

**SD-428 MAIN WASTEWATER TREATMENT PLANT
OXYGEN PLANT REHABILITATION**

QUESTIONS & ANSWERS

1. **Question:** Specification Section 01 75 17, Field Testing and Startup, paragraph 1.5B-1 requires the Contractor to employ a Cryogenic Oxygen Plant specialist for startup of the oxygen production system. Please provide the name of a firm that meets the criteria in the specification.

Answer: The District has worked with Ranch Cryogenics in the past. The contact is Glenn Schumacher (gschumacher@ranchcryogenics.com, 773-368-7283).

2. **Question:** Can you provide the cost of the District purchased Main Air Compressor motors?

Answer: The District purchased the four Main Air Compressor motors through a competitive bid process. The total cost for the four 1500-hp medium voltage, induction motors is \$1,424,560. This price does not include costs for preparation of submittals, inspections, or potential change orders.

3. **Question:** Do electrical subcontractors for this project need to be pre-qualified?

Answer: No. Refer to Specification Section 00 45 13 Bidder's Qualifications and References and 00 45 13.01 Supplementary Bidder's Qualifications for all requirements.

4. **Question:** Will the Contractor be responsible for the cost of oxygen delivery in the event of a project delay? What is the cost per truckload of oxygen?

Answer: Per specification 00 72 00 General Conditions, Article 8.2.3, the Contractor can be held responsible for the cost of additional damages, such as oxygen delivery costs, due to a Contractor-caused delay. These costs are in addition to the liquidated damages. Prices of oxygen delivery vary over time and by specific agreement and cannot be quantified at this time. Estimated oxygen delivery needed to perform a plant turnaround are six truckloads per day for 5 days.

5. **Question:** Who will be responsible for storing the District purchased Main Air Compressor motors until they are ready to be installed?

Answer: The District will store and safeguard the Main Air Compressor motors until they are ready for installation.

6. **Question:** Can Solutionwerks be on the Contractor team?

Answer: No. Solutionwerks cannot be on the Contractor team.

7. **Question:** Will EBMUD consider extending the bid opening date?

Answer: EBMUD is currently in the process of preparing an addendum to the bid documents which will include some newly identified scope. In order to give perspective bidders sufficient time to incorporate the new scope in their bid, the bid opening date will be pushed back between two and three weeks.

8. **Question:** Is it acceptable to use Fiberglass Nema 4 x enclosures in place of SST 316 enclosures?

Answer: No, all NEMA 4X enclosures shall be SST 316 or as specified.

9. **Question:** Please clarify the type k and type t cable shown on sd428-w4400-e122, these are not called out in 26 05 19.

Answer: EBMUD will update Specification 26 05 19 in addendum 1 for clarity. It is expected that the Contractor terminate factory cables from the sensor to the junction box as shown, and then supply the same cable type to extend from the junction box to the DCS R/IO as shown.

Table A: Thermocouple Identification and Limits of Error – Reference Junction 0°C*

ANSI Symbol	Temperature Range (°C) (conductor only)	Limits of Error Standard (°C)	Jacket Color	Insulation Color Code		Conductor Identification	
				Positive (+)	Negative (-)	Positive (+)	Negative (-)
E	0 to 340 340 to 540	±1.7°C ±.50%	Brown	Purple	Red	Chromel® Non-magnetic	Constantan Silver Color
J	0 to 293 293 to 480	±2.2°C ±.75%	Brown	White	Red	Iron Magnetic	Constantan Non-magnetic
K	0 to 293 293 to 980	±2.2°C ±.75%	Brown	Yellow	Red	Chromel Non-magnetic	Alumel® Magnetic
T	0 to 133 133 to 260	±1.0°C ±.75%	Brown	Blue	Red	Copper Copper Color	Constantan Non-magnetic
EX	0 to 200	±1.7°C	Purple	Purple	Red	Chromel	Constantan
JX	0 to 200	±2.2°C	Black	White	Red	Iron	Constantan
KX	0 to 200	±2.2°C	Yellow	Yellow	Red	Chromel	Alumel
TX	0 to 200	±1.0°C	Blue	Blue	Red	Copper	Constantan

Limits of error per ANSI MC96.1-1982. Limits shown do not include system or installation error. Percentages refer to the temperature being measured.

*The Temperature Range and Limits of Error are for standard grade thermocouples, Reference ANSI MC96.1-1982 for special grade thermocouples.

The Temperature Ranges for type E, J, K and T thermocouple wires listed above pertain to 20 AWG wire.

Additional constructions available upon request.

10. **Question:** Could you share the Section 40 05 23a list of control valves to be purchased? Could you provide the spreadsheet that details the pneumatic tubing and fitting schedule found in Plans Volume III, specifically for drawings SD428-W4400-M301 through SD428-W4400-M303? Is the District or the Contractor responsible for procurement of transmitters, if it's the Contractor please provide the relevant schedule.

Answer: List of control valves – a valve index is included on page 24 of Section 40 05 23, Process Valves. Section 40 05 23a should be a comprehensive set of purchase specifications for all control valves under this project.

Pneumatic tubing and fitting schedule – we can only provide a PDF format at this time. Bidders are encouraged to develop spreadsheets from the PDFs provided.

Transmitters – the Contractor is responsible for procurement of transmitters (unless otherwise noted). Purchase specifications for transmitters are included in Section 40 70 70, Instruments for Process System – Data Sheets.

11. **Question:** Please clarify the type of instrument for the following. EXH-FY, EXH-FV, LOS-VE, IA-FY, IA-FV, O2-FY, O2-FV, O2-LY, N2-FY, ALP-FY, & ALP-FV.

Answer:

EXH = Exhaust

LOS = Lube Oil Supply

LOR = Lube Oil Return (Not in list, but found on P&ID)

IA = Instrument Air

O2 = Oxygen

N2 = Nitrogen

ALP = Air Low Pressure

AHP = Air High Pressure (Not in list, but found on P&ID)

CWS = Cooling Water Source (Not in list, but found on P&ID)

CWR = Cooling Water Return (Not in list, but found on P&ID)

FY = Solenoid Valve associated with a Flow Control Valve

FV = Flow Control Valve

LY = Solenoid Valve associated with a Level Control Valve

LV = Level Control Valve.

There may be discrepancies in naming conventions between the specifications and drawings. Tags will be finalized during the submittal phase.

12. **Question:** Please provide the information requested for the valves below. Where process condition is requested, please provide the following.

Process Conditions

- Flow Rate(s)
- Inlet Pressure(s)
- Outlet Pressure(s) or Pressure Drop(s)
- Inlet Temperature

Answer: Responses provided in blue font.

In general, valves are sized to match existing and shall remain the same.

Tag: FV-213A

- Do you have process conditions for this application?

Air at approximately 70 psig & -100 deg. C.

- The spec sheet calls out an ASCO V0432 solenoid. Can you please provide more information on what the solenoid's purpose is? Is this a quick exhaust solenoid? If so, can you please provide the valve open/close speed requirements?

Part of the plant bottle-up system to secure the process when the plant trips. Not quick exhaust.

Tag: LV-330A

- Do you have process conditions for this application?

Crude LOX at approximately 65 psig & -170 deg. C.

- The spec sheet calls out an ASCO V0432 solenoid. Can you please provide more information on what the solenoid's purpose is? Is this a quick exhaust solenoid? If so, can you please provide the valve open/close speed requirements?

The solenoid is part of the plant bottle-up system. But please delete the position monitor. New valve specs will be released in upcoming addenda (tentatively Addendum 2).

Tag: FV-340N

- Do you have process conditions for this application?

Reflux LIN (liquid nitrogen) at approximately 65 psig & -180 deg. C.

- The spec sheet calls out an ASCO V0432 solenoid. Can you please provide more information on what the solenoid's purpose is? Is this a quick exhaust solenoid? If so, can you please provide the valve open/close speed requirements?

The solenoid is part of the plant bottle-up system. But please delete the position monitor. New valve specs will be released in upcoming addenda (tentatively Addendum 2).

Tags: LV-350 & LV-351

- Do you have process conditions for this application?

LOX at approximately 3 psig & -170 deg. C.

- The spec sheet calls out an ASCO 8316G14 solenoid. Can you please confirm the following:
 - Vent energized or vent de-energized
Solenoid should vent when de-energized.
 - Solenoid voltage
120 VAC.

Tags: PV-615 & PV-625

- Do you have process conditions for this application?

GOX (gaseous oxygen) at 0 to 40 psig & 10 deg. C.

Tags: PV-616 & PV-626

- Do you have process conditions for this application?

GOX at approximately 2 psig & -160 deg. C.

Tags: PV-506A-1-1, PV-506A-1-2, PV-506A-2-1, PV-506A-2-2

- Do you have process conditions for this application?

Air at approximately 70 psig & 30 deg. C.

13. **Question and Answer:** Responses provided in blue font.

- On the ME4100 (multiextract 4100), is this for O2?
The ME4100 for AIT-312 is for GAN (gaseous nitrogen). For AIT-355 it is for GOX (gaseous oxygen).

On the FID:

- What is the range of THC they need to measure?
0 to 250 PPM

- What is the background gas they are measuring THC?
Oxygen
- Please fill out the attached questionnaire. (not attached to Q&A)
Bidders should refer to the products specified in the purchase specifications or propose substitutions for approval through Q&A. If additional information is needed, please reach out with specific questions. The purchase specifications provided should contain the necessary information to obtain a quotation.
- If they are replacing a FID, we need the s/n of the analyzer.
Not applicable.

14. Question:

Do you have process conditions? We will need to select correct valves and verify sizes. Do you have process conditions for each tag? Please fill out the attached form.

Answer:

Process conditions, where applicable, were provided in response to Question 12. Valve sizes and models should not deviate from the specifications. Further details, if needed, can be provided during construction.

15. **Question:** Spec section 26 05 00 3.1 a states that all enclosures are to be 316 sst, and all hardware is to be pvc coated rigid steel. Are we allowed to use PVC coated rigid for conduit on the O2 plant rehab project?

Also are nema 4 x fiberglass enclosures allowed?

Answer: Please see Specification Section 26 05 33, paragraph 3.2 for more details. For all exterior locations, PVC coated rigid steel conduit shall be used. For all interior locations, rigid steel conduit shall be used. The only interior location for this project is the Oxygen Control Building, as depicted on sheet SD428-W4400-E102.6. The main air compressor area shall be considered exterior. Please note that the fire protection specifications may have separate requirements for conduits.

See the answer to question 8, NEMA 4X fiberglass enclosures are not allowed. All NEMA 4X enclosures shall be SST 316 or as specified.

16. **Question:** Please clarify what instruments will be provided as a "Vendor Package: for the main air compressors (MAC) with updated P&ID drawings. Please clarify what instrument "XIT" does and if it is part of the vendor packaged system for the ac air compressors.

Answer: The District will furnish VE-514-X-XA (drive end) and VE-514-X-XB (non-drive end) vibration sensing elements for each MAC motor, typ. 8. The District will furnish the motor with 12 stator RTDs and 4 bearing RTDs (shown adjacent to MAC motor in P&IDs). The Contractor shall provide vibration transmitters for the sensing elements as noted in the bill of materials for the MAC motors in the Addendum 1

drawings. The Contractor shall provide all instruments and equipment in the bill of materials for each MAC. The Contractor shall also provide all instrumentation and equipment associated with the MACs listed in Specification Section 40 70 70, Instrumentation for Process Systems Data Sheets.

XIT-503-2-1 on drawing E504-511 for MAC 2-1, 3rd stage vibration terminal block should be “VIT-503-2-1” instead. In Specification Section 40 70 70, the Bently Nevada W-44-LOS-VE-50X and XIT-50X-X tags are incorrect. The vibration probe (VE) and transmitters (VT) tags should be as follows:

MAC 1st Stage Vibration Probe	MAC 2nd Stage Vibration Probe	MAC 3rd Stage Vibration Probe
VE-501-1-1	VE-502-1-1	VE-503-1-1
VE-501-1-2	VE-502-1-2	VE-503-1-2
VE-501-2-1	VE-502-2-1	VE-503-2-1
VE-501-2-2	VE-502-2-2	VE-503-2-2

Model No: 330909 AXX BXX CXX DXX EXX

MAC 1st Stage Vibration Transmitter		MAC 2nd Stage Vibration Transmitter		MAC 3rd Stage Vibration Transmitter	
Current	Corrected	Current	Corrected	Current	Corrected
XIT-501-1	VT-501-1-1	XIT-502-1	VT-502-1-1	XIT-503-1	VIT-503-1-1
XIT-501-2	VT-501-1-2	XIT-502-2	VT-502-1-2	XIT-503-2	VIT-503-1-2
XIT-501-3	VT-501-2-1	XIT-502-3	VT-502-2-1	XIT-503-3	VIT-503-2-1
XIT-501-4	VT-501-2-2	XIT-502-4	VT-502-2-2	XIT-503-4	VIT-503-2-2

Model No: 990-05-50-03-00

We will make this correction as a note in an upcoming addendum but not revise the purchase specification in 40 70 70 until the conformed set. Final tags are subject to change and will be confirmed during the submittal process during construction. The Contractor is responsible for providing 12 vibration probes and transmitters for the MACs.

17. **Question:** There is a conflict in the bid documents between the Power Point document a 90 day commissioning test and Section 01 75 17-5 a 7 day commissioning test. Could you please clarify between the two requirements?

Answer: A 90 day performance test of the first rehabilitated oxygen plant is required prior to taking the second oxygen plant out of service per Specification 01 35 13 Special Project Procedures Article 1.4 Paragraph D.1. The 7 day commissioning test referenced in Specification 01 75 17 is a general requirement for other equipment and systems installed in this project.

18. **Question:** Please clarify the working hours for the project listed as Monday – Friday 7:00 am – 3:30pm shall be for the installation and check out phase only. The commissioning effort will be 24-7 for the entire duration of the commissioning and acceptance phase.

Answer: The District will extend work hours for specific tasks when it is required by process or operational constraints.

19. **Question:** Please let us know the holiday schedule for the City of Oakland for this timeframe. Will there work on holidays?

Answer: Holidays are listed in Specification 01 13 00 Article 1.3 Paragraph C. In general, work is not allowed on holidays.

20. **Question:** Please identify each know leak in the system now, or please clarify that all existing leaks in the system, not included in the rehab scope of work shall be quoted and repaired on a Time and Materials basis as needed.

Answer: Repair/replacement of existing leaking or damaged tubing, not repaired/replaced elsewhere in the contract, shall be performed on a time and materials basis under the Bid Item 13 allowance. Refer to specification 01 21 00 Allowances for additional requirements on the use of Allowances.

21. **Question:** Please clarify the number of attendees for the Cryogenic Plant Operations Training.

Answer: The exact number of attendees for each training session is not known at this time and could vary based on EBMUD staffing levels. Refer to Specification 01 79 00 Training and Demonstration for specific requirements.

22. **Question:** Will there be three separate operation crews for Day, Swing and Grave shift? How many operation technicians per shift will be attending the training classes?

Answer: In general, there are separate crews for Day, Swing, and Grave shifts. The exact number of attendees for each training session is not known at this time and could vary based on EBMUD staffing levels. Refer to Specification 01 79 00 Training and Demonstration for specific requirements.

23. **Question:** What will be the Confined Space protocol will be for inside the cold box. Hole Watch vs High Angel Rescue etc.?

Answer: Refer to project specifications for confined space protocols. Note that the cold box is classified as a permit required confined space. Protocols for confined spaces are listed in Specification 01 35 24 Project Safety Requirements and elsewhere in the Contract Documents.

24. **Question:** Regarding oxygen line cleaning – How much of the existing oxygen pipe needs to be cleaned after modifications are made?

Answer: Refer to Specification Section 46 31 58 Cleaning for Oxygen and Ozone Service, Article 3.2 Paragraph B.1.

25. **Question:** Prospective system integrators are struggling to meet minimum qualifications specified in Section 40 81 00 and have requested modifications to the following.

- a. Home office location within 75 miles of the project site.
- b. Experience integrating with Emerson DCS
- c. Successfully completed work of equal or greater complexity on at least 3 other water or wastewater treatment projects within the last five years

Answer: This specification will be modified in Addendum No. 3 to modify minimum qualifications in response to a, b, and c above. Likely changes to the specification include:

- a. Home office radius will be expanded to 100 miles
- b. Experience with Emerson DCS or DCS of similar size, complexity, and application will be accepted.
- c. Experience requirement of work on at least 3 other water or wastewater treatment projects within the last five years will be modified to state that personnel shall have the required experience.

26. **Update:** The Bid Documents will be reverted or updated in the upcoming Addendum No. 4 to require the Contractor to provide third-party inspection services for:

- all special inspections, and
- quality assurance as required by the Specifications.

27. **Question:** Can you confirm that GRS conduit is acceptable in the Oxygen Production Plant electrical room?

Answer: Yes, the electrical room is considered indoors. Please see Specification Section 26 05 33, paragraph 3.2 and the response to Question 15 for more information.

28. **Question:** Drawing C102 Note 13 - Portions of the cold box that do not receive not coating shall be cleaned in accordance with SP 7 brush off blast cleaning. Is scaffolding and containment required for this task for the entire cold box? Is SP 7 the correct surface preparation to be specified here?

Answer: Surface preparation standard has been updated, refer to Addendum No. 4. Scaffolding will be as specified in the Contract documents. If not specified, scaffolding requirements will be as needed by the Contractor to safely and effectively perform the work.

29. **Question:** Regarding the Vibration Transmitters and Probes Addendum No. Section 40 70 70 – 14, please provide the full part number for the probe or specifications on all the required options.

Answer: The Bentley Nevada 330909 probe options (i.e. AXX, BXX, etc.) will need to be verified in field by the Contractor. The Contractor should reach out to a supplier for

details on how to select each option. Each probe will need to be installed as shown in the drawings. Details of the Main Air Compressors are provided in the reference drawings.

30. **Question:** The bidders checklist in Specification 00 21 13 Instructions to Bidders includes Item 9, Supplementary Bidder's Qualifications. The Supplementary Bidder's Qualification is also listed as item 17 in the checklist stating it is due by low bidder only within 2 work days of bid opening. When is the Supplementary Bidder's Qualification due?

Answer: Supplementary Bidder's Qualification is due within 2 work days of bid opening at 1:30 PM by low bidder only. Item 9 listed under the bidder's checklist is an error.