CITY OF HOUSTON

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February 19, 2014

Subject: Letter of Clarification No. 10 to Invitation to Bid No. S50-C24730 for the Generator Readiness Improvement Project Citywide for the Public Works and Engineering Department

To: All Prospective Bidders:

This letter of Clarification is being issued for the following reasons:

- **To revise SECTION "B" Scope of work/Technical Specifications, revise the Electronic Bid Form and answer questions posed by perspective bidders:**

1.) Remove Page Nos. 19, 22, 25, 26 & 27 of 43 and replace with the revised Page Nos. 19, 22, 25, 26, & 27 of 43 marked, REVISED 2/18/2014.

2.) The following questions and City of Houston responses are hereby incorporated and made a part of the Invitation to Bid:

3.) ***See the revised Electronic Bid Form. All bidders are advised to pick up all bids from the City Secretary's Office and re-submit their bid.***

Question No. 1: Section 1.1.1.4: When it states clean, does this mean; drain tank and clean or clean <u>with chemical agent</u>? Please elaborate?

Answer: Yes, drain and clean with chemical agent.

Question No. 2: Section 2.4.3: How many units have electric fan motors and what are the voltage, amps, motor RPM, manufacture type?

Answer: Electric fan motors have since been replaced by the City; this item can be removed from the scope. (See the attached, revised Page No. 19 of 43 marked REVISED 2/14/2014)

Question No. 3: Section 2.9.6: States simply "Air Intake System". What is actually expected to be done with air intake system? Please elaborate?

Answer: The scope of work states: Air Intake System

- Replace air cleaner element(s)
- Test air cleaner indicator
- Check all air intake piping for damage and loose connections
- Inspect air cleaner seal for pliability and sealing
- Inspect turbocharger for excessive end play clearance and seal leakage

Question No. 4: SECTION 2.0 – DIESEL ENGINE REHAB:

Question A: This area calls for OEM original hard engine parts replacement such as fuel injectors, fuel transfer pump, fuel priming pump, and water pumps. These parts are typically offered as OEM remanufacture or new. Remanufacture, is less costly but requires an acceptable core; new, doesn't require a core but is more costly. Which offering would you like, new or remanufacture?

Answer (A): OEM new parts are to be supplied when available. OEM remanufactured replacement parts are a secondary option, if new OEM parts are not available. Aftermarket parts will be approved by the City on a case by case basis due to unavailability of OEM new or remanufactured parts.

Question B: If answer to question "A" is OEM remanufacture, will the City of Houston allow for the additional cost if at a later date a core is determined by OEM to be unacceptable? Unacceptable cores are charged back to the contractor which this is a cost that the contractor would have to eat if not covered in original bid. How would you suggest bidders address this?

Answer (B): Unacceptable core charges will be addressed via contingency charges.

Question No. 5: SECTION 3.0 – ALTER, ATS & MCC/SWITCHGEAR:

Sections – 3.5.2 & 3.5.3 calls to replace any meters or indicator lights not working, cloudy or discolored. Would COH have list of units needing these replacements or would this have to have been noted during individual site visits?

Answer: The City does not have a prepared list of meters or indicator lights which are not working, cloudy or discolored as the subject meters and indicator lights could fail at any given time, therefore a prepared predefined list has not been compiled. A tentative list could have been prepared by bidders during site visits.

Question No. 6: Section 4.0 - Control System Upgrades: This area asks that bidders remove old controllers and replace with new OEM specific digital genset controllers. Section 4.1 - Does COH also want all the ancillary components replaced such as relays, fuse blocks, wiring harnesses, terminal blocks, amplification modules like VR's Gov. Modules, PT/CT, Operator panel, etc.?

Answer: The Control System Upgrades have been deleted from the scope of work. See the attached, revised Page Nos. 25, 26 & 27 of 43.

Question No. 7: Section 4.2: Is it ok to install new conduit above ground to run new cabling due to stub-ups not having room for new cabling from new

controller to controls room? This is found at most locations including well sites and plant facilities.

Answer: See the response above to Question No. 6.

Question No. 8: Section 4.3.1.7 - CAT Regulator: Are these being installed on all units?

Answer: See the response above to Question No. 6.

Question No. 9: Section 4.3.1.8: How many RTD's are required?

Answer: See the response above to Question No. 6.

Question No. 10: Section 4.3.5.2: Do you need a remote annunciator?

Answer: See the response above to Question No. 6.

Question No. 11: Section 4.3.5.3: Is this to be 100 Base T**?**

Answer: See the response above to Question No. 6.

Question No. 12: Section 2: You ask to replace fuel transfer pump. Is that the engine gear driven transfer pump or is that the off engine skid mounted electric transfer pump used to fill fuel day tank?

Answer: The skid mounted electric transfer pump for the day tank, used for fuel.

Question No. 13: Section 4.0: 4.1.1.1 – Detroit Diesel Controller Model ECU-800c is no longer available. Would a third party controller of bidder's choice be acceptable or does the City have an alternative?

Answer: See the response above to Question No. 6.

Question No. 14: Section 4.0: Cummins Onan Detector 12 controllers are obsolete. Would a third party controller of bidder's choice be acceptable or does the City have an alternative?

Answer: See the response above to Question No. 6.

Question No. 15: Section 4.0: Cummins Onan PCC 3100 controllers are obsolete. Cummins does offer upgrade to PCC 3300, would this be acceptable or does the City have an alternative?

Answer: See the response above to Question No. 6.

Question No. 16: Section 4.0: Cummins Onan PCC 3200 controllers are obsolete. Cummins does offer upgrade to PCC 3300, would this be acceptable or does the City have an alternative?

Answer: See the response above to Question No. 6.

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for the Generator Readiness Improvement Project Citywide
for the Public Works and Engineering Department

Question No. 17: Our Materials Manager discovered that in Section 4.0 – CONTROL SYSTEMS UPGRADE, it is calling for a CONTROL SYSTEM REPLACEMENT ECU-800C from ENGINEERING CONCEPTS

UNLIMITED for the DD engines. After calling ECU about this issue he was told this model is NO LONGER AVAILIBLE and that there is no substitute at this time. Is there another direction we are allowed to go?

Also, due to the age of the units and inability to find compatible components necessary to meet the SCADA requirements of the bid; will you consider alternative options to fulfill this? Perhaps something like www.Omnimetrix.net? This problem has a direct impact on the pricing, and improvement upgrades. How would you like us to move forward?

Answer: See the response above to Question No. 6.

When issued, Letter(s) of Clarification shall automatically become a part of the solicitation documents and shall supersede any previous specification(s) and/or provision(s) in conflict with the Letter(s) of Clarification. All revisions, responses, and answers incorporated into the Letter(s) of Clarification are collaboratively from both the Strategic Purchasing Division and the applicable City Department(s). It is the responsibility of the bidder/respondent to ensure that it has obtained all such letter(s). By submitting a bid on this project, bidders/respondents shall be deemed to have received all Letter(s) of Clarification and to have incorporated them into this solicitation and resulting bid.

Furthermore, it is the responsibility of each Contractor to obtain any previous Letter of Clarification associated with this solicitation.

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Attachments: Revised Page Nos. 19, 22, 25, 26 & 27 of 43.

TECHNICAL SPECIFICATIONS

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PART II

1.0 SECTION 1 – FUEL POLISHING:

1.1 Fuel polishing and/or replacement of fuel is essential to extending the useful service life of the fuel storage vessels and the diesel engines. Neglected and untreated diesel fuels can damage storage vessels and clog fuel injectors, thereby shortening the lifespan of these units. Prior to the commencement of any engine rehabilitation service; all on-site fuel stored in the bulk diesel storage tanks and local day tanks shall be reconditioned as follows:

1.1.1 Test fuel for suitability of polishing/filtration.

1.1.1.1 If found unsuitable present evidence to the City's Contract Technical Representative (CTR) for review.

1.1.1.2 After approval from the City's CTR, dispose of fuel per EPA requirements, provide manifest of disposal to City.

1.1.1.3 Filter/polish fuel to remove entrained water, sediments and bio-organisms.

1.1.1.3.1 Fuel removal and tank wash.

1.1.1.4 Clean bio-organisms and other foreign matter from storage tank(s).

1.1.1.5 Treat fuel with biocides and fuel stabilizer.

1.1.1.6 Overall suitability testing, ASTM D975-07, for storage stability ASTM D2274 or D5304.

2.0 SECTION 2 – DIESEL ENGINE REHABILITATION:

2.1 The rehabilitation of diesel engines neglected over a several year period is essential to extending the useful life of said engines and minimizing the potential for catastrophic failure of the engines.

2.2 Diesel Engine Rehabilitation Services: The following services are to be performed at all locations. All replacement fluids shall be as per the engine manufacturer specifications. All parts shall be factory O.E.M.

2.2.1 Parts – All engine parts shall be O.E.M. replacement or O.E.M. remanufactured. No aftermarket parts are acceptable. Any requests for parts found to be not available from the O.E.M. (obsolete), shall be submitted to the City Project Manager for sourcing approval.

2.3 Manuals:

2.3.1 Obtain engine specific operations and maintenance manual for each engine, at conclusion of project, include manual with project deliverables.

2.4 Cooling System:

2.4.1 Drain and replace coolant with extended life coolant.

2.4.2 Replace/re-core radiator (replace blower motor on remote mounted radiators).

~~***2.4.3 Replace V-belts.***~~ ***Item removed.***

2.9.2 Inspect exhaust manifold(s) for broken or missing hardware.

2.9.3 Install drain valve at low point of exhaust piping.

2.9.4 Replace flapper style rain cap.

2.9.5 Air Intake System.

2.9.6 Replace air cleaner element(s).

2.9.7 Test air cleaner indicator.

2.9.8 Check all air intake piping for damage and loose connections.

2.9.9 Inspect air cleaner seal for pliability and sealing.

2.9.10 Inspect turbocharger for excessive end play clearance and seal leakage.

2.10 Control Panel: (At all sites) ~~which are not designated for Control System Upgrades)~~

2.10.1 Operational check of illumination and safety lamps.

2.10.2 Check proper operation of engine and generator instruments with generator running.

2.10.3 Adjust governor control for optimum performance and frequency.

2.10.4 Adjust voltage regulator for proper voltage.

2.10.5 Check for and tighten loose terminals.

2.10.6 Check tightness of relays in the control system.

2.10.7 Inspect for excessive dirt accumulation and vacuum as needed.

2.10.8 Test auto-start system.

2.10.9 Test safeties and pre-alarms on control and annunciator panels.

3.0 SECTION 3 – ALTERNATOR, AUTOMATIC TRANSFER SWITCH (ATS) & MOTOR CONTROL CENTER (MCC)/SWITCHGEAR SYSTEMS SERVICE/REHABILITATION:

3.1 Alternators and mechanical electrical components associated with emergency power facilities not utilized over a period of several years will become less reliable, fail upon exercising, and weaken in their ability to provide required power volumes. The work in this program is expected to return these items to a useful condition and extend their useful lifespan.

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3.4.2.7.1 Utility source voltage phase to phase, phase to ground, and phase to neutral.

3.4.2.7.2 Engine start time (from crank start to source available light or relay pickup).

3.4.2.7.3 Emergency source voltage phase to phase, phase to ground, and phase to neutral.

3.4.2.7.4 Load current each phase.

3.4.2.7.5 Momentary override normal deviation where provided.

3.4.2.7.6 Transfer time delay where provided.

3.4.2.7.7 Return to normal source time delay where provided.

3.4.2.7.8 Engine cool-down where provided.

3.4.2.8 Verify proper operation of all indicator lights, meters and controls.

3.4.2.9 Return ATS to normal service.

3.5 Alternator Motor Control Center:

3.5.1 Inspect and calibrate all protection devices

3.5.2 Inspect and calibrate all meters, replace any meter(s) which are inoperable or exhibit impaired visibility due to clouding or discoloration of the lens.

3.5.3 Replace all indicator lights.

~~***4.0 SECTION 4 – CONTROL SYSTEM UPGRADES:***~~ ***(SECTION DELETED)***

~~***4.1 The installation of upgraded control systems will extend the useful lifespan of the electrical components associated with the generators, increase fuel efficiency, and provide compatibility with***~~
~~***the SCADA system operated by DWO.***~~

~~***4.1.1 Since there is not a replacement control system available from Detroit Diesel, the control system replacement for Detroit Diesel Engines ONLY (Locations: HIA, Park Ten Central and EWPP Plant 1 – Admin) shall be from:***~~

~~***4.1.1.1 Engineering Concepts Unlimited, Inc. (or City Approved Equal)***~~
~~***PO Box 250 – 8950 Technology Drive***~~
~~***Fishers, IN 46038***~~
~~***Phone: 317-849-8470***~~

~~***4.1.1.2 Model ECU-800C, (or City Approved Equal).***~~

~~***4.2 At the following locations only: HIA, Interwood, Jersey Village Plant, Ridgemont and District 71 the Contractor shall be required to furnish and install a replacement controller manufactured by Clarke Power Generation, Inc. - GSC1 Generator Controller, Controls, 9500 Series Generator Panel with a G3M Display & Control, or a City of Houston approved alternate.***~~

~~***4.3 Unit shall monitor the following parameters:***~~

~~***4.3.1 Generator Monitoring;***~~

~~***4.3.1.1 Voltage (L-L, L-N)***~~

~~***4.3.1.2 Current (Phase)***~~

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~~***4.3.1.3 Average Volt, Amp, Frequency***~~

~~***4.3.1.4 KW, KVAR, KVA (Average, Phase, %)***~~

~~***4.3.1.5 Power Factor (Average, Phase)***~~

~~***4.3.1.6 KW-HR, KVAR-HR (total)***~~

~~***4.3.1.7 Excitation voltage and current (with CDVR)***~~

~~***4.3.1.8 Generator stator and bearing temp***~~

~~***4.3.1.9 Generator Protection***~~

~~***4.3.1.10 Generator phase sequence***~~

~~***4.3.1.11 Over/Under voltage (27/59)***~~

~~***4.3.1.12 Over/Under frequency (81 O/U)***~~

~~***4.3.1.13 Reverse Power (KW) (32)***~~

~~***4.3.1.14 Reverse Reactive Power (KVAR) (32RV)***~~

~~***4.3.1.15 Overcurrent (50/51)***~~

~~***4.3.1.16 Current Balance (46)***~~

~~***4.3.2 Engine Monitoring;***~~

~~***4.3.2.1 Coolant temperature***~~

~~***4.3.2.2 Oil pressure***~~

~~***4.3.2.3 Engine speed (RPM)***~~

~~***4.3.2.4 Battery voltage***~~

~~***4.3.2.5 Run hours***~~

~~***4.3.2.6 Crank attempt and successful start counter***~~

~~***4.3.2.7 Enhanced engine monitoring (with electronic engines)***~~

~~***4.3.3 Engine Protection;***~~

~~***4.3.3.1 Control switch not in auto (alarm)***~~

~~***4.3.3.2 High coolant temp (alarm and shutdown)***~~

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~~***4.3.3.3 Low coolant temp (alarm)***~~

~~***4.3.3.4 Low coolant level (alarm)***~~

~~***4.3.3.5 High engine oil temp (alarm and shutdown)***~~

~~***4.3.3.6 Low, high, and weak battery voltage***~~

~~***4.3.3.7 Overspeed***~~

~~***4.3.3.8 Overcrank***~~

~~***4.3.4 Control***~~

~~***4.3.4.1 Run / Auto / Stop control***~~

~~***4.3.4.2 Speed and voltage adjust***~~

~~***4.3.4.3 Local and remote emergency stop***~~

~~***4.3.4.4 Remote start/stop***~~

~~***4.3.4.5 Cycle crank***~~

~~***4.3.4.6 Inputs & Outputs***~~

~~***4.3.4.7 Two dedicated digital inputs***~~

~~***4.3.4.8 Twelve programmable digital inputs***~~

~~***4.3.4.9 Seventeen programmable digital outputs***~~

~~***4.3.5 Communications;***~~

~~***4.3.5.1 Primary and accessory CAN data links***~~

~~***4.3.5.2 RS-485 annunciator data link***~~

~~***4.3.5.3 Modbus TCP (10BT Ethernet)***~~

~~***4.3.5.4 Modbus RTU (RS-485 Half duplex)***~~

3.0 SECTION 5 – WASTE FLUIDS/PRODUCTS AND HAZARDOUS MATERIALS DISPOSAL:

5.1 The Contractor shall dispose of all waste fluids, oily rags, oil absorbents and all hazardous waste per EPA/TCEQ/City of Houston regulations and/or guidelines.

5.1.1 A manifest for all disposal activities shall be provided to the City upon removal from each site.

END OF DOCUMENT