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SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Public Works and Government Services Canada - Pacific Region
800 Burrard Street, Room 219
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Title - Sujet Turbine Installation	
Solicitation No. - N° de l'invitation F1700-164035/A	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client F1700-164035	**Date** 2017-01-10
GETS Reference No. - N° de référence de SEAG PW-$PWY-019-7943	
File No. - N° de dossier PWY-6-39253 (019)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-01-25	**Time Zone** **Fuseau horaire** Pacific Standard Time PST
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Ngan, Ken (PWY)	**Buyer Id - Id de l'acheteur** pwy019
Telephone No. - N° de téléphone (604) 658-2755 ( )	**FAX No. - N° de FAX** (604) 775-6633
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:** DFO - Puntledge Hatchery - Courtenay, BC	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
Vendor/Firm Name and Address **Raison sociale et adresse du fournisseur/de l'entrepreneur** **Telephone No. - N° de téléphone** **Facsimile No. - N° de télécopieur**	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) **Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)** **Signature**	**Date**

Canada

Solicitation No. - N° de l'invitation	Amd. No. - N° de la modif.	Buyer ID - Id de l'acheteur
F1700-164035/A	001	pwy019
Client Ref. No. - N° de réf. du client	File No. - N° du dossier	CCC No./N° CCC - FMS No/ N° VME
	pwy-6-39253	

This Solicitation Amendment 001 is raised to incorporate Addendum #1 and the associated revised Specifications - Section 40 20 10.

All other terms and conditions remain unchanged.

ADDENDUM #1

Date of Addendum: January 10, 2017

NOTICE TO ALL BIDDERS AND PLANHOLDERS

The Contract Documents for the above-referenced Project are modified as set forth in this Addendum. The original Contract Documents and any previously issued addenda remain in full force and effect, except as modified by this Addendum, which is hereby made part of the Contract Documents. Bidder shall take this Addendum into consideration when preparing and submitting a bid, and shall acknowledge receipt of this Addendum in the space provided on the Bid Form.

1.0 – SPECIFICATIONS

Item	Section No.	Description of Change
1.1	48 10 00	**Clarify operating conditions.** Replace Clause 2.1.7: *Desired output of 100 kW electrical power at nameplate point (as shown on drawing P-001). Capable of operation generating 110 kW at design capacity point (also as shown on P-001).*
1.2	01 78 00	**Additional Operation and Maintenance Manual requirements.** Add Clause 1.3.5: *Include a section, providing theory of operation for the turbine and describing turbine control.*
1.3	01 78 00	**Time for Close-out Submittals** Add Clause 1.1.5 *All items required under this section including operations and maintenance manuals, as-built drawings, and warranty information to be delivered within 4 weeks of Commissioning Acceptance.*
1.3	40 20 10	**Replace Actuator on Existing Valve XT-10 with new proportional control actuator** See Specification Section 40 20 10 (version 1).

2.0 – DRAWINGS

Item	Drawing No.	Description of Change
2.1	P-002	**Replace Actuator on Existing Valve XT-10 with proportional control actuator** Modify List of Instrumentation table, last row: Valve XT-10 RANGE change from *OPEN/CLOSED* to *0-100%.*

2.2	E-004 E-005 E-006 E-008	**Replace Actuator on Existing Valve XT-10 with proportional control actuator** E-004 drawing XT10 transmitter, no changes E-005 drawing V10 open and close position, no changes as per clause 2.9.10 E-006 drawing V10 valve open and close commands, no changes to wiring. Coil terminations may be updated E-008 drawing XT10 (V10) analog transmitter to be added to input 4 on the second module 5502.
2.3	Cable Schedule	**Replace Actuator on Existing Valve XT-10 with proportional control actuator** Add panel wiring from input 4 on the second module 5502 to TB-4. Add cable from TB-4 to XT10 (V10) analog transmitter.

END OF ADDENDUM

TECHNICAL SPECIFICATON			
SECTION	Division 40 Process Integration Section 40 20 10 Process Piping Valves		
PROJECT	Fisheries and Oceans Canada Puntledge River Hatchery Water Supply Energy Recovery		
DATE	December 22, 2016	VERSION	1

Table of Contents

Revision History

Version #	Status	Date	Description of Revisions	Author
0	Issued for Tender	April 15, 2016	Original	Neal Whiteside
1	Issued for Tender	December 22, 2016	Revised TCV actuator and added actuator for XT-10 (existing valve). Added TCV alternate manufacturer.	Neal Whiteside

WELshared:001-Projects:052 - Puntledge Const:600-specs:40 20 10 Valves-v1.docx

1 GENERAL

1.1 SCOPE

1.1.1 Provide valves as shown on the drawings and herein described.

1.2 REFERENCE STANDARDS

1.2.1 Section 40 20 00 Process Piping

1.3 SUBMITTALS

1.3.1 Provide submittals as per Section 01 33 00 for the following items prior to ordering:

- All valves – full product data including weight, dimensions, pressure rating, hydraulic losses (i.e. C_v),
- Control valves – above plus specific information on hydraulic losses through range of valve positions,
- Hydraulic control valves – above plus specific information on pilot system
- Actuators –power supply and electrical outputs, technical information to demonstrate compliance with specifications.

1.3.2 Provide submittals as per Section 01 33 00 for operations and maintenance manual:

- All submittals above plus,
- Provide warranty for valves and actuators,
- Provide manufacturer's test report for control valves,
- Operating and maintenance manuals for control valves and actuators.

2 PRODUCTS

2.1 Small Diameter (< 75 mm) Stainless Steel Ball Valves

2.1.1 2-piece or 3-piece 316 SS body, to allow valve to be removed from line without dismantling piping, screwed ends to ANSI B2.1. Provide two-piece for drain piping and where shown on the drawings. Provide 3-piece for instrumentation piping.

2.1.2 Adjustable packing nut, blowout proof 316SS stem

2.1.3 Locking lever handle

2.1.4 316 SS floating ball

2.1.5 Teflon stem packing and teflon seats

2.1.6 M.A. Stewart Model G2 and G3 or approved equal.

2.2 Small Diameter (< 75 mm) Carbon Steel Ball Valves

2.2.1 Two-piece Carbon Steel (A216 WCB), screwed ends to ANSI B2.1.

2.2.2 Locking lever handle

2.2.3 316 SS floating ball

2.2.4 PTFE stem packing and teflon seats

2.2.5 M.A. Stewart Model CSCR-2 or approved equal.

2.3 Small Diameter (< 75 mm) Brass ball valves

2.3.1 2-piece forged brass body, to allow valve to be removed from line without dismantling piping, screwed ends to ANSI B2.1.

2.3.2 Class 150 (150 WSP, 600 WOG)

2.3.3 Adjustable packing nut, blowout proof stem

2.3.4 Chrome plated ball

2.3.5 Teflon stem packing and teflon seats

2.3.6 M.A. Stewart Model B3, Crane Fig. 9102-B, or approved equal to the above requirements.

2.4 Isolation Gate Valves (100 – 300 mm)

2.4.1 Construction to AWWA C509 (resilient seated gate valves for water supply service, rated for 250 psig service and hydrostatic tested to 500 psig.

2.4.2 Ductile iron body, ductile iron wedge with bonded rubber coating, O-ring seals, resilient seat,

2.4.3 Flanged joints as noted on the drawings.

2.4.4 Rising stem (OS&Y) with manual 450 mm dia. handwheel.

2.4.5 Fusion-bonded epoxy coating and lining to AWWA C550.

2.4.6 Each valve shall have the manufacturer's name, the pressure rating, and the year in which it was manufactured cast on the body. Each valve shall be hydrostatically pressure tested according to the requirements of AWWA C509.

2.4.7 Standard of Acceptance: Clow Resilient Wedge Valve – Model 2639

2.4.8 Alternate Manufacuturer's: Mueller, AVK Series 25 (as available from Emco Ltd. Waterworks), or Approved equal

2.4.9 Valves to open counter clockwise.

2.5 Control Valves

2.5.1 As per following valve specification sheets.

Control Valve Tag	**CV1A**	**CV3A**
General		
Operating Description	High-Flow Tank Control Valve	Low-Flow Tank Control Valve
Type of Valve	Full-port Globe Valve	
Nominal Diameter	300 mm	200 mm
End Connections	Flanged (ANSI B16.42 Class 150#)	
Features / Ancillary Components	Actuated with solenoid control valves, remote pilot connection, anti-cavitation trim, with PRV back-up hydraulic pilots	
Operating Conditions & Pressures		
Valve Pressure Rating	250 psig	
Upstream Static Pressure	160 psig	
Upstream Operating Pressure	130 to 155 psig typical range	
Downstream Operating Pressure	10 to 20 psig typical range	
Downstream Static Pressure	10 psig	
Temperature Range of Fluid	4 to 20 ^{0}C	
Service Fluid	Clean Water	
Cv full open	900 USgpm/psi^0.5	360 USgpm/psi^0.5
Description	Solenoid valves actuated to add or remove water from the bonnet, closing or opening the valve as required to maintain level set-point in tank as per signal from level transmitter. Valve normally controlled by PLC. On power failure, parallel hydraulic pilot system to control valve position. Parallel hydraulic pilot system to be independent (using separate inlet/outlet connections on the valve).	
Valve Materials		
Body	ASTM A536 Ductile Iron with fusion bonded epoxy coating to AWWA C550.	
Disc Retainer & Diaphragm Washer	Cast Iron	
Diaphragm	Nylon Reinforced Buna-N Rubber	
Trim (Disc Guide, Seat & Cover Bearing)	Stainless Steel	
Stem, Nut and Spring	Stainless Steel	
Fasteners	Stainless Steel	
Acceptable Products		
Standard of Acceptance	Cla-Val Model 100-01KO Main Valve with piloting to suit.	
Approved Alternate Manufacturers	Singer Model S106-3SC-PCO-PR-AC	
Ancillary Components	Valve position transmitter (Cla-Val X117 Series Position Transmitter, Singer X156, or approved Equal)	
Notes	Provide Pilot Controls as per Clause 2.6	

Control Valve Tag	**TCV**
General	
Operating Description	Turbine Control Valve
Type of Valve	Triple Offset Butterfly Valve with Motorized Actuator
Nominal Diameter	200 mm
End Connections	Lug style for ANSI B16.42 Class 150# flanges
Features / Ancillary Components	Actuated with fail-closed motorized actuator, valve position transmitter.
Operating Conditions & Pressures	
Valve Pressure Rating	250 psig
Upstream Static Pressure	160 psig
Upstream Operating Pressure	20 to 50 psig typical range
Downstream Operating Pressure	10 to 20 psig typical range
Downstream Static Pressure	10 psig
Temperature Range of Fluid	4 to 20 ^{0}C
Service Fluid	Clean Water
Cv full open	1500 USgpm/psi^0.5
Description	Valve operated in conjunction with turbine control. Valve to fail-closed on power failure.
Valve Materials	
Body	ASTM A 105 WCB Carbon Steel
Seat / Bearing Material	ASTM CoCr alloy Gr.21
Disc	Same as body – nickel plated
Shaft	S/S 410
Acceptable Products	
Standard of Acceptance	Velan Torqseal triple offset butterfly valve to above requirements.
Approved Alternate Manufacturers	Bray TriLok or Zwick triple offset butterfly valve to above requirements.
Ancillary Components	Actuator see Clause 2.9
Notes	

2.6 Control Valve Piloting (CV1A and CV3A)

2.6.1 Level is normally controlled by operation of two solenoids (one opening valve and one closing the valve) to modulate the valve to maintain the process variable. Solenoids are controlled by the PLC.

2.6.2 Should a power failure occur, a parallel hydraulically operated pressure reducing pilot system takes control of the valve maintaining a pre-set outlet pressure (using a third solenoid valve). When power is restored, the valve automatically reverts back to the electronic mode.

2.6.3 Standard of Acceptance: Piloting per Cla-Val Model 131-18 (Electronic Control Valve equipped with Hydraulic Pressure Reducing Solenoid**).**

2.6.4 Solenoids: Solenoid valve coil voltage shall be 24 V DC. Solenoid valve shall be supplied with a IP 66 rated enclosure. Solenoid valve body material shall be brass with NPT connections.

2.6.5 The pilot fittings shall be AISI 316 stainless steel including the pressure reducing pilot.

2.6.6 The pilot tubing shall be AISI 316 stainless steel with PTFE lined flexible braided stainless steel connection to remote duplex strainer assembly.

2.6.7 Opening and closing needle valve speed controls shall be supplied. Needle valves shall be constructed of 316 stainless steel with manual operator.

2.6.8 Pilot isolation ball valves shall be supplied. Pilot isolation ball valve(s) shall be constructed of 316 stainless steel with stainless steel handle operator.

2.6.9 Supply to pilot system shall be remote, as per Clause 2.7.

2.7 Remote Duplex Strainer (Combined for CV1A and CV3A)

2.7.1 Provide wall-mount duplex y-strainer system.

2.7.2 Strainers and piping sized to adequately close both valves from full open in 10 s.

2.7.3 Y-strainer: Cla-Val X43 Strainer or approved equal.

2.7.4 Provide brass isolation ball valves on either side of each y-strainer.

2.7.5 Provide copper tubing to remote connection point and to each valve.

2.7.6 Provide Uni-strut channel to protect

2.7.7 Provide air-release valve at high-point(s).

2.8 Valve Position Indicator (CV1A and CV3A)

2.8.1 24VDC external power supply

2.8.2 Provide precise 4-20mA calibrated output signal, with adjustable zero and span, proportional over 0-100% of valve stroke position.

2.8.3 The valve position transmitter assembly shall be mounted directly to the valve stem.

2.8.4 Standard of Acceptance: Cla-Val Model X117C Valve Position Transmitter.

2.8.5 Alternate: Singer Model X156 Linear Inductive Valve Position Transmitter.

2.9 Turbine Control Valve (XT-05) Actuator

2.9.1 Provide a continuous-duty, quarter turn actuator. Duty with non-periodic load and speed variations, capable of continuous unrestricted modulation (1200 starts per hour).

2.9.2 Response time of less than 0.1 s.

2.9.3 High-efficiency, continuous duty brushless DC Motor drive.

2.9.4 Fail to close limit - On power failure the actuator will close the valve to the position set as the close limit using stored energy (24V DC battery power).

2.9.5 Desired closing time on power failure 15 s.

2.9.6 Sealed enclosure to IP68 (Watertight) with powder coated finish.

2.9.7 120 V / 1 phase / 60 HZ AC power supply.

2.9.8 4-20 mA analog position control and output of valve position (continuous position transmitter)

2.9.9 Operation with ambient temperature range of -30 to + 50^{0}C.

2.9.10 Digital Display.

2.9.11 The actuator shall include the Remote Input Remote Output (RIRO) option with 4-20 mA or optional discrete.

2.9.12 The actuator shall include two (2) absolute encoders to provide hysteresis control, user adjustable feedback via CPT, and proportional control.

2.9.13 The actuator shall include three (3) discrete controls: open, close, and neutral.

2.9.14 The actuator shall include one (1) empty relay and one (1) empty neutral.

2.9.15 Manual override hand drive.

2.9.16 Geartrain lubricated for life.

2.9.17 Seating and operating torque requirements to suit valve and operating conditions specified.

2.9.18 Standard of Acceptance: Rotork IQTM Pro Type 2 Battery Failsafe.

2.10 XT-10 Actuator

2.10.1 Existing valve XT-10 is to be provided with a new valve actuator capable of proportional control.

2.10.2 The existing valve is a 400 mm dia. wafer-style on-center resilient seated cast iron butterfly valve. Valve manufacturer; Dezurik; Style: BOS-CL.

2.10.3 The existing valve actuator is to be removed. The existing actuator is a Rotork, type AQ860PA14 with max torque setting of 800 lb-ft and a 115V / 1 ph / 60 hz power supply.

2.10.4 Provide a continuous-duty, quarter turn actuator. Duty with non-periodic load and speed variations, capable of continuous unrestricted modulation (1200 starts per hour).

2.10.5 Response time of less than 0.1 s.

2.10.6 High-efficiency, continuous duty brushless DC Motor drive.

2.10.7 Sealed enclosure to IP68 (Watertight) with powder coated finish.

2.10.8 120 V / 1 phase / 60 HZ AC power supply.

2.10.9 4-20 mA analog position control and output of valve position (continuous position transmitter)

2.10.10 Operation with ambient temperature range of -30 to + 50^{0}C.

2.10.11 Digital Display.

2.10.12 The actuator shall include the Remote Input Remote Output (RIRO) option with 4-20 mA or optional discrete.

2.10.13 The actuator shall include two (2) absolute encoders to provide hysteresis control, user adjustable feedback via CPT, and proportional control.

2.10.14 The actuator shall include three (3) discrete controls: open, close, and neutral.

2.10.15 The actuator shall include one (1) empty relay and one (1) empty neutral.

2.10.16 Manual override hand drive.

2.10.17 Geartrain lubricated for life.

2.10.18 Seating and operating torque requirements to suit valve and operating conditions specified.

2.10.19 Actuator to be supplied with mounting bracket and hardware for mounting on to existing valve.

2.10.20 Standard of Acceptance: Rotork IQTM.

3 EXECUTION

3.1 General Valve Installation Requirements

3.1.1 Installation, and testing of valves are covered under Section 40 20 00.

3.2 Control Valve Testing

3.2.1 Control valves to be tested with valve manufacturer representative during commissioning to verify operation and correct setup.

3.2.2 Provide control valve commissioning report from Valve manufacturer representative indicating valve installation is compliant with manufacturer's recommendations.

END OF SECTION