INVITATION TO BID

LAKE HAVASU CITY, ARIZONA

ITB NO.: B23-WW-500280

FOR
Biological Odor Control Systems for Wastewater Treatment Plants
(Equipment Purchase with Technical Assistance/Training)

Laura Herzog, Procurement Analyst
E-Mail: Purchasing@lhcaz.gov

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CITY CLERK'S OFFICE
2330 McCulloch Boulevard North
Lake Havasu City, AZ 86403
Phone: (928) 855-2116

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BID CLOSING DATE: AUGUST 24, 2022
BID CLOSING TIME: 3:00 p.m., ARIZONA TIME

BID OPENING ON THE SAME DAY at 3:00 p.m.

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Pre-Bid Conference (NonMandatory): Wednesday August 3, 2022 at 8:00AM, Arizona Time

First Location	Second Location
North Regional Treatment Plant 7001 Whelan Drive Lake Havasu City, Arizona 86404	Mulberry Treatment Plant 340 Mulberry Ave Lake Havasu City, Arizona 86403

SUBMITTED BY:

Company Name: _____

Address: _____

Phone No.: _____

Contact: _____

Email: _____

An electronic copy of this ITB and attachments, if any, is available from the City's website: https://www.lhcaz.gov/budget-and-finance/BIDS-RFPS.

All ITB documents shall be submitted in hard copy. **Electronic or e-mailed submissions shall be rejected**.

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

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SECTION A - INVITATION TO BID

ITB NO.: B23-22-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

ITB DESCRIPTION: To replace the existing chemical feed odor control systems at the Mulberry Wastewater Treatment Plant and the North Regional Wastewater Treatment Plant with Single Stage Biological Odor Control Systems. The City either will install the equipment using City crews, or will issue a separate contract with a non-City crew. Contractor shall supply on-site assistance to supervise the installation, start-up and training.

Notice is hereby given that sealed bids for Invitation To Bid Number (ITB): **B23-WW-500280** for ITB Title: Biological Odor Control Systems for Wastewater Treatment Plants shall be received by the **City Clerk's Office, 2330 McCulloch Boulevard N., Lake Havasu City**, **Arizona, 86403,** until **3:00 p.m. Arizona Time** on **AUGUST 24, 2022**. All bids received in proper form shall be publicly opened and read aloud on the same day at 3:00 p.m., Room 109, City Hall, 2330 McCulloch Boulevard N., Lake Havasu City, Arizona, 86403.

It is the sole responsibility of the Bidder to ensure the City receives the bid by the specified time. ALL BIDS MUST BE *TIME STAMPED* BY THE CITY BY THE STATED DEADLINE. All late bids shall be rejected.

The outside of the sealed package must be clearly marked "**Sealed Bid**" with the **Bidder's Name**, **Address**, **Bid Title** and **Number**, and the **Closing Date. Bidder will submit one (1) original of the bid response.** Bidder should retain a copy for their records. All bids must be completed in ink or typewritten on a form to be obtained from the ITB documents and returned by the time cited above.

Pre-Bid Conference (NonMandatory): Wednesday August 3, 2022 at 8:00AM, Arizona Time

(First location) North Regional Treatment Plant
7001 Whelan Drive
Lake Havasu City, Arizona 86404

(Second location) Mulberry Treatment Plant
340 Mulberry Ave
Lake Havasu City, Arizona 86403

To join the bid opening on a computer or mobile phone:
https://bluejeans.com/2330864044?src=calendarLink
Phone Dial-in
+1.408.740.7256 (US (San Jose))
+1.888.240.2560 (US Toll Free)
Meeting ID: 233 086 4044

Bid Requirements:

BID SECURITY: ☐ YES ☒ NO — Bid security in the form of a certified check or cashier's check payable to Lake Havasu City, or a satisfactory bid bond, in the amount of ten percent (10%) of the Contract total shall be submitted with each bid.

CERTIFICATE OF INSURANCE: The successful Bidder shall be required to submit a standard insurance certificate as evidence of compliance with the contract insurance requirements. This shall be sent to the City with the

agreement before execution by the City and prior to commencing work.

Pursuant to the Americans with Disabilities Act (ADA), Lake Havasu City endeavors to ensure the accessibility of all of its programs, facilities and services to all persons with disabilities. If you need an accommodation for ITB meetings, please contact the City Clerk's Office, at (928) 453-4142. Please provide 24 hours notice so accommodations may be arranged.

Publication Dates: **July 26th and August 2nd, 2022 (Havasu News Herald)**
July 28th and August 4th, 2022 (Arizona Business Gazette)

SECTION B - INSTRUCTIONS TO BIDDERS

1. **Bid Format.** Bid must be typewritten with a font size no less than 11 points or prepared in ink and must be submitted on the form(s) provided in the Invitation To Bid. Bidders shall return all information and forms as required on the Bidder's response sheet. Failure to complete all required forms may result in the bid being rejected as non-responsive. Bidder must submit one (1) original of the bid document.

   a. Unsigned offers will be considered non-responsive and will be rejected.

   b. Erasures, interlineations or other modifications in the bid must be initialed by a duly authorized vend or representative and must be the same person that signs the vendor(s) offer.

   c. In case of error in the extension of prices in the bid, the unit price will govern. No bid shall be altered, amended, or withdrawn after the specified bid closing date and time.

   d. It is the responsibility of the Bidder to examine the entire bid package and seek clarification of any item or requirement that may not be clear and to check Bidder responses for accuracy before submitting a bid.

   e. All bids shall be submitted in a sealed package and must be clearly marked "**Sealed Bid**" with the **Bidder's Name**, **Address**, **ITB Number** and **Title**, and the **Closing Date.** Bid packages with insufficient postage will not be accepted by Lake Havasu City.

   f. Lake Havasu City reserves the right to accept or reject any or all bids or any part thereof and waive informalities deemed in the best interest of the City.

2. **Bid Requirements.** The following forms must be completed, signed and submitted with the vendor's offer to be responsive and must include, but not limited to, the **COVER PAGE**, **BIDDER SIGNATURE PAGE**, **BID PRICE SCHEDULE**, **EXCEPTIONS TO SPECIFICATIONS** (if applicable), and **REFERENCES**. Bids must be signed by a duly authorized representative of the vendor. If a bid is signed by an agent of the Bidder, a Power of Attorney showing the authority of the agent to sign must be submitted with the bid or the bid shall be rejected. FAILURE TO SIGN AND SUBMIT THE **BIDDER SIGNATURE PAGE** SHALL RESULT IN REJECTION OF THE BID.

3. **Taxes.** Bid prices shall exclude Federal Excise Tax. Federal exemption certificates will be furnished upon written request. Lake Havasu City is not exempt from the applicable Arizona Sales Tax; Arizona Sales Tax will be indicated on the pricing sheet and marked as a separate line item after the total combined bid price. The applicable tax of any political subdivision shall not be a factor in determining the award of procurement.

4. **Price to Include Cost of Delivery.** If this is a bid for goods, then unless otherwise provided in the specifications, the bid price for each item must include the cost of delivery of the item(s) FOB within Lake Havasu City limits and to the specific destination shown in the specifications.

5. **Bids Must Conform to the Specifications.** The Bidder shall adhere to the specifications stated herein. Any exception taken to these specifications shall be so stated on the returned bid proposal. Deviations from any of the requirements in the specifications or drawings MAY RESULT IN BID REJECTION. Lake Havasu City shall hold the Bidder to all specification requirements. There is no time limit on this requirement. Deviations discovered after the unit(s) is accepted shall be corrected at no cost to the City. Any VERBAL communication from the City shall not be construed as approval of the acceptability of any deviation to any requirement or as authorization for any changes or additional charges on any contract. WRITTEN APPROVAL is required. Any deviation from the specification, or where submitted literature does not fully support the meeting of the specification, must be clearly cited in writing by the Bidder, but no deviation below minimum specification will be accepted. If this is a bid for goods and manufacturers' names, trade names, make, model or catalog numbers are used in the Specifications, they are for the purpose of describing and establishing commercial and industrial quality levels. Bids for equivalent items will be considered provided that such items are identified by manufacturer name, trade name, make, model and catalog number. If Bidder has any question whether an item is equivalent to the item specified, Bidder must submit a request for substitution.

6. **Silence of Specification.** The apparent silence of the general provisions and specifications as to any detail or the apparent omission from it of a detailed description concerning any point shall be regarded as meaning that only best commercial or industrial practice is to prevail and that only material and workmanship of first run manufacture quality are to be used.

7. **Periods of Time.** Periods of time, stated as a number of days, shall be calendar days unless otherwise specified.

8. **Descriptive Literature.** All Bidders must submit complete manufacturer's descriptive literature regarding the equipment they propose to furnish. Literature shall be sufficient in detail in order to allow full and fair evaluation of the bid submitted. Failure to include this information may result in the bid being rejected.

9. **Demonstrations.** The City may, at its discretion, require a demonstration of the equipment, material or product offered as part of the bid evaluation process. The equipment, material or product shall be provided by the Bidder at no cost to the City for a period of time deemed sufficient to properly evaluate the item.

10. **Replacement Parts.** Submission of this bid shall constitute a guarantee by the Bidder that a stock of replacement parts for the specified equipment, material or product is available to Lake Havasu City.

    Captive parts must be available within 48 hours following the placement of an order. The Vendor shall provide part(s) delivery, to include deliveries on Saturday, Sunday and holidays if required for an emergency. If special handling and/or freight are required, the vendor will assume all charges.

11. **Substitutions.** Bidders may propose substitutions. Requests for substitutions will be considered only if physically received by the contact person listed below, not less than ten (10) days before the closing date of the bid. Substitution requests must be submitted in a package marked as follows:

    Substitution Request, ITB No.: B23-WW-500280
    Lake Havasu City
    Administrative Services Department
    Attn: Laura Herzog, Procurement Analyst
    2330 McCulloch Blvd N
    Lake Havasu City, AZ 86403

    Samples must be presented for inspection and testing if requested. Samples must be furnished at no cost to the City. If not destroyed or mutilated in testing, samples will, upon request, be returned at Bidder's expense. If a proposed item is determined to be an acceptable substitute, an addendum will be issued.

12. **Bid Withdrawal.** Any bid may be withdrawn at any time prior to the specified date and time for bid closing by delivering a written request to the Procurement Official or designee at the location where bids are received signed by a duly authorized representative of Bidder. All bids shall be irrevocable for ninety (90) calendar days from the day of bid closing.

13. **Document Conflict.** In case of conflict between Specifications and the Contract Terms and Conditions and Instructions for Bidders, the specifications shall take precedence over and will be used in lieu of such conflicting portions of the Contract Terms and Conditions and Instructions to Bidders.

14. **Clarification/Protest/Question.** Any Bidder requesting clarification of or protesting or questioning any of the Specifications must submit specific questions or protests in writing (includes email) to the contact person listed below. Requests for clarification and protests must be physically received no later than **MONDAY, AUGUST 15, 2022,** end of day. Requests must be submitted in a package marked as follows:

    Clarification/Protest/Question
    ITB No.: B23-WW-500280
    Lake Havasu City
    Administrative Services Department
    Attn: Laura Herzog, Procurement Analyst
    Protests to the Attn: Lynette Singleton, Procurement Official
    2330 McCulloch Blvd N
    Lake Havasu City, AZ 86403
    Email to: Purchasing@lhcaz.gov

    A written response will be provided to all written requests for clarification and protests, copies of which will be sent to all vendors in receipt of these bid documents. Questions will not be answered orally. Oral instructions or information concerning the specifications provided by City officers, employees, or agents to prospective Bidders shall not bind the City.

15. **Addenda.** All addenda shall be issued no later than five (5) calendar days after the deadline for questions.

16. **Addenda Acknowledgement.** Receipt of bid addenda must be acknowledged by signing and returning the appropriate procurement document and acknowledging receipt on the proposal form.

17. **Documents are Public Records.** Lake Havasu City is subject to the Arizona Revised Statutes, Title 39, Chapter 1, relating to public records. All documents, reports, bids, submittals, working papers or other materials submitted to the City by Bidders shall become the sole and exclusive property of the City and become a public record.

18. **Copies.** Bidders may request copies of current or past procurement documents. The charge per copy is payable in advance. Please call for a current per copy cost.

19. Late Delivery of Bid. Late bids will not be opened or considered under any circumstances. Late Bid Notification will be sent to vendor.

20. Rejection of Bids. The City reserves the right to waive technical defects, discrepancies and minor irregularities in a bid. The City reserves the right to re-seal any bid that was opened prematurely. The City has determined this event as a minor irregularity. The Procurement Official shall be notified and shall log the event and place it in the procurement file. The City reserves the right to award any alternatives set forth in the bid documents in its sole discretion. Bids may be rejected if there is any alteration of the bid form, additions not called for, conditional bids, incomplete bids, or irregularities of any kind. The City reserves the right to reject any bid not in compliance with the bid documents, or prescribed public bidding procedures and requirements. Written notice of rejection of all bids shall be sent to all Bidders. ALL UNSIGNED BIDS SHALL BE REJECTED.

21. Collusion. Upon evidence that collusion exists among Bidders, none of the bids of participants in such collusion will be considered. All involved bids shall be rejected. Bids in which prices are unbalanced may be rejected. The Vendor will be required to complete, notarize and submit a "No-Collusion Affidavit" upon request by the City. **Failure of the vendor to submit a properly executed affidavit upon request by the City shall be grounds for rejection of the bid.**

22. Contract Award.

a. Awards will be made with reasonable promptness to the vendor(s) whose bid(s) is determined to be responsive and responsible that best conforms to the Invitation To Bid and will be the most advantageous to the City with respect to price, conformity to the specifications and other factors. Other factors to be considered may include, but are not limited to, quality, uniformity of product, and vendors past performance on other Contracts with the City.

b. The award will be made by low bid or including but not limited to individual item, category, group or by any combination of these or other methods or by all-or-none basis that is in the best interest of the City.

   Bidders to be considered for award by category or group are not required to bid on each item. However, if all or part of the bid is awarded by category or group, only those Bidders who have inserted a bid price for each item in the category or group and who have provided either a percentage off manufacturer's list or percentage mark-up over cost for similar items not listed will be considered for award for that category.

   City reserves the right to award the Bid to a primary and an alternate Bidder for the same bid item. The alternate Bidder will be used when the primary Bidder is unable to provide the materials when required, or when such action will provide the lowest final cost to the City.

c. A bid response is an offer by a vendor to Contract with the City based upon the terms, conditions, and specifications contained in the Invitation To Bid. Bids do not become Contracts unless and until they are accepted and an Award is made by Lake Havasu City. A Contract is formed when Lake Havasu City gives written Notice of Award(s) to the successful Bidder(s) and issues a Purchase Order. All Invitation To Bid documents, including but not limited to the specifications, terms and conditions, become the Contract and is extended to every Purchase Order for items or services contained in the submitted offer. The delivery or furnishing of any of the bid items cannot commence until a Contract is duly and properly executed.

23. Rejection of All Bids and Cancellation of Award. The City reserves the right to reject all bids or to cancel award of the Contract at any time before execution of the Contract by both parties if rejection of all bids or cancellation of the award is deemed to be in the City's best interest. In no event shall the City have any liability for the cancellation of award. The Bidder assumes the sole risk and responsibility for all expenses connected with the preparation of its bid and Contract negotiations.

24. Reissuance of Bid. The City reserves the right to re-issue a subsequent procurement for this service at any time if deemed to be in the best interest of the City.

25. Protest of Award. A protest of award must be physically delivered to the Procurement Official within five (5) working days of the notice of award date. Packages containing protests shall be marked as follows:

Bid Award Protest, ITB No.: B23-WW-500280
Lake Havasu City
Administrative Services Department
Procurement Division
Attn: Lynette Singleton, Procurement Official
2330 McCulloch Blvd N
Lake Havasu City, AZ 86403

26. Notice of Award. Official Notice of Award, if any, shall be sent in the form of an "Award Letter" and shall be signed by the duly authorized Lake Havasu City Official.

27. **Vendor Registration and IRS Form.** Prior to the award of a Contract, the successful Bidder must properly fill out and complete a City Vendor Registration and IRS W-9 Form and file the documents with the City's Administrative Services Department.

28. **Post Award Conference.** After the award has been made, the Contractor may be required to attend and participate in Post Award Conference. The purpose is to ensure the Contractor has a complete understanding of the specifications and the requirements of the Contract prior to commencing work.

29. **Disputes.** In the event any doubt or differences of opinions exists as to the items or service to be furnished hereunder, or from evaluation and/or testing of substitutes, or the interpretation of the provisions of this procurement, the decision of Lake Havasu City shall be final and binding upon all parties.

30. **Solicitation Document Conflicts.** In the event any discrepancies exist between the proposer(s) submitted response and the original solicitation document, the ITB on file with the City shall govern.

31. **Response Preparation Costs.** Costs incurred by any Bidder in preparation of a response to this Invitation To Bid shall be the sole responsibility of the Bidder and will not be reimbursed by the City.

32. **Bidder Exceptions.** Bidders that list and submit more than ten (10) separate items in "Section K – Exceptions to Specifications" shall be considered non-responsive; and said bid shall be rejected in its entirety.

SECTION C - CONTRACT TERMS AND CONDITIONS

Contract Documents. This Contract includes the following:

STANDARD TERMS AND CONDITIONS

1. **Time is of the Essence.** Time is of the essence in the performance of this Contract. Contractor is providing services which involve health, safety and welfare of the general public. Delivery time is of the essence. Delivery must be made in accordance with the delivery schedule as promised by the Contractor.

2. **Contract Amendments.** This Contract shall be modified only by a written Contract Amendment signed by the City Manager or designee or City Official and persons duly authorized to enter into Contracts on behalf of the City Council.

3. **Parole Evidence.** This Contract is intended by the parties as a final expression of their agreement and is intended also as a complete and exclusive statement of the terms of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this Contract. Acceptance or acquiescence in a course of performance rendered under this Contract shall not be relevant to determine the meaning of this Contract even though the accepting or acquiescing party has knowledge of the nature of the performance and opportunity to object.

4. **Subcontracts and Assignment.** Contractor shall not Subcontract any of the work required by this Contract or assign or transfer any of its interest in this Contract, without the prior written consent of City.

5. **No Third Party Beneficiaries.** City and Contractor are the only parties to this Contract and are the only parties entitled to enforce its terms. Nothing in this Contract gives or provides any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name in this Contract and expressly described as intended beneficiaries of this Contract.

6. **Successors in Interest.** The provisions of this Contract shall be binding upon and inure to the benefit of the parties and their successors and approved assigns, if any.

7. **Merger Clause.** This Contract and the attached exhibits constitute the entire agreement between the parties. All understandings and agreements between the parties and representations by either party concerning this Contract are contained in this Contract. No waiver, consent, modification, or change in the terms of this Contract shall bind either party unless in writing and signed by both parties. Any written waiver, consent, modification, or change shall be effective only in the specific instance and for the specific purpose given.

8. **Compliance with Applicable Law.** Contractor shall observe and comply with all established federal, state, and local administrative rules, codes, ordinances, regulations, standards, and laws applicable to the work under this Contract regardless of whether or not they are referred to by the City.

9. **Governing Law.** The provisions of this Contract shall be construed in accordance with the laws of the State of Arizona and the provisions of the Lake Havasu City Municipal Code. In the event of litigation between the parties, venue in state trial courts shall lie exclusively in Mohave County, Arizona. In the event of litigation in a U.S. District Court, exclusive venue shall lie in the U.S. District Court located in Phoenix, Maricopa County, Arizona.

10. **Arbitration.** In accordance with A.R.S. Title 12, parties agree to use arbitration, after exhausting applicable administrative reviews, to resolve disputes arising out of this agreement where the sole relief sought is monetary damages of $40,000, or less, exclusive of interest and costs.

11. **Early Termination.** This Contract may be terminated as follows:

    a. City and Contractor, by mutual written agreement, may terminate this Contract at any time.

    b. City, in its sole discretion, may terminate this Contract for any reason on thirty (30) days written notice to Contractor.

    c. Either the City or Contractor may terminate this Contract in the event of a breach of the Contract by the other. Prior to such termination, the party seeking termination shall give to the other party written notice of the breach and intent to terminate. If the party committing the breach has not entirely cured the breach within fifteen (15) days of the date of the notice, then the party giving the notice may terminate the Contract at any time thereafter by giving a written notice of termination.

    d. Notwithstanding paragraph 11(c), City may terminate this Contract immediately by written notice to Contractor upon denial, suspension, revocation, or non-renewal of any license, permit, or certificate that Contractor must hold to provide services under this Contract.

12. Payment on Early Termination. Upon termination pursuant to paragraph 11, payment shall be made as follows:

a. If terminated under 11(a) or 11(b) for the convenience of the City, the City shall pay Contractor for work performed prior to the termination date if such work was performed in accordance with the Contract. City shall not be liable for direct, indirect, or consequential damages. Termination shall not result in a waiver of any other claim City may have against Contractor.

b. If terminated under 11(c) by the Contractor due to a breach by the City, then the City shall pay the Contractor for work performed prior to the termination date if such work was performed in accordance with the Contract.

c. If terminated under 11(c) or 11(d) by the City due to a breach by the Contractor, then the City shall pay the Contractor for work performed prior to the termination date provided such work was performed in accordance with the Contract less any setoff to which the City is entitled.

13. Remedies. In the event of breach of this Contract, the parties shall have the following remedies:

a. If terminated under 11(c) by the City due to a breach by the Contractor, the City may complete the work either itself, by agreement with another Contractor, or by a combination thereof. If the cost of completing the work exceeds the remaining unpaid balance of the total compensation provided under this Contract, then the Contractor shall pay to the City the amount of the reasonable excess.

b. In addition to the remedies in paragraphs 11 and 13 for a breach by the Contractor, the City also shall be entitled to any other equitable and legal remedies that are available.

c. If the City breaches this Contract, Contractor's remedy shall be limited to termination of the Contract and receipt of Contract payments to which Contractor is entitled.

14. Waiver. Waiver of any default under this Contract by City shall not be deemed to be a waiver of any subsequent default or a modification of the provisions of this Contract.

15. Non Waiver of Liability. The City as a public entity supported by monetary tax funding, in execution of its public trust, shall not agree to waive any lawful or legitimate right to recover monetary funds lawfully due it. Therefore, any Contractor agrees that it will not insist upon or demand any statement whereby the City agrees to limit in advance or waive any right the City might have to recover actual lawful damages in any court of law under applicable Arizona law.

16. Conflict of Interest/Contract Cancellation. Contractor stipulates that its officers and employees do not now have a conflict of interest and it further agrees for itself, its officers, and its employees that it will not contract for or accept employment for the performance of any work or services with any individual business, corporation, or government unit that would create a conflict of interest in the performance of its obligations pursuant to this Contract.

Pursuant to A.R.S. §38-511, this Contract is subject to cancellation by the City if any person significantly involved in initiating, negotiating, securing, drafting, or creating the Contract on behalf of Lake Havasu City is, at any time while the Contract is in effect, an employee of any other party to the Contract in any capacity or a consultant to any other party of the Contract with respect to the subject matter of the Contract.

17. No Kick Back Fee. Contractor stipulates that no person has been employed or has been retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee; and that no member of the City Council or any employee of City has any interest, financially or otherwise, in this Contract that has not been publically declared and procured in accordance with A.R.S. § 38-501 *et seq*.

In case of breach or violation of this requirement, the City shall have the right to annul this Contract without liability or at its discretion to deduct from the Contract price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

18. Gratuities. The City may, by written notice to the Contractor, cancel this Contract if it is found that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the Contractor or any agent or representative of the Contractor, to any officer or employee of the City. In the event this Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold from the Contractor the amount of the gratuity.

19. Non Exclusive Contract. Any subsequent Contract resulting from the solicitation shall be awarded with the understanding and agreement that it is for the sole convenience of the City. The City reserves the right to obtain like goods, service, or finished end product from another source when necessary.

20. Ownership of Work. All work products created by the Contractor as part of Contractor's performance of this Contract shall be the exclusive property of the City. If any such work products contain intellectual property of the Contractor that is or could be protected by federal copyright, patent, or trademark laws, Contractor hereby grants City a perpetual, royalty-free, fully paid-up, non-exclusive and irrevocable license to copy, reproduce, deliver, publish, perform, dispose of, use, re-use, in whole or in part, and to authorize others to do so, all such work products. City shall have no rights in any pre-existing work product of Contractor provided to City by Contractor in the performance of this Contract except to copy, use, and re-use any such work product for City use only. If this Contract is terminated prior to completion, and the City is not in default, City, in addition to any other rights provided by this Contract, may require the Contractor to

transfer and deliver all partially completed work products, reports or documentation that the Contractor has specifically developed or specifically acquired for the performance of this Contract.

21. Licenses and Permits. Contractor shall maintain in current status all federal, state, and local laws, licenses, and permits required for the operation of the business conducted by the Contractor as applicable to this Contract.

22. Force Majeure.

a. Except for payment of sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this Contract is prevented by reason of force majeure. The term 'force majeure' means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Without limiting the foregoing, force majeure includes acts of God; acts of the public enemy; war; riots; strikes; mobilization; labor disputes; civil disorders; fire; flood; lockouts; injunctions-intervention-acts; or failures or refusals to act by government authority; and other similar occurrences beyond the control of the party declaring force majeure which such party is unable to prevent by exercising reasonable diligence.

b. Force Majeure shall not include the following occurrences:

1) Late delivery of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, or an oversold condition of the market;

2) Late performance by a subcontractor unless the delay arises out of a force majeure occurrence in accordance with this force majeure term and condition; or

3) Inability of either the Contractor or any subcontractor to acquire or maintain any required insurance, bonds, licenses, or permits.

c. If either party is delayed at any time in the progress of the work by force majeure, the delayed party shall notify the other party in writing of such delay, as soon as is practicable and no later than the following working day, of the commencement thereof and shall specify the causes of such delay in such notice. Such notice shall be delivered or mailed certified-return receipt and shall make a specific reference to this article, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing when it has done so. The time of completion shall be extended by Contract Amendment for a period of time equal to the time that results or effects of such delay prevent the delayed party from performing in accordance with this Contract.

d. Any delay or failure in performance by either party hereto shall not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if, and to the extent that such delay or failure is caused, by force majeure.

23. Late Submission of Claim. The City shall not honor any invoices or claims which are tendered one (1) year after the last item of the account accrued.

24. Access to Records. Contractor shall maintain fiscal records and all other records pertinent to this Contract. All fiscal records shall be maintained pursuant to generally accepted accounting standards, and other records shall be maintained to the extent necessary to clearly reflect actions taken. All such records shall be retained and kept accessible for no less than **six (6) years** following final payment. City's authorized representatives shall have the right to direct access to all of Contractor's books, documents, papers and records related to this Contract for the purpose of conducting audits and examinations and making copies, excerpts and transcripts. City shall reimburse Contractor for Contractor's cost of preparing copies.

25. Insurance and Performance/Payment Bond Requirements. Contractor shall maintain throughout the term of the Contract the amounts and limits established and referenced in the solicitation documents and included herein.

26 Indemnity. Contractor shall indemnify and hold harmless City, its officers and employees from and against any and all liabilities, damages, losses, and costs, including reasonable attorney's fees, but only to the extent caused by the negligence, recklessness, or intentional wrongful conduct of Contractor or other persons employed or used by the Contractor in the performance of this Contract. It is agreed that Contractor will be responsible for primary loss investigation, defense, and judgment costs where this indemnification is applicable.

27. Indemnity–Patents, Copyright, and Trademark. Contractor agrees to defend City, mayor, council, appointed boards and commissions, officers, officials, employees, and agents individually and collectively at Contractor's own expense, in all suits, actions, or proceedings in which Contractor is made a defendant for actual or alleged infringement of any United States of America or foreign letters patents resulting from Contractor's use of the goods, service, or finished end product purchased as a result of this Procurement (Invitation To Bid (ITB) or Request For Proposal (RFP)) and subsequent Contract. Contractor further agrees to pay and discharge any and all judgments or decrees which may be rendered in any such suit, action, or proceedings against City. Contractor agrees to indemnify and hold harmless the City from any and all license, royalty and proprietary fees or costs, including legal costs, which may arise out of City's purchase and use of goods, service, or finished end product supplied by the Contractor. Contractor will indemnify City against all claims for damages to persons or property resulting from defects in materials or workmanship. It is expressly agreed by Contractor that these covenants are irrevocable and perpetual.

28. No Advance Payments. Advance payments are not authorized. Payment will be made for only actual services or commodities that have been received and accepted by the City.

29. Advertisement. Contractor shall not advertise or publish news releases concerning this Contract without the prior written consent of the City Manager or designee.

30. Americans with Disabilities Act. The Contractor shall comply with all applicable provisions of the Americans with Disabilities Act, Public Law 101-336, 42 U.S.C. 12101-12213, and applicable federal regulations under the Act.

31. Anti-Discrimination Clause. Contractor shall not discriminate based on race, religion, color, sex, marital status, familial status, national origin, age, mental or physical disability, sexual orientation, gender identity, source of income, or political affiliation in programs, activities, services, benefits, or employment. Contractor shall not discriminate against minority-owned, women-owned, or disadvantaged small businesses. Contractor shall include a provision in each sub-contract requiring subcontractors to comply with the requirements of this clause.

32. OMB Circular A-133. If Contractor is determined by the City to be a sub-recipient of federal funds passed through the City, the Contractor must submit an annual Federal Compliance Audit in conformity with the OMB Circular A-133, which applies the Federal Single Audit Act of 1984, Public Law 98-502, to non-profit organizations.

33. Disadvantaged/Minority/Woman Business Enterprise. Contractor agrees to give Disadvantaged/ Minority/Woman Businesses the maximum practical opportunity to participate in this Contract when possible, by obtaining supplies, materials, and services from such firms.

34. Non Appropriation Clause - Fiscal Year. If appropriations are reallocated, reduced or eliminated by legislative action or for any reason these goods and / or services are not funded, during any fiscal year the City may take any of the following actions:

a. Accept a decrease in price offered by the Contractor and complete the Contract;

b. Place the Contract on-hold and pay the Contractor for work performed up to the date of the non-appropriation notice. Work must be performed in accordance with the Contract prior to payment and be less any setoff to which the City is entitled. The contract may be resumed at a later date when funding is reestablished. Contract cannot be resumed beyond a (4) four year time period from the date of non-appropriation notice. Contractor must also reaffirm pricing and resubmit insurance and bonding certificates, if applicable. Documents must be received by the City prior to resuming the Contract;

c. Cancel the Contract and pay the Contractor for work performed up to the date of the non-appropriation notice. Work must be performed in accordance with the Contract prior to payment and be less any setoff to which the City is entitled, and re-solicit a new procurement;

d. Cancel the contract and re-solicit the requirements;

e. Cancel the contract.

35. Non Appropriation Clause - Future Fiscal Year. Funds may not presently be available for performance under this Contract beyond the current City's fiscal year. If payment for performance under this Contract extends into next fiscal year, the City's obligation to pay for such performance is subject to approval of future appropriations to fund this Contract by legislative action. The City shall have no legal liability to pay funds due for performance under the terms of the Contract until and unless funds are appropriated by legislative action.

36. Notice to Proceed. The Contractor agrees to render services promptly and diligently upon receipt of written notice by a duly authorized City agent and to proceed with any or all of the services set forth herein.

37. Right to Assurance. Whenever one party to this Contract in good faith has reason to question the other party's intent to perform, the former party may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within **seven (7) days**, the demanding party may treat this failure as an anticipatory repudiation of this Contract.

38. Non Performance. In the event of nonperformance under this Contract, the City, after **seven (7) days** written notice to the Contractor, shall have the right to obtain from other sources such products and/or services as may be required to accomplish the work not performed, and it is agreed that the difference in cost, if any, for said work or goods shall be borne by the Contractor.

For purposes of this section, nonperformance shall be defined as failure to appear and perform work and/or deliver goods as specified and scheduled.

39. Liens. Contractor shall hold the City harmless from claimants supplying labor or materials to the Contractor or its subcontractors in the performance of the work required under this Contract. Contractor shall provide written certification that all liens against materials and labor have been satisfied, before the City will make final payment.

40. Severability. If any term or provision of this Contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular term or provision held invalid.

41. Title and Risk of Loss. The title and risk of loss of materials or service shall not pass to the City until the City actually receives the material or service at the point of delivery FOB; and such loss, injury, or destruction shall not release seller from any obligation hereunder. The City shall notify the Seller promptly of any damaged goods, service, or finished end product, and further shall assist the Seller in arranging for inspection.

42. FOB Point of Delivery. All pricing, labor, materials, and services are to be FOB destination and delivered within the city limits of Lake Havasu City, Arizona, unless otherwise specified elsewhere in the solicitation documents.

43. Employment Standards. The Contractor agrees that upon request by Lake Havasu City, it shall remove from the City's premises any Contractor's employee, who, in the reasonable opinion of Lake Havasu City, is guilty of improper conduct, bringing any unauthorized personnel (including their own children) into a facility or work area, or is not qualified to perform the work assigned. The Contractor shall understand that its employees shall complete and pass a security background check, if so requested.

44. Organization–Employment Disclaimer. The agreement resulting hereunder is not intended to constitute, create, give rise to, or otherwise recognize a joint venture agreement or relationship, partnership or formal business organization of any kind, and the right and obligations of the parties shall be only those expressly set forth in the agreement. The parties agree that no persons supplied by the Contractor in the performance of Contractor's obligations under the agreement are considered to be City employees and that no rights of City civil service, retirement or personnel rules accrue to such persons. The Contractor shall have total responsibility for all salaries, wage bonuses, retirement, withholdings, workers' compensation, occupational disease compensation, unemployment compensation, other employee benefits, and all taxes and premiums appurtenant thereto concerning such persons and shall save and hold the City harmless with respect thereto.

45. Cooperative Governmental Purchasing. Pursuant to A.R.S. § 41-2632, other public agencies may contract directly with Contractor under the terms of the Contract. Contractor may be charged a one percent (1%) administrative fee for the use of said Contract. Contractor shall notify the City prior to their use of the Contract in providing goods, service, or finished end product to other agencies. If applicable, Contractor shall pay the administrative fee upon execution of said Contract, and Contractor shall provide a yearly sales report to the City ending December 31 of each year. Contractor shall make fees payable to the City at time of cooperative agency payment.

46. Quarterly Reports. If requested, parties agree that Contractor shall provide quarterly reports to City which shows each item purchased from City in the prior quarter, the individual cost of each item, and the total cost of all items purchased in the quarter.

47. General Product Requirements. All items delivered shall conform to the Specifications and shall be in first class condition. Acceptance by the City shall be subject to inspection and approval. In case of conflict between the Specifications and Additional Contract Terms and these Standard Terms and Conditions, the Specifications and Additional Contract Terms shall prevail. The apparent silence of the Standard Terms and Conditions and Specifications and Additional Contract Terms as to any detail or the apparent omission of a detailed description concerning any point shall be regarded as meaning that only best commercial practice is to prevail and that only items manufactured with material and workmanship of first quality are to be supplied. All items delivered shall be of identical style, quality, and appointments as those offered to the trade in general during the course of the model year. All items delivered shall be new current models, free and clear of all liens and encumbrances. Unless otherwise provided in the Specifications, items shall, where appropriate, be prepared for delivery to and use by the City by a factory franchised agent. Each item delivered shall be accompanied by all pre-delivery inspection sheets, coupons, certificates, descriptive literature, warranty cards, and information provided by the manufacturer and furnished to the trade in general. All such documents shall be properly completed and signed in accordance with industry standards. All items required by the Specifications to be UL listed shall indicate the current UL listing on the item. All items that are required by the Specifications to have any other certification shall indicate that certification on the item or in the accompanying documentation.

48. Inspection and Acceptance. Goods, service, or finished end product furnished under this Contract shall be subject to inspection and testing by the City at times and places determined by the City within a reasonable time after arrival at its ultimate destination. If the City finds goods, service, or finished end product to be incomplete, unsatisfactory, defective, or of inferior quality or workmanship, or fails to meet the specifications or other requirements or not in compliance with the Contract, the City, at its sole discretion, may either reject the goods, service, or finished end product, require Contractor to correct any defects without charge, or negotiate with Contractor to sell the goods, service, or finished end product to the City at a reduced price, whichever the City deems equitable under the circumstances. Lake Havasu City may return such goods, service, or finished end product to Contractor at Contractor's expense. Contractor shall reimburse Lake Havasu City for any amounts paid by the City for the returned goods, service, or finished end product and any costs incurred by the City to return the goods to the Contractor. If Contractor is unable or refuses to cure any defects within a time deemed reasonable by the City, the City may reject the goods, service, or finished end product and cancel the Contract in whole or in part. Payment for merchandise, service, or finished end product prior to inspection shall not be construed to be an acceptance of unsatisfactory or defective merchandise, service, or finished end product. Nothing in this paragraph shall in any way affect or limit the City's rights as buyer under the Uniform Commercial Code, including the rights and remedies relating to rejection or revocation of acceptance under A.R.S. § 47-2711 et seq.

49. Warranty and Service. Contractor warrants all goods, service, or finished end product delivered to be free from

defects in labor, material and manufacture and to be in compliance with the specifications set out in this Contract. All implied and express warranty provisions of the UCC are hereby incorporated by reference. Further, Contractor represents and warrants that Contractor has the power and authority to enter into and perform this Contract and that this Contract, when executed and delivered, shall be a valid and binding obligation of Contractor enforceable in accordance with its terms. All items delivered shall carry either the standard manufacturer's warranty or service policy providing that warranty work will be performed by any authorized manufacturer's dealer, or if specified in the Specifications, the warranty and service policy called for in the Specifications. In addition, unless otherwise noted in the Specifications, the warranty and service policy indicated above shall include the following terms and conditions:

a. There shall be no distance or time limitations, not applicable to the trade in general, on either standard or extended warranty or labor. All franchised or authorized dealers of the item in the state shall honor warranty. Warranty maintenance requirements, when performed by City, shall be acceptable to dealer when said work performance meets or exceeds the dealer certification requirements. City shall provide evidence of such work performance upon request, as required by the manufacturer. Any extended warranty period customarily granted shall be made available to City at no additional cost, and

b. City shall be advised of all product recalls on all or any part of the item at no additional cost. All product recall information, replacement parts and labor, shall be provided to the City as soon as available to dealer.

50. Shipment Reservation Prohibited. Contractor shall not ship the goods, service, or finished end product under reservation and no tender of a bill of lading will operate or function as a tender of the goods or finished end product.

51. No Replacement of Defective Tender. Contractor tender of goods, service, or finished end product must fully comply with all provisions of this Contract as to time of delivery, quantity, assortment, quality, and the like. If a tender is made which does not fully conform, this shall constitute a breach, and the Contractor shall not have the right to substitute a conforming tender.

52. Product Correction. It is agreed that Contractor shall be fully responsible for making any correction, replacement, or modification necessary for specification or legal compliance. In the event of any call back, Contractor agrees to give the City first priority. Contractor agrees that if the product or service offered does not comply with the foregoing, the City has the right to cancel the purchase at any time with a full refund within thirty (30) days after notice of non-compliance and Contractor further agrees to be fully responsible for any consequential damages suffered by the City.

53. Default in One Installment to Constitute Breach. Each installment or lot of the agreement is dependent on every other installment or lot and a delivery of nonconforming goods, service, or finished end product or a default of any nature under one installment or lot will impair the value of the whole agreement and constitute a breach of the agreement as a whole.

54. Hazardous Materials. Contractor warrants that goods, service, or finished end product provided under this Contract comply with all federal, state, and local safety and health requirements. All items that include hazardous materials shall be labeled in accordance with law with the names of the hazardous ingredients, the hazards of the materials, and the appropriate precautions. Contractor shall provide a Material Safety Data Sheet as defined by OSHA for any goods, service, or finished end product provided under this Contract which may release, or otherwise result in exposure to, a hazardous substance under normal conditions of use. In addition, Contractor shall label, tag, or mark such goods, service, or finished end product. Those materials for which toxicological or hazard data are unavailable shall carry a label stating: "Toxicological and other hazards unknown. Handle as extremely hazardous."

55. Security. Any disclosure or removal of any City material and/or information marked as confidential or private on the part of Contractor shall be cause for immediate cancellation of the Contract. Any liability, including, but not limited to, attorney fees, resulting from any action or suit brought against the City as a result of the Contractor's willful or negligent release of information, documents, or property contained in City facilities shall be borne solely by the Contractor.

56. Preference for Recycled Materials. The City shall prefer materials or supplies manufactured from recycled materials if the recycled product is available, it meets the requirements set forth in the Specifications, and the cost of the product does not exceed the cost of non-recycled products by more than five percent (5%).

57. Prohibition on Government Contracts. The Contractor shall comply with all applicable provisions of the A.R.S. § 35 Public Finances. Contractor further agrees that they shall not have any scrutinized business operations in Sudan and/or Iran.

58. Terrorism Country Divestments. In accordance with A.R.S. § 35 Public Finances, the City is prohibited from purchasing from a company that is in violation of the Export Administration Act. By entering into the Contract, Contractor warrants compliance with the Export Administration Act.

59. Contractor's Employee E-Verify Eligibility Requirement. The Contractor shall comply with all applicable provisions of the Federal Immigration and Nationality Act (FINA), A.R.S. § 41-4401 and A.R.S. § 23-214, which requires compliance with federal immigration laws by State employers, State contractors and State subcontractors in accordance with the E-Verify Employee Eligibility Verification Program. See the following website for further information: www.dhs.gov/e-verify.

Pursuant to A.R.S. § 41-4401, the City may request verification of compliance from any contractor or subcontractor performing work under this Contract. The City reserves the right to confirm compliance. Should the City suspect or find that the Contractor or any of its subcontractors are not in compliance, the City may pursue any and all remedies allowed by law, including, but not limited to suspension of work, termination of the Contract for breach or default, and suspension and/or debarment of the Contractor. All costs necessary for compliance shall be solely borne by the Contractor.

60. Israel. If applicable, Contractor certifies that it is not currently engaged in, and agrees for the duration of this Contract that it will not engage in, a boycott of goods and services from Israel, as defined in A.R.S. § 35-393.

SECTION D - ADDITIONAL TERMS AND CONDITIONS

1. **Pre-Bid Conference.** Optional Pre-Bid conferences will be held on **Wednesday August 3, 2022 starting at 8:00AM, Arizona Time**. There will be a Pre-Bid conference at both treatment plants, the first conference will be at the North Regional Treatment Plant, and the second conference will be at the Mulberry Treatment Plant, immediately following the first conference. The City will not provide transportation to the second plant. It is the bidder's responsibility to provide their own transportation.

   North Regional Treatment Plant
   7001 Whelan Drive
   Lake Havasu City, Arizona 86404

   Mulberry Treatment Plant
   340 Mulberry Ave
   Lake Havasu City, Arizona 86403

2. **Add/Delete Items.** City reserves the right to add or delete items during term of awarded Contract as dictated by the changing/updating of employees, buildings, equipment, roads, or services. The Bid Sheets may be a partial and not a complete list of items to be purchased.

3. **Purchase Orders.** Lake Havasu City shall issue a purchase order for the goods or services covered by this Contract. All such Purchase Orders will reference the Contract number. Bidder shall have 24-hour order and delivery capability in the event of emergencies, if so required by specifications.

4. **Inventory.** Bidder agrees to maintain reasonable inventories to insure that back orders will be kept to a minimum and delivery can be accomplished according to the terms of this Invitation To Bid. Repeated back-ordering by the successful Bidder on City orders may be cause for Contract cancellation or the City to affect cover by utilizing alternate sources.

5. **Packing and Shipping.** Deliveries shall be made as specified without charge for boxing, crating, cartage or storage unless otherwise specified, and material(s) and/or product(s) shall be suitably packed to secure lowest transportation cost(s), and in accordance with common carrier's tariffs, ICC regulations, and other applicable transportation laws, rules and requirements. Containers must be clearly marked with the Buyer's Purchase Order number, contact person, phone number, department/division, and FOB destination address. All documents must bear Buyers Purchase Order (PO) number(s) and must be plainly marked on all invoices, packages, bills of lading, and shipping orders. Supplier must ensure that each shipment is accompanied by a packing slip that indicates, at a minimum Supplier part numbers, Buyer's part numbers and the applicable Purchase Order number(s). Buyers count and/or weight shall be final and conclusive for each shipment. Shipping receipts or bills of lading shall be forwarded to Buyer on the date material(s) and/or product(s) are shipped. Material(s) and/or Product(s) are to be securely packed to ensure against damage from all incidents of weather and/or transportation.

6. **Terms of Payment.** Bidder shall indicate terms of payment where indicated in the bid documents and any discounts proposed for early payment. For purposes of comparing discounts bids, the City shall only consider discounts that allow a minimum of twenty (20) days for payment. Discount period will start from the date of receipt of goods or current invoice, whichever is later, to the date the City's payment is mailed. Unless freight and other charges are itemized, any discount provided will be taken on full amount of invoice. Payments shall comply with the requirements of A.R.S. § 35-342.

7. **Invoice.** The Contract shall be paid per terms and conditions set herein and upon receipt and acceptance of either the deliverables under Contract or an invoice that is documented and itemized, whichever occurs later. A separate invoice shall be issued for each shipment of deliverables.

The City reserves the right to reject any and all invoices that do not meet the City's accounting standard levels of acceptability. The City will instruct the Contractor on an acceptable invoice format. The City reserves the right to update and make changes to the invoice format that will enhance the City's business practices.

INVOICES FOR ALL DELIVERABLES SHALL BE SUBMITTED IN DUPLICATE TO:

Lake Havasu City
Accounts Payable
AccountsPayable@lhcaz.gov
2330 McCulloch Boulevard N.
Lake Havasu City, AZ 86403

8. **Returns.** Bidder shall allow returns within thirty (30) days of purchase at no charge. Within five (5) calendar days of notice of award, successful Bidder shall submit complete return policy including all terms and conditions for all items listed on pricing sheets. Failure to submit return policy within five (5) calendars days of notice of award may result in City awarding to next lowest, responsive, responsible Bidder.

SECTION E - INSURANCE REQUIREMENTS

Contractor shall at all times maintain in force at Contractor's expense, each insurance noted below:**

Workers Compensation **insurance in compliance with A.R.S. Title 23, Chapter 6, together with Employer's Liability insurance with coverage limits of not less than $1,000,000 must be included, unless exempt.**

THIS COVERAGE IS REQUIRED. Attach Certificate of Insurance. If Contractor does not have coverage and claims to be exempt, attach Exhibit 5in lieu of Certificate.

Professional Liability insurance with a combined single limit of not less than ☐ $1,000,000, ☐ $2,000,000 each claim, incident, or occurrence, with an annual aggregate limit of ☐ $1,000,000, ☐ $2,000,000. This is to cover damages caused by error, omission, or negligent acts related to professional services provided under this Contract. The policy must provide extended reporting period coverage for claims made within two years after this Contract is completed.

☐ Required by City ☒ Not required by City

Commercial General Liability insurance, on an occurrence basis, with a combined single limit of not less than ☒ $1,000,000,

☐ $2,000,000 each occurrence for Bodily Injury and Property Damage, with an annual aggregate limit of ☐ $1,000,000,

☒ $2,000,000. This insurance must include contractual liability coverage.

☒ Required by City ☐ Not required by City

Commercial Automobile Liability insurance with a combined single limit, or the equivalent of not less than ☒ $1,000,000,

☐ $2,000,000 each occurrence for Bodily Injury and Property Damage, including coverage for owned, hired, or non-owned vehicles.

☒ Required by City ☐ Not required by City, if use of the vehicle is not required as part of the service provided the City.

Contractor's Pollution Liability insurance on an occurrence basis, with a combined single limit of not less than ☐ $1,000,000 each occurrence with an annual aggregate limit. Coverage to include sudden and accidental pollution events, clean up costs, and liability for third-party bodily injury and property damage arising from pollution conditions caused by the Contractor's performance under Contract.

☐ Required by City ☒ Not required by City

Contractor's Product Liability. Insurance on an occurrence basis, with a combined single limit of not less than ☒ $1,000,000 each occurrence with an annual aggregate limit. Certificates of Insurance for product liability coverage are required from Contractors or product manufacturers of higher hazard equipment where potential for loss is greater than normal (i.e., chemicals, heavy road equipment, machinery, etc.). This procedure verifies that the manufacturing company has proper product liability insurance and economic backing in the event of a catastrophic loss relating to a failure, malfunction, defect or other condition relating to the manufacture of the specific product.

☒ Required by City ☐ Not required by City

Coverage must be provided by an insurance company admitted to do business in Arizona and rated A-VII or better by AM Best's Insurance Rating. Contractor's coverage will be primary in the event of loss. Contractor shall pay all deductibles and retentions. A cross-liability clause or separation of insured's condition will be included in all commercial general liability policies required by this Contract.

Contractor shall furnish a Certificate of Insurance to the City with the signed Contract. The Certificate shall provide that there shall be no cancellation, termination, material change, or reduction of limits of the insurance coverage without **ten (10) working days** written notice from the Contractor's insurer to the City. The Certificate shall also state the deductible or retention level. If requested, complete copies of insurance policies shall be provided to the City.

If Contractor ships all goods, service or finished end product to be supplied under this Contract by common carrier and will not make deliveries to the City using its own employees, and/or transportation proof of insurance as set forth in Section F of the solicitation documents will not be required.

The amount and type of insurance coverage as required herein is not intended to, and shall not be interpreted to, limit the scope of the indemnity set forth in this section.

Additional Insureds. For commercial general liability and automobile liability insurance policies, the Insurance Certificate shall also provide that "**Lake Havasu City, its agents, directors, officers, officials, and employees are additional Insureds with respect to Contractor's services to be provided under this Contract**." If requested, complete copies of insurance policies shall be provided to the City.

****Note to Contract Originator**: For certain types of contracts additional insurance may be required. Contact Risk Management Manager.

SECTION F – INTENT TO BID NOTIFICATION

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

CLOSING DATE & TIME: AUGUST 24, 2022 at 3:00 p.m. Arizona Time

LETTER OF INTENT TO BID

This is to notification that it is our present intent to submit a bid in response to the above referenced ITB.

The individual to whom all information regarding this ITB should be transmitted is:

Company Name: _____

Contact Name: _____

Street Address: _____

City, State, & Zip: _____

Phone Number: Fax Number: _____

E-Mail Address: _____

Submit this Letter of Intent by the deadline for requests for clarification and protests which must be physically received by **Monday August 15, 2022** end of day, Arizona Time.

Clarification/Protest/Question/Letter of Intent to Bid
ITB No.: **B23-WW-500280**
Lake Havasu City
Administrative Services Department, Procurement
Attn: Laura Herzog, Procurement Analyst
2330 McCulloch Blvd N
Lake Havasu City, AZ 86403
Email to: purchasing@lhcaz.gov

SECTION G - NO BID NOTIFICATION

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

CLOSING DATE & TIME: AUGUST 24, 2022 at 3:00 p.m. Arizona Time

Lake Havasu City is interested in receiving competitive pricing on all procurements. It is the desire to keep your firm as a vendor and a supplier of materials, equipment, services, etc. Therefore, it is important for us to determine why you are not submitting a bid on this procurement. Your input will be carefully analyzed to try and determine if future changes are needed in our specifications and procedures.

Please indicate which statement is true for your firm: (PLEASE CHECK ITEMS THAT APPLY)

_____ Time frame for bidding was too short.

_____ No bid at this time.

_____ We do not supply the requested product or service(s).

_____ Quantities offered are too small or too large to be supplied by our company. (Please circle one of the underlined.)

_____ Specifications are "restrictive" or written around a particular product. (Please elaborate by submitting information on a separate sheet.)

_____ Can not bid against the manufacturer, distributor or jobber on this procurement.

_____ Other: _____

COMPANY NAME: _____

AUTHORIZED SIGNATURE: _____

RETURN TO: Laura Herzog, Procurement Analyst
Administrative Services/Procurement
2330 McCulloch Blvd
Lake Havasu City, AZ 86403
Phone: (928) 453-4188
Email to: purchasing@lhcaz.gov

SECTION H - TECHNICAL SPECIFICATIONS

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

To replace the existing chemical feed odor control systems at the Mulberry Wastewater Treatment Plant and the North Regional Wastewater Treatment Plant with Single Stage Biological Odor Control Systems. The City either will install the equipment using City crews, or will issue a separate contract with a non-City crew. Contractor shall supply on-site assistance to supervise the installation, start-up and training.

LOCATION: MULBERRY TREATMENT PLANT
340 Mulberry Avenue, Lake Havasu City, AZ 86403

1. Design and Performance Criteria:

1. The Original Odor Control Technical Specs (EXHIBIT 1) Plans (EXHIBIT 2) and Pictures of the existing units (EXHIBIT 3) are provided for reference.

2. Odor Control System Design Requirements:

The Biological Odor Control System will be complete with the following items of equipment:

1. One (1) Single Stage Biological Odor Control System.
    a. Vessel to be constructed with corrosion resistant premium resin with UV inhibitors.
    b. Tanks to include all 316 S.S. hardware and EPDM gaskets, an FRP air distribution system, FRP grating to support the media, top mounted FRP outlet stack with rain cap, and synthetic media.
2. One (1) Centrifugal Fan.
    a. Pad mounted, V-belt drive, centrifugal type fans of FRP construction in accordance with the specified requirements and standards, rated to deliver 25,000 cfm at 4.5 inches w.c. SP.
    b. Blower to be provided with a 40 HP, standard efficiency, TEFC motor suitable for 480V/3 phase/60 Hz power supply.
3. Instrumentation and Controls.
    a. The standard electrical controls to be housed in a NEMA 4X rated enclosure of FRP/316SS construction and will include an Allen Bradley, no substitutes, CompactLogix PLC, with HMI for control and monitoring the system.
    b. The cabinet to be provided with an air conditioner.
    c. Minor wiring between the control cabinet and the water cabinet will be required on site by Contractor.
4. Valves, Fittings and Connections
    a. All ductwork, damper valves, flexibles and transitions pieces between the blower and the tanks to be provided.
    b. All ductwork, flexibles and transitions pieces between the existing odor controls piping to the new blower will also need to be provided.
5. One Water Control Cabinet.
    a. The control cabinet will house all the equipment to properly operate both systems.
    b. The cabinet to be Nema 4X of FRP Construction and includes motorized valves, ball valves, flow meters, diaphragm valves, nutrient pumps, recirculation pumps and nutrient tanks.

3. Project Schedule:

1. Contractor shall supply on-site supervision during installation, start-up, and training in (3) three total trips for (8) hours each trip. **The City will install the equipment. Equipment delivery required prior to June 30, 2023**. Installation shall be performed during normal business hours, Monday through Friday. No weekend work will be performed. It is the City's intent to schedule installation as one consecutive set of dates until completion with no break in the schedule. The exception will be weekends when no work will be performed. Technical Installation Assistance shall be provided. Rate shall include all travel and related costs for work to be performed at the City's project site.

4. Warranties:

1. Contractor warrants the mechanical components of the system against defects in material and workmanship for a period of at least twenty four (24) months from the date of acceptance. In the event it is determined that a defect exists in such equipment, contractor’s sole obligation shall be to repair or replace the defective equipment.
2. Contractor warrants the synthetic biotrickling filter media against defects in material and workmanship for a period of at least (15) fifteen years from the date of substantial completion. In the event it is determined that a defect exists in the media, contractor’s sole obligation shall be to repair or replace the defective vessel or media.

SECTION H - TECHNICAL SPECIFICATIONS continued for:

LOCATION: NORTH REGIONAL TREATMENT PLANT
7001 Whelan Drive, Lake Havasu City, AZ 86404

1. **Design and Performance Criteria:**
   1. The Original Odor Control Technical Specs (EXHIBIT 4) Plans (EXHIBIT 5) and Pictures of the existing units (EXHIBIT 6) are provided for reference.

2. **Odor Control System Design Requirements:**
   The Biological Odor Control System will be complete with the following items of equipment:
   1. Two (2) Single Stage Biological Odor Control System.
      a. Each vessel to be constructed with corrosion resistant premium resin with UV inhibitors.
      b. Tanks to include all 316 S.S. hardware and EPDM gaskets, an FRP air distribution system, FRP grating to support the media, top mounted FRP outlet stack with rain cap, and synthetic media.
   2. One (1) Centrifugal Fan.
      a. Pad mounted, V-belt drive, centrifugal type fans of FRP construction in accordance with the specified requirements and standards, rated to deliver 20,000 cfm at 4.5 inches w.c. SP.
      b. Blower to be provided with a 40 HP, standard efficiency, TEFC motor suitable for 480V/3 phase/60 Hz power supply.
   3. Instrumentation and Controls.
      a. The standard electrical controls to be housed in a NEMA 4X rated enclosure of FRP/316SS construction and will include an Allen Bradley, no substitutes, CompactLogix PLC with HMI for control and monitoring the system.
      b. The cabinet to be provided with an air conditioner.
      c. Minor wiring between the control cabinet and the water cabinet will be required on site by Contractor.
   4. Valves, Fittings and Connections
      a. All ductwork, damper valves, flexibles and transitions pieces between the blower and the tanks to be provided.
      b. All ductwork, flexibles and transitions pieces between the existing odor controls piping to the new blower will also need to be provided.
   5. One Water Control Cabinet.
      a. The control cabinet will house all the equipment to properly operate both systems.
      b. The cabinet to be Nema 4X of FRP Construction and includes motorized valves, ball valves, flow meters, diaphragm valves, nutrient pumps, recirculation pumps and nutrient tanks.

3. **Project Schedule:**
   1. Contractor shall supply on-site supervision during installation, start-up, and training in (3) three total trips for (8) hours each trip. **The City will install the equipment. Equipment delivery required prior to June 30, 2023**. Installation shall be performed during normal business hours, Monday through Friday. No weekend work will be performed. It is the City's intent to schedule installation as one consecutive set of dates until completion with no break in the schedule. The exception will be weekends when no work will be performed. Technical Installation Assistance shall be provided. Rate shall include all travel and related costs for work to be performed at the City's project site.

4. **Warranties:**
   1. Contractor warrants the mechanical components of the system against defects in material and workmanship for a period of at least twenty four (24) months from the date of acceptance. In the event it is determined that a defect exists in such equipment, contractor’s sole obligation shall be to repair or replace the defective equipment.

2. Contractor warrants the synthetic biotrickling filter media against defects in material and workmanship for a period of at least (15) fifteen years from the date of substantial completion. In the event it is determined that a defect exists in the media, contractor's sole obligation shall be to repair or replace the defective vessel or media.

DIVISION 13 - SPECIAL CONSTRUCTION

SECTION 13270 - ODOR CONTROL SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION:

A. General:

This Section identifies the requirements for the Odor Control System.

1. Scope:
   a. The work specified herein shall include design, furnishing and installing all equipment and materials necessary to provide Owner with a complete, operational Odor Control System including concrete pad. The system shall be a completely packaged multi-stage, FRP absorption system of unitary construction. The Odor Control System which shall include but is not limited to, FRP scrubbers, demister, nozzles, internal media, chemical feed and control system, recirculation pump, air supply fan, ducting, dampers, and all necessary accessories. Contractor shall include sufficient chemicals for start up, testing and one month's operation.
2. System Description:
   a. Multi-Stage Package System: The manufacturer shall furnish and install a complete once-through, three-stage, pre-piped, wired, and packaged unitary construction odor control system including an integral absorber with three chemical scrubbing stages, a mist eliminator, exhaust fan, chemical recirculation pumps, chemical metering pumps, piping, valves, fittings, ductwork, and all other equipment and accessories as specified to provide a complete and functioning system and as shown on the plans.
   b. Design Basis: The mechanical, structural, process and electrical design has been based on a LO/PRO® odor control system manufactured by USFilter, RJ Environmental Products, Model LP-7000.
3. Acceptable Manufacturers:
   a. USFilter, RJ Environmental Products
   b. Harrington Industrial Plastics, Inc.
   c. Duall Division, MetPro Corporation
   d. Engineer approved equal.

4. Acceptable Manufacturers for Chemical Storage Tanks
   a. Harrington Industrial Plastics, Inc.
   b. Assmann Corp. of America
   c. Engineer approved equal.

B. This Specification includes the following:
   1. Chemical Scrubber and accessories.
   2. Chemical storage tanks and containment.
   3. Chemical unloading station.

C. Related Work Specified Elsewhere
   1. Section 03100 – Concrete Framework
   2. Section 03200 – Concrete.

1.02 REFERENCES:

A. Applicable Standards:
   1. PS 15-69: National Bureau of Standards Voluntary Product Standard "Custom contact molded Reinforced Polyester Chemical Resistant Process Equipment".
   2. ASTM D-883: "Definition of Terms Relating to Plastics".
   3. ASTM D-1998: "Standard Specification for Polyethylene Upright Storage Tanks".
   4. ASTM D-2583: "Test for Indentation Hardness of Rigid Plastics by Means of Barcol Impressor".
   5. ASTM D-2563: "Recommended Practice for Classifying Visual Defects in Glass Reinforced Plastic Laminate Parts".
   6. ASTM D-4097: "Standard Specifications for Contact Molded Glass Fiber Reinforced Thermoset Resin Chemical Resistant Tanks".

B. Related Work Specified Elsewhere:
   1. Submittals: SECTION 01330
   2. Equipment and Materials: SECTION 01600
   3. Manufacturers Field Services: SECTION 01750
   4. Protective Coatings: SECTION 09900
   5. Basic Mechanical Materials and Methods: SECTION 15050
   6. Nonmetal Ducts: SECTION 15816
   7. Ducts and Accessories: SECTION 15820
   8. Electrical: DIVISION 16

1.03 SUBMITTALS:

A. Contractor shall submit complete scrubber system drawings, including all equipment support and pad design, piping, ductwork, ductwork supports, valves, and controls for review and approval by Engineer. Equipment and ductwork support system designs shall bear the seal of a Professional Engineer registered to practice in the State of Arizona.

B. Contractor shall submit the following information for approval before equipment is fabricated:

1. Drawings of system showing assemblies, arrangements, piping, electrical, mounting details, equipment outline dimensions, fitting size and location, motor data, operating weights of all equipment and sufficient information to allow Engineer to check clearances, connections, and conformance with the specifications.
2. Materials of construction of all equipment.
3. Manufacturer's catalog data, operating literature, specifications, performance and calibration curves for chemical recycle pumps, exhaust fan, and auxiliary components.
4. Complete instrumentation, control, logic and power wiring diagrams in sufficient detail to allow installation of the instrumentation, controls, and electrical components and capable of integration with Plant Management System.
5. Operation and Maintenance Manuals:
   a. Manufacturer's Installation Recommendations.
   b. Bulletins
   c. Spare Parts Lists
   d. Maintenance and Operation

1.04 QUALITY ASSURANCE:

A. Manufacturer's Qualifications:

1. The products furnished under this section shall be by a manufacturer who has been regularly engaged in the design and manufacture of odor control scrubber equipment and who has a minimum of 5 years experience in design, fabrication and testing of odor control systems of the size, materials and scope specified herein, and shall show evidence of at least ten identical design installations in satisfactory operation in wastewater treatment plant facilities for at least twelve months. Demonstrate to the satisfaction of Engineer that the quality is equal to equipment made by those manufacturers specifically named herein. Any manufacturer whose main business is FRP manufacturing shall not be accepted as a supplier of the complete system.

B. Manufacturer's Services:

1. Contractor shall provide the following services of a qualified manufacturer's representative; travel time excluded:

a. Sixteen hours for inspection and certification of the installation.

b. Sixteen hours to carry out performance testing and to train Owner's staff in operation of the system, including safe chemical handling procedures.

c. Provide one trip for a minimum of four days for tasks 1 and 2 above.

C. Inspection and Testing Requirements:

1. Engineer reserves the right to reject delivery of any or all pieces of equipment found, upon inspection, to have any or all of the following: blisters, chips, crazing, exposed glass, cracks burned areas, dry spots, foreign matter, surface porosity, sharp discontinuity or entrapped air at the surface of the laminate. Any item which does not satisfy the tolerances as below shall be rejected:

DEFECT	INSIDE SURFACE	OUTSIDE SURFACE
Blister	None	Max. dimensions: 1/4" diameter by 1/8" high; Max density: 1 per sq. ft.; Min. separation: 2" apart
Chips	None	Max. dimension of break: 1/4" and thickness no greater than 10% of wall thickness; Max. density: 1 per sq. ft.
Crazing	None	Max. length: 1/2"; Max. density: 5 per sq. ft.; Min. separation: 2"
Cracks	None	None
Exposed Glass	None	None
Scratches	None	Max. length: 1"; Max. depth: 0.010"
Burned Areas	None	None
Surface Porosity	None	None
Foreign Matter	None	None
Sharp Discontinuity	None	None
Pits	Max. 1/8 inches, dia. by 1/32 inches deep; Max: 10 per ft^2	Max. 1/8" dia. by 1/16" deep; Max: 10 per sq. ft.
Dry Spot	None	2 sq. in. per sq. ft.
Entrapped Air	None at the surface 1/16 inches and 10 per square in. max	1/8" and 4 per sq. in. or 1/16" and 10 per sq. in. within laminate

2. Scrubber system shall be shop tested and meet all design and specified requirements. A certificate of approval from the Manufacturer indicating that all design requirements have been met shall be provided to Engineer prior to shipping equipment to job site. Engineer reserves the right to be present at Manufacturer's Facility for testing procedures. Manufacturer shall give Engineer a minimum of seven days notice prior to testing but not greater than twenty-one days.
3. Upon completion of the installation, each piece of equipment and each system shall be tested for satisfactory operation without excessive noise, vibration, overheating, etc. Compliance shall be based on the equipment manufacturer's specifications. All applicable costs to meet those standards shall be borne by Contractor. All equipment must be adjusted and checked for misalignment, clearances, supports, and adherence to safety standards.
4. Contractor shall be responsible for the successful startup and testing of the odor control facility. Contractor shall provide all necessary facilities, manpower, chemicals, tools, instrumentation, and laboratory testing services required during this phase of the work. Contractor shall certify that the system is in compliance with the design documents and all local, State, and federal regulations.

PART 2 - PRODUCTS

2.01 GENERAL:

A. Contractor shall provide an odor control system specified that shall treat in a single pass the odorous air from the contaminated areas. The system shall be designed for continuous and automatic operation. Provisions shall also be made to allow the system to be capable of manual operation. The scrubber blowdown stream shall be discharged into a chemical drain. Access manways shall be provided to allow access to the internals of the scrubber. The scrubber system shall be designed to withstand a temperature up to 150°F. The multi-stage packaged FRP system shall be of unitary construction, as specified in Section 2.3. The system shall be provided by USFilter, RJ Environmental Products, Poway, California, or Engineer approved equal.

2.02 DESIGN AND PERFORMANCE CRITERIA:

A. Design and Performance Criteria:

1. Criteria: Foul air removed from the facility will have an average and peak concentration of hydrogen sulfide (H_2S) and design air flow rate as listed in the following table:

Air Flow Rate, cfm	Ave. H_2S Conc., ppm	Peak H_2S Conc., ppm
24,500	20	

2. System Performance: The odor control system shall demonstrate following performance when operating under design flow conditions listed above.

INLET	OUTLET
1-20 ppm H_2S	0.1 ppm H_2S
Greater than 20 ppm H_2S	0.5% of inlet (99.5% removal efficiency)

3. Scrubber Design Criteria:

Working Pressure, Scrubber Portion:	10.0" WC
Liquid Storage:	Hydrostatic load of specific gravity = 1.01
Wind Load:	100 mph
Live Load:	200 lbs/sq. ft
Ambient Temperature:	40 to 130 °F.

2.03 MULTI-STAGE FRP PACKAGED ABSORBER SYSTEM:

A. General: The gas scrubber system shall be a three-stage, once-through, packaged absorber of unitary construction, designed to remove a minimum of 99.5% of H_2S vapor in a single pass. The scrubber system shall consist of one gas conditioning/pre-treatment stage followed by two vertical gas absorption sections. The packed bed sections shall include a spray header to distribute the liquid evenly over the packing sections. The gases shall pass through a high efficiency mist eliminator prior to discharging into the stack. The scrubber system shall be equipped with two self-contained sumps. Each of the sumps shall be fitted with a low level switch. The complete scrubber shall be fabricated of premium grade, vinyl ester resin.

1. The overall system size, including the chemical sumps, pumps, fan, controls shall be able to fit in the area shown in the contract drawings. Access manways shall be provided to allow access to the scrubber internals. As a minimum, access manways shall be provided at the top and bottom of the packing sections, chemical sumps, and the mist eliminator.
2. The system shall be included with all piping, valves, and internals. The material of construction of internals shall be as follows:

Packing Media Support:	Vinyl Ester FRP Grating
Packing Media:	Polypropylene
Liquid Distributor:	PVC
Spray Nozzles:	Polypropylene
Mist Eliminator:	Polypropylene

3. The metering pumps and recirculation pumps shall be mounted on the system and pre-piped. The scrubber system shall be shipped as a single piece.
4. Each scrubber sump shall be equipped with a titanium or hastelloy internal grounding rod. Contractor shall install a grounding rod adjacent to the scrubber for connection to the internal grounding rods.

DEVIATION B. Materials:

1. The scrubber absorber vessel and accessories shall be contact mold manufactured in accordance with NBS PS 15-69, ASTM D 4097 for contact molding. Any visual defects shall not exceed the tolerances specified in the table located in Section 1.4, Item C. Material of construction shall be FRP with premium grade vinyl ester resin.
2. Resin used in fabrication shall be a premium vinyl ester type, such as, Hetron 922 by Ashland Chemicals, Derakane 411 by Dow Chemical, or approved equal. The resin shall incorporate UV protection and shall be reinforced with an inner veil of a suitable synthetic organic fiber, such as, Nexus 1012.
3. Reinforcement: Glass fiber reinforcement used shall be commercial grade, corrosion resistant borosilicate glass.
   a. All glass fiber reinforcement shall be Type C chemical grade, Type E electrical grade.
   b. Surfacing veil shall be 10 mil Nexus 1012, or approved equal.
   c. Mat shall be Type E (electrical grade) glass, 1 1/2 oz. per sq. ft with a nominal fiber length of 1.25 ± 0.25 inches and have a silane finish and styrene soluble binder.
   d. Continuous glass roving, used in chopper gun spray-up applications, shall be Type E grade with chrome or silane coupling agent.
   e. Woven roving used for reinforcement shall be 24 oz. per sq. yard Type E glass with a 5 x 4 plain weave.
4. Miscellaneous:
   a. Stainless Steel: Unless otherwise specified, all fasteners and metal attachments, such as anchors & brackets, shall be ANSI 316SS.
   b. Gaskets: Unless otherwise specified, all gaskets shall be EPDM.

C. Fabrication:

1. General: Fabrication shall be in accordance with NBS PS 15-69 and ASTM D-4097. All non-molded surfaces shall be coated with resin incorporating paraffin to facilitate a full cure of the surface. All cut edges, bolt holes, secondary bonds shall be sealed with a resin coat prior to the final paraffinated resin coat. All voids to be filled with a resin paste.
2. Corrosion Liner: The inner surface of all laminates shall be resin rich and reinforced with NEXUS 111-00010 with a minimum thickness of 10 mils. The interior corrosion layer shall

consist of two layers of 1-1/2 oz. per sq. ft. chopped strand mat. If the application is by chopper gun spray the glass fiber shall be 1/2 to 2 in length. The total corrosion liner thickness shall be a minimum of 100 mils and have a resin to glass ratio of 80/20. All edges of reinforcement to be lapped a minimum of one inch.

3. Structural Laminate: Structural laminates shall consist of alternating layers of 1-1/2 oz per sq. ft mat or chopped glass and 24 oz per sq. yard woven roving applied to reach a designed thickness. Actual laminate sequences shall be per the laminate tables shown on fabrication drawings. The exterior surface shall be relatively smooth and shall have no glass fibers exposed.
4. The exterior shall be surface coated with white gel coat containing ultraviolet light inhibitors having a minimum dry film thickness of 5.0 mils.

D. Accessories: Air inlet, air outlet, pump connections, spray headers, baffles, packing support, drain, level connections, access for mist eliminator, and all connections shown on the drawings shall be provided by the manufacturer. Tie-down lugs shall be integrally molded into the walls of the sump. Anchor bolts shall be 316SS and designed for the specified loads. Flanges for liquid service shall be ANSI Standard B 16.9 and air connections shall be duct flanges per PS 15-69, Table 2. Access flanges for manways, mist eliminator, and packing access flanges shall be water-tight as well as air-tight to the pressure equal to or higher than the corresponding fan static pressure. Interior fasteners shall be of corrosion resistant materials, such as PVC or FRP.

DEVIATION E. Packing: Packing shall be 3.5" with 92.5% void fractions, geometric surface area of 44 ft^2/ft^2, 50 pieces per square foot, and a packing factor of 14. Contractor shall provide 525 cu. ft. of packing media. The packing shall be as manufactured by Lantec or Engineer approved equal.

DEVIATION F. Mist Eliminator: A high efficiency, chevron-type mist eliminator shall be provided at the discharge of the system. The mist eliminator shall remove 99% of all mist particles 40 microns and larger and 90% of all mist particles 10 microns and larger.

G. Mist Eliminator Wash System: A liquid distributor with nozzles shall be provided to manually spray dilute hydrochloric acid for mist eliminator and packing washing.

H. Unitary Construction: Except for the fan, inlet transition and the stack, the scrubber system shall be designed, fabricated, factory assembled and shipped to the job site as one piece.

I. Piping: All chemical recycle, make-up water, drain and blowdown piping shall be SCH 80 PVC. Contractor shall insulate and coat all external piping as required by climate conditions.

DEVIATION J. Neoprene Pad: A 1/4" thick, 60 durometer neoprene rubber sheet must be placed underneath the scrubber vessel.

2.04 RECIRCULATION PUMPS:

A. Each sump shall have a recirculation pump. The recirculation pump shall be a seal-less, vertical, centrifugal type pump of virgin unfilled plastic construction for corrosion resistance and long service life. No seal water shall be required. Pump design shall feature an impeller in the submerged casing. The pump shall be driven by a "C" face motor, mounted on a cast iron bracket, sitting on pump mounting plate and connected to pump shaft via flexible coupling.

DEVIATION B. The casing and impeller shall be molded from premium grade unfilled virgin plastic. There should be no metal wetted components. Wetted bolts shall be made of the same material as pump casing and column. Pump shafts shall be machined from centerless ground 304 SS, encapsulated with plastic sleeving that is the same material as the pump.

C. The thrust bearing shall be independent from the motor, located in brackets above the mounting plate. The sleeve bearings shall be lubricated by process fluid. No external flush water shall be required.

D. The unit shall be built with casing cover and impeller assembly modified for thermal fluctuation enabling the pump to be used through the full range of temperature settings.

E. Each pump shall be furnished with an all plastic fabricated strainer basket with 1/4" diameter perforations in same to keep any large particles out of the casing or impeller area.

DEVIATION F. Motors shall be "C" face, 460V, 3PH, 60Hz, TEFC. Motors shall have internal thermal overload protection. Motors shall be manufactured by WEG, Baldor, Reliance or Engineer approved equal.

DEVIATION G. The pump shall be Vanton Sump-Gard or equal.

DEVIATION H. The pump shall be sized by the manufacturer for proper flow rate and pressure as required for the installation. The pump capacities shall be as follows:

STAGE 1		STAGE 2/3	
GPM	Pump HP	GPM	Pump HP
400	10.0	600	25.0

2.05 EXHAUST FAN:

DEVIATION A. Fan shall have fiberglass reinforced plastic centrifugal backward inclined impeller. The wheel shall be dynamically balanced. Resin shall be suitable for exposure to the specific service and environmental conditions. The shaft shall be carbon steel and shall have a Type 316 stainless steel sleeve. The shaft seal shall be Teflon or Viton.

B. Bearings shall be heavy duty, self aligning grease lubricated ball type with minimum of 100,000 hour B-10 life. OSHA approved belt guard and shaft guard shall be provided. Motor shall be high-

efficiency, TEFC, 1800 RPM with a 1.15 service factor and suitable for 3/60/460V. Fan shall be belt driven. Fan shall have a constant V-belt drive. Motor shall have internal thermal overload protection.

C. Fan housing shall be constructed of fiberglass and reinforced with rigid bracing to increase structural integrity. Bearing support brackets shall be positioned to directly oppose belt tension forces. Fan housing shall be a curved scroll design with a 1-inch drain connection at the bottom of the fan scroll. The fan inlet shall be slip type and the fan outlet shall have a flanged nozzle.

D. The fan shall be designed for the following specifications:

Exhaust Fan Design Requirements:	
Air Flow Rate, cfm	24,500
S.P. up to Scrubber Inlet, in. WC	2.0
Total Pressure Drop, in. WC	10.0
Motor HP	60.0

DEVIATION E. Flexible Connector:

1. Provide flanged expansion joint for outlet of fan to FRP vessel inlet transition piece. The flange drilling shall be coordinated with fan and transition.
2. Type : W-design configuration with integral flanges suitable for service with FRP duct.
3. The properties of the flexible connectors shall be as follows : Material shall be EPDM. The flexible connector shall be double wall with exterior wall rated for UV protection. Material shall be suitable for contact with odorous air as specified herein. The backing rings shall be 1/4-inch thick, 2" wide, type 304 stainless steel. The length from flange-to-flange shall be 6" unless shown otherwise. The extension shall be 1 inch, compression shall be 2 inches, lateral offset shall be 2.5 inches and the thickness shall be ¼-inch minimum.

DEVIATION 4. Manufacturer shall be Senior Flexonics or approved equal.

F. The fan shall be shipped loose from the scrubber system and be anchored to a concrete pad without vibration isolators.

G. The motor shall be manufactured by WEG, Baldor, Reliance or approved equal.

DEVIATION I. Fan shall be New York Blower, Hartzell or approved equal. The fan shall have an AMCA seal.

2.06 CHEMICAL FEED SYSTEM:

A. The chemical feed and dilution system takes sodium hydroxide and sodium hypochlorite and dilutes the chemical, and delivers it to the spray nozzle where the chemical solution is circulated through

the packing media. The chemical feed and dilution system shall contain all piping and equipment necessary to deliver chemicals from storage tanks to the scrubber vessel.

B. Chemical Metering Pumps:

1. General: Positive displacement, mechanical diaphragm type chemical metering pumps shall be provided to deliver 50% sodium hydroxide and 12.5% sodium hypochlorite solution to the scrubber. All chemical metering pumps shall be suitable for 24 hour per day operation. All pumps shall have a minimum discharge pressure of 50 psig.
2. Operating Conditions: Each pump shall have a maximum capacity as follows at a maximum back pressure of 175 psi:

SODIUM HYDROXIDE		SODIUM HYPOCHLORITE	
Stage 1 Max Flow, gph	Stage 2/3 Max Flow, gph	Stage 1 Max Flow, gph	Stage 2/3 Max Flow, gph
5	5	N/A	24

3. Pump Construction: A steel and nodular iron non-loss-motion stroke adjust mechanism, driven by a direct coupled variable speed DC motor, shall actuate a flat, teflon-faced composite diaphragm. Solenoid-driven pumps, lost-motion mechanically actuated diaphragm pumps and hydraulically actuated diaphragm pumps will not be accepted. The liquid ends shall provide for easy maintenance and integral sight flow indication via clear PVC cartridge-type check valves. Conventional threaded valves and external sight flow indicators will not be allowed.
4. Drive: A steel and nodular iron non-loss-motion stroke adjust mechanism shall be housed in a corrosion resistance, epoxy painted, cast iron gearbox. All drive bearings shall be tapered rollers; all fasteners shall be oil-bath lubricated. Stroke length shall be controlled manually via a 10-turn micrometer-type adjuster. A percent scale and vernier shall indicate stroke length in 0.25% increments. Each revolution of the knob shall change stroke length by 10%.
5. Liquid End: The process diaphragm shall be of Hypalon construction. It shall incorporate convolutions, for unconstrained rolling action and a steel backing plate for volumetric accuracy. An o-ring groove in the head's diaphragm cavity will provide for a complete leak-free seal. Positive flow shall be ensured via cartridge-type check valves. The valve retainers shall be clear PVC for integral sight flow indication. They shall allow a compression seal to the pump head and pipe connections via o-rings. Valve service or removal shall not require any disturbances to the pump head pipeworks. A secondary diaphragm shall be completely sealed

to separate the pump head from the drive unit in order to eliminate any risk of cross-contaminating gearbox lubricant and process fluid.

6. Control: Each pump shall be automatically shut off if a low level is sensed in the appropriate chemical tanks.
7. Pressure Relief Valve: Each pump shall include a pressure relief valve factory set to 50 psi and suitable for chemical environment.
9. Manufacturer: The sodium hypochlorite and sodium hydroxide metering pumps shall be Wallace & Tiernan Encore 700 or approved equal.

2.07 CHEMICAL STORAGE TANKS (NaOCl and NaOH):

A. Chemical storage tanks shall be furnished for containment of 12.5 percent sodium hypochlorite and 50 percent sodium hydroxide solution. The tanks shall be made of high density, cross linked polyethylene and be suitable for storage in direct sunlight. All tanks shall be provided by one manufacturer.

B. The sodium hydroxide storage tank shall have a minimum capacity of 2,000 gallons. The tank accessory materials shall be completely suitable for and inert to liquid sodium hydroxide up to 50 percent solution and at ambient, outdoor temperatures.

C. The sodium hypochlorite storage tank shall have a minimum capacity of 2,000 gallons. The tank accessory materials shall be completely suitable for and inert to liquid sodium hypochlorite up to 15 percent solution and at ambient, outdoor temperatures.

D. Each storage tank shall be provided with bulkhead pipe connections for tank drain, outlet, inlet, and vent. Each vent shall be provided with insect screen. Flanged connections shall be of the same materials as the tank wall. Threaded connections shall be of standard NPT. The tank details showing the locations of all openings, nozzles, and appurtenances shall be included in shop drawings and submitted for approval before fabrication of the chemical storage tank.

E. Each storage tank shall be provided with a liquid level control device to detect low level. In case low level is detected, the control device shall shut off the chemical metering pump(s).

F. Each storage tank shall be provided with a transparent sight glass for level monitoring.

2.08 SYSTEM CONTROLS PANEL:

A. The electrical control panel shall provide electrical control for the exhaust fan, recirculation pumps, metering pumps, pH and ORP control system. A 480V 3 phase 60 Hz and a 208Y/120V 3 phase 60 Hz feed shall be supplied to the panel to power the system. The panel shall include a main disconnect.

B. The control panel enclosure shall be of stainless steel and rated NEMA 4X.

C. All electrical components shall conform with DIVISION 16.

D. The control panel shall contain NEMA rated motor starters for the fan and pump motors.

E. Individual overcurrent and overload protection shall be provided for each motor.

F. Motors 25 horsepower and larger shall be controlled by solid-state reduced voltage motor starters.

G. The panel shall have the following components or capabilities:

1. System switch (ON-OFF) which will shut all equipment down.
2. Fan control switch (H-O-A) and indicating lamp.
3. Recirculation pump control switch(s) (H-O-A) and indicating lamp for each recirculation pump.
4. Individual chemical metering pumps switch(s) (H-O-A) and indicating lamps.
5. pH controllers for automatic sodium hydroxide injection via the metering pumps. The pH controller shall have a digital pH display, with a menu driven operation for easy calibration and setpoint adjustment. The controller shall have a 4-20 mA output to operate the chemical metering pumps. The controller shall be Great Lakes Model P63, or equal. The digital display shall be protected from degradation by sun light.
6. An independent pH controller shall be provided for Stage 1 and Stage 2 & 3.
7. ORP controller for automatic sodium hypochlorite injection via the metering pumps. The ORP controller shall have a digital ORP display, with a menu driven operation for easy calibration
8. and setpoint adjustment. The controller shall have a 4-20 mA output to operate the chemical metering pumps. The controller shall be Great Lakes Model R63 or equal. The digital display shall be protected from degradation by sun light.
9. A low level switch and an alarm shall be provided for each chemical storage tank to shut off the chemical metering pump(s) in case of low level.
10. A low level switch and an alarm shall be provided for each chemical sump to shut off the chemical recirculation and chemical metering pumps in case of low level.
11. The control panel shall provide dry contact outputs for the following points for remote indication:
    a. Run Status
    b. Failure Alarm
    c. Sodium Hydroxide Tank Low Level Alarm
    d. Sodium Hypochlorite Tank Low Level Alarm
    e. Stage 1 Sump Low Level Alarm
    f. Stage 2/3 Sump Low Level Alarm
12. The control panel shall provide 4-20 mA output signal for the following points for remote indication:
    a. pH Level

b. ORP Level

2.09 ACCESSORIES:

A. Make-up Water Control: The direct reading rotameter shall be a variable area type with a Teflon float, EPR "O" rings, and PVC fittings. The rotameter shall be of the same size as the pipe in which it is installed. The rotameter shall have a direct reading scale.

B. Scrubber Recirculation Sump Blowdown and Level Controls: The scrubber shall be operated with a manual blowdown. The rate of blowdown shall be proportional to the rate of make-up water.

C. Differential Pressure Gauges: Two magnehelic type pressure gauges shall be provided to monitor pressure drop across the scrubber and the mist eliminator. Transparent overlays will be included. The manufacturer shall be Dwyer or approved equal.

D. Pressure Gauges: A liquid-filled pressure gauge, including an all plastic activator/isolator and an isolation valve, shall be provided for installation in the pump discharge piping. The gauge shall have a minimum dial size of 3½ inches. The gauge face shall indicate units of measurement and the normal operating reading shall be near the midpoint of the range.

E. Overflow Control: An overflow line equipped with an internal water seal shall maintain a minimum freeboard of four inches as measured from the maximum liquid level to the top of the scrubber sump deck.

2.10 MOTOR STARTER:

A. A local control panel with IEC type motor starters for the fan and the pumps shall be provided. Fuse protection for all motor circuits shall be included. One spare fuse of each size and type shall be provided.

DEVIATION 2.11 NaOCl ANALYSIS KIT:

A. The scrubber system shall be provided with two Lamotte NaOCl analysis kits, one for 0 to 1% and one for 1 to 15%, to analyze scrubber sump and NaOCl storage.

2.12 SPARE PARTS:

A. The following spare parts for approximately two years of operation shall be provided:

1. One complete set of fan belts and bearings.
2. Six complete metering pump repair kits, each consisting of an O-ring, diaphragm, check valve, and oil (2 quarts).
3. Three spare fuses of each type and size used.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Work shall be performed to provide a complete operable system. All work shall be done in a workmanlike manner.

B. When working in potentially hazardous atmosphere, the Contractor shall provide all appropriate testing equipment and personal protection to comply with federal, State and local requirements.

3.02 TESTING REQUIREMENTS AND START-UP:

A. The time of the tests and detailed test procedure shall be submitted for approval prior to the testing period. In the event hydrogen sulfide levels are below anticipated levels, Contractor shall augment hydrogen sulfide levels in the influent air stream so that the hydrogen sulfide concentration is -2 to +10 ppm of the design level.

1. During testing, chemical feed, scrubber overflow, recirculation and scrubber air flow rates shall be held constant. Changes in scrubber system operating conditions shall not be permitted. All fine-tuning of operating conditions shall be performed prior to testing.
2. Design operating conditions shall be maintained for a minimum of six hours. During this time, all pertinent operating parameters shall be monitored and recorded and sufficient sampling and analysis shall be conducted to demonstrate that the air flow rate and removal efficiency are at the design conditions.
3. Hydrogen sulfide concentration shall be measured in each scrubber inlet and outlet. As a minimum, the test shall be conducted for 1 hour at the average H_2S level, 1 hour at the peak H_2S level, and the balance of 4 hours on actual plant odor conditions. Inlet and outlet levels shall be measured once every 30 minutes using a portable H_2S analyzer such as Interscan or equal.
4. A description of the performance tests shall be submitted. The hydrogen sulfide compound removal efficiency shall be as specified in the design and performance requirements. Should scrubber system performance not meet any of the above requirements, that system shall have failed the performance tests. Contractor shall make any additions or modifications to that scrubber system as may be necessary, at no additional cost to Owner, and the performance tests for that system shall be repeated in its entirety.

C. The services of a factory representative shall be provided as specified in Part 1.4 to insure proper installation and start-up of the scrubber system.

3.03 OPERATION AND MAINTENANCE MANUALS:

A. Six manuals shall be submitted prior to final acceptance of the equipment.

3.04 CHEMICALS:

A. All start-up and testing chemicals shall be provided by Contractor.

3.05 WARRANTY:

A. Manufacturer shall warrantee the whole system, both in material and workmanship for a period of one year from the day of substantial completion.

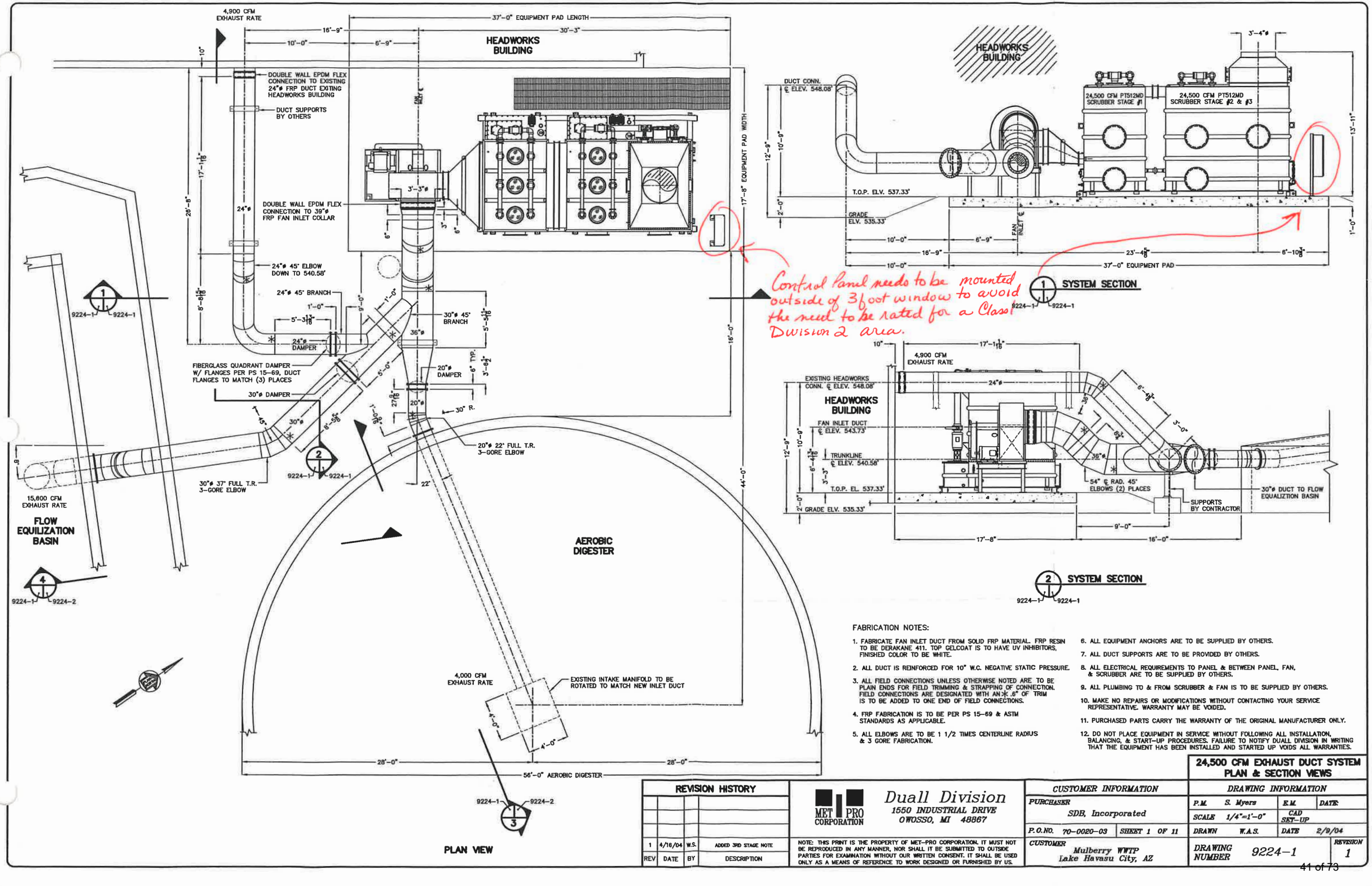
3.06 IDENTIFICATION:

A. The odor control scrubber system and the chemical storage tanks shall be identified with the health, flammability and reactivity of hazardous materials as required by codes.

PART 4 - MEASUREMENT AND PAYMENT

4.01 Measurement and Payment: Measurement and payment will be made for the odor control system in accordance with Section 01210 Measurement and Payment.

END OF SECTION 13270



FABRICATION NOTES:

1. FABRICATE FAN INLET DUCT FROM SOLID FRP MATERIAL. FRP RESIN TO BE DERAKANE 411. TOP GELCOAT IS TO HAVE UV INHIBITORS, FINISHED COLOR TO BE WHITE.
2. ALL DUCT IS REINFORCED FOR 10" W.C. NEGATIVE STATIC PRESSURE.
3. ALL FIELD CONNECTIONS UNLESS OTHERWISE NOTED ARE TO BE PLAIN ENDS FOR FIELD TRIMMING & STRAPPING OF CONNECTION. FIELD CONNECTIONS ARE DESIGNATED WITH AN "X" 6" OF TRIM IS TO BE ADDED TO ONE END OF FIELD CONNECTIONS.
4. FRP FABRICATION IS TO BE PER PS 15-69 & ASTM STANDARDS AS APPLICABLE.
5. ALL ELBOWS ARE TO BE 1 1/2 TIMES CENTERLINE RADIUS & 3 GORE FABRICATION.
6. ALL EQUIPMENT ANCHORS ARE TO BE SUPPLIED BY OTHERS.
7. ALL DUCT SUPPORTS ARE TO BE PROVIDED BY OTHERS.
8. ALL ELECTRICAL REQUIREMENTS TO PANEL & BETWEEN PANEL, FAN, & SCRUBBER ARE TO BE SUPPLIED BY OTHERS.
9. ALL PLUMBING TO & FROM SCRUBBER & FAN IS TO BE SUPPLIED BY OTHERS.
10. MAKE NO REPAIRS OR MODIFICATIONS WITHOUT CONTACTING YOUR SERVICE REPRESENTATIVE. WARRANTY MAY BE VOIDED.
11. PURCHASED PARTS CARRY THE WARRANTY OF THE ORIGINAL MANUFACTURER ONLY.
12. DO NOT PLACE EQUIPMENT IN SERVICE WITHOUT FOLLOWING ALL INSTALLATION, BALANCING, & START-UP PROCEDURES. FAILURE TO NOTIFY DUALL DIVISION IN WRITING THAT THE EQUIPMENT HAS BEEN INSTALLED AND STARTED UP VOIDS ALL WARRANTIES.

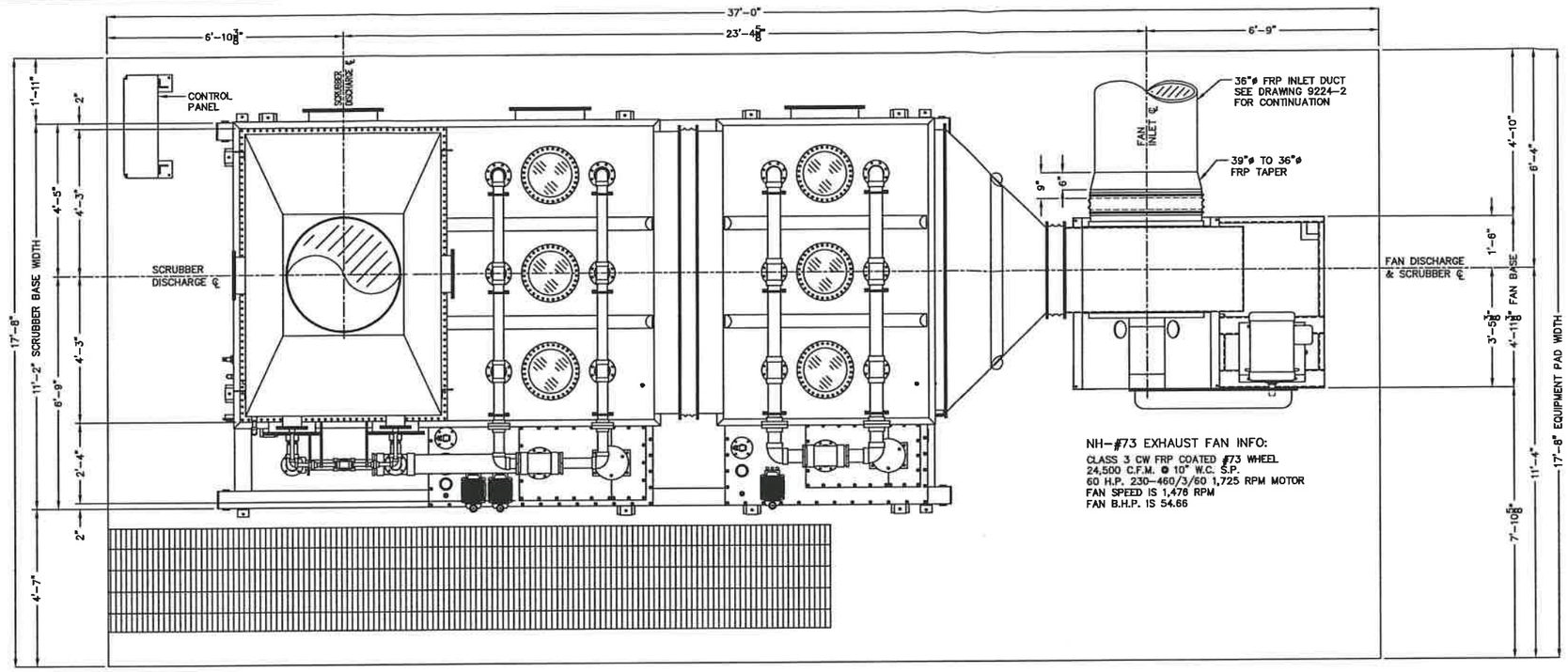
REVISION HISTORY			
1	4/16/04	W.S.	ADDED 3RD STAGE NOTE
REV	DATE	BY	DESCRIPTION

MET PRO CORPORATION

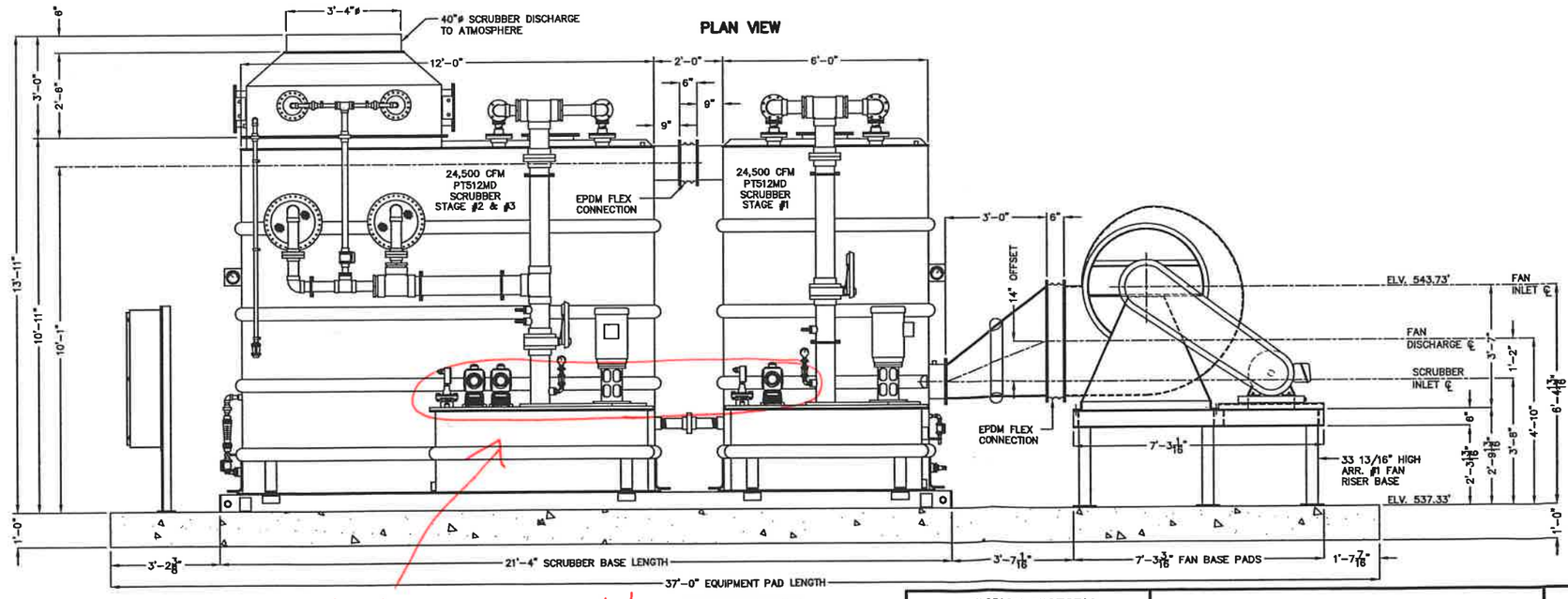
Duall Division
1550 INDUSTRIAL DRIVE
OWOSSO, MI 48867

CUSTOMER INFORMATION		DRAWING INFORMATION		
PURCHASER: SDB, Incorporated		P.M. S. Myers	E.M.	DATE:
		SCALE 1/4"=1'-0"	CAD SET-UP	
P.O.NO. 70-0020-03	SHEET 1 OF 11	DRAWN W.A.S.	DATE 2/9/04	
CUSTOMER: Mulberry WWTP, Lake Havasu City, AZ		DRAWING NUMBER 9224-1		REVISION 1

24,500 CFM EXHAUST DUCT SYSTEM PLAN & SECTION VIEWS



NH-#73 EXHAUST FAN INFO:
CLASS 3 CW FRP COATED #73 WHEEL
24,500 C.F.M. @ 10" W.C. S.P.
60 H.P. 230-460/3/60 1,725 RPM MOTOR
FAN SPEED IS 1,476 RPM
FAN B.H.P. IS 54.66



PLAN VIEW

ELEVATION VIEW

Are feed pumps rated for a Class I, Division 2 area?

FABRICATION NOTES:

1. ALL EQUIPMENT ANCHORS ARE TO BE SUPPLIED BY OTHERS.
2. ALL ELECTRICAL REQUIREMENTS TO PANEL & BETWEEN PANEL, FAN, & SCRUBBER ARE TO BE SUPPLIED BY OTHERS.
3. ALL PLUMBING TO & FROM SCRUBBER & FAN IS TO BE SUPPLIED BY OTHERS.
4. MAKE NO REPAIRS OR MODIFICATIONS WITHOUT CONTACTING YOUR SERVICE REPRESENTATIVE. WARRANTY MAY BE VOIDED.
5. PURCHASED PARTS CARRY THE WARRANTY OF THE ORIGINAL MANUFACTURER ONLY.

REVISION HISTORY			
1	4/16/04	W.S.	ADDED 3RD STAGE NOTE
REV	DATE	BY	DESCRIPTION

MET PRO CORPORATION

Duall Division
1550 INDUSTRIAL DRIVE
OWOSSO, MI 48867

CUSTOMER INFORMATION			
PURCHASER: SDB, Incorporated			
P.O.NO. 70-0020-03	SHEET 3 OF 11		
CUSTOMER: Mulberry WWTP, Lake Havasu City, AZ			

24,500 CFM PT512-MD SCRUBBER & NH-#73 FAN GENERAL ARRANGEMENT

DRAWING INFORMATION			
P.M. S. Myers	E.M.	DATE:	
SCALE 1/2"=1'-0"	CAD SET-UP		
DRAWN W.A.S.	DATE 1/22/04		
DRAWING NUMBER 9224-3		REVISION 1	

EXISTING CHEMICAL FEED ODOR CONTROL UNITS AT MULBERRY TREATMENT PLANT (MTP)

SECTION H – EXHIBIT 3

SECTION 11332

ODOR CONTROL UNITS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This Section includes the requirements for designing, furnishing, and installing three packaged odor control systems with three multi-stage chemical scrubbers (one at influent pump station and two at the plant).

B. Provide three complete packaged systems, factory piped and wired.

C. Each scrubber system includes all labor and materials for a complete system. Each scrubber system shall include, but not be limited to, the following total equipment:
   1. Three FRP air exhaust fans.
   2. Three fan outlet flexible connectors.
   3. Three fan outlet/scrubber inlet transitions.
   4. Three packaged odor control systems with the following major components:
      a. Three stage gas absorption system.
      b. Two integral chemical sumps.
      c. Packing media, nozzles, and mist eliminator.
      d. Internal piping and access doors.
   5. Three FRP exhaust stacks.
   6. Six vertical sealless PP chemical recirculation pumps.
   7. Six NaOH chemical metering pumps.
   8. Four NaOCl chemical metering pumps.
   9. Two FRP control panels with ~~NEMA 4X~~ NEMA 4 (Addendum No. 1) enclosure, including motor starters, instrumentation, and sunshades (one at plant and one at IPS)
      a. pH elements and controller.
      b. ORP elements and controller.
      c. Sump low level switches.
   10. Accessories, including:
      a. Differential pressure gauges.
      b. Make-up water flowmeter.
      c. Scrubber blowdown control.
      d. Recirculation pump pressure gauge.
   11. Three neoprene pads for underneath scrubbers.
   12. Anchor bolts.

13. Water softener system, duplex type ~~(not required at Influent Pump Station)~~ (Addendum No. 1).
14. Bottled H_2S gas for performance testing.
15. Manufacturer's services for system start-up, testing, and training; two trips for up to five days at the job site.
16. F.O.B. factory with full freight allowed.

D. All electric motors furnished shall meet the requirements of Section 11000, Electric Motors.

E. Each odor control unit shall be designed and fabricated in compliance with NFPA 820. At a minimum, all equipment installed on the system shall be rated for Class I, Division 2, Group D, as defined in the National Electrical Code.

1.2 REFERENCES

A. ASTM D2310 - Machine-Made Fiberglass (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe.

B. ASTM D2563 - Classifying Visual Defects in Glass-Reinforced Plastic Laminate Parts.

C. ASTM D2996 - Filament-Wound Fiberglass (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe.

D. ASTM D2997 - Centrifugally Cast Fiberglass (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe.

E. ASTM D4399 - Filament-Wound Glass-Fiber-Reinforced Thermoset Resin Chemical-Resistant Tanks.

F. NBS PS 15-69 - Custom Contact-Molded Reinforced-Polyester Chemical-Resistant Process Equipment.

G. SSPC-SP6 - Commercial Blast Cleaning.

H. PS 15-69 - National Bureau of Standards Voluntary Product Standard Custom Contact Molded Reinforced Polyester Chemical Resistant Process Equipment.

I. ASTM D-883 - Definition of Terms Relating to Plastics.

J. ASTM D-2583 - Test for Indentation Hardness of Rigid Plastics by Means of Barcol Compressor.

K. ASTM D-4097-82 - Standard Specifications for Contact Molded Fiber Reinforced Thermoset Resin Chemical Resistant Tanks.

1.3 RELATED SECTIONS

A. Section 01300, Submittals.

B. Section 01640, Materials and Equipment.

C. Section 01650, Starting of Systems.

D. Section 09900, Painting.

E. Section 11000, Electric Motors.

F. Division 13, Special Construction.

G. Division 16, Electrical.

1.4 QUALITY ASSURANCE

A. Manufacturer: The company specializing in the manufacture of products specified in this Section shall have a minimum five years documented experience and at least 15 identical installations of similar applications in service.

B. The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality, type of system, and the configuration desired. The design of the Odor Control System and equipment is based on the parameters as shown on the Drawings and as listed in ensuing Sections. Systems offered by other interested manufacturers will be considered, provided that Specification requirements are met and that all necessary structural, electrical, mechanical, and layout changes required are submitted in detail. The CONTRACTOR shall bear all costs for revisions to the piping, structural, electrical, instrumentation, equipment, labor, and any other portions of the Work that may be required to adapt the general layout and details shown on the Drawings to the equipment actually furnished. All necessary design revisions shall be made at the CONTRACTOR'S sole expense. All redesign information prepared by the CONTRACTOR shall be submitted to the ENGINEER for review and approval prior to incorporating the redesign into the Work.

C. Guarantee that the packaged scrubber systems will meet the requirements as specified herein when operated in accordance with the suppliers operating instruction.

D. Inspection and Testing Requirement: The ENGINEER reserves the right to reject delivery of any or all pieces of equipment found, upon inspection, to have any or all of the following: blister, chips, crazing, exposed glass, cracks burned area, dry spots, foreign matter.

1.5 PERFORMANCE REQUIREMENTS

A. Odor Control Units at Plant: The Odor Control System shall be an arrangement with two chemical scrubbers drawing foul air from and FRP pipe plant distribution system and venting the treated air to the atmosphere. The scrubbers will be installed as shown on the Plans.
   1. Design Criteria for Chemical Scrubbers (Scrubber No. 1):
      a. Design Flow Rate: 20,000 scfm per scrubber unit.
      b. Number of Units: 2.
      c. Average Inlet H_2S Concentration, ppm: 20.
      d. Peak Inlet H_2S Concentration, ppm: 40.
      e. Duct System Static Pressure Loss, External to Scrubber: 2.0-inches w.c.
      f. Minimum Removal Efficiency: 99%.

B. Odor Control Unit at Influent Pump Station: The Odor Control System shall have one chemical scrubber drawing foul air from and venting the treated air to the atmosphere. The scrubbers will be installed as shown on the Plans.
   1. Design Criteria for Chemical Scrubbers (Scrubber No. 2):
      a. Design Flow Rate: 3,000 scfm per scrubber unit.
      b. Number of Units: 1.
      c. Average Inlet H_2S Concentration, ppm: 20.
      d. Peak Inlet H_2S Concentration, ppm: 40.
      e. Duct System Static Pressure Loss, External to Scrubber: 2.0-inches w.c.
      f. Minimum Removal Efficiency: 99%.

C. FRP Design Criteria:
   1. Wind Load: 100 mph.
   2. Live Load: 200 lbs/sq.ft.
   3. Ambient Temperature:
      a. Minimum: 30° F.
      b. Maximum: 120° F.

1.6 SUBMITTALS

A. The CONTRACTOR shall submit the following information for approval before equipment is fabricated:
   1. Letters of Certification of Compliance on materials, equipment, etc.
   2. Final Certified Drawings showing outline dimensions, foundation layout or mounting information, and other pertinent dimensions.

3. Field erection instructions, assembly drawings and/or diagrams, detailed reference drawing lists, and lists of erection details.
4. Schematic and wiring diagrams of power, control, and piping systems with all devices, terminals, and wires uniquely numbered. Clearly indicate between factory and field wiring. All field wiring shall be included for each diagram to describe all modes of operation of the system indicated. Where the integrated system requires interlocking and control of other components in normal operation, these components shall be included in the description of operation.
5. General bulletins and catalog cuts describing complete apparatus including operating principles and fundamentals.
6. Renewal parts list with diagrammatic or cross-section drawings showing part identification. Material analysis or trades designation for each significant part is to be noted on parts lists or on a separate sheet.
7. The formal test protocol for use during performance testing, if required.
8. Recommended list of spare parts and safety equipment along with price and ordering information. Spare parts at a minimum shall include the equipment listed in Paragraph 2.8 of this Specification.
9. Control panel layouts with devices and nameplate engraving. Panel drawings shall indicate all equipment including inside and outside of the panel. Drawings shall indicate location of all alarms, lamps, and devices on the panel for ENGINEER'S approval.
10. Electrical equipment ratings and data sheets for all devices.
11. Quality assurance information in accordance with Paragraph 1.4 of this Specification.
12. Warranties in accordance with Paragraph 2.10 of this Specification.
13. Manufacturer shall submit a color chart with submittal for color selection of odor control units for ENGINEER'S approval.
14. Materials of construction of all equipment.
15. Shop Drawings and design calculations showing quantity and concentration of sodium hydroxide and sodium hypochlorite solutions with metering pump, recirculating pump, piping flow, pressure, and temperature compatibility. Calculations shall be certified by a Registered Professional Engineer with demonstrated experience in the design of these systems.
16. Pump data and performance curves showing flow, pressure, and horsepower.

B. Operation and Maintenance Manuals: Submit complete Operation and Maintenance Manuals in conformance with the Operation and Maintenance Manuals Section of Section 01300, Submittals.

C. Submit the odor system manufacturer on-site representative's complete signed report of results of the inspection, operation, adjustments, and tests. Include the manufacturer's certificate that equipment is ready for permanent operation, the OWNER'S personnel have been trained in accordance with Part 3 of this

Specification, and that nothing in installation will render manufacturer's warranty null and void.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in the manufacture of products specified in this Section with minimum five years documented experience and at least 15 identical installations in service. All listed vendors must still meet the requirements of the Specifications.
   1. RJ Environmental, San Diego, CA.
   2. Harrington.Calgon.
   3. Dual.
   4. Or approved equal.

B. Naming of a manufacturer in this Specification is not an indication that the manufacturer's standard equipment is acceptable in lieu of the specified component features. Naming is only an indication that the manufacturer may have the capability of engineering and supplying a system as specified.

C. If any modifications to the Odor Control System Drawings are necessary as result of the equipment chosen by the CONTRACTOR, the CONTRACTOR is responsible for any changes, and construction costs associated with any design changes. All design changes shall be submitted to the ENGINEER for review and approval.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Materials are to be marked or tagged with part number and order number for field assembly requirements.

B. Touch-up paint with instructions for applications is to be performed by erection personnel.

C. All supports, members, and miscellaneous parts shall be packaged for shipment in such manner to prevent abrasion or scratching.

PART 2 - PRODUCTS

2.1 FABRICATION SPECIFICATIONS

A. General Construction:
   1. All fiberglass (FRP) equipment specified in this Section shall be custom contact molded in strict accordance with NBS Voluntary Product Standard

PS 15-69, or filament wound in accordance with ASTM D3299 for Type II pressure tanks.

2. The FRP resin and cure system shall be suitable for continuous exposure to 20% sodium hydroxide solution, high hydrogen sulfide concentrations, 12.5% sodium hypochlorite, and their reaction products.
3. All exterior FRP surfaces shall have a pigmented resin for UV protection, color to be approved by OWNER.
4. Visual defects shall be in accordance with ASTM D2563, Level II.

2.2 CHEMICAL SCRUBBERS

A. Scrubber systems shall be three-stage, once through packaged unit designed to remove minimum of 99% in a single pass. At least two stages shall be packed bed sections. First stage shall be a preconditioning stage with diluted sodium hydroxide spray. The unit shall be equipped with self-contained recirculation sumps. All piping shall be Schedule 80 CPVC. All spray nozzles shall be made of polypropylene. Access manways shall be provided to allow access to the scrubber materials (at the upper and lower part of the packing sections, at chemical sumps, and at top of mist eliminator). Manways shall be located on the side of scrubbers, not on the top. The total height of the chemical scrubber including the exhaust piping shall not exceed 18 feet. All fasteners, metal attachments, anchors, and brackets shall be Type 316 stainless steel.

1. The Materials of Construction of the Internals shall be as follows:
   a. Packing Media Support: Vinyl Ester FRP grating.
   b. Packing Media: Polypropylene.
   c. Liquid Distributor: CPVC.
   d. Mist Eliminator: Polypropylene.
   e. Spray Nozzles: Polypropylene.

B. Recirculation Pumps:

1. Each scrubber sump shall have a recirculation pump. The recirculation pump shall be a sealless, vertical, centrifugal type pump constructed to ANSI Standards of corrosion resistant materials such as CPVC, PP, and titanium.
2. Provide complete assemblies including baseplate, pump, coupling, coupling guard, and Class I, Division 2, Group D TEFC motor. Motor shall have a 50° C ambient temperature rating with a 1.15 service factor.
3. Pump capacity shall be adequate to meet the system performance requirements as specified.
4. The pumps shall be meet the following design criteria:

	STAGE 1		STAGE 2/3	
Scrubber	**gpm**	**Motor hp**	**gpm**	**Motor hp**
Scrubber No. 1	330	7.5	495	15
Scrubber No. 2	330	7.5	495	15
Scrubber Influent Pump Station	70	3.0	140	5.0

C. Mist Eliminator:

1. Size to remove entrained droplets from gas stream and prevent fogging at the outlet vent at design gas flow rate.
2. Mist eliminator housing constructed of PP.
3. Wash System: A liquid distributor with nozzles shall be provided to spray dilute hydrochloric acid for mist eliminator and packing washing.

D. Packed Bed:

1. Housing constructed of FRP; packing constructed of polypropylene.
2. Provide covered access opening for packing removal.
3. Provide stainless steel hardware.

E. Sodium Hydroxide, Sodium Hypochlorite Solution Piping:

1. Adequately support and brace all piping in scrubber system.
   a. Piping: Solution piping shall be Schedule 80 CPVC.
2. Odor control system piping, valves, and other appurtenances shall conform to the requirements in Specification Section 11715, Chemical Feed System Appurtenances.

F. Units shall be corrosion resistant and powered from the unit control panel, which shall be remote-mounted by the CONTRACTOR. The CONTRACTOR shall provide all electrical materials and installation from the control panel to the scrubber-mounted junction box, to the scrubber exhaust fan, and to the scrubber recirculation and metering pumps.

2.3 CHEMICAL FEED SYSTEM

A. The chemical feed and dilution system takes sodium hydroxide and sodium hypochlorite and dilutes the chemical, and delivers it to the spray nozzle where the chemical solution is circulated through the packing media. The chemical feed and dilution system shall contain all piping and equipment necessary to deliver chemicals from storage tanks to the scrubber vessel.

B. Chemical Metering Pumps:

1. Positive displacement, diaphragm type chemical metering pumps shall be provided to deliver 20% and 50% sodium hydroxide and 12.5% sodium

hypochlorite solution to the scrubber. Chemical metering pumps shall be capable of 24 hour per day operation. Discharge pressure shall be sufficient to feed the chemicals at a specified rate to meet the design criteria.

2. Operating Conditions: Each pump shall have a maximum capacity as follows:

	Location	Stage 1 NaOH	Stage 2 & 3 NaOH	Stage 2 & 3 NaOCl
Maximum Capacity (gph)	At the plant.	12	12	24
	Influent Pump Station	5	5	5
Operating Mode (pH), volts dc	At the plant.	0-90	0-90	0-90
	Influent Pump Station	0-90	0-90	0-90

3. Pump Construction: A steel and nodular iron non-loss-motion stroke adjust mechanism, driven by a direct coupled variable speed dc motor, shall actuate a flat, Teflon faced composite diaphragm. Solenoid-driven pumps, lost-motion mechanically actuated diaphragm pumps and hydraulically actuated diaphragm pumps will not be accepted. The liquid ends shall provide for easy maintenance and integral sight flow indication via clear PVC cartridge-type check valves. Conventional threaded valves and external sight flow indicators will not be allowed.
4. Drive: A steel and nodular iron non-loss-motion stroke adjust mechanism shall be housed in a corrosion resistance, epoxy painted, cast iron gearbox. All drive bearings shall be tapered rollers; all fasteners shall be oil-bath lubricated. Stroke length shall be controlled manually via a 10-turn micrometer-type adjuster. A percent scale and vernier shall indicate stroke length in 0.25% increments. Each revolution of the knob shall indicate stroke length by 10%.
5. Liquid End: The process diaphragm shall be of Hypalon construction. It shall incorporate convolutions, for unconstrained rolling action and a steel backing plate for volumetric accuracy. An O-ring groove in the head's diaphragm cavity will provide for a complete leak-free seal. Positive flow shall be ensured via cartridge-type check valves. The valve retainers shall be clear PVC for integral sight flow indication. They shall allow a compression seal to the pump head and pipe connections via O-rings. Valve service or removal shall not require any disturbances to the pump head pipeworks. A secondary diaphragm shall be completely sealed to separate the pump head from the drive unit in order to eliminate any risk of cross-contaminating gearbox lubricant and process fluid.
6. Control: Each pump shall automatically shut off if a low level is sensed in the appropriate chemical tanks.

7. Pressure Relief Valve: Each pump shall include a pressure relief valve, factory set to 50 psi and suitable for chemical environment.
8. Manufacturer: The sodium hypochlorite and sodium hydroxide metering pumps shall be Wallace & Tiernan Encore 700, or approved equal.

C. Valves:

1. All valves shall be diaphragm valves as specified in Section 11715, Chemical Feed System Appurtenances.

2.4 WATER SOFTENER SYSTEM

A. A KF Series Twin Softener using ion exchange resin shall be provided to reduce the hardness in the make-up water. The water softener shall have a flow capacity at least equal to the maximum required make-up water rate and shall be capable of removing hardness to no more than 0.5 grains. The unit shall be 115 volt, single-phase. The complete water softener system shall consist of one control valve, two mineral tanks, one brine tank, one electromechanical meter, one extra cam and switch, and connecting pipe between vessels and resin. A common water softener system shall be used at the plant.

B. Each mineral vessel shall be a corrosion resistant composite, constructed of a polyethylene shell wound with continuous fiberglass fibers. Each vessel shall be supplied with high capacity caution exchange resin. Each vessel shall include an inlet diffuser to evenly distribute the influent water, to collect backwash water, and to introduce the brine regeneration solution.

C. One of the two mineral vessels shall be fitted with a top-mounted, five-cycle multi-port control valve to operate the backwash, brining, slow rinse, fast rinse and refill cycles. An additional piston assembly shall be included to control the duty/standby status of the two vessels. A brass control valve including fixed and self-adjusting flow regulators shall be provided. A hydraulically balanced Teflon coated piston shall be provided to perform the cycles of regeneration.

D. A single salt storage tank shall be provided as part of each softener system. The salt storage tank shall be constructed of corrosion resistant polyethylene. The brine tank shall be equipped with an automatic air eliminator safety valve, which shall be attached to the brine line and housed within a chamber inside the brine tank. The brine valve shall automatically open to educe the brine into the softener tank, close to prevent eduction of air, and refill the brine tank with the proper amount of water.

E. The Water Softener System shall have two modes of operation: service and regeneration. After the regeneration of a softener is complete, it shall go into standby mode until the duty vessel requires regeneration.

F. Each water softener shall be KF Series Twin Softener manufactured by US Filter, Model KFZST009FXZNAX, or approved equal. Each water softener shall have a five year warranty. CONTRACTOR to provide an enclosure for the water softener installed outdoors.

2.5 EXHAUST FANS

A. Exhaust fans shall have centrifugal type, backward inclined blades. Fan housing and wheel shall be constructed of fiberglass reinforced vinyl ester. Fan wheel shall be statically and dynamically balanced and provide housing drain fitting, flanged inlet and outlet connections, Type 316 stainless steel shaft, self-aligning grease lubricated bearings, Teflon shaft seals, TEFC Class I, Division 2, Group D motor, and OSHA approved motor/drive guards. Motor shall have a 50° C ambient temperature rating with a 1.15 service factor.

B. Bearings shall be heavy-duty, self-aligning grease lubricated ball type with minimum of 100,000 hour B-10 life. The fan shall be shipped loose from the scrubber system and pad mounted. Exhaust fan for the chemical scrubber shall be sized to accommodate at least 2-inches of suction pressure losses, in addition to the required pressure drop through the chemical scrubber.

C. The fan shall be designed for the following specifications:

	At the Plant	**At the Plant**	**IPS**
Air Flow (CFM)	20,000	20,000	3,000
Duct Pressure Losses, inches w.c.	2.0	2.0	2.0
Total Pressure Drop, inches w.c.	10	10	7.5
Motor, hp	50	50	7.5
Material of Construction	FRP	FRP	FRP

D. The flexible connector to the exhaust fans shall be flanged expansion joints for outlet of fans to the Plant scrubber units. The connections shall be a W-design configuration with internal flanges for service to connection to FRP duct. The material of construction shall be EPDM, resistant to UV light degradation and suitable for contact with heavy concentrations of H_2S laden air. All metal hardware for the flexible connector shall be Type 304 stainless steel.

E. The manufacturer shall paint all carbon steel equipment as follows:
1. Surface Preparation: Clean, dry and free of contaminants.

2. Prime Coat: Series 66 H.B. Epoxoline; one coat, 3-5 mils DFT per Tnemec product lines.
3. Guards shall retain the safety yellow color with epoxy.

F. CONTRACTOR shall provide finished coat per Section 09900, Painting. Final color selection shall be approved by ENGINEER before application.

G. The fan shall be as manufactured by New York Blower, Hartzell, or approved equal. The fan shall have an AMCA seal.

2.6 INSTRUMENTATION AND SYSTEM CONTROLS

A. The Odor Control System local control panels shall be supplied by the Odor Control System manufacturer, conform to the requirements of Section 13440, Panels Instruments and Devices, provide for the functionality as described in Section 13491, Control Descriptions, and as shown on the Electrical and Instrumentation Sheets, and conform to the requirements as described herein.
   1. Size each of the scrubber unit panels to include, at a minimum, the following instruments and/or devices:
      a. System ON/OFF Selector Switch.
      b. System ON Indication Light (GREEN).
      c. Fan HAND/OFF/AUTO Selector Switch.
      d. Fan Run Indication Light (GREEN).
      e. Fan High Temperature Alarm Light (AMBER).
      f. Emergency Stop Pushbutton.
      g. Stage 1 Sump Recirculation Pump HAND/OFF/AUTO Selector Switch.
      h. Stage 1 Sump Recirculation PumpRun Indication Light (GREEN).
      i. Stage 1 Sump Level Alarm Low Indication Light (AMBER).
      j. Stage 1 Sump pH Display.
      k. Stage 2/3 Sump Recirculation Pump HAND/OFF/AUTO Selector Switch.
      l. Stage 2/3 Sump Recirculation Pump Run Indication Light (GREEN).
      m. Stage 2/3 Sump Level Alarm Low Indication Light (AMBER).
      n. Stage 2/3 Sump pH Display.
      o. Stage 2/3 Sump ORP Display.
      p. Common Alarm Reset Pushbutton.
   2. Dry contacts shall be provided for the signals as shown on the Control Schematics in the Electrical Sheets.
   3. Provide six additional spare dry contacts.
   4. Provide main breaker disconnect, fuse, fuse block, and starters.
   5. Provide engraved nameplates for all devices on each local control panel.
   6. The Odor Control System manufacturer shall submit, during Shop Drawing review, an engraved nameplate legend that must be approved by the ENGINEER. The ENGINEER shall approve or reject the nameplate legend at the ENGINEER'S discretion.

7. Provide all required wiring, electrical interlocks, relays, and other miscellaneous devices.

B. The local control panel shall be factory tested prior to shipment.

C. The Odor Control System local control panels shall be mounted as shown on the Drawings.

2.7 ACCESSORIES

A. Make-up Water Control: The direct reading rotameter shall be a variable area type with a Teflon float, EPR O-rings, and PVC fittings. The rotameter shall be of the same size as the pipe in which it is installed. The rotameter shall be Model 7330 by King Instruments.

B. Scrubber Recirculation Sump Blowdown and Level Controls: The scrubber shall be operated with a manual blowdown. The rate of blowdown shall be controlled by overflow to the scrubber tower drain line proportional to the make-up water added.

C. Differential Pressure Gauges: Two magnehelic type pressure gauges shall be provided to monitor pressure drop across the scrubber and the mist eliminator. Transparent overlays will be included.

D. Pressure Gauges: A pressure gauge complete with all plastic activator/isolator shall be provided for installation in the pump discharge piping. The gauge shall have a minimum dial size of 3-1/2-inches, indicate the units of measurement on the dial face, and be complete with isolation valve. The gauge range shall be such that the normal operating reading shall be near the midpoint of the range.

E. Overflow Control: An overflow line equipped with an internal water seal shall maintain a minimum freeboard of 4-inches as measured from the maximum liquid level to the invert of the air inlet connection at the scrubber while under normal system operating air pressure.

F. Provide local control panel with 480 volt to 110 volt voltage transformer and motor starter for fan and pumps. A single 480 volt, 3-phase power shall be provided to the local control panel.

G. The scrubber manufacturer shall provide two Lamonte NaOCl analysis kits, one for 0% to 1% and one for 1% to 15%, to analyze scrubber sump and NaOCl storage.

2.8 SPARE PARTS

A. Following spare parts shall be provided to be shared by all units:
   1. Two sets of fan bearings (one set for each fan size).
   2. Two sets of fan belts (one set for each fan size).
   3. Four bridges for pH of ORP probes.
   4. Four sets of fill solution for salt bridges.
   5. Six complete metering pump repair kits, each consisting of an O-ring, diaphragm, check valve, and oil (two quarts).
   6. One impeller tool for the recirculation pumps.

B. All special tools and safety equipment required for normal operation and maintenance of the equipment shall be furnished. A list of special tools and safety equipment shall be included in the submittals.

C. Any additional spare parts required for the first year of operation shall be furnished by the manufacturer.

D. Provide buffer solutions and ORP Standard solution (four quarts each) for calibration of and standardization of pH probes and ORP probe.

2.9 PAINTING

A. CONTRACTOR shall provide finished coat per Section 09900, Painting. Final color selection shall be approved by ENGINEER prior to application.

2.10 WARRANTY

A. The CONTRACTOR shall warranty the whole system, both in material and workmanship for a period of one year from the date of Final Acceptance. The system supplier shall repair or replace any defective equipment during the one year period at no additional cost to the OWNER.

PART 3 - EXECUTION

3.1 FIELD TESTING REQUIREMENTS

A. Test Procedures: The performance tests shall be conducted at such time as all anticipated odorous air streams are present in the scrubber inlet. The time of the tests and detailed test procedure shall be submitted for approval prior to the testing period. In the event hydrogen sulfide levels are below anticipated levels, the CONTRACTOR shall augment hydrogen sulfide levels in the influent air stream so hydrogen sulfide is within $\pm$2 ppm of design level.

B. During testing, chemical feed, scrubber overflow, recirculation, and scrubber air flowrates shall be held constant. Changes in scrubber system operating conditions shall not be permitted. All fine-tuning of operating conditions shall be performed prior to testing.

C. Design operating conditions shall be maintained for a minimum of six hours. During this time, all pertinent operating parameters shall be monitored and recorded, sufficient sampling and analysis shall be conducted to demonstrate that flow rates, temperatures, and solution concentrations are at design conditions.

D. Hydrogen sulfide concentration shall be measured in each scrubber inlet and outlet. As a minimum, the test shall be conducted for one hour at the average H_2S level, one hour at the peak H_2S level, and four hours on actual plant conditions. Inlet and outlet levels shall be measured once every 15 minutes using a portable H_2S analyzer such as Interscan, Jerome, or approved equal.

E. A description of the performance tests shall be submitted. The hydrogen sulfide compound removal efficiency shall be as specified in the design and performance requirements. Should scrubber system performance not meet any of the above requirements, that system shall have failed the performance tests. The CONTRACTOR shall make any additions or modifications to that scrubber system as may be necessary, at no additional cost to the OWNER, and the performance tests for that system shall be repeated in its entirety.

F. Start-up: The services of a factory representative shall be provided as specified in Paragraph 3.3 to insure proper installation and start-up of the scrubber system.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install scrubber systems to interface with ductwork as shown on the Drawings.

C. CONTRACTOR shall place a minimum 1/4-inch thick, 60 durometer neoprene rubber sheet underneath the scrubber unit.

3.3 MANUFACTURER'S FIELD SERVICES

A. A factory employed representative of the manufacturer shall be present at the job site for the following installation and start-up purposes (travel time excluded):
   1. 16 hours for inspection and certification of the installation.
   2. 16 hours to carry out performance testing and to train OWNER'S staff in operation of the system, including safe chemical handling procedures.
   3. Refer to Section 01650, Starting of Systems.

END OF SECTION

BAR = 1" AT PLOT SCALE

INTL REF: 4008-G13A

STD: 1-0600-17B

LEGEND

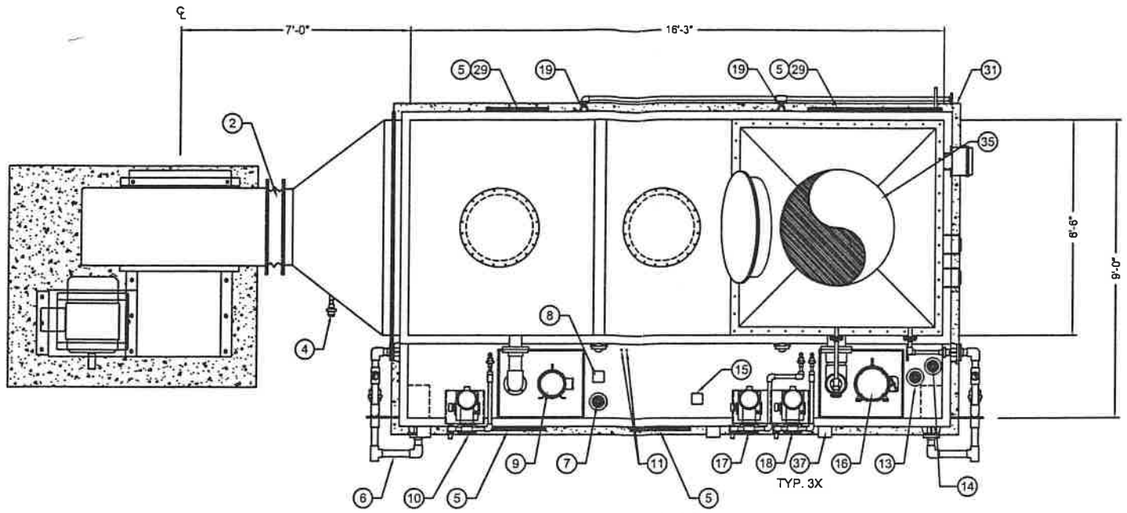
1. EXHAUST FAN
2. FAN OUTLET FLEXIBLE CONNECTOR
3. SYSTEM FRP INLET TRANSITION
4. INLET AIR SAMPLE
5. (4) 18" DIA. SUMP ACCESS
6. STAGE 1 DRAIN/OVERFLOW
7. STAGE 1 pH PROBE
8. STAGE 1 SUMP LOW LEVEL SWITCH
9. STAGE 1 RECIRCULATION PUMP
10. STAGE 1 NaOH METERING PUMP
11. (2) 1" NPT PORTS (FUTURE USE)
12. STAGE 2/3 DRAIN/OVERFLOW
13. STAGE 2/3 pH PROBE
14. STAGE 2/3 ORP PROBE
15. STAGE 2/3 SUMP LOW LEVEL SWITCH
16. STAGE 2/3 RECIRCULATION PUMP
17. STAGE 2/3 NaOH METERING PUMP
18. STAGE 2/3 NaOCl METERING PUMP
19. (2) MAKEUP WATER CONNECTIONS
20. (2) PRESSURE GAUGES
21. DIFFERENTIAL PRESSURE GAUGES
22. OUTLET AIR SAMPLE
23. JUNCTION BOX
24. (3) 24" DIA NOZZLE ACCESS
25. SYSTEM MIST ELIMINATOR (INTERNAL)
26. M.E. WASHDOWN
27. 30" DIA NOZZLE M.E. ACCESS
28. EXHAUST STACK
29. (2) 18" DIA PACKING ACCESS
30. ANCHOR LUGS (8)
31. 6" HIGH VESSEL CONCRETE PAD (10'-0" WIDE x 17'-3" LONG)
32. VESSEL I.D. TAG
33. VESSEL CAUTION TAG
34. NFPA TAG
35. 42" DIA OUTLET
36. 6" HIGH FAN CONCRETE PAD (6'-8" WIDE x 4'-8" LONG)
37. LEAK DETECTOR

INSTALLATION INSTRUCTIONS:

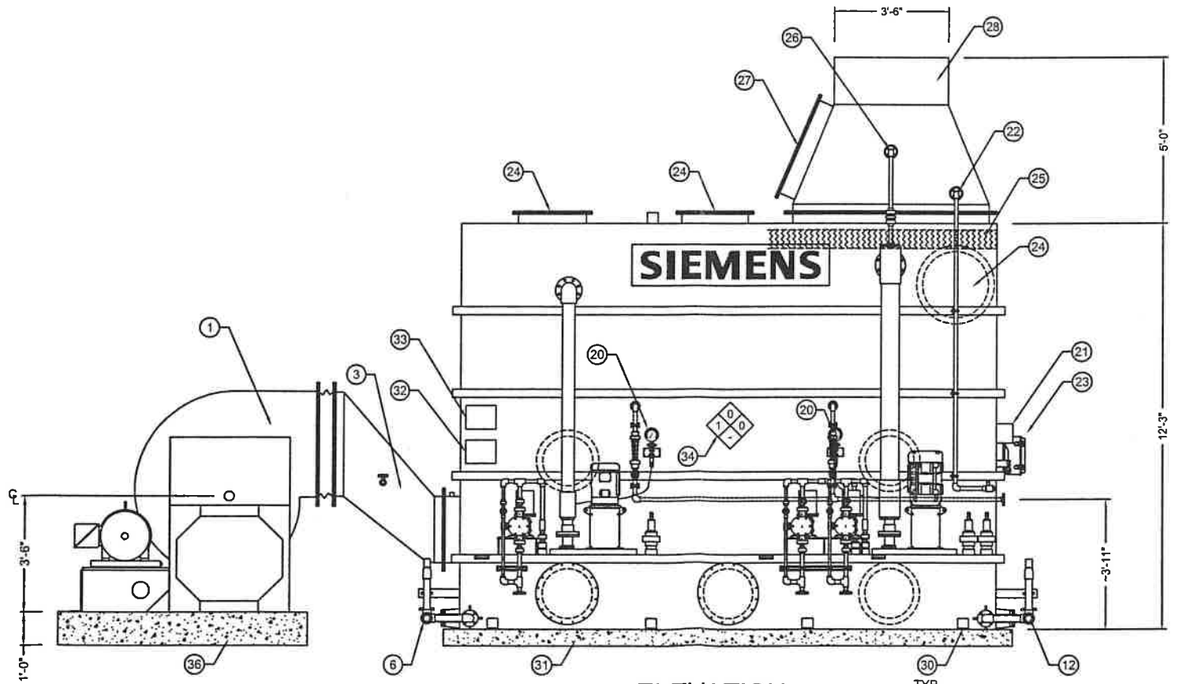
1. REMOVE VESSEL FROM FLATBED USING EITHER AN APPROPRIATELY SIZED FORKLIFT OR USE A CRANE SET WITH A SPREADED BAR. INSTALL 1/4" THK NEOPRENE PAD. AND BOLT VESSEL TO THE EQUIPMENT PAD. MAKE SURE THAT THE PAD IS CLEAN AND ANY PEBBLES OR IMPERFECTIONS IN THE CONCRETE HAVE BEEN REMOVED.
2. ATTACH TRANSITION TO VESSEL.
3. SET AND SECURE EXHAUST STACK.
4. SET AND BOLT THE FAN.
5. ATTACH FLEXIBLE CONNECTOR.
6. COMPLETE FIELD JOINTS OF DUCTWORK.
7. ATTACH SAMPLE AIR PIPING.
8. CONNECT CHEMICAL PIPING.
9. COMPLETE ELECTRICAL CONNECTIONS TO CONTROL PANEL AND FROM CONTROL PANEL TO JUNCTION BOX, FAN, RECIRC PUMPS AND REMOTE MOUNTED INSTRUMENT.
10. ATTACH DRAIN AND OVERFLOWS TO FLOOR DRAIN, NORMAL OPERATION WILL HAVE CONTINUOUS OVERFLOW.
11. ATTACH MAKEUP WATER LINE TO SCRUBBER.

SHIPPING COMPONENTS:

1	FAN
2	FAN OUTLET FLEXIBLE CONNECTOR
3	SYSTEM INLET TRANSITION W/ HARDWARE
4	SYSTEM VESSEL
5	DRAIN/OVERFLOW – STAGE 1
6	DRAIN/OVERFLOW – STAGE 2/3
7	EXHAUST STACK
8	OUTLET SAMPLE PIPING
9	NEOPRENE PAD



PLAN



ELEVATION

CONNECTIONS BY INSTALLER:

1. ALL ELECTRICAL CONNECTIONS FROM CONTROL PANEL TO JUNCTION BOXES, FAN, RECIRCULATION PUMPS AND REMOTE INSTRUMENTS, SUCH AS STORAGE TANK LEVEL SWITCHES, ETC.
2. SYSTEM OVERFLOW AND DRAIN (2) PIPING TO FLOOR DRAIN.
3. MAKEUP WATER SUPPLY FROM WATER SOFTENER INTO ROTAMETER ON THE SCRUBBER.
4. CHEMICAL FEED PIPING FROM CHEMICAL TANKS TO METERING PUMPS.
5. DUCTWORK FIELD CONNECTIONS AS REQUIRED.
6. ALL ROOF PENETRATION, FIELD JOINTS, FLASHING & SUPPORTS, IF REQUIRED.
7. ALL NECESSARY HEAT TRACING & INSULATION.

STRUCTURAL DESIGN INFORMATION:

RESIN	HETRON 922 WITH SURFACING VEIL NEXUS 111-00010 LINER: 2 PLY 1.5 OZ. CHOPPED STRAND GLASS (E-GRADE) TOTAL MINIMUM LINER THICKNESS: 100 MIL	
WALL THICKNESS	0 INCH TO 27 INCH FROM BOTTOM: (INCLUDING LINER)	0.31"
	FROM 27 INCH TO TOP OF SCRUBBER (INCLUDING LINER)	0.31"
	TOP OF SCRUBBER (INCLUDING LINER)	0.75"
	DECK (INCLUDING LINER)	0.37"
	BOTTOM OF SCRUBBER (INCLUDING LINER)	0.31"
DECK COLUMNS	1 x (4" ID x 3/16" THICK)	
STIFFENERS	3" x 3" x 3/16" (SIDE) & 4" x 4" x 3/16" (TOP)	
ANCHORS	8 x (4" x 4" x 1/2")	
STACK AND TRANSITION	0.35" (TRANSITION) & 0.25" (STACK)	
SAFETY FACTOR	INTERNAL PRESSURE	10
	EXTERNAL PRESSURE	5
OTHER NOTES	1. QUALITY ASSURANCE SHALL BE IN ACCORDANCE WITH ASTM D2563 2. ALL BOLT HOLES ARE TO STRADDLE TO TANK'S NATURAL CENTERLINES 3. TANK EXTERIOR TO BE SURFACED COATED WITH A UV INHIBITOR. COLOR TO BE OFF WHITE. 4. INSTALL UNIT ON 1/4" THICK NEOPRENE RUBBER SHEET (PROVIDED BY USF) OF 60 DUROMETER 5. DETAIL AND THICKNESS OF EQUIPMENT CONCRETE PAD TO BE CONFIRMED BY THE ENGINEER.	

DESIGN SPECIFICATIONS

SEISMIC ZONE	4	LIVE LOAD	200 PSF
DEAD LOAD	-		
WIND LOAD	100 MPH	INTERNAL PRESSURE	10" W.C.
CONTENTS	NaOH & NaOCl	SPECIFIC GRAVITY	1.2
TEMPERATURE	AMBIENT		
HARDWARE MAT'L	316 SS	GASKET MAT'L	EPDM
DEFLECTION	PER: PS 15-69		
SAFETY FACTOR	10	DESIGN CODE	ASTM 4097, NBS PS 15-69
MATERIAL of CONSTRUCTION	HETRON 922	AIR FLOW RATE	20,000 CFM
COLOR	WHITE	OPERATING WEIGHT	25,000 LBS
SHIPPING WEIGHT	8,800 LBS		

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
A	ADDED LEAK DETECTOR MOUNTING UNISTRUTS	06-20-06	PG			
A	FAN CHANGED TO ARRANGEMENT #9; THICKENED FAN SUPPORT PAD; CHANGED LOGO TO SIEMENS	05-26-06	PG			
A	LISTED COLOR; CORRECTED MAKEUP WATER ELEVATION; CORRECTED PROVIDER OF NEOPRENE PAD	05-24-06	PG			

U.S. PATENT # 5,876,622
U.S. PATENT # 6,174,498

DESIGNER	KMG
DATE	12-05-05
CHECKER	ED
DATE	12-15-05
ENGINEER	KMG
DATE	12-05-05
MANAGER	ED
DATE	
FILE:	4008-G13A
SCALE:	NTS

TITLE: LAKE HAVASU NORTH REGIONAL WWTP
LO/PRO ODOR CONTROL SYSTEM
GENERAL ARRANGEMENT (OCU 1)

CLIENT: NORTH REGIONAL WWTP
LAKE HAVASU CITY, AZ

USFilter

RJ ENVIRONMENTAL PRODUCTS
POWAY, CA 92064
(858) 486-8500

PROJECT	CODE	DRAWING	SHEET	REV
4008		G1	3 OF 6	A

BAR = 1" AT PLOT SCALE

INTL REF: 4008-G14A

STD: 1-0600

78

LEGEND

1. EXHAUST FAN
2. FAN OUTLET FLEXIBLE CONNECTOR
3. SYSTEM FRP INLET TRANSITION
4. INLET AIR SAMPLE
5. (4) 18" DIA. SUMP ACCESS
6. STAGE 1 DRAIN/OVERFLOW
7. STAGE 1 pH PROBE
8. STAGE 1 SUMP LOW LEVEL SWITCH
9. STAGE 1 RECIRCULATION PUMP
10. STAGE 1 NaOH METERING PUMP
11. (2) 1" NPT PORTS (FUTURE USE)
12. STAGE 2/3 DRAIN/OVERFLOW
13. STAGE 2/3 pH PROBE
14. STAGE 2/3 ORP PROBE
15. STAGE 2/3 SUMP LOW LEVEL SWITCH
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20. (2) PRESSURE GAUGES
21. DIFFERENTIAL PRESSURE GAUGES
22. OUTLET AIR SAMPLE
23. LOCAL CONTROL PANEL
24. (3) 24" DIA NOZZLE ACCESS
25. SYSTEM MIST ELIMINATOR (INTERNAL)
26. M.E. WASHDOWN
27. 30" DIA NOZZLE M.E. ACCESS
28. EXHAUST STACK
29. (2) 18" DIA PACKING ACCESS
30. ANCHOR LUGS (4)
31. 6" HIGH VESSEL CONCRETE PAD (10'-0" WIDE x 17'-3" LONG)
32. VESSEL I.D. TAG
33. VESSEL CAUTION TAG
34. NFPA TAG
35. 42" DIA OUTLET
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37. LEAK DETECTOR

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3. SET AND SECURE EXHAUST STACK.
4. SET AND BOLT THE FAN.
5. ATTACH FLEXIBLE CONNECTOR.
6. COMPLETE FIELD JOINTS OF DUCTWORK.
7. ATTACH SAMPLE AIR PIPING.
8. CONNECT CHEMICAL PIPING.
9. COMPLETE ELECTRICAL CONNECTIONS TO CONTROL PANEL AND FROM CONTROL PANEL TO JUNCTION BOX, FAN, RECIRC PUMPS AND REMOTE MOUNTED INSTRUMENT.
10. ATTACH DRAIN AND OVERFLOWS TO FLOOR DRAIN, NORMAL OPERATION WILL HAVE CONTINUOUS OVERFLOW.
11. ATTACH MAKEUP WATER LINE TO SCRUBBER.

SHIPPING COMPONENTS:

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2	FAN OUTLET FLEXIBLE CONNECTOR
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4	SYSTEM VESSEL
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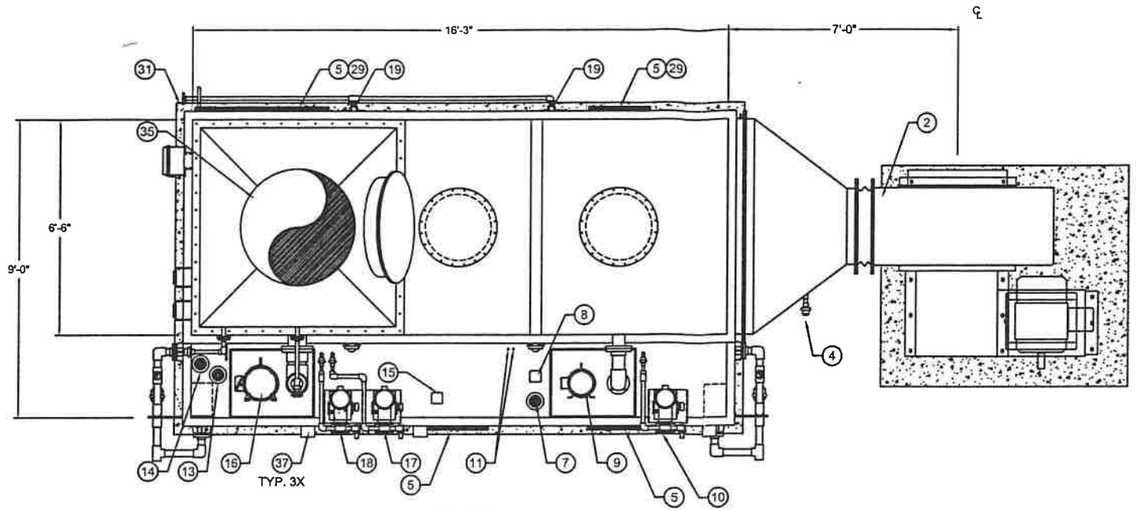
6	DRAIN/OVERFLOW – STAGE 2/3
7	EXHAUST STACK
8	OUTLET SAMPLE PIPING
9	NEOPRENE PAD



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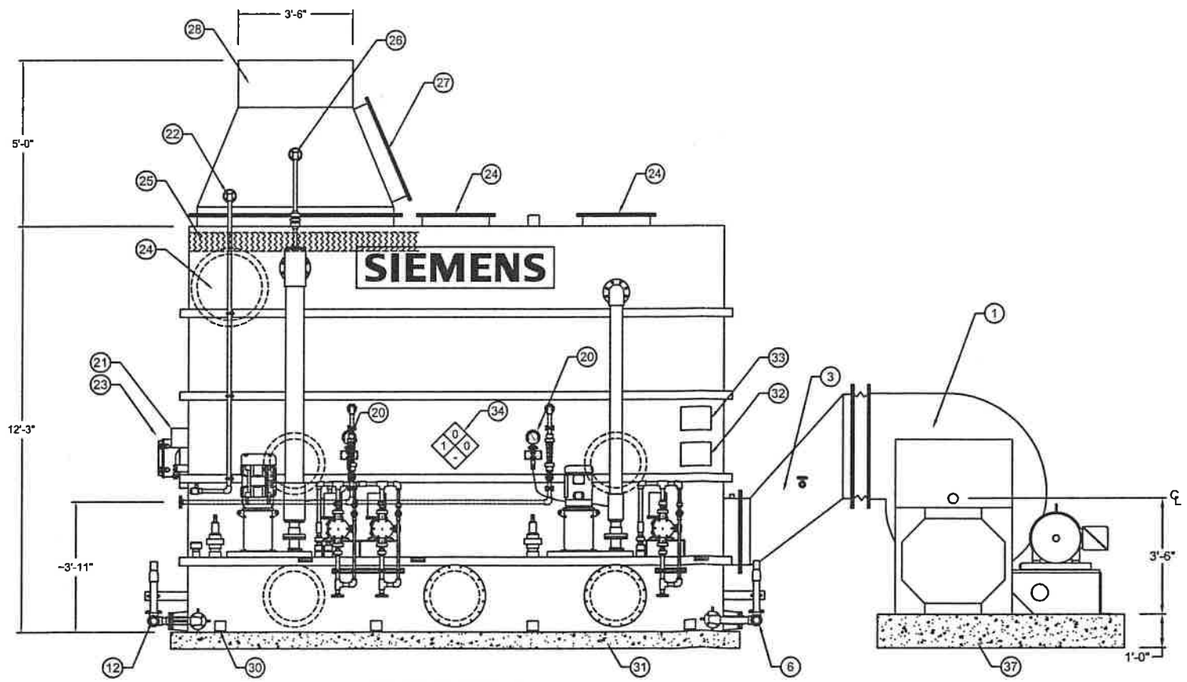

ELEVATION

CONNECTIONS BY INSTALLER:

1. ALL ELECTRICAL CONNECTIONS FROM CONTROL PANEL TO JUNCTION BOXES, FAN, RECIRCULATION PUMPS AND REMOTE INSTRUMENTS, SUCH AS STORAGE TANK LEVEL SWITCHES, ETC.
2. SYSTEM OVERFLOW AND DRAIN (2) PIPING TO FLOOR DRAIN.
3. MAKEUP WATER SUPPLY FROM WATER SOFTENER INTO ROTAMETER ON THE SCRUBBER.
4. CHEMICAL FEED PIPING FROM CHEMICAL TANKS TO METERING PUMPS.
5. DUCTWORK FIELD CONNECTIONS AS REQUIRED.
6. ALL ROOF PENETRATION, FIELD JOINTS, FLASHING & SUPPORTS, IF REQUIRED.
7. ALL NECESSARY HEAT TRACING & INSULATION.

STRUCTURAL DESIGN INFORMATION:

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	FROM 27 INCH TO TOP OF SCRUBBER (INCLUDING LINER)	0.31"
	TOP OF SCRUBBER (INCLUDING LINER)	0.75"
	DECK (INCLUDING LINER)	0.37"
	BOTTOM OF SCRUBBER (INCLUDING LINER)	0.31"
DECK COLUMNS	1 x (4" ID x 3/16" THICK)	
STIFFENERS	3" x 3" x 3/16" (SIDE) & 4" x 4" x 3/16" (TOP)	
ANCHORS	8 x (4" x 4" x 1/2")	
STACK AND TRANSITION	0.35" (TRANSITION) & 0.25" (STACK)	
SAFETY FACTOR	INTERNAL PRESSURE	10
	EXTERNAL PRESSURE	5
OTHER NOTES	1. QUALITY ASSURANCE SHALL BE IN ACCORDANCE WITH ASTM D2563 2. ALL BOLT HOLES ARE TO STRADDLE TO TANK'S NATURAL CENTERLINES 3. TANK EXTERIOR TO BE SURFACED COATED WITH A UV INHIBITOR. COLOR TO BE OFF WHITE. 4. INSTALL UNIT ON 1/4" THICK NEOPRENE RUBBER SHEET (PROVIDED BY USF) OF 60 DUROMETER 5. DETAIL AND THICKNESS OF EQUIPMENT CONCRETE PAD TO BE CONFIRMED BY THE ENGINEER.	

DESIGN SPECIFICATIONS

SEISMIC ZONE 4 — LIVE LOAD 200 PSF — DEAD LOAD -

WIND LOAD 100 MPH — INTERNAL PRESSURE 10" W.C.

CONTENTS NaOH & NaOCl — SPECIFIC GRAVITY 1.2 — TEMPERATURE AMBIENT

HARDWARE MAT'L 316 SS — GASKET MAT'L EPDM — DEFLECTION PER: PS 15-69

SAFETY FACTOR 10 — DESIGN CODE ASTM 4097, NBS PS 15-69

MATERIAL of CONSTRUCTION HETRON 922 — AIR FLOW RATE 20,000 CFM

COLOR WHITE — OPERATING WEIGHT 25,000 LBS — SHIPPING WEIGHT 8,800 LBS

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
A	ADDED LEAK DETECTOR MOUNTING UNISTRUT	06-20-06	PG			
A	FAN CHANGED TO ARRANGEMENT #9; THICKENED FAN SUPPORT PAD; CHANGED LOGO TO SIEMENS	05-26-06	PG			
A	LISTED COLOR; CORRECTED MAKEUP WATER ELEVATION; CORRECTED PROVIDER OF NEOPRENE PAD	05-24-06	PG			

U.S. PATENT # 5,876,622
U.S. PATENT # 6,174,498

DESIGNER KMG	DATE 12-05-05
CHECKER ED	DATE 12-15-05
ENGINEER KMG	DATE 12-05-05
MANAGER ED	DATE
FILE: 4008-G14A	
SCALE: NTS	

TITLE: LAKE HAVASU NORTH REGIONAL WWTP
LO/PRO ODOR CONTROL SYSTEM
GENERAL ARRANGEMENT (OCU 2)

CLIENT: NORTH REGIONAL WWTP
LAKE HAVASU CITY, AZ

USFilter

RJ ENVIRONMENTAL PRODUCTS
POWAY, CA 92064
(858) 486-8500

PROJECT	CODE	DRAWING	SHEET	REV
4008		G1	4 63 of 78	A

EXISTING CHEMICAL FEED ODOR CONTROL UNITS AT NORTH REGIONAL TREATMENT PLANT (NRP)

SECTION H – EXHIBIT 6


SIEMENS

SECTION I - BIDDER SIGNATURE PAGE

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

By signature below, the Bidder certifies that the specifications, general provisions and the attached Contract Terms and Conditions have been carefully examined. If the bid is accepted, Bidder agrees to contract with Lake Havasu City to furnish the item(s) and/or services in the manner and time herein prescribed and according to all the requirements set forth.

The Bidder hereby certifies that Bidder:

1) Has not discriminated against disadvantaged, minority, or women small business enterprises in obtaining any required subcontracts in accordance with A.R.S.

2) Acknowledge receipt of Addendum(s). The modifications to the bid documents noted therein have been considered and all costs thereto are included in the bid sum.

Addendum # _____ Dated _____
Addendum # _____ Dated _____
Addendum # _____ Dated _____
Addendum # _____ Dated _____

3) Complete, sign and return the attached bid documentation:

Cover Title/Page
Section I - Bidder Signature Page
Section J - Bid Price Schedule
Section K - Exceptions to the Specifications
Section L - References

4) The term "CONTRACT DOCUMENTS" includes, but may not be limited to, the documents incorporated into this **ITB No.: B23-WW-500280, ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants,** issued on **AUGUST 24, 2022**, as follows:

A. Invitation To Bid
B. Instructions To Bidders
C. Contract Terms and Conditions
D. Additional Terms and Conditions
E. Insurance Requirements
F. Intent to Bid Notification
G. No Bid Notification
H. Technical Specifications
I. Bidder Signature Page
J. Bid Price Schedule
K. Exceptions to Specifications
L. References

5) The Bidder may withdraw a bid at any time prior to the bid opening by providing written request to the Procurement Official or designee. However, all bids shall be irrevocable for ninety (90) calendar days from the day of the bid opening.

6) Discount payment terms are _____% _____days/net _____days.

The Bidder agrees that pursuant to Section 34-253 of the Arizona Revised Statutes, the undersigned

certifies that neither he/she nor anyone associated with vendor's company listed below has directly, or indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this procurement. Further, vendor agrees to provide a notarized "NO COLLUSION AFFIDAVIT" if so required by the City, at a future date.

NAME/TITLE _____

SIGNATURE _____

ARIZONA TAX ID: _____

FEDERAL TAX ID: _____

NAME OF FIRM: _____

ADDRESS: _____

PHONE: _____ **FAX**: _____

EMAIL: _____

SEAL, IF BID BY CORPORATION:

FAILURE TO SIGN AND SUBMIT THIS FORM SHALL BE CAUSE FOR BID REJECTION

SECTION J - BID PRICE SCHEDULE

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

BIDDER AGREES TO PROVIDE ALL REQUIRED EQUIPMENT, MATERIAL, FREIGHT AND / OR LABOR AS SPECIFIED IN BID DOCUMENTS HEREIN FOR THE FOLLOWING PRICES AS LISTED:

QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
	Firm Fixed Bid Price Schedule to include:		
1 LS	Equipment Purchase per the requirements identified herein for **Mulberry Treatment Plant**		
1 LS	Equipment Purchase per the requirements identified herein for **North Regional Treatment Plant**		
6 DAYS	Contractor shall supply on-site supervision during installation, start-up and training of up to three days, including travel, for each treatment plant. Provide a detailed project price outlining the components of your project estimate. Bidder shall specify if the Tentative Project Schedule identified within the above instructions and specification section is acceptable or shall quote an alternate schedule.		
	FREIGHT CHARGE **FOB: LAKE HAVASU CITY DELIVERY SITE**		
	TOTAL WITHOUT TAX		**$**
	____% APPLICABLE TAX RATE (Lake Havasu City is not exempt from the applicable Arizona Sales Tax. The applicable tax shall not be a factor in determining the award. If bidding outside of Arizona, vendor to apply the Lake Havasu City Tax Rate of **7.6 percent**. All other in-state applicable tax applies. Insert the applicable tax rate and dollar value.)		**$**
	GRAND TOTAL WITH TAX		**$**

DELIVERY SCHEDULE: _____
(Required prior to June 30, 2023)

WARRANTY (if applicable): _____

VENDOR'S NAME: _____

FAILURE TO SUBMIT THIS FORM SHALL BE CAUSE FOR BID REJECTION

SECTION K - EXCEPTIONS TO SPECIFICATIONS

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plants

Please list all deviations from specifications contained herein and state in the space provided below. Please note item number and description for which you are listing the deviations. Unless an exception is noted below, the City shall assume that all minimum requirements have been met or exceeded.

ITEM NO.	DESCRIPTION

VENDOR'S NAME: _____

FAILURE TO SUBMIT THIS FORM MAY BE CAUSE FOR BID REJECTION

SECTION L - REFERENCES

ITB NO.: B23-WW-500280

ITB TITLE: Biological Odor Control Systems for Wastewater Treatment Plant

1. Agency/Company _____
   Phone/Fax _____
   Contact(s) & Title(s) _____
   Email(s) _____

2. Agency/Company _____
   Phone/Fax _____
   Contact(s) & Title(s) _____
   Email(s) _____

3. Agency/Company _____
   Phone/Fax _____
   Contact(s) & Title(s) _____
   Email(s) _____

4. Agency/Company _____
   Phone/Fax _____
   Contact(s) & Title(s): _____
   Email(s) _____

5. Agency/Company _____
   Phone/Fax _____
   Contact(s) & Title(s) _____
   Email(s) _____

The references indicated above will be current contacts responsible for purchasing or the end user of the item bid.

VENDOR'S NAME: _____

FAILURE TO SUBMIT THIS FORM MAY BE CAUSE FOR BID REJECTION