



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I

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DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAI'I
HILO, HAWAI'I

ADDENDUM NO. 2

JOB NO. 2023-1234 (REBID)

INVITATION FOR BIDS

FOR THE

PANA'EWA WELLS A & B REPAIR
DISTRICT OF SOUTH HILO
County of Hawai'i – State of Hawai'i

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

1. Changes to **PROPOSAL**:

- a. **DELETE** Proposal section in its entirety and **REPLACE** with the attached replacement Proposal section P-1A through P-18A.
 - i. Revisions have been made on P-7 to P-10, Part "C".

2. Changes to **SPECIAL PROVISIONS**:

- a. **REPLACE** on page SP-25, Section 304.05, Part B. 4.a., with the following:

4.a. Discharge Head

i. Machine Work & Tolerancing

- a) The discharge head shall be machined in a single setup where possible to establish a common centerline (Datum A) perpendicular to the mounting base (Datum B).

i) Geometric Controls (Referencing ASME Y14.5-2018):

- a)) Flatness: The motor mounting face, stuffing box mounting face, and base mounting face shall be flat within 0.002" Full Indicator Movement (FIM) and have a surface finish not exceeding 63 μ m Ra.
- b)) Parallelism: The motor mounting face and the top column mating face shall be parallel to the base mounting face (Datum B) within 0.002".

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- c)) Perpendicularity: The common central axis (Datum A), defined by the machined registers for the motor and column, shall be perpendicular to the base mounting face (Datum B) within 0.001" per foot of length.
- d)) Concentricity/Position: The motor register (rabbet) fit and the top column register fit shall be concentric to the central axis (Datum A) within 0.002" Total Indicator Reading (TIR).

ii) Fit & Register Dimensions:

- a)) Motor Register: The motor pilot bore/rabbet shall be machined to a Location Fit (ANSI Class L1) to ensure zero-clearance centering of the motor driver.
- b)) Column Alignment: The mating register for the top column flange shall be machined to a Tolerance of +0.002" / -0.000" to prevent lateral shifting of the pump string.

iii) Top Column Flange:

- a)) Threaded Bore Alignment: The internal threads for the column pipe must be chased or machined such that the centerline of the pipe remains within 0.002" of Parallelism with the discharge head central axis (Datum A).
- b)) Runout: The face of the top column flange shall have a Total Runout of no more than 0.002" relative to the threaded bore axis to prevent "dog-legging" of the shaft.

iv) Verification:

- a)) A certified CMM (Coordinate Measuring Machine) Report or a manual Inspection Dimension Record (IDR) shall be provided for each head, documenting the actual measured values for every GD&T callout listed above.
- ii. The discharge head assembly shall be furnished by the Contractor and shall provide to the Department, a submittal prior to fabrication, verifying the dimensions of the discharge head, compatibility with the reed critical frequency of the vertical hollow shaft motor (provide calculations), and the compatibility when the pumping assembly is operated by a VFD in the associated frequency range of 10% - 100% of rated flow (provide calculations).
- iii. To determine the potential for a critical natural structural frequency occurring within the normal operating speed range of the pump, a Level II structural dynamic analysis shall be performed in accordance with ANSI/HI 9.6.8 Rotodynamic Pumps Guideline for Dynamics of Pumping Machinery, Table 9.6.8.4 with technical report submitted prior to approval of delivery. The pump structure shall be subject to a natural frequency analysis (modal FEA) in accordance with Section 9.6.8.6.2.3.3. The minimum frequency separation margin obtained by analysis shall be $\pm 20\%$.
- a) The critical dimensions of the new discharge heads shall match the existing discharge heads they are intended to replace, or there shall be sufficient allowance in the well pad assembly to not require any modifications of the existing discharge piping.

- iv. The discharge head shall include a minimum of two (2) windows, oriented 90 degrees perpendicular to the alignment of the discharge piping providing clear access for inspection and servicing the mechanical seal assembly.
- v. The discharge head shall be fabricated Ni-Reist 40, ASTM A439 Gr. D-2 designed for above ground discharge with flanged connection to column assembly and capable of containing the maximum pressure developed by the pump and supporting the driver and the suspended weight load of the column assembly and pump.
- vi. The discharge head shall incorporate a flat face flange in conformance with ANSI B16.1 Class 125.
- vii. The discharge head shall include two (2) ¾"-14, drilled and tapped, NPT threaded, ports on the right and left side of the discharge, respectively; one (1) ½"-14, drilled and tapped, UNC threaded, drain port on the body of the discharge head; one (1) ¾"-14, drilled and tapped, UNC threaded, port on the body of the discharge head; one (1) 1"-11.5, and one (1) ¼"-18 drilled and tapped, NPS threaded, ports in the base flange of the discharge head. All ports shall be sealed with ASTM A193 B8S pipe plugs and flanged openings sealed with plastic blind flanges.
- viii. The discharge head NEMA P base mounting flange shall have a rabbet fit alignment register to accurately locate the vertical hollow shaft driver, with a driver BD diameter of 20.0— inches. The NEMA P base mounting flange shall be machined parallel to the discharge head base flange and perpendicular to the axis of the column tailpiece or flange connection.
- ix. Each discharge head shall be furnished with one (1) base flange gasket, one (1) discharge flange gasket, NSF 61 approved, 125# (Klinger-Thermoseal Klingersil C-4401); Nitronic 60 bolts; 316 stainless steel hex nuts; and NSF H1 approved anti-seize compound, Henkel Loctite LB 8014 or equal by approval. Furnish all gaskets and fasteners separate from discharge head.
- x. Contractor shall be responsible for field verification of all field and installation dimensions with design submittals furnished to the Department for review and approval prior to release for production. Contractor shall be responsible for all costs for corrective work due to dimensional or fabrication errors, and defects. Method of corrective work shall be at the sole discretion of the Department.
- xi. The pump nameplate shall be securely fastened to the discharge head with threaded fasteners, showing the manufacturer's name, model, number of stages, serial number, capacity in gpm at rated head in feet, and speed in rpm. **Nameplate shall be 316 stainless steel and all information shall be engraved/embossed/machined in "Palatino Linotype" font with a minimum size of 10 point and minimum depth of 0.03125"**, which shall resist weathering and wear over the life of the pump.
- xii. The Contractor shall be responsible for coordination and execution of third-party surface preparation, and coating of the discharge head in full compliance with these specifications.
 - a) Solvent Cleaning & Mechanical Finishing: The entire discharge head shall be solvent cleaned per NAPF 500-03-01. All accessible surfaces shall be ground and machined to remove casting defects (flash, fins, scabs, protrusions). All transitions shall be smoothly

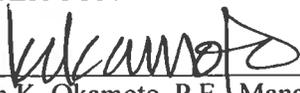
blended. Wetted flow path discontinuities shall be minimized to ensure a continuous, holiday-free FBE film.

- b) Thermal Outgassing (Critical for Ni-Resist): Prior to final blasting, the casting shall be subjected to a thermal outgassing cycle. The component shall be heated to 425°F (218°C) or 30°F above the highest coating cure temperature, whichever is greater, for a minimum of two hours after the metal reaches temperature. This is required to expel entrapped gases from the Ni-Resist matrix that cause "pinholing" in FBE and Polyester coatings.
- c) Wetted Surface Preparation (Internal): The wetted flow path shall be abrasive blasted to NAF 500-03-04 (Internal Surface) using virgin angular grit to achieve a "Near-White" metal condition. The surface profile shall be 3.0–4.0 mils (75–100 µm) to maximize the mechanical anchor pattern for the FBE.
- d) Non-Wetted Surface Preparation (External): External surfaces shall be abrasive blasted to NAF 500-03-05 using virgin angular aluminum oxide to produce a uniform angular surface profile of 2.5–3.5 mils, optimized for TGIC-Free Polyester adhesion.
- e) Decontamination: Following blasting, the component shall be cleaned using oil-free compressed air or vacuum to remove all dust and fines. If alkaline cleaning is used, it must be neutral-flushed, rinsed with deionized water, and immediately dried to prevent surface oxidation.
- f) Internal Coating Application (FBE):
 - i) The head shall be masked to protect external surfaces intended for polyester coating and all machined threads.
 - ii) The component shall be uniformly pre-heated to the temperature specified by the FBE manufacturer (typically 400°F to 450°F).
 - iii) FBE shall be applied to the wetted flow path via electrostatic spray to a Dry Film Thickness (DFT) of 12–16 mils.
 - iv) The FBE shall be allowed to reach a "gel" state or full cure as required by the manufacturer before external coating begins.
- g) External Coating Application (TGIC-Free Polyester):
 - i) Internal wetted surfaces (now coated with FBE) and machined threads shall be masked.
 - ii) The component shall be cooled or reheated to the polyester manufacturer's recommended application temperature.
 - iii) TGIC-Free Polyester powder shall be electrostatically applied to all non-wetted surfaces to a DFT of 3–5 mils.

- iv) The entire assembly shall be baked to fully cure the polyester. The Contractor must ensure the polyester cure cycle does not exceed the maximum intermittent temperature rating of the internal FBE.
- h) Inspection: The FBE coating shall be tested for holidays in accordance with ASTM G62. Both coatings shall be inspected for adhesion (cross-hatch or pull-off) and DFT compliance.
- i) Quality Control
 - i) The Contractor shall provide photo documentation from the manufacturer of the discharge head at each of the following stages prior to proceeding to the next stage:
 - a)) After completion of NAPF 500-03-01 and NAPF 500-03-04 cleaning.
 - b)) After lining of wetted flow path.
 - c)) After completion of external coating.
 - ii) Photos for each stage above shall be of high resolution and clarity, and from multiple perspectives to allow for a thorough inspection of all appropriate surfaces of the discharge head.
 - iii) Any work not meeting the quality standards of the Department shall be redone to the satisfaction of the Project Engineer, at no additional cost to the Department.
 - iv) Upon approval of the photos of the external coat, the discharge head shall be crated in a manner to protect the discharge head and finish from damage, and released for delivery.

BY AUTHORITY OF THE DEPARTMENT OF
WATER SUPPLY COUNTY OF HAWAI'I

Date: February 10, 2026

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. 2** for JOB NO. 2023-1234 (REBID), INVITATION FOR BIDS FOR THE PANA'EWA WELLS A & B REPAIRS, District of South Hilo, County of Hawai'i, State of Hawai'i, is hereby acknowledged.

NAME OF BIDDER

Date: _____

By: _____