



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

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DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII
HILO, HAWAII

ADDENDUM NO. 3

JOB NO. 2022-1204

INVITATION FOR BIDS

FOR THE

HUALĀLAI DEEPWELL REPAIR

DISTRICT OF NORTH KONA

County of Hawai'i – State of Hawai'i

The following revisions and changes shall be made a part of the contract bidding documents:

A) Changes to **PROPOSAL**:

- a) **DELETE** in its entirety and **REPLACE** with the attached revised Proposal. Changes to Proposal include the following:
 - 1) Page P-8B, **DELETE** the "Cost for Seal Adapter" from breakdown cost.
 - 2) Page P-9B, **DELETE** the "Cost for Top Casing/Housing" from breakdown cost. **DELETE** the "Cost for Lower Casing/Housing" from breakdown cost. **DELETE** the "Cost per Mechanical Seal" from breakdown cost. **DELETE** the "Cost for Balance Tube Assembly" from breakdown cost.

B) Changes to **SPECIAL PROVISIONS**:

- a) Page SP-10, Section 304.05.A.3.c., **REVISE** the following:
 - 1) The pump bowl assembly shall be manufactured in accordance with the *American Petroleum Institute Standards*, except where otherwise specified herein.
- b) Page SP-10, Section 304.05.A.3.e., **CLARIFY** the following:
 - 1) The establishment of spare parts shall be discussed at the time of submittal reviews.
- c) Page SP-11, Section 304.05.A.3.i., **CLARIFY** the following:
 - 1) Only applicable for fabrication welding.

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d) Page SP-11, Section 304.05.A.4.b., **CLARIFY** the following:

- 1) The Department recognizes the pumping assembly to be furnished by Baker Hughes as exempt from AIS however, the pumping assembly may still be subject to BABA certification requirements. Baker Hughes shall be able to assist with furnishing documentation for securing a waiver if they are unable to satisfy the certification requirements of BABA.

e) Page SP-16, Section 304.05.A.5.b.i.b)i), **REVISE** the following:

- 1) Data shall include guaranteed performance curves to *API RP 11S2* for all specified points, based on actual factory tests of similar units, which show that they meet the specified requirements for head, flow rate, efficiency, guaranteed maximum net positive suction head required (NPSHR), minimum submergence, and horsepower.
- 2) The POR and AOR (~~refer to ANSI/HI 9.6.3~~) shall be clearly shown on the curves.

f) Page SP-17, Section 304.05.A.5.b.i.c)i), **CLARIFY** the following:

- 1) It is understood that Baker Hughes test procedures and equipment are considered confidential. Submission of the API criteria will be acceptable.

g) Page SP-17, Section 304.05.A.5.c.i.a)

1) **REVISE** the following:

- i) The running test shall be conducted in accordance with the latest edition of the *API RP 11S2* to show that the specified conditions can be met by the bowl assembly furnished.
- ii) The pump shall be operated at shut-off condition and at a minimum of *five (5)* equally spaced capacity points, with the *3rd point* at the specified design conditions.

2) **CLARIFY** the following:

- i) The test shall be performed at full design capacity, and speed to verify that the minimum test acceptance grades are met prior to shipment and installation.
- ii) Should the manufacturer not have the facilities to properly test the equipment, such limitations shall be described to the Department and the alternative testing method shall be submitted in detail for the Department's review.
- iii) Please refer to performance requirements clarified within this Addendum #3, Item B)s).

h) Page SP-17, Section 304.05.A.5.c.i.a)i), **REVISE** the following:

- 1) The required pump test acceptance grade exceeds all grades listed under *API RP 11S2*. Corresponding tolerance band shall be as follows:

i) Pages SP-17 – SP-18, Section 304.05.A.5.c.i.a)ii), **REVISE** the following:

- 1) All components shall *either* be dried by forced dry air ($RH\% \leq 20\%$) for a minimum of two (2) hours *or flushed with a CL1 and marine grade glycol mixture*. Upon completion of drying the pump unit, if visible signs of hard water staining are present, those components shall be cleaned and dried again until no visible signs of hard water staining are present. *After drying or flushing, the pump* shall then be checked to ensure the pump shaft turns smoothly and that all assembly parameters (lateral, shaft stick-up, etc.) are correct.

j) Page SP-19, Section 304.05.A.5.c.i.a)iii)d)), **REVISE** the following:

- 1) For wire -to-water testing, the minimum overall efficiency shall be 68.25%.

k) Pages SP-19 – SP-20, Section 304.05.A.5.c.i.b)ii), **CLARIFY** the following:

- 1) Motor manufacturer shall submit a statement certifying that the motors are capable of operation on a variable frequency drive, with operating frequencies between 50 Hz and 60 Hz, without affecting their design life for bearings or windings.
- 2) This site has both soft-start and variable frequency drive equipment available. This certification will provide assurance that the provided motor can be operated on either equipment.

l) Pages SP-20 – SP21, Section 304.05.A.6., **CLARIFY** the following:

- 1) The manufacturer shall provide all manuals that are available for the installation, operation, and troubleshooting of equipment without violating the manufacturer's confidentiality policies.

m) Page SP-21, Section 304.05.A.7.c.i., **ADD** the following:

- 1) Should the duration of delay go beyond the manufacturer's storage limitation for any component, the subject components shall be tested and reworked accordingly.

n) Page SP-22, Section 304.05.A.7.c.ii.b), **CLARIFY** the following:

- 1) Standard shipping crate with construction seaming (tuck) tape applied to joint and hinges to make weather tight shall be accepted.

o) Page SP-22, Section 304.05.A.7.f., **REVISE** the following:

- 1) The finished surfaces of all exposed flanges shall be protected by wooden, *plastic, metal*, or equivalent blank flanges, strongly built and securely bolted thereto.

- p) Pages SP-23 – SP-24, Section 304.05.A.8, **CLARIFY** the following:
- 1) Should the pump manufacturer, as selected by the Contractor, decline warranty, the awarded Contractor shall be responsible for coordinating and upholding warranty as is described in the specifications.
- q) Page SP-24 – SP-25, Section 304.05.B.1.a., **DELETE** in its entirety and **REPLACE** with the following:
- 1) Submersible vertical turbine well pumps and the materials used in their manufacture shall comply with the most recent revision of the following standards:

Subject	Standard Designation
<i>Electrical Submersible Pumps</i>	<i>API RP 11S</i>
Discharge Case	Cast Stainless Steel ASTM A744 Gr. CF8M <i>or</i> Nickel Aluminum Bronze ASTM B148 Alloy C95500
Discharge Case Bearing	Vesconite Hilube or Bismuth Tin Bronze ASTM B505 Alloy C89835 <i>or Tungsten Carbide</i>
Upthrust Washer	Stainless Steel ASTM A582 Gr. 316
Intermediate Bowl(s)	Cast Stainless Steel ASTM A744 Gr. CF8M <i>or</i> Nickel Aluminum Bronze ASTM B148 Alloy C95500
Intermediate Bowl Bearing(s)	Vesconite Hilube or Bismuth Tin Bronze ASTM B505 Alloy C89835 <i>or Tungsten Carbide</i>
Impeller Wear Ring(s)	Stainless Steel ASTM A582 Gr. 316
Stationary Wear Ring(s)	Vesconite Hilube <i>or approved equal</i>
Impellers	Nickel Aluminum Bronze ASTM B148 Alloy C95500
Taper Lock Collets	Stainless Steel ASTM A582 Gr. 316
Suction Case	Cast Stainless Steel ASTM A744 Gr. CF8M <i>or</i> Nickel Aluminum Bronze ASTM B148 Alloy C95500
Suction Case Bearing	Vesconite Hilube or Bismuth Tin Bronze ASTM B505 Alloy C89835 <i>or Tungsten Carbide</i>
Sand Collar	Stainless Steel ASTM A582 Gr. 316 <i>or Stainless Steel ASTM A240 Gr. 304</i>
Pump Shaft	Stainless Steel ASTM A276 Gr. 17-4 PH PSQ <i>or Monel</i>
Discharge Bearing Plug	Stainless Steel ASTM A582 Gr. 316
Suction Screen	Stainless Steel ASTM A240 Gr. 316
Intake/Seal Adapter Bracket	Cast Stainless Steel ASTM A744 Gr. CF8M
<i>Seal Face</i>	<i>Silicon Carbide</i>

Subject	Standard Designation
Seal Shaft	<i>Inconel</i>
Motor Adapter Bracket	Cast Stainless Steel ASTM A744 Gr. CF8M <i>or Carbon Steel</i>
Seal & Motor Couplings	Stainless Steel ASTM A582 Gr. 316
Cable Guard	Stainless Steel ASTM A240 Gr. 304
Bowl Assembly Hex Bolts	Stainless Steel ASTM A193 Gr. B8S Nitronic 60 <i>or Monel</i>

- r) Page SP-27, Section 304.05.B.2.d.i., **REVISE** the “Minimum Bowl Efficiency (%)” from 80% to 78%.
- s) Page SP-27, Section 304.05.B.2.d., **CLARIFY** the following:
 - 1) The listed testing points demonstrate the desired pump performance characteristics.
 - 2) The test shall be performed at the speed in which the design point lies to verify that the equipment meets or exceeds the performance requirements.
 - 3) Please refer to testing criteria clarified within this Addendum #3, Item B)g).
- t) Page SP-28, Section 304.05.B.3.a.vii., **REVISE** the following:
 - 1) These specifications shall serve as a complement to *ASP RP 11S* and where contradictions occur, these specifications shall govern.
- u) Page SP-28, Section 304.05.B.3.b.i., **REVISE** the following:
 - 1) The pump bowl assembly shall consist of the discharge case, pump bowls, impellers, shaft, bearings, wear rings, sand collar, suction case with vortex suppressor and *seal bracket*. The pump shall be assembled with separate suction case and *seal bracket* sections. Pump constructions employing integral suction case with *seal bracket* shall not be accepted.
- v) Page SP-28, Section 304.05.B.3.b.v., **CLARIFY** the following:
 - 1) A column adapter piece shall be approved for this application. As specified in this section, this shall be provided at no additional cost to the Department.
- w) Page SP-29, Section 304.05.B.3.b.vii., **REVISE** the following:
 - 1) The pump bowl assembly shall be statically and dynamically balanced per ISO 1940/1 to a balance quality grade of *G 6.3* or better.
- x) Page SP-29, Section 304.05.B.3.c.i., **REVISE** the following:
 - 1) Pump bowls shall be precision close grained Type 316 stainless steel *or nickel aluminum bronze ASTM B148 Alloy C95500* and free of blow holes, sand holes and other defects.

y) Page SP-29, Section 304.05.B.3.c.iii., **REVISE** the following:

- 1) The bowls shall be capable of withstanding a hydrostatic pressure equal to *150%* the pressure at rated capacity or the pressure at shut-off head, whichever is greater.

z) Page SP-29, Section 304.05.B.3.c.iv., **REVISE** the following:

- 1) Each bowl shall be accurately machined and fitted to close dimensions and fitted with Vesconite Hi-Lube sleeve-type bearings on each side of the impellers. *Nitronic 60 or Monel bolts* shall be used if bowls are fastened to one another by bolts.

aa) Page SP-29, Section 304.05.B.3.c.vi., **REVISE** the following:

- 1) The suction case shall be fitted with a 316 stainless steel *or 304 stainless steel* sand collar, locked securely to the shaft, to prevent dirt, sand or other foreign particles from entering the shaft bearings.

bb) Page SP-29, Section 304.05.B.3.c.vii., **DELETE** in its entirety.

cc) Page SP-29 – SP-30, Section 304.05.B.3.d.ii., **REVISE** the following:

- 1) The impellers shall be balanced per ISO 1940/1 to a balance quality grade *G 6.3* or better.

dd) Page SP-30, Section 304.05.B.3.d.vi., **CLARIFY** the following:

- 1) Considerable wear shall be defined as wear withstood from the pump running with the operating range throughout the entire duration of its expected life cycle.

ee) Page SP-30, Section 304.05.B.3.d.v., **DELETE** in its entirety.

ff) Page SP-30, Section 304.05.B.3.e.i., **REVISE** the following:

- 1) The impeller shaft shall support the impellers and shall be of ground and polished, pump shaft quality 17-4PH stainless steel condition H900, conforming to ASTM A-276 and A479, *or Monel, conforming to ASTM B-127*, or higher strength material.

gg) Page SP-30, Section 304.05.B.3.e.iv., **REVISE** the following:

- 1) The intermediate bowl and case bearings shall be Vesconite Hi-Lube, *Tungsten Carbide*, or other non-corrosive material by approval.

hh) Page SP-30, Section 304.05.B.3.f.i., **REVISE** the following:

- 1) The pump suction case shall be fitted with a stainless steel suction screen having a total open area at least three times the cross-sectional area of the column pipe, while still rejecting objects of *0.50"Ø* or larger from entering the pump.

ii) Page SP-31, Section 304.05.B.4.a.vi., **DELETE** in its entirety and **REPLACE** with the following:

- 1) Motor vibration shall be less than 0.156 IPS from 0 to 500 Hz.
- jj) Page SP-31, Section 304.05.B.4.b., **REVISE** the “Minimum Efficiency @ Full Load (%)” from 88.0% to 87.5%.
- kk) Page SP-31, Section 304.05.B.4.b., **REVISE** the “Minimum Power Factor @ Full Load (PF)” from 83.0% to 81.5%.
- ll) Page SP-31, Section 304.05.B.4.b., **REVISE** the “Motor Lead Extension Length (ft)” from 35.0’ to 40.0’.
- mm) Page SP-32, Section 304.05.B.4.c.i., **REVISE** the following:
- 1) All insulating materials will be *rated for greater than 155 °F*. Minimum efficiency at full load shall be as specified with a minimum power factor of 81.5%.
- nn) Page SP-32, Section 304.05.B.4.c.ii.a), **DELETE** in its entirety and **REPLACE** with the following:
- 1) *The motor shall be of the oil filled “fully encapsulated” type. The motor shall be filled with a high dielectric strength FDA approved, food grade, polyalphaolefin (PAO) synthetic oil, and a viscosity of 5.6 – 6.4 cSt at 100 °F as per test method ASTM D 445. Oil shall conform to ANSI/NSF 60 Drinking Water Treatment Chemicals and registered as 3H and H1 lubricant for direct or incidental contact by NSF.*
- oo) Page SP-32, Section 304.05.B.4.c.v.a)i), **REVISE** the following:
- 1) To at least one of the sleeves and bearing *if the bearing is fabricated from a nitralloy*.
- pp) Page SP-32, Section 304.05.B.4.c.vi.a), **REVISE** the following:
- 1) The motor housing and frame shall be of ASTM A744 Gr. CF8M 316L stainless steel or ASTM A814 Gr. 316L stainless steel *or carbon steel*.
- qq) Page SP-32, Section 304.05.B.4.c.vi.b), **REVISE** the following:
- 1) Rotor shaft shall be of ASTM A276 Gr. 17-4 PH PSQ stainless steel, *or AISI 4130 steel*, with ends in the bearing area, polished to a surface roughness not exceeding 20.0 µin (RA) / 22.0 µin (RMS).
- rr) Page SP-32, Section 304.05.B.4.c.vi.c), **REVISE** the following:
- 1) All fastener and washers shall be Nitronic 60 or *Monel*.
- ss) Page SP-32, Section 304.05.B.4.c.vi.d), **REVISE** the following:
- 1) The motor laser cut *or stamped* stator and rotor laminations shall be of silicon steel.
- tt) Page SP-33, Section 304.05.B.4.c.vi.i), **REVISE** the following:

- 1) Bearing shall be fabricated from a nitralloy or *Cobalt 6*.
- uu) Page SP-33, Section 304.05.B.4.c.vii.b), **REVISE** the following:
- 1) The motor lead plug in connector shall be pressure tested prior to installation and delivery. The plug in shall be insulation resistance tested after subjected to a minimum of 50 psi-~~of~~ *water pressure* for one hour.
- vv) Page SP-33, Section 304.05.B.4.c.viii.a), **REVISE** the following:
- 1) The motor manufacturer shall furnish an ASTM A582 Gr. 416 HT stainless steel, two-piece flexible (jaw) coupling, *or internal spline couplings*, of sufficient size and strength to withstand the torque of the motor and the resistance of the pump
- ww) Page SP-33, Section 304.05.B.5.a.i., **REVISE** the following:
- 1) The seal section shall be single type; *premium face seal*; use a combination of bag and labyrinth configurations; and include high load thrust bearings.
- xx) Page SP-35, Section 304.05.B.6.a.i.c), **REVISE** the following:
- 1) Intake Temperature: $32^{\circ}F - 302^{\circ}F$
- yy) Page SP-35, Section 304.05.B.6.a.i.f), **REVISE** the following:
- 1) Vibration – X and Y axes: ± 10 g
- zz) Page SP-46, Section 304.05.B.13.c.i.a)iv)b))i)d))), **REVISE** the following:
- 1) Growler Test *or Surge Test*.

BY AUTHORITY OF THE DEPARTMENT OF
WATER SUPPLY COUNTY OF HAWAII

Date: January 18, 2023

By: 
Keith K. Okamoto, P.E., Manager-Chief Engineer

Please sign and return immediately to the Manager-Chief Engineer of the Department of Water Supply.

Receipt of a copy of **ADDENDUM NO. 3** for JOB NO. 2022-1204, HUALĀLAI DEEPWELL REPAIR, District of North Kona, County of Hawai'i, State of Hawai'i, is hereby acknowledged.

NAME OF BIDDER

Date: _____

By: _____