ MEASURED 1 METRE FROM MAJOR BOUNDING SURFACES IN ACCORDANCE WITH AN ACCEPTABLE TEST STANDARD RECOGNIZED BY THE INDUSTRY OR WITH ANSI S1.13 USING THE FIELD METHOD AS A MINIMUM.



9. OTHER INFORMATION

EQUIPMENT INFORMATION
 10. DESCRIPTION PUMP AND MOTOR
 MODEL NO. 16" DVL, RA2 . SIZE
 DESIGN: CAPACITY 11,000 GPM
 POWER 500 HP . SPEED 1200
 TEST CONDITION
 11. FLOW: RATE 19,000 GPM . PRESSURES 85' TDH
 TEMP 110° F . FLUID WATER
 12. PIPING: SIZE 20" SUCT. 16" DISC. . SCHEDULE
 RPM 1200 . % RATED LOAD 180%
 13. ☒ SOUND PRESSURE LEVEL dB RE 20 MICROPASCALS. ☐ SOUND POWER LEVEL dB RE 10⁻¹² WATT.

MEASURING POINT	TABLE 1-OCTAVE BAND CENTER FREQUENCY, Hz								
	31.5	63	125	250	500	1000	2000	4000	8000
		60	53	65	72	75	75	77	71

NOISE CONDITION
 14. DATA COLLECTED USING TEST STANDARD
 15. WE CERTIFY THAT THE NOISE DUE TO THIS EQUIPMENT: ☐ WILL NOT EXCEED THE SPECIFIED MAXIMUM PERMISSIBLE SOUND LEVEL, ☐ WILL NOT EXCEED THE LEVELS LISTED IN TABLE ABOVE OBTAINED BY: ☐ ACTUAL TEST ON THE EQUIPMENT, ☐ TEST ON SIMILAR UNIT IN OPERATION, ☐ TEST ON SIMILAR UNIT IN OUR PLANT, ☐ INDEPENDENT LABORATORY TEST (ATTACH REPORT), ☐ ESTIMATED USING PREDICTION SCHEME (ATTACH DESCRIPTION).
 16. DESCRIPTION OF SPECIAL ACOUSTICAL TREATMENT OR DEVICE PROPOSED FOR THE EQUIPMENT (USE ADDITIONAL SHEETS IF REQUIRED):
 17. EXCEPTIONS SHOULD BE NOTED BELOW OR ATTACHED:

MAXIMUM NOISE LEVEL: 85 dBA @ 1 METER

PREPARED DHS DATE APR 93 PROCESS APPD DATE INQUIRY APPD JEP DATE APR 93 PURCH APPD DATE
 DESIGN APPD DATE REV APPD DHS/DB DATE MAR 94 REV APPD DATE
 FORM 3792-S 7-A1 REPRODUCTION OF STANDARD NO. 25.04-87 PAGE 1 500170 PRINTED IN U.S.A.