

**VERTICAL TURBINE PUMP SYSTEM BID
(Equipment Only)**

for the
Arbennie Pritchett WRF Reclaimed Water Expansion
Project

(This is a Non-Installation Bid Package)



BID #: ITB WS 06-19

BID OPENS: NOVEMBER 28, 2018 @ 3:15 P.M.

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INVITATION TO BID (ITB) & RESPONDENT'S ACKNOWLEDGEMENT

ITB TITLE:
Vertical Turbine Pump System for the Arbennie Pritchett WRF
Reclaimed Water Expansion Project

ITB NUMBER:
ITB WS 06-19

ISSUE DATE: October 29, 2018 8:00 A.M. CT

LAST DAT FOR QUESTIONS: November 19, 2018 3:00 P.M. CT

ITB OPENING DATE & TIME: November 28, 2018 3:15 P.M. CT

NOTE: BIDS RECEIVED AFTER THE BID OPENING DATE & TIME WILL NOT BE CONSIDERED.

Okaloosa County, Florida solicits your company to submit a bid on the above referenced goods or services. All terms, specifications and conditions set forth in this ITB are incorporated into your response. A bid will not be accepted unless all conditions have been met. All bids must have an authorized signature in the space provided below. All bids must be sealed and received by the Okaloosa County Clerk of Court by the "ITB Opening Date & Time" referenced above. The official clock for the purpose of receiving bids is located in the Clerk of Court, Crestview Courthouse located at 101 E. James Lee Boulevard, #275, Crestview, FL 32536. All envelopes containing sealed bids must reference the "ITB Title", "ITB Number" and the "ITB Opening Date & Time". Okaloosa County is not responsible for lost or late delivery of bids by the U.S. Postal Service or other delivery services used by the respondent. Neither faxed nor electronically submitted bids will be accepted. Bids may not be withdrawn for a period of ninety (90) days after the bid opening unless otherwise specified

RESPONDENT ACKNOWLEDGEMENT FORM BELOW MUST BE COMPLETED, SIGNED, AND RETURNED AS PART OF YOUR BID. BIDS WILL NOT BE ACCEPTED WITHOUT THIS FORM, SIGNED BY AN AUTHORIZED AGENT OF THE RESPONDENT.

COMPANY NAME _____

MAILING ADDRESS _____

CITY, STATE, ZIP _____

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER (FEIN): _____

TELEPHONE NUMBER: _____ EXT: _____ FAX: _____

EMAIL: _____

I CERTIFY THAT THIS BID IS MADE WITHOUT PRIOR UNDERSTANDING, AGREEMENT, OR CONNECTION WITH ANY OTHER RESPONDENT SUBMITTING A BID FOR THE SAME MATERIALS, SUPPLIES, EQUIPMENT OR SERVICES, AND IS IN ALL RESPECTS FAIR AND WITHOUT COLLUSION OR FRAUD. I AGREE TO ABIDE BY ALL TERMS AND CONDITIONS OF THIS BID AND CERTIFY THAT I AM AUTHORIZED TO SIGN THIS BID FOR THE RESPONDENT.

AUTHORIZED SIGNATURE: _____ TYPED OR PRINTED NAME _____

TITLE: _____ DATE _____

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NOTICE TO RESPONDENTS
ITB WS 06-19

Notice is hereby given that the Board of County Commissioners of Okaloosa County, FL, will accept sealed bids until **3:15 p.m. (CST) November 28, 2018**, for **Vertical Turbine Pump System**.

Interested respondents desiring consideration shall provide an original and two (2) copies (total three (3)) of their Invitation to Bids (ITB) response with the respondent's areas of expertise identified. Submissions shall be portrait orientation, unbound, and 8 ½" x 11" where practical. **All originals must have original signatures in blue ink.**

Bid Documents can be viewed at <https://www.bidnetdirect.com/florida> or at <http://www.co.okaloosa.fl.us/purchasing/home> then accessing the link "View Current Solicitations"

BID DOCUMENTS are also available for electronic download from CONSTANTINE ENGINEERING, INC., under the project name at the following web address: <http://www.tcgeg.com/Documents/>.

At **3:15 p.m. (CST), November 28, 2018**, all bids will be opened and read aloud. All bids must be in sealed envelopes reflecting on the outside thereof the Respondent's name and "**Vertical Turbine Pump System**". The Board of County Commissioners will consider all bids properly submitted at its scheduled bid opening in the—located at 101 E. James Lee Boulevard #275, Crestview, FL 32536. Bids may be submitted in the prior to bid opening or delivered to the Clerk of Circuit Court, 101 E. James Lee Boulevard, #275, Crestview, FL 32536.

NOTE: THE LOCATION FOR BID OPENINGS HAS CHANGED TO THE NEW CRESTVIEW COURTHOUSE**

NOTE: Crestview, FL is not a next day guaranteed delivery location by most delivery services. Respondents using mail or delivery services assume all risks of late or non-delivery.

The County reserves the right to award the bid to the lowest responsive respondent and to waive any irregularity or technicality in bids received. Okaloosa County shall be the sole judge of the bid and the resulting negotiated agreement that is in its best interest and its decision shall be final.

Any Respondent failing to mark outside of the envelope as set forth herein may not be entitled to have their bid considered.

All bids should be addressed as follows:

Vertical Turbine Pump System

Clerk of Circuit Court

Attn: BCC Records

101 E. James Lee Boulevard., #275

Crestview FL 32536

Jeff Hyde

Purchasing Manager

Date

OKALOOSA COUNTY
BOARD OF COUNTY COMMISSIONERS

Graham W. Fountain, Chairman

BID REQUIREMENTS

BID #: ITB WS 06-19

BID ITEM: Vertical Turbine Pump System for the Arbennie Pritchett WRF Reclaimed Water Expansion Project

SCOPE

The scope of work by this contract includes the manufacture, deliver and start-up services for a **Vertical Turbine Pump System** as specified herein. All materials shall be manufactured within the continental United States. No substitutions will be accepted unless approved in writing by an Addendum from Okaloosa County.

Price shall be guaranteed for 90 days after the bids are read and received. Price shall include delivery of all equipment and appurtenances to the following location:

1804 LEWIS TURNER BLVD. FORT WALTON BEACH, FL. 32547

OWNER Delivery Contact:

Mark Griffin, Okaloosa County Water & Sewer

850-651-7176 or mgriffin@myokaloosa.com

Vendor is required to coordinate fabrication and shipping with the installation Contractor once a construction contract has been executed between the County and a Contractor.

THE FOLLOWING MUST BE SUBMITTED WITH THE BID:

- A list of any and all exceptions to the Bid Documents.
- Dimensional and weight information on components and assemblies.
- Catalog information and cuts.
- Manufacturer's specifications, including materials description and paint system.
- Performance data and pump curves, as applicable. Horsepower of all motors supplied.
- Outside utility requirements for each component, such as water, power, air, etc.
- Addresses and phone numbers of nearest service center and a listing of the manufacturers or manufacturer's representatives' services available at this location.
- Addresses and phone numbers for the nearest parts warehouse capable of providing mil parts replacement and/or repair service.
- A list of the three most recent installations where similar equipment by the manufacturer or manufacturer's representative is currently in service; include contact name, telephone number, mailing address, and the names of the Engineer, Owner, and installation contractor; if three installations do not exist, the list shall include all that do exist, if any.
- Description of structural, electrical, mechanical, and all other changes or modifications necessary to adapt the equipment or system to the arrangement shown and/or functions described on the Drawings and in the Technical Specifications.
- Any additional information requested by the OWNER.

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GENERAL SERVICES INSURANCE REQUIREMENTS

REVISED: 08/1/2018

BONDS

Supply Bond

Seller shall furnish Buyer a supply bond in the amount of at least 5% of the Contract Price, as security for the faithful and timely delivery of all procured items covered by this procurement agreement. The bond shall remain in effect until 1) inspection by Buyer or satisfaction of delivery based on visual inspection, or 2) twenty days after receipt of all procured items, whichever is later.

CONTRACTORS INSURANCE

1. The Contractor shall not commence any work in connection with this Agreement until he has obtained all required insurance and such insurance has been approved by the Okaloosa County Risk Manager or designee.
2. All insurance policies shall be with insurers authorized to do business in the State of Florida.
3. All insurance shall include the interest of all entities named and their respective officials, employees & volunteers of each and all other interests as may be reasonably required by Okaloosa County. The coverage afforded the Additional Insured under this policy shall be primary insurance. If the Additional Insured have other insurance that is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the company's liability under this policy shall not be reduced by the existence of such other insurance.
4. Where applicable, the County shall be shown as an Additional Insured with a Waiver of Subrogation on the Certificate of Insurance.
5. The County shall retain the right to reject all insurance policies that do not meet the requirement of this Agreement. Further, the County reserves the right to change these insurance requirements with 60-day notice to the Contractor.
6. The County reserves the right at any time to require the Contractor to provide copies (redacted if necessary) of any insurance policies to document the insurance coverage specified in this Agreement.
7. The designation of Contractor shall include any associated or subsidiary company which is involved and is a part of the contract and such, if any associated or subsidiary company involved in the project must be named in the Workers' Compensation coverage.
8. Any exclusions or provisions in the insurance maintained by the Contractor that excludes coverage for work contemplated in this agreement shall be deemed unacceptable and shall be considered breach of contract.

WORKERS' COMPENSATION INSURANCE

1. The Contractor shall secure and maintain during the life of this Agreement Workers' Compensation insurance for all of his employees employed for the project or any site connected with the work, including supervision, administration or management, of this project and in case any work is sublet, with the approval of the County, the Contractor shall require the Subcontractor similarly to provide Workers' Compensation insurance for all employees employed at the site of the project, and such evidence of insurance shall be furnished to the County not less than ten (10) days prior to the commencement of any and all sub-contractual Agreements which have been approved by the County.
2. Contractor must be in compliance with all applicable State and Federal workers' compensation laws, including the U.S. Longshore Harbor Workers' Act or Jones Act, if applicable.
3. No class of employee, including the Contractor himself, shall be excluded from the Workers' Compensation insurance coverage. The Workers' Compensation insurance shall also include Employer's Liability coverage.

BUSINESS AUTOMOBILE LIABILITY

Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than \$1,000,000 combined single limit each accident. If the contractor does not own vehicles, the contractor shall maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Policy. Contractor must maintain this insurance coverage throughout the life of this Agreement.

COMMERCIAL GENERAL LIABILITY INSURANCE

1. The Contractor shall carry other Commercial General Liability insurance against all other Bodily Injury, Property Damage and Personal and Advertising Injury exposures.
2. All liability insurance (other than Professional Liability) shall be written on an occurrence basis and shall not be written on a claims-made basis. If the insurance is issued with an aggregate limit of liability, the aggregate limit of liability shall apply only to the locations included in this Agreement. If, as the result of any claims or other reasons, the available limits of insurance reduce to less than those stated in the Limits of Liability, the Contractor shall notify the County representative in writing. The Contractor shall purchase additional liability insurance to maintain the requirements established in this Agreement. Umbrella or Excess Liability insurance can be purchased to meet the Limits of Liability specified in this Agreement.
3. Commercial General Liability coverage shall include the following:
 - 1.) Premises & Operations Liability
 - 2.) Bodily Injury and Property Damage Liability
 - 3.) Independent Contractors Liability
 - 4.) Contractual Liability
 - 5.) Products and Completed Operations Liability
4. Contractor shall agree to keep in continuous force Commercial General Liability coverage for the length of the contract.

LIMITS OF LIABILITY

The insurance required shall be written for not less than the following, or greater if required by law and shall include Employer's liability with limits as prescribed in this contract:

| | <u>LIMIT</u> |
|------------------------------------|--|
| 1. Worker's Compensation | |
| 1.) State | Statutory |
| 2.) Employer's Liability | \$500,000 each accident |
| 2. Business Automobile | \$1M each accident (A combined single limit) |
| 3. Commercial General Liability | \$1M each occurrence for Bodily Injury & Property Damage \$1M each occurrence Products and completed operations |
| 4. Personal and Advertising Injury | \$1M each occurrence |

NOTICE OF CLAIMS OR LITIGATION

The Contractor agrees to report any incident or claim that results from performance of this Agreement. The County representative shall receive written notice in the form of a detailed written report describing the incident or claim within ten (10) days of the Contractor's knowledge. In the event such incident or claim involves injury and/or property damage to a third party, verbal notification shall be given the same day the Contractor becomes aware of the incident or claim followed by a written detailed report within ten (10) days of verbal notification.

INDEMNIFICATION & HOLD HARMLESS

Contractor shall indemnify and hold harmless the County, its officers and employees from liabilities, damages, losses, and costs including but not limited to reasonable attorney fees, to the extent caused by the negligence, recklessness, or wrongful conduct of the Contractor and other persons employed or utilized by the Contractor in the performance of this contract.

Note: For Contractor's convenience, this certification form is enclosed and is made a part of the bid package.

CERTIFICATE OF INSURANCE

1. Certificates of insurance indicating the job site and evidencing all required coverage must be submitted not less than 10 days prior to the commencement of any of the work. The certificate holder(s) shall be as follows: Okaloosa County, 5479A Old Bethel Road, Crestview, Florida, 32536.
2. The contractor shall provide a Certificate of Insurance to the County with a thirty (30) day notice of cancellation; ten (10 days' notice if cancellation is for nonpayment of premium).
3. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the contractor to provide the proper notice. Such notification shall be in writing

by registered mail, return receipt requested, and addressed to the Okaloosa County Purchasing Department at 5479-A Old Bethel Road, Crestview, FL 32536.

4. In the event the contract term goes beyond the expiration date of the insurance policy, the contractor shall provide the County with an updated Certificate of insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The County reserves the right to suspend the contract until this requirement is met.
5. The certificate shall indicate if coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the certificate will show a retroactive date, which should be the same date of the initial contract or prior.
6. All certificates shall be subject to Okaloosa County's approval of adequacy of protection and the satisfactory character of the Insurer.
7. All deductibles or SIRs, whether approved by Okaloosa County or not, shall be the Contractor's full responsibility. In particular, the Contractor shall afford full coverage as specified herein to entities listed as Additional Insured.
8. In no way will the entities listed as Additional Insured be responsible for, pay for, be damaged by, or limited to coverage required by this schedule due to the existence of a deductible or SIR.

GENERAL TERMS

Any type of insurance or increase of limits of liability not described above which, the Contractor required for its own protection or on account of statute shall be its own responsibility and at its own expense.

Any exclusions or provisions in the insurance maintained by the contractor that excludes coverage for work contemplated in this contract shall be deemed unacceptable and shall be considered breach of contract.

The carrying of the insurance described shall in no way be interpreted as relieving the Contractor of any responsibility under this contract.

Should the Contractor engage a subcontractor or sub-subcontractor, the same conditions will apply under this Agreement to each subcontractor and sub-subcontractor.

The Contractor hereby waives all rights of subrogation against Okaloosa County and its consultants and other indemnities of the Contractor under all the foregoing policies of insurance.

UMBRELLA INSURANCE

The Contractor shall have the right to meet the liability insurance requirements with the purchase of an umbrella insurance policy. In all instances, the combination of primary and umbrella liability coverage must equal or exceed the minimum liability insurance limits stated in this Agreement.

GENERAL SERVICES BID CONDITIONS

1. PRE-BID ACTIVITY -

Addendum - Except as provided in this section, respondents are prohibited from contacting or lobbying the County, County Administrator, Commissioners, County staff, and Review Committee members, or any other person authorized on behalf of the County related or involved with the solicitation. All inquiries on the scope of work, specifications, additional requirements, attachments, terms and general conditions or instructions, or any issue must be directed in writing, by US mail or email to:

DeRita Mason
Contracts and Lease Coordinator
Okaloosa County Purchasing Department
5479A Old Bethel Road
Crestview, Florida 32536
(850) 689-5960
dmason@co.okaloosa.fl.us

All questions or inquiries must be received no later than the last day for questions (reference ITB & Respondent's Acknowledgement form). Any addenda or other modification to the bid documents will be issued by the County five (5) days prior to the date and time of bid closing, as written addenda, and will be posted to <http://www.bidnetdirect.com/florida> and the Okaloosa County website at <http://www.co.okaloosa.fl.us/purchasing/current-solicitations>.

Such written addenda or modification shall be part of the bid documents and shall be binding upon each respondent. Each respondent is required to acknowledge receipt of any and all addenda in writing and submit with their bid. No respondent may rely upon any verbal modification or interpretation.

- 2. PREPARATION OF BID** – The bid form is included with the bid documents. Additional copies may be obtained from the County. The respondent shall submit an original and two (2) copies {total three (3)} of the bid documents.

All blanks in the bid documents shall be completed by printing in ink or by typewriter in both words and numbers with the amounts extended, totaled and the bid signed. A bid price shall be indicated for each section, bid item, alternative, adjustment unit price item, and unit price item listed therein, or the words “No Bid”, “No Change”, or “Not Applicable” entered. No changes shall be made to the phraseology of the form or in the items mentioned therein. In case of any discrepancy between the written amount and the numerical figures, the written amount shall govern. Any bid which contains any omissions, erasures, alterations, additions, irregularities of any kind, or items not called for which shall in any manner fail to conform to the conditions of public notice inviting bids may be rejected.

A bid submitted by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature). The official address of the partnership shall be shown below the signature.

A bid submitted by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

A bid submitted by an individual shall show the respondent's name and official address.

A bid submitted by a joint venture shall be executed by each joint venture in the manner indicated on the bid form. The official address of the joint venture must be shown below the signature.

It is preferred that all signatures be in blue ink with the names type or printed below the signature. Okaloosa County does not accept electronic signatures.

The bid shall contain an acknowledgement of receipt of all Addenda, the numbers of which shall be filled in on the form. The address and telephone # for communications regarding the bid shall be shown.

If the respondent is an out-of-state corporation, the bid shall contain evidence of respondent's authority and qualification to do business as an out-of-state corporation in the State of Florida in accordance with Article 3. A state contractor license # for the State of Florida shall also be included on the bid form. Respondent shall be licensed in accordance with the requirements of Chapter 489, Florida Statutes.

3. **INTEGRITY OF BID DOCUMENTS** - Respondents shall use the original Bid documents provided by the Purchasing Department and enter information only in the spaces where a response is requested. Respondents may use an attachment as an addendum to the Bid documents if sufficient space is not available. Any modifications or alterations to the original bid documents by the respondent, whether intentional or otherwise, will constitute grounds for rejection of a bid. Any such modification or alteration that a respondent wishes to propose must be clearly stated in the respondent's response in the form of an addendum to the original bid documents.
4. **SUBMITTAL OF BID** – A bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in an opaque sealed envelope plainly marked with the project title (and, if applicable, the designated portion of the project for which the bid is submitted), the name and address of the respondent, and shall be accompanied by the bid security and other required documents. It is the respondent's responsibility to assure that its bid is delivered at the proper time and place. Offers by telegram, facsimile, or telephone will **NOT** be accepted.

Note: Crestview is not a next day delivery site for overnight carriers.

5. **MODIFICATION & WITHDRAWAL OF BID** - A bid may be modified or withdrawn by an appropriate document duly executed in the manner that a bid must be executed and delivered to the place where bids are to be submitted prior to the date and time for the opening of bids.

If within 24 hours after bids are opened any respondent files a duly signed written notice with the County and promptly thereafter demonstrates to the reasonable satisfaction of the County that there was a material substantial mistake in the preparation of its bid, that respondent may withdraw its bid, and the bid security may be returned. Thereafter, if the work is rebid, that respondent will be disqualified from 1) further bidding on the work, and 2) doing any work on the contract, either as a subcontractor or in any other capacity.

6. **BIDS TO REMAIN SUBJECT TO ACCEPTANCE** – All bids will remain subject to acceptance or rejection for ninety (90) calendar days after the day of the bid opening, but the County may, in its sole discretion, release any bid and return the bid security prior to the end of this period.
7. **IDENTICAL TIE BIDS** – In case of identical procurement responses, the award shall be determined either by lot or on the basis of factors deemed to serve the interest of the County. In the case of the latter, there must be adequate documentation to support such a decision.
8. **CONDITIONAL & INCOMPLETE BIDS** - Okaloosa County specifically reserves the right to reject any conditional bid and bids which make it impossible to determine the true amount of the bid.
9. **BID PRICE** – The bid price shall include all equipment, labor, materials, permit(s), freight, taxes, required insurance, Public Liability, Property Damage and Workers’ Compensation, etc. to cover the finished work called for.
10. **ADDITION/DELETION OF ITEM** – The County reserves the right to add or delete any item from this bid or resulting contract when deemed to be in the County’s best interest.
11. **SPECIFICATION EXCEPTIONS** – Specifications are based on the most current literature available. Respondent shall clearly list any change in the manufacturer’s specifications which conflict with the bid specifications. Respondent must also explain any deviation from the bid specification in writing, as a foot note on the applicable bid page and enclose a copy of the manufacturer’s specifications data detailing the changed item(s) with their bid. Failure of the respondent to comply with these provisions will result in respondents being held responsible for all costs required to bring the equipment in compliance with bid specifications.
12. **APPLICABLE LAWS & REGULATIONS** – All applicable Federal and State laws, County and municipal ordinances, orders, rules and regulations of all authorities having jurisdiction over the project shall apply to the bid throughout, and they will be deemed to be included in the contract the same as though they were written in full therein.
13. **DISQUALIFICATION OF RESPONDENTS** - Any of the following reasons may be considered as sufficient for the disqualification of a respondent and the rejection of its bid:
 - a. Submission of more than one bid for the same work from an individual, firm or corporation under the same or different name.
 - b. Evidence that the respondent has a financial interest in the firm of another respondent for the same work.
 - c. Evidence of collusion among respondents. Participants in such collusion will receive no recognition as respondents for any future work of the County until such participant has been reinstated as a qualified respondent.
 - d. Uncompleted work which in the judgment of the County might hinder or prevent the prompt completion of additional work if awarded.
 - e. Failure to pay or satisfactorily settle all bills due for labor and material on former contracts in force at the time of advertisement of bids.

- f. Default under previous contract.
- g. Listing of the respondent by the Local, State or Federal Government on its barred/suspended vendor list.

14. AWARD OF BID

- a. **Okaloosa County Review** - Okaloosa County designated Staff will review all bids and will participate in the Recommendation to Award.
- b. The County will award the bid to the lowest respondent, and the County reserves the right to award the bid to the respondent submitting a responsive bid with a resulting negotiated agreement which is most advantageous and in the best interest of the County, and to reject any and all bids or to waive any irregularity or technicality in bids received. Okaloosa County shall be the sole judge of the bid and the resulting negotiated agreement that is in its best interest and its decision shall be final.
- c. Okaloosa County reserves the right to waive any informalities or reject any and all bids, in whole or part, to utilize any applicable state contracts in lieu of or in addition to this bid and to accept the bid that in its judgment will best serve the interest of the County.
- d. Okaloosa County specifically reserves the right to reject any conditional bids and will normally reject those which made it impossible to determine the true amount of the bid. Each item must be bid separately and no attempt is to be made to tie any item or items to any other item or items.

15. WARRANTY – (The warranty will be in the name of Okaloosa County) Warranty work specified herein is for defects in materials and in labor and workmanship. State the manufacturer’s warranty with your bid. A minimum of 1 year on parts and labor is required from the date of acceptance, or the manufacturer’s warranty, whichever is longer.

16. PAYMENTS – The respondent shall be paid upon submission of invoices and approval of acceptance by Okaloosa County Board of County Commissioners, Finance Office, 302 N. Wilson St., #203, Crestview FL 32536, for the prices stipulated herein for articles delivered and accepted. Invoices must show Contract #.

17. DISCRIMINATION - An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity.

18. PUBLIC ENTITY CRIME INFORMATION - Pursuant to Florida Statute 287.133, a respondent may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. [287.017](#) for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list.

19. CONFLICT OF INTEREST - The award hereunder is subject to the provisions of Chapter 112, Florida Statutes. All respondents must disclose with their bids the name of any officer, director, or agent who is also a public officer or an employee of the Okaloosa Board of County Commissioners, or any of its agencies. Furthermore, all respondents must disclose the name of any County officer or employee who owns, directly or indirectly, an interest of five percent (5%) or more in the firm or any of its branches.

Note: For respondent's convenience, this certification form is enclosed and is made a part of the bid package.

20. REORGANIZATION OR BANKRUPTCY PROCEEDINGS – Bids will not be considered from respondents who are currently involved in official financial reorganization or bankruptcy proceedings.

21. INVESTIGATION OF RESPONDENT – The County may make such investigations, as it deems necessary to determine the stability of the respondent to perform the work and that there is no conflict of interest as it relates to the project. The respondent shall furnish to the Owner any additional information and financial data for this purpose as the County may request.

22. CONE OF SILENCE - The Okaloosa County Board of County Commissioners has established a solicitation silence policy (**Cone of Silence**) that prohibits oral and written communication regarding all formal solicitations for goods and services (formal proposals, Request for Proposals, Requests for Qualifications) issued by the Board through the County Purchasing Department. The period commences from the date of advertisement until award of contract.

Note: For respondent's convenience, this certification form is enclosed and is made a part of the bid package.

23. REVIEW OF PROCUREMENT DOCUMENTS - Per Florida Statute 119.071 (2) 2 sealed bids, proposals, or replies received by the County pursuant to a competitive solicitation are exempt from public disclosure until such time as the County provides notice of an intended decision or until 30 days after opening the bids, proposals, or final replies, whichever is earlier.

24. COMPLIANCE WITH FLORIDA STATUTE 119.0701 - The Respondent shall comply with all the provisions of section 119.0701, Florida Statutes relating to the public records which requires, among other things, that the Respondent: (a) Keep and maintain public records; (b) Provide the public with access to public records on the same terms and conditions that the public agency would provide the records; (c) ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law; and (d) Meet all requirements for retaining public records and transfer, at no cost, to the public agency all public records in possession of the respondent upon termination of the contract.

25. PROTECTION OF RESIDENT WORKERS – The Okaloosa County Board of County Commissioners actively supports the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verifications, and nondiscrimination. Under the INA, employers may hire only persons who may legally work in the United States (i.e., citizens and nationals of the U.S.) and aliens authorized to work in the U.S. The employer must verify the identity and employment eligibility of anyone to be hired, which includes completing the Employment Eligibility Verifications. The respondent shall establish appropriate procedures and controls so no services or products under the Contract Documents will be performed or manufactured by any worker who is not legally eligible to perform such services or employment. Okaloosa County reserves the right to request documentation showing compliance with the requirements.

Respondents doing construction business with Okaloosa County are required to use the Federal Government Department of Homeland Security's website and use the E-Verify Employment Eligibility Verifications System to confirm eligibility of all employees to work in the United States.

- 26. SUSPENSION OR TERMINATION FOR CONVENIENCE** - The County may, at any time, without cause, order Respondent in writing to suspend, delay or interrupt the work in whole or in part for such period of time as the County may determine, or to terminate all or a portion of the Contract for the County's convenience. Upon such termination, the Contract Price earned to the date of termination shall be paid to Respondent, but Respondent waives any claim for damages, including loss of profits arising out of or related to the early termination. Those Contract provisions which by their nature survive final acceptance shall remain in full force and effect. If the County orders a suspension, the Contract price and Contract time may be adjusted for increases in the cost and time caused by suspension, delay or interruption. No adjustment shall be made to the extent that performance is, was or would have been so suspended, delayed or interrupted by reason for which Respondent is responsible; or that an equitable adjustment is made or denied under another provision of this Contract.
- 27. FAILURE OF PERFORMANCE/DELIVERY** - In case of default by the respondent, the County after due notice (oral or written) may procure the necessary supplies or services from other sources and hold the respondent responsible for difference in cost incurred. Continuous instances of default shall result in cancellation of the award and removal of the respondent from the bid list for duration of one (1) year, at the option of the County.
- 28. AUDIT** - If requested, respondent shall permit the County or an authorized, independent audit agency to inspect all data and records of respondent relating to its performance and its subcontracts under this bid from the date of the award through and until the expiration of contract.
- 29. EQUAL EMPLOYMENT OPPORTUNITY; NON DISCRIMINATION** – Respondent will not discriminate against any employee or an applicant for employment because of race, color, religion, gender, sexual orientation, national origin, age, familial status or handicap.
- 30. NON-COLLUSION** – Respondent certifies that it has entered into no agreement to commit a fraudulent, deceitful, unlawful or wrongful act, or any act which may result in an unfair advantage over other respondents. See Florida Statute 838.22.
- 31. UNAUTHORIZED ALIENS/PATRIOT'S ACT** – The knowing employment by respondent or its subcontractors of any alien not authorized to work by the immigration laws is prohibited and shall be a default of the contract. In the event that the respondent is notified or becomes aware of such default, the respondent shall take steps as are necessary to terminate said employment with 24 hours of notification or actual knowledge that an alien is being employed. Respondent's failure to take such steps as are necessary to terminate the employment of any said alien within 24 hours of notification or actual knowledge that an alien is being employed shall be grounds for immediate termination of the contract. Respondent shall take all commercially reasonable precautions to ensure that it and its subcontractors do not employ persons who are not authorized to work by the immigration laws.
- 32. EQUIPMENT ACCEPTANCE** - Delivery of material to Okaloosa Board of County Commissioners does not constitute acceptance for the purpose of payment. Final acceptance and authorization of payment shall be given only after a thorough inspection indicates that the material meets contract specifications and conditions as listed. Should the delivered material differ in any respect from specifications, payment will be withheld until such time as the supplier takes necessary corrective

action. The Purchasing Department shall be notified of the deviation in writing within 10 days and the provisions of the delivery paragraph shall prevail. If the proposed corrective action is not acceptable to Okaloosa County, the final acceptance of the material shall remain the property of the supplier and the county shall not be liable for payment for any portion thereof.

33. TERMS AND CONDITIONS – All bidders shall review the Terms and Conditions attached hereto and if the Board accepts their bid and executes a contract, the bidder awarded the contract (Seller) shall agree to the Terms and Conditions, completely, and agree to furnish the materials and services specified herein in accordance with the Specifications and Terms and Conditions herein.

34. DELIVERY SCHEDULE- Submittal data to be delivered for approval with the Bid. Operation & Maintenance manuals to be delivered for approval no later than 30 calendar days prior to start-up and after receipt of Approved or Approved as Noted submittal data. Delivery of on-site Equipment/Materials shall be no later than calendar days identified on the Bid, after receipt of Purchase Order and shall be coordinated with the on-site installation Contractor.

35. The following documents are to be submitted with the proposal packet:

- A. Exhibit “B” General Grant Funding Special Provisions
- B. Drug-Free Workplace Certification Form
- C. Conflict of Interest
- D. Federal E-Verify
- E. Indemnification and Hold Harmless
- F. Certification Regarding Lobbying Proposal Sheet
- G. Cone of Silence
- H. Company Data
- I. System of Awards Management
- J. Addendum Acknowledgement
- K. Equipment Owner’s Data Sheet
- L. Bid Sheet
- M. Anti-Collusion Statement

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EXHIBIT B

GENERAL GRANT FUNDING SPECIAL PROPOSAL CONDITIONS

Either this solicitation is fully or partially Grant funded. Respondents shall comply with the clauses as enumerated below.

1. **Drug Free Workplace Requirements:** Drug-free workplace requirements in accordance with Drug Free Workplace Act of 1988 (Pub L 100-690, Title V, Subtitle D) All contractors entering into Federal funded contracts over \$100,000 must comply with Federal Drug Free workplace requirements as Drug Free Workplace Act of 1988.
2. **Contractor Compliance:** The contractor shall comply with all uniform administrative requirements, cost principles, and audit requirements for federal awards.
3. **Conflict of Interest:** The contractor must disclose in writing any potential conflict of interest to the County or pass-through entity in accordance with applicable Federal policy.
4. **Mandatory Disclosures:** The contractor must disclose in writing all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award.
5. **Utilization of Minority and Women Firms (M/WBE):** The contractor must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible, in accordance with 2CFR 200.321. If subcontracts are to be let, prime contractor will require compliance by all sub-contractors. Prior to contract award, the contractor shall document efforts to utilize M/WBE firms including what firms were solicited as suppliers and/or subcontractors as applicable and submit this information with their bid submittal. Information regarding certified M/WBE firms can be obtained from:

Florida Department of Management Services (Office of Supplier Diversity)

Florida Department of Transportation

Minority Business Development Center in most large cities and

Local Government M/DBE programs in many large counties and cities
6. **Equal Employment Opportunity:** (As per Executive Order 11246) The contractor may not discriminate against any employee or applicant for employment because of age, race, color, creed, sex, disability or national origin. The contractor agrees to take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their age, race, color, creed, sex, disability or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship.
7. **Davis-Bacon Act:** If applicable to this contract, the contractor agrees to comply with all provisions of the Davis Bacon Act as amended (40 U.S.C. 3141-3148). Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. If the grant award contains Davis Bacon provisions, the County will place a copy of the current prevailing wage determination issued by the Department of Labor in the solicitation document. The decision to award a contract shall be conditioned upon the acceptance of the wage determination.

8. **Copeland Anti Kick Back Act:** If applicable to this contract, contractors shall comply with all the requirements of 18 U.S.C. § 874, 40 U.S.C. § 3145, 29 CFR Part 3 which are incorporated by reference to this contract. Contractors are prohibited from inducing by any means any person employed in the construction, completion or repair of public work to give up any part of the compensation to which he or she is otherwise entitled.
9. **Contract Work Hours and Safety Standards Act** (40 U.S.C. 3701–3708): Where applicable, all contracts awarded in excess of \$100,000 that involve the employment of mechanics or laborers must be in compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor is required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
10. **Clean Air Act (42 U.S.C. 7401–7671q.)** and the Federal Water Pollution Control Act (33 U.S.C. 1251–1387): as amended—The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).
11. **Debarment and Suspension** (Executive Orders 12549 and 12689): A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), “Debarment and Suspension. SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. The contractor shall certify compliance. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions and subcontracts.
12. **Byrd Anti-Lobbying Amendment** (31 U.S.C. 1352): Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. The contractor shall certify compliance.
13. **Rights to Inventions Made Under a Contract or Agreement:** If the Federal award meets the definition of “funding agreement” under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants,

Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.

14. **Procurement of Recovered Materials:** Contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

15. **Access to Records and Reports:**

Contractor will make available to the County’s granting agency, the granting agency’s Office of Inspector General, the Government Accountability Office, the Comptroller General of the United States, Okaloosa County, Okaloosa County Clerk of Court’s Inspector General, or any of their duly authorized representatives any books, documents, papers or other records, including electronic records, of the contractor that are pertinent to the County’s grant award, in order to make audits, investigations, examinations, excerpts, transcripts, and copies of such documents. The right also includes timely and reasonable access to the contractor’s personnel during normal business hours for the purpose of interview and discussion related to such documents. This right of access shall continue as long as records are retained.

16. **Record Retention:**

Contractor will retain of all required records pertinent to this contract for a period of three years, beginning on a date as described in 2 C.F.R. §200.333 and retained in compliance with 2 C.F.R. §200.333.

17. **Federal Changes:** Contractor shall comply with all applicable Federal agency regulations, policies, procedures and directives, including without limitation those listed directly or by reference, as they may be amended or promulgated from time to time during the term of the contract.

18. **Termination for Default (Breach or Cause):**

Contracts in excess of \$10,000 – If Contractor does not deliver supplies in accordance with the contract delivery schedule, or, if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the County may terminate the contract for default. Termination shall be effected by serving a notice of termination on the contractor setting forth the manner in which the Contractor is in default. The contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract.

19. **Safeguarding Personal Identifiable Information**

Contractor will take reasonable measures to safeguard protected personally identifiable information and other information designated as sensitive by the awarding agency or is considered sensitive consistent with applicable Federal, state and/or local laws regarding privacy and obligations of confidentiality.

- 20. **Prohibition on utilization of cost plus a percentage of cost contracts:** The County will not award contracts containing Federal funding on a cost plus percentage of cost basis.
- 21. **Prohibition on utilization of time and material type contracts:** The County will not award contracts based on a time and material basis if the contract contains Federal funding.
- 22. **Disputes:** Any dispute arising under this Agreement which is not settled by Agreement of the parties may be settled by mediation, arbitration, or other appropriate legal proceedings. Pending any decision, appeal or judgment in such proceedings or the settlement of any dispute arising under this Agreement, shall proceed diligently with the performance of this Agreement in accordance with the decision of the County. This Agreement shall be construed under the laws of the State of Florida, and venue for any actions arising out of this Agreement shall be in the Circuit Court of Okaloosa County.

23. **Energy Policy and Conservation Act (43 U.S.C.§6201)**

All contracts except micro-purchases (\$3000 or less, except for construction contracts over \$2000). Contracts shall comply with mandatory standards and policies relating to energy efficiency, stating in the state energy conservation plan issued in compliance with the Energy Policy and Conservation act. (Pub. L. 94-163, 89 Stat. 871) [53 FR 8078, 8087, Mar. 11, 1988, as amended at 60 FR 19639, 19645, Apr. 19, 1995].

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above requirements.

DATE: _____

SIGNATURE: _____

COMPANY: _____

NAME: _____

ADDRESS: _____

TITLE: _____

E-MAIL: _____

PHONE NO.: _____

DRUG-FREE WORKPLACE CERTIFICATION

THE BELOW SIGNED RESPONDENT CERTIFIES that it has implemented a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under quote a copy of the statement specified in subsection 1.
4. In the statement specified in subsection 1, notify the employees that, as a condition of working on the commodities or contractual services that are under quote, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in, drug abuse assistance or rehabilitation program if such is available in employee's community, by any employee who is convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign this statement, I certify that this firm complies fully with the above requirements.

DATE: _____

SIGNATURE: _____

COMPANY: _____

NAME: _____
(Typed or Printed)

ADDRESS: _____

TITLE: _____

E-MAIL: _____

PHONE NO.: _____

CONFLICT OF INTEREST DISCLOSURE FORM

For purposes of determining any possible conflict of interest, all respondents, must disclose if any Okaloosa Board of County Commissioner, employee(s), elected officials(s), or if any of its agencies is also an owner, corporate officer, agency, employee, etc., of their business.

Indicate either “yes” (a county employee, elected official, or agency is also associated with your business), or “no”. If yes, give person(s) name(s) and position(s) with your business.

YES _____

NO _____

NAME(S)

POSITION(S)

FIRM NAME: _____

BY (PRINTED): _____

BY (SIGNATURE): _____

TITLE: _____

ADDRESS: _____

PHONE NO. _____

E-MAIL _____

DATE _____

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FEDERAL E-VERIFY COMPLIANCE CERTIFICATION

In accordance with Okaloosa County Policy and Executive Order Number 11-116 from the office of the Governor of the State of Florida, Respondent hereby certifies that the U.S. Department of Homeland Security's E-Verify system will be used to verify the employment eligibility of all new employees hired by the respondent during the contract term, and shall expressly require any subcontractors performing work or providing services pursuant to the contract to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term; and shall provide documentation such verification to the COUNTY upon request.

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above requirements.

DATE: _____

SIGNATURE: _____

COMPANY: _____

NAME: _____

ADDRESS: _____

TITLE: _____

E-MAIL: _____

PHONE NO.: _____

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INDEMNIFICATION AND HOLD HARMLESS

Respondent shall indemnify and hold harmless the County, its officers and employees from liabilities, damages, losses, and costs including but not limited to reasonable attorney fees, to the extent caused by the negligence, recklessness, or intentional wrongful conduct of the Respondent and other persons employed or utilized by the Respondent in the performance of this Agreement.

Respondent's Company Name

Authorized Signature – Manual

Physical Address

Authorized Signature – Typed

Mailing Address

Title

Phone Number

FAX Number

Cellular Number

After-Hours Number(s)

Date

Email

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LOBBYING - 31 U.S.C. 1352, 49 CFR Part 19, 49 CFR Part 20

APPENDIX A, 49 CFR PART 20--CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned [Contractor] certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, *et seq.*.)]
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq.*, apply to this certification and disclosure, if any.

_____ Signature of Contractor's Authorized Official

_____ Name and Title of Contractor's Authorized Official

_____ Date

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CONE OF SILENCE

The Board of County Commissioners have established a solicitation silence policy (**Cone of Silence**) that prohibits oral and written communication regarding all formal solicitations for goods and services (ITB, RFP, ITQ, ITN, and RFQ) or other competitive solicitation between the bidder (or its agents or representatives) or other entity with the potential for a financial interest in the award (or their respective agents or representatives) regarding such competitive solicitation, and any County Commissioner or County employee, selection committee member or other persons authorized to act on behalf of the Board including the County’s Architect, Engineer or their subconsultants, or anyone designated to provide a recommendation to award a particular contract, other than the Purchasing Department Staff..

The period commences from the time of advertisement until contract award.

Any information thought to affect the committee or staff recommendation submitted after bids are due, should be directed to the Purchasing Manager or an appointed representative. It shall be the Purchasing Manager’s decision whether to consider this information in the decision process.

Any violation of this policy shall be grounds to disqualify the respondent from consideration during the selection process.

All respondents must agree to comply with this policy by signing the following statement and including it with their submittal.

I _____ representing _____
Signature Company Name

On this _____ day of _____ 2018 hereby agree to abide by the County’s “**Cone of Silence Clause**” and understand violation of this policy shall result in disqualification of my proposal/submittal.

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COMPANY DATA

Respondent's Company Name: _____

Physical Address & Phone #: _____

Contact Person (Typed-Printed): _____

Phone #: _____

Cell #: _____

Federal ID or SS #: _____

DUNNS/SAM #: _____

Respondent's License #: _____

Fax #: _____

Emergency #'s After Hours,
Weekends & Holidays: _____

System for Award Management (Oct 2016)

(a) Definitions. As used in this provision.

“Electronic Funds Transfer (EFT) indicator” means a four-character suffix to the unique entity identifier. The suffix is assigned at the discretion of the commercial, nonprofit, or Government entity to establish additional System for Award Management records for identifying alternative EFT accounts (see [subpart 32.11](#)) for the same entity.

“Registered in the System for Award Management (SAM) database” means that:

(1) The Offeror has entered all mandatory information, including the unique entity identifier and the EFT indicator, if applicable, the Commercial and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see [subpart 4.14](#)) into the SAM database;

(2) The offeror has completed the Core, Assertions, and Representations and Certifications, and Points of Contact sections of the registration in the SAM database;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The offeror will be required to provide consent for TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record “Active”.

“Unique entity identifier” means a number or other identifier used to identify a specific commercial, nonprofit, or Government entity. See www.sam.gov for the designated entity for establishing unique entity identifiers.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The Offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation “Unique Entity Identifier” followed by the unique entity identifier that identifies the Offeror’s name and address exactly as stated in the offer. The Offeror also shall enter its EFT indicator, if applicable. The unique entity identifier will be used by the Contracting Officer to verify that the Offeror is registered in the SAM database.

(c) If the Offeror does not have a unique entity identifier, it should contact the entity designated at www.sam.gov for establishment of the unique entity identifier directly to obtain one. The Offeror should be prepared to provide the following information:

- (1) Company legal business name.
- (2) Tradestyle, doing business, or other name by which your entity is commonly recognized.
- (3) Company Physical Street Address, City, State, and Zip Code.
- (4) Company Mailing Address, City, State and Zip Code (if separate from physical).
- (5) Company telephone number.
- (6) Date the company was started.
- (7) Number of employees at your location.
- (8) Chief executive officer/key manager.
- (9) Line of business (industry).
- (10) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the SAM database in timely manner, the Contracting Officer may proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) Offerors may obtain information on registration at <https://www.acquisition.gov> .

Offerors SAM information:

Entity Name: _____

Entity Address: _____

Duns Number: _____

CAGE Code: _____

ADDENDUM ACKNOWLEDGEMENT
ITB WS 06-19

Acknowledgment is hereby made of the following addenda (identified by number) received since issuance of solicitation:

| <u>ADDENDUM NO.</u> | <u>DATE</u> |
|----------------------------|--------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

NOTE: Prior to submitting the response to this solicitation, it is the responsibility of the respondent to confirm if any addenda have been issued. If such addenda have been issued, acknowledge receipt by noting number(s) and date(s) above.

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EQUIPMENT OWNER'S DATA SHEET

NAME OF OWNER _____
ADDRESS _____
PHONE NUMBER _____
PERSON TO CONTACT _____

NAME OF OWNER _____
ADDRESS _____
PHONE NUMBER _____
PERSON TO CONTACT _____

NAME OF OWNER _____
ADDRESS _____
PHONE NUMBER _____
PERSON TO CONTACT _____

NAME OF OWNER _____
ADDRESS _____
PHONE NUMBER _____
PERSON TO CONTACT _____

NAME OF OWNER _____
ADDRESS _____
PHONE NUMBER _____
PERSON TO CONTACT _____

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BID SHEET

BID #: ITB WS 06-19

BASE BID - ARBENNIE PRITCHETT WRF RECLAIMED WATER EXPANSION PROJECT – VERTICAL TURBINE PUMP SYSTEM

| ITEM | QTY | EA | DESCRIPTION | UNIT PRICE | EXT. PRICE |
|------|-----|-----|--|--|------------|
| 1 | 2 | EA | Niceville/Eglin Pump 125 hp, 1,200 rpm, 2800 GPM Vertical Turbine pumps. | | |
| 1 | 2 | EA | FWB Pump 50 hp, 1,200 rpm, 1400 GPM Vertical Turbine pumps. | | |
| | 1 | Lot | Specific Specification Sections (01330, 01332, 01782, 11215,16900) Drawings: All Submittals: (Include with this bid the following: Shop Drawings, Product Data, & Calculations (6 Copies w/Electronic PDF. Preliminary O&M Manuals, and Final O&M Manuals Warranty: Warranty shall be in accordance with the attached specifications Payment: List Freight and Manufacturer Services as a separate non taxable item when submitting invoices | Cost associated with these requirements shall be included in the associated unit price shown for the specified equipment in Item 1 | N/A |
| | 1 | Lot | Manufacturer Services as detailed in Specification Section 01640, and as required providing a fully operational and functioning system per the scope of this contract. | | N/A |
| | 1 | Lot | Spare Parts and Tools: As specified in Equipment Sections | | N/A |
| | | | TOTAL BASE BID | \$ | |

DELIVERY TIME: _____ MAXIMUM* DAYS FROM RECEIPT OF PURCHASE ORDER

*Max Days is defined as calendar days to deliver all equipment to the site as specified, including submittals, manufacturing and testing. Time will be from date of receipt of purchase agreement from OWNER. Allow a max 10 working days for initial submittal review and each resubmit required by ENGINEER / OWNER.

LUMP SUM BASE BID AMOUNT IS WRITTEN AS:

_____ Dollars and _____ Cents,

\$ _____, To Be Fully Tested, Shipped and

Delivered to the Project Site within _____ Calendar Days from Receipt of Official Purchase Order.

ANTI-COLLUSION STATEMENT: The below signed bidder has not divulged to, discussed or compared his bid with other bidders and has not colluded with any other bidder or parties to bid whatever. (Note: No premiums, rebates, or gratuities permitted either with, prior to, or after any delivery of materials. Any such violation will result in the cancellation and/or return of material (as applicable) and the removal from bid list(s).

Bidder's Company Name

Authorized Signature – Manual

Authorized Signature – Typed

Address

Title

Phone #

Fax #

Federal ID # or SS #

Exhibit “C”

Standard Contract Clauses

Title VI Clauses for Compliance with Nondiscrimination Requirements

Compliance with Nondiscrimination Requirements

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts And Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor’s obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts And Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor’s noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In

addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The [*contractor / consultant*] has full responsibility to monitor compliance to the referenced statute or regulation. The [*contractor / consultant*] must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

E-VERIFY

Enrollment and verification requirements.

- (1) If the Contractor is not enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall-
 - a. Enroll. Enroll as a Federal Contractor in the E-Verify Program within thirty (30) calendar days of contract award;
 - b. Verify all new employees. Within ninety (90) calendar days of enrollment in the E-Verify program, begin to use E-Verify to initiate verification of employment eligibility of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within three (3) business days after the date of hire (but see paragraph (b)(3) of this section); and,
 - c. Verify employees assigned to the contract. For each employee assigned to the contract, initiate verification within ninety (90) calendar days after date of enrollment or within thirty (30) calendar days of the employee's assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section.)
- (2) If the Contractor is enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall use E-Verify to initiate verification of employment eligibility of
 - a. All new employees.
 - i. Enrolled ninety (90) calendar days or more. The Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within three (3) business days after the date of hire (but see paragraph (b)(3) of this section); or
 - b. Enrolled less than ninety (90) calendar days. Within ninety (90) calendar days after enrollment as a Federal Contractor in E-Verify, the Contractor shall initiate verification of all new hires of the contractor, who are working in the United States, whether or not assigned to the contract, within three (3) business days after the date of hire (but see paragraph (b)(3) of this section); or

- ii. Employees assigned to the contract. For each employee assigned to the contract, the Contractor shall initiate verification within ninety (90) calendar days after date of contract award or within thirty (30) days after assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section.)
- (3) If the Contractor is an institution of higher education (as defined at 20 U.S.C. 1001(a)); a State of local government or the government of a Federally recognized Indian tribe, or a surety performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond, the Contractor may choose to verify only employees assigned to the contract, whether existing employees or new hires. The Contractor shall follow the applicable verification requirements of (b)(1) or (b)(2), respectively, except that any requirement for verification of new employees applies only to new employees assigned to the contract.
- (4) Option to verify employment eligibility of all employees. The Contractor may elect to verify all existing employees hired after November 6, 2986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), rather than just those employees assigned to the contract. The Contractor shall initiate verification for each existing employee working in the United States who was hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), within one hundred eighty (180) calendar days of-
- i. Enrollment in the E-Verify program; or
 - ii. Notification to E-Verify Operations of the Contractor's decision to exercise this option, using the contract information provided in the E-Verify program Memorandum of Understanding (MOU)
- (5) The Contractor shall comply, for the period of performance of this contract, with the requirements of the E-Verify program MOU.
- i. The Department of Homeland Security (DHS) or the Social Security Administration (SSA) may terminate the Contractor's MOU and deny access to the E-Verify system in accordance with the terms of the MOU. In such case, the Contractor, will be referred to a suspension or debarment official.
 - ii. During the period between termination of the MOU and a decision by the suspension or debarment official whether to suspend or debar, the contractor is excused from its obligations under paragraph (b) of this clause. If the suspension or debarment official determines not to suspend or debar the Contractor, then the Contractor must reenroll in E-Verify.
 - iii. Web site. Information on registration for and use of the E-Verify program can be obtained via the Internet at the Department of Homeland Security Web site: <http://www.dhs.gov/E-Verify>.
- Individuals previously verified. The Contractor is not required by this clause to perform additional employment verification using E-Verify for any employee-
- (a) Whose employment eligibility was previously verified by the Contractor through the E-Verify program;
 - (b) Who has been granted and holds an active U.S. Government security clearance for access to confidential, secret, or top secret information in accordance with the National Industrial Security Program Operating Manual; or
 - (c) Who has undergone a completed background investigation and been issued credentials pursuant to Homeland Security Presidential Directive (HSPD)-12.

Policy for a Common Identification Standard for Federal Employees and Contractors.

Subcontracts. The Contractor shall include the requirements of this clause, including this paragraph €(appropriately modified for identification of the parties in each subcontract that-

- (1) Is for-(i) Commercial and noncommercial services (except for commercial services that are part of the purchase of a COTS item (or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for that COTS item); or
(ii) Construction;
- (2) Has a value of more than \$3,500; and
- (3) Includes work performed in the United States.

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SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. General Description of Project
- B. SUPPLIER - Responsibility
- C. OWNER - Responsibility
- D. Contractor's Use of Site and Equipment Offload

1.2 GENERAL DESCRIPTION OF PROJECT

- A. Supply 4 Vertical Turbine Effluent Pumps from one single supplier. Bid shall include pumps, motors, appurtenances, spare parts, services, warranties all other items and related work required to complete the Work.
- B. Contracting Method: Direct Bid (MATERIAL ONLY).

1.3 SUPPLIER RESPONSIBILITY

- A. The following items are intended to identify the general materials and deliverables to be included in the SUPPLIER'S bid proposal.
 - 1. Furnish the following pumps and pump components and appurtenances.
 - a. Two (2) 125-HP Vertical Turbine Pumps, Motors, Appurtenances, Spare Parts, Tools, and Services as specified herein.
 - b. Two (2) 50-HP Vertical Turbine Pumps, Motors, Appurtenances, Spare Parts, Tools, and Services as specified herein.

1.4 OWNER RESPONSIBILITY

- A. OWNER will install the pumps under a separate contract using a specialized Contractor.

END OF SECTION

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SECTION 01330 SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Submittals are required prior to, during, and at the end of the installation period. The submittals shall conform to the requirements described in this Section and all referenced Sections or Articles.

1.2 PROCEDURE

- A. Submit the following items within five days after the Contract is executed.
 - 1. Shop Drawings, Product Data and Samples: Submit Shop Drawings, product data and samples in accordance with Section 01332, Shop Drawing Procedures, and as required in applicable Sections of the Contract Documents.
 - 2. Request for Information: Submit a Request for Information (RFI), when any of the following are required: an interpretation of the Specifications; additional details; information not shown on the Drawings or in the Specifications; or clarification of discrepancies is required. SUPPLIER shall retain one copy and submit one copy to the ENGINEER for response.
 - 3. Operation and Maintenance Manuals and Lesson Plans: Submit Equipment Operation and Maintenance Manuals for approval, by the ENGINEER, within 30 days after approval of Equipment Shop Drawing. Submit Equipment Training Lesson Plans for approval, by the ENGINEER, 60 days prior to commencement of training. Submit Operation and Maintenance Data and Lesson Plans in accordance with Section 01782, Operation and Maintenance Data.
- B. Submittal At Final Completion: Submit the following items in the proper form as a condition of Final Acceptance of the Work:
 - 1. Guarantees, Warranties, and Bonds: Submit as listed in various Sections of the Specifications.
 - 2. Operations and Maintenance Data: Submit all remaining product data and manuals as specified in various Sections of the Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01332
SHOP DRAWING PROCEDURES

PART 1 - GENERAL

I wi

1.1 DESCRIPTION

- A. The submittal of Shop Drawings shall conform to requirements in this Section. A separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required.

- B. The term "Shop Drawings" as used herein shall be understood to include detailed design calculations, fabrication and installation drawings, lists, graphs, test data, operating instructions, and other items which shall include, but are not necessarily limited to:
 - 1. Drawings and catalog information and cuts.
 - 2. Specifications, parts list, suggested spare parts lists, and equipment drawings.
 - 3. Wiring diagrams of systems and equipment.
 - 4. Complete lubrication, maintenance and operation instructions, including initial startup instructions.
 - 5. Applicable certifications.
 - 6. Anchor bolt templates, mounting instructions, and mounting design calculations as required.
 - 7. Required maintenance operations to allow all installed equipment to remain idle for a period of time not to exceed 24 months.
 - 8. Other technical, installation, and maintenance data as applicable.
 - 9. Unloading and handling methods and storage requirements.
 - 10. Note, highlight, and explain proposed changes to the Contract Documents.
 - 11. Paint submittal showing type of paint and the mils thickness of coating system used.
 - 12. Drawings showing Installation Contractor field verifications illustrating all field dimensions. Installation Contractor shall field verify all dimensions and existing materials shown on the Drawings. Any modifications required shall be at Installation Contractor's expense.

1.2 PROCEDURE

- A. Submit Shop Drawings to ENGINEER.

- B. A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.

- C. All letters of transmittal shall be submitted in duplicate.

- D. At the beginning of each letter of transmittal, provide a reference heading indicating the following:
 - 1. OWNER'S Name: _____
 - 2. Project Name: _____
 - 3. Contract No.: _____
 - 4. Transmittal No.: _____
 - 5. Section No.: _____

- E. If a Shop Drawing deviates from the requirements of the Contract Documents, SUPPLIER shall specifically note each variation in his letter of transmittal.

- F. All Shop Drawings submitted for approval shall have a title block with complete identifying information satisfactory to ENGINEER.

- G. All Shop Drawings submitted shall bear the stamp of approval and signature of SUPPLIER as evidence that they have been reviewed and verified to the completeness of the submittal by SUPPLIER. Submittal without this stamp of approval will not be reviewed by ENGINEER and will be returned to SUPPLIER. SUPPLIER's stamp shall contain the following minimum information:

Project Name: _____

Manufacturer's Name: _____

Date: _____

-----Reference-----

Item: _____

Specifications:

Section: _____

Page No.: _____

Page No.: _____

Drawing No.: _____ of _____

Location: _____

Submittal No.: _____

Approved By: _____

- H. SUPPLIER shall utilize the submittal identification numbering system as follows:
 - 1. The Submittal Number shall be a separate and unique number correlating to each individual submittal that is required to be tracked as a separate and unique item. The Submittal Number shall be a two-part, eight-character, alpha/numeric number assigned by SUPPLIER in the following manner:

SHOP DRAWING PROCEDURES

- a. The first part of the Submittal Number shall consist of five characters that pertain to the applicable Specification Section number.
 - b. The second part of the Submittal Number shall consist of three digits (numbers 001 to 999) to number each separate and unique submittal submitted under each Specification Section.
 - c. A dash shall separate the two parts of the Submittal Number.
 - d. A typical Submittal Number for the third Working Drawing submitted under Section 15101, Ductile Iron Pipe, would be 15101-003.
2. The Review Cycle shall be a three-digit number indicating the initial submission or resubmission of the same submittal. For example:

- 001 = First (initial) submission.
- 002 = Second submission (first resubmission).
- 003 = Third submission (second resubmission).

3. An example of the typical submittal identification numbers for the first submission of the third submittal submitted under Section 15051, Buried Piping Installation is:

| <u>Submittal Number</u> | <u>Review Cycle</u> |
|-------------------------|---------------------|
| 15051-003 | 001 |

An example of the typical submittal identification numbers for the second submission of the third submittal submitted under Section 15051, Buried Piping Installation is:

| <u>Submittal Number</u> | <u>Review Cycle</u> |
|-------------------------|---------------------|
| 15051-003 | 002 |

- I. SUPPLIER shall initially submit to ENGINEER a minimum of five copies of all submittals that are on 11-inch by 17-inch or smaller sheets, and one unfolded reproducible and three prints made from that reproducible for all submittal on sheets larger than 11-inch by 17-inch.
- J. After ENGINEER completes his review, Shop Drawings will be affixed with a stamp and marked with one of the following notations:
 - 1. Approved.
 - 2. Approved as Corrected.
 - 3. Approved as Corrected, Resubmit.
 - 4. Revise and Resubmit.
 - 5. Not Approved.
 - 6. Not Reviewed.
 - 7. For Information Only.

SHOP DRAWING PROCEDURES

- K. If a submittal is acceptable, it will be marked "Approved" or "Approved as Corrected." Three prints or copies of the submittal will be returned to SUPPLIER.
- L. Upon return of a submittal marked "Approved" or "Approved as Corrected," SUPPLIER may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- M. If a Shop Drawing marked "Approved as Corrected" has extensive corrections or corrections affecting other Shop Drawings or Work, ENGINEER may require that SUPPLIER make the corrections indicated thereon and resubmit the Shop Drawings for record purposes. Such Shop Drawings will have the notation, "Approved as Corrected - Resubmit." The corrected Shop Drawing shall be a pre-condition for payment for the work item of the Shop Drawing.
- N. If a submittal is unacceptable, two copies will be returned to SUPPLIER with one of the following notations:
 - 1. "Revise and Resubmit."
 - 2. "Not Approved."
- O. Upon return of a submittal marked "Revise and Resubmit", SUPPLIER shall make the corrections indicated and repeat the initial approval procedure. The "Not Approved" notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, SUPPLIER shall repeat the initial approval procedure utilizing acceptable material or equipment.
- P. Shop Drawings shall be submitted well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. SUPPLIER and Installation Contractor shall assume the risk for all Work, materials or equipment that are fabricated, delivered or installed prior to the approval of Shop Drawings. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.
- Q. ENGINEER will review and process all submittals promptly; a reasonable time shall be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to SUPPLIER.
- R. SUPPLIER shall furnish required submittals with complete information and accuracy in order to achieve required approval of an item within two submittals.
- S. Mark each page of a submittal and each individual component submitted with the specification number, paragraph, and subparagraph. Arrange submittal information presentation to appear in the sequence in the Specification Section.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01400 QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve SUPPLIER of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit SUPPLIER's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for SUPPLIER to provide quality-assurance and -control services required by ENGINEER, OWNER, or authorities having jurisdiction are not limited by provisions of this Section.
- C. See Divisions 2 through 16 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by ENGINEER.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.
- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: CONTRACTOR or another entity engaged by CONTRACTOR as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to ENGINEER for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to ENGINEER for a decision before proceeding.

1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- C. Permits, Licenses, and Certificates: For OWNER's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. SUPPLIER Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in- service performance, as well as sufficient production capacity to produce required units.

- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by ENGINEER.
 - 2. Notify ENGINEER seven days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain ENGINEER's approval of mockups before starting work, fabrication, or construction.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed, unless otherwise indicated.

- J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 2 through 16.

1.6 QUALITY CONTROL

- A. OWNER Responsibilities: Where quality-control services are indicated as OWNER's responsibility, OWNER will engage a qualified testing agency to perform these services.
 - 1. OWNER will furnish CONTRACTOR with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to CONTRACTOR, and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to OWNER are CONTRACTOR's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of CONTRACTOR by authorities having jurisdiction, whether specified or not.
 - 1. Where services are indicated as CONTRACTOR's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. CONTRACTOR shall not employ same entity engaged by OWNER, unless agreed to in writing by OWNER.
 - 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 - 3. Where quality-control services are indicated as CONTRACTOR's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 4. Testing and inspecting requested by CONTRACTOR and not required by the Contract Documents are CONTRACTOR's responsibility.
 - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. SUPPLIER's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
- D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

- E. Testing Agency Responsibilities: Cooperate with ENGINEER and CONTRACTOR in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify ENGINEER and CONTRACTOR promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through CONTRACTOR.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of CONTRACTOR.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are CONTRACTOR's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

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**SECTION 01630
SUBSTITUTION PROCEDURES**

PART 1 - GENERAL

1.1 PROCEDURE FOR REQUESTING SUBSTITUTION:

- A. In order that the Owner may determine if a proposed, unnamed substitute item shall be allowed for the specified and named equipment/supplier, the information below shall be SUBMITTED A MINIMUM 10 DAYS PRIOR TO PROPOSAL BID DATE.
- B. Written requests must be submitted to the Engineer.
- C. Transmittal Contents:
 - 1. Product identification:
 - a. Manufacturer's name.
 - b. Telephone number and representative contact name.
 - c. Specification section or drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.
 - 2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.
 - 3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:
 - a. Size.
 - b. Composition or materials of construction.
 - c. Weight.
 - d. Electrical or mechanical requirements.
 - 4. Product experience:
 - a. Location of past projects utilizing product including three of the most recent installations where similar equipment by the manufacturer or manufacturer's representative is currently in service; include contact name, telephone number, mailing address, and the names of the Engineer, Owner, and installation contractor; if three installations do not exist, the list shall include all that do exist, if any.
 - b. Available field data and reports associated with proposed product.
 - 5. Data relating to changes in construction schedule.
 - 6. Data relating to changes in cost.
 - 7. Samples:
 - a. As requested by the Engineer/ Owner.

1.2 APPROVAL OR REJECTION:

- A. Written approval or rejection of substitution given by the Engineer.
- B. Engineer reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.
- C. In event substitution results in a change in design or time, provisions in General Conditions will be applied for adjustment.
- D. Substitutions will be rejected if:
 - 1. Submittal is not through the Supplier with their written approval product is of equal quality and service.
 - 2. Requests are not made in accordance with this Section.
 - 3. In the Engineer's opinion, acceptance will require substantial revision of the original design.
 - 4. In the Engineer's opinion, substitution will not perform adequately the function consistent with the design intent, including operational and maintenance impacts.

END OF SECTION

**SECTION 01640
SUUPLIER'S SERVICES**

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Reference Section 01650, FACILITY STARTUP
- B. Person-Day: One person for 8 hours within regular CONTRACTOR working hours.

1.2 SCOPE

- A. Work under this section defines the minimum scope of services to be provided using factory representatives of the manufacturers of the equipment to be installed during installation, start-up, and operator training.
- B. Equipment manufacturers assigned unit responsibility for systems comprised of several components shall provide the service of factory representative from each component manufacturer to perform the duties required under these Specifications. The equipment manufacturer assigned unit responsibility shall be responsible for coordinating the activities of the system component manufacturers.

1.3 SUBMITTALS

- A. Training Schedule: Submit not less than 15 days prior to equipment installation and revise as necessary for acceptance.
- B. Training Materials:
 - 1. Final training materials must be approved by ENGINEER prior to equipment startup and training.
 - 2. Furnish complete outlines of proposed training session, operation and maintenance data for each trainee in attendance.
- C. Quality Control Submittals: As required in the individual Specification, submit:
 - 1. Qualifications of manufacturer's Representative performing specified services.
 - 2. Manufacturer's Certificate of Proper Installation using form provided by SUPPLIER.

1.4 QUALIFICATION

- A. Qualification of the representatives for installation, startup, and operator training purposes shall be an authorized representative of the manufacturer, factory trained, and experienced in the technical applications, installation, operation and maintenance of the equipment being installed and shall be subject to the approval of the ENGINEER. No substitutions of approved representatives will be allowed without the prior written approval of the ENGINEER.

- B. References in various equipment sections of the terms "factory representative" or "field representative" shall mean an employee or contractor of the equipment manufacturer who is trained, articulate, capable of coordinating and expediting training, and familiar with operation and maintenance manual information specified in Section 01782, OPERATION AND MAINTENANCE DATA.

1.5 COORDINATION

- A. Contractor shall notify ENGINEER 72 hours prior to any impending visit by factory representatives so that the ENGINEER may be present.
- B. ENGINEER may approve the services of a manufacturer's representative for more than one system during the same site visit.
- C. Installation Contractor shall perform the necessary inspections to ensure that all conditions necessary for successful training and/or startup services have been met prior to scheduling manufacturer's onsite services.

1.6 MINIMUM SUPPLIER'S SERVICES REQUIREMENTS

- A. Qualified factory representatives shall furnish manufacturer's services as specified in the Contract Documents.
- B. Where time is specified in the Contract Documents for manufacturer's services, the specified time shall be considered a minimum time and any time in excess of the specified time stated in the specifications to perform the required manufacturer's services shall be considered incidental work. ENGINEER approved days of service will be credited to fulfill the specified minimum manufacturer's services.
- C. Installation Contractor's training and startup schedule shall coordinate manufacturer's services to avoid conflicting with other onsite testing or other manufacturer's services.
- D. Manufacturer's services will include the following, as applicable to the specific system or equipment items:
 - 1. Installation assistance including observation, guidance, instruction of Installation Contractor's assembly, erection, installation or applications.
 - 2. Inspection, checking, and adjustment as required for product (system, subsystem, or component) to function as warranted by manufacturer and necessary to furnish written approval of installation.
 - 3. Additional site visits as necessary to address problems and until installation and operation are acceptable to ENGINEER.
 - 4. Perform, coordinate, and assist during functional and performance testing and startup demonstration, and until product acceptance by the ENGINEER.
 - 5. Training of OWNER'S personnel in the operation and maintenance of respective product as required.

6. Completion of Manufacturer's Certificate of Proper Installation with applicable certificates for proper installation and initial, interim, and final test or service.

1.7 SCHEDULE

- A. Coordinate with Installation Contractor the following.
- B. List specified equipment and systems with respective manufacturers that require training services of manufacturers' representatives and show:
 1. Estimated dates for installation completion.
 2. Estimated training dates to allow for multiple sessions when several shifts are involved.
- C. Adjust training schedule to ensure training of appropriate personnel as deemed necessary by OWNER, and to allow full participation by manufacturers' representatives. Adjust schedule for interruptions in operability of equipment.

1.8 TRAINING PLAN

- A. Training Plan: Submit for each proposed course:
 1. Title and objectives.
 2. Schedule of training courses including dates, durations, and locations of each class.
 3. Recommended types of attendees (e.g., managers, engineers, operators, maintenance).
 4. Course description and outline of course content.
 5. Duration.
 6. Instruction materials and equipment requirements.
 7. Detailed course schedule for each day showing time allocated to each topic.
 8. Resumes of instructors providing the training.

1.9 TRAINING OWNER'S PERSONNEL

- A. Manufacturer shall furnish the services of a factory representative to train the operations staff in the operation and maintenance of each item installed under these the Specifications. The time required to perform these services shall be shown in the equipment section, but shall be no less than one (1), eight (8) hour day.
- B. Pre-startup Training:
 1. Coordinate training sessions with operating personnel and manufacturers' representatives, and with submission of operation and maintenance manuals in accordance with Section 01782, OPERATION AND MAINTENANCE DATA.
 2. Complete at least 14 days prior to actual startup.
- C. Post-Startup Training: If required in Specifications, furnish and coordinate training of OWNER'S operating personnel by respective manufacturer's representatives.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01650 FACILITY STARTUP

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Reference Section 01640, MANUFACTURER'S SERVICES
- B. Functional Test: A test or tests in the presence of the ENGINEER and OWNER to demonstrate that the installed equipment or system meets manufacturer's installation and adjustment requirements and other requirements specified including, but not limited to, noise, vibration, alignment, speed, proper electrical and mechanical connections, thrust restraint, proper rotation, and initial servicing.
- C. Performance Test: A test performed in the presence of the ENGINEER and OWNER and after any required functional test specified, to demonstrate and confirm that the equipment and/or system meet the specified performance requirements.
- D. System: The overall process, or a portion thereof, that performs a specific function. A system may consist of two or more subsystems as well as two or more types of equipment. Examples of systems on this Project are as follows:
 - 1. Pumps, motors, equipment appurtenances, transducers.
 - 2. Instrumentation and control system(s).

1.2 SCOPE

- A. Work under this Section includes, but is not necessarily limited to, the provision of all labor and material required to perform startup of all equipment and mechanical systems installed under this Contract.
- B. Work defined under this Section includes providing the services of a factory representative in accordance with the requirements of Section 01640 MANUFACTURER'S SERVICES.

1.3 SUBMITTALS

- A. Administrative Submittals:
 - 1. Functional and performance test schedules and plan for equipment, units, and systems at least 15 days prior to start of related testing. Include test plan, procedures, and log format.
 - 2. Schedule and plan of facility startup activities at least 15 days prior to commencement.

- B. Quality Control Submittals:
 - 1. Manufacturer's Certificate of Proper Installation as required.
 - 2. Test Reports: Functional and performance testing, in format acceptable to ENGINEER and certification of functional and performance test for each piece of equipment or system specified.
 - 3. Certifications of Calibration: Testing equipment.
- 1.4 MANUFACTURER AND INSTALLATION CONTRACTOR FACILITY STARTUP RESPONSIBILITIES
- A. General:
 - 1. Perform all Work necessary for functional and performance tests specified in the Contract Documents.
 - 2. Demonstrate proper installation, adjustment, function, performance, and operation of equipment, systems, control devices, and required interfaces individually and in conjunction with process instrumentation and control system.
 - 3. Complete Work associated with the unit and related processes before testing, including related manufacturer's representative services.
 - 4. Installation Contractor shall have, at the plant site, Operation and Maintenance Manuals for equipment to be started.
 - 5. Furnish qualified manufacturer's representatives when required to assist in testing.
 - 6. Utilize the Manufacturer's Certificate of Proper Installation Form from Section 01640, MANUFACTURERS' SERVICES, supplemented as necessary, to document functional and performance procedures, results, problems, and conclusions.
 - 7. Schedule and attend pretest (functional and performance) meetings related to test schedule, plan of test, materials, chemicals, and liquids required, facilities' operations interface, ENGINEER and OWNER involvement.
 - 8. Designate and furnish one or more persons to be responsible for coordinating and expediting Installation Contractor's facility startup duties. The person or persons shall be present during facility startup meetings and shall be available at all times during the facility startup period.
 - 9. Provide temporary valves, gauges, piping, test equipment and other materials and equipment required to conduct testing.
- 1.5 OWNER/ENGINEER FACILITY STARTUP RESPONSIBILITIES
- A. General:
 - 1. Review CONTRACTOR'S test plan and schedule.
 - 2. Witness each functional or performance test.
 - 3. Coordinate other plant operations, if necessary, to facilitate testing.
 - 4. Provide water, power, chemicals, and other items as required for testing, unless otherwise indicated.

- B. Startup Test Period:
 - 1. Operate process units and devices, with support of Installation Contractor.
 - 2. Provide sampling, labor, and materials as required and provide laboratory analyses.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TESTING PREPARATION

- A. Cleaning and Checking: Prior to starting functional testing:
 - 1. Calibrate testing equipment for accurate results.
 - 2. Inspect and clean equipment, devices, connected piping, and structures so they are free of foreign material.
 - 3. Lubricate equipment in accordance with manufacturer's instructions.
 - 4. Turn rotating equipment by hand and check motor-driven equipment for correct rotation.
 - 5. Open and close valves by hand and operate other devices to check for binding, interference, or improper functioning.
 - 6. Check power supply to electric-powered equipment for correct voltage.
 - 7. Adjust clearances and torques.
 - 8. Test piping for leaks.
 - 9. Obtain completion of applicable portions of Manufacturer's Certificate of Proper Installation in accordance with Section 01640, MANUFACTURER'S SERVICES.

- B. Startup Test Period:
 - 1. As applicable to the equipment furnished, state in writing that all necessary hydraulic structures, piping systems, and valves have been successfully tested; that all necessary equipment systems and subsystems have been checked for proper installation, started, and successfully tested to indicate that they are all operational; that the systems and subsystems are capable of performing their intended functions; and that the facilities are ready for startup and intended operation.
 - 2. Attend pre-startup planning meetings and arrange for attendants by key major equipment manufacturer representatives as required by the Contract Documents.
 - 3. Designate and provide one or more persons to be responsible for coordinating and expediting Installation Contractor's startup duties.
 - 4. When plant startup has commenced, schedule remaining Work so as not to interfere with or delay the completion of plant startup. Support the startup activities with adequate staff to prevent delays, process upsets. This staff shall include, but not be limited to, major equipment and system manufacturers' representatives, subcontractors, electricians, instrumentation personnel, millwrights, pipefitters, plumbers.

5. Supply and coordinate specified manufacturer's plant startup services.
 6. Make adjustments, repairs, and corrections necessary to complete plant startup.
 7. After the plant is operating, complete the testing of those items of equipment, systems, and subsystems which could not be or were not adequately or successfully tested prior to plant startup.
- C. Ready-to-test determination will be by ENGINEER based at least on the following:
1. Notification by CONTRACTOR of equipment and system readiness for testing.
 2. Acceptable testing plan.
 3. Acceptable Operation and Maintenance Manuals.
 4. Receipt of manufacturer's Certificate of Proper Installation, if specified.
 5. Adequate completion of Work adjacent to, or interfacing with, equipment to be tested.
 6. Availability and acceptability of manufacturer's representative, when specified, to assist in testing of respective equipment, and satisfactory fulfillment of other specified manufacturers' responsibilities.
 7. Equipment and electrical tagging complete.
 8. All spare parts and special tools delivered to OWNER.

3.2 FUNCTIONAL TESTING – GENERAL

- A. Begin testing at a time mutually agreed upon by the OWNER, ENGINEER, and Installation Contractor.
- B. ENGINEER will be present during test. Notify in writing OWNER, ENGINEER, and manufacturer's representative(s) at least 10 days prior to scheduled date of functional tests.
- C. Separate items of equipment demonstrated to function properly during subsystem testing may require no further functional test if documentation of subsystem testing is acceptable to ENGINEER.
- D. Conduct functional tests as specified for each equipment item or system.
- E. Demonstrate all operational features and instrumentation and control functions while in automatic mode.
- F. If, in ENGINEER'S opinion, functional test results do not meet requirements specified, the systems will be considered as nonconforming.
- G. Performance testing shall not commence until the equipment or system meets the specified functional tests.

3.3 PERFORMANCE TEST – GENERAL

- A. Begin testing at a time mutually agreed upon by the OWNER, ENGINEER, and Installation Contractor.

- B. ENGINEER will be present during test. Notify in writing OWNER, ENGINEER, and manufacturer's representative(s) at least 15 days prior to scheduled date of functional tests.
- C. Conduct performance tests as specified for each equipment item or system.
- D. Unless otherwise indicated, Installation Contractor shall furnish all labor, materials, and supplies for conducting the test and taking all samples and performance measurements.
- E. Prepare performance test report summarizing test method. Include test logs, pertinent calculations, and manufacturer's written certification that the equipment or system performs as specified.

3.4 STARTUP TEST PERIOD

- A. A. General:
 - 1. Attend planning meetings and arrange for attendance by key major equipment manufacturer representatives as required by the Contract Documents.
 - 2. When facility startup has commenced, schedule remaining Work so as not to interfere with or delay the completion of facility startup.
 - 3. Support facility startup activities with adequate staff to prevent delays. Such staff shall include, but not be limited to, major equipment and system manufacturer's representatives, electricians, instrumentation and control personnel, millwrights, pipefitters, and plumbers.
 - 4. Furnish and coordinate specified manufacturer's facility startup services.
 - 5. After the facility is operating, complete the testing of those items of equipment, systems, and subsystems which could not or were not successfully tested prior to the startup test period.
- B. Startup Testing:
 - 1. Startup of the entire facility or any portion thereof requires the coordinated operation of the facilities by the CONTRACTOR, subcontractors, OWNER'S operating personnel, and manufacturer's representatives.
 - 2. Startup test period shall occur after all required functional tests have been completed and those performance tests deemed necessary for the safe operation of the entire facility have been completed.
 - 3. Startup of the entire facility or any portion thereof shall be considered complete when, in the opinion of the ENGINEER, the facility or designated portion has operated in the manner intended for 20 continuous days without significant interruption. This period is in addition to any training, functional, or performance test periods specified elsewhere.
 - 4. Signification interruption may include any of the following events:
 - a. Failure of CONTRACTOR to maintain qualified onsite startup personnel as schedule.
 - b. Failure to meet specified performance for more than 2 consecutive hours.
 - c. Failure of any critical equipment unit, system, or subsystem that is not

- satisfactorily corrected within 5 hours after failure.
 - d. Failure of any non-critical unit, system, or subsystem that is not satisfactorily corrected within 8 hours after failure.
 - e. As may be determined by ENGINEER.
 - 5. A significant interruption will require the startup then in progress to be stopped and restarted after corrections are made.
- C. Startup Test Reports: As applicable to the equipment furnished, certify in writing that:
- 1. Hydraulic structures, piping systems, and valves have been successfully tested.
 - 2. Equipment systems and subsystems have been checked for proper installation, started, and successfully tested to indicate that they are operational.
 - 3. Systems and subsystems are capable of performing their intended functions, including fully-automatic.
 - 4. Facilities are ready for intended operation.

END OF SECTION

**SECTION 01782
OPERATION AND MAINTENANCE DATA**

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation manuals for systems, subsystems, and equipment.
 - 2. Maintenance manuals for the care and maintenance of products, materials, finishes, systems, and equipment.
- B. See Divisions 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

- A. Manual: Submit 3 copies of each manual in final form at least 15 days before final inspection. ENGINEER will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with ENGINEER's comments. Submit 3 copies of each corrected manual within 20 days of receipt of ENGINEER's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project and Project Number.
 - 3. Name and address of OWNER.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Manufacturer
 - 6. Name and address of ENGINEER.
 - 7. Cross-reference to related systems in other operation and maintenance manuals.

- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280- mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project name and number, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, gas leak, water leak, power failure, water outage, equipment failure, and chemical release or spill.

- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of OWNER's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.

END OF SECTION

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SECTION 09900 PAINTING

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install all painting complete as shown on the Drawings and as specified herein.
- B. It is the intent of this Section to paint all new, exposed structural and miscellaneous steel and appurtenances, steel doors and frames, steel frames for glazed openings, door closers, pipe, fittings, supports, valves, mechanical and electrical equipment, roof fans, chemical tanks and systems, electrical conduit and appurtenances, sluice gates, operators and posts, interior gypsum work, interior CMU walls (where scheduled), exposed ductwork; all as specified herein, as indicated on the Drawings, and all other work obviously required to be painted unless otherwise specified. Minor items omitted in the schedule of work shall be included in the work of this Section where they come within the general intent of the specifications as stated herein.
- C. Paint items so noted in paragraph 1.1B and in accordance with the Painting Schedule and Color Coding Schedule herein. Provide letters and numbers for markings as specified. Items noted in Painting Schedule and Color Coding Schedule herein as having factory finish and other obviously factory finished items shall not be field painted. The Contractor is responsible for having damaged factory finish painted items repaired or, if so ordered, for replacing items. The various Sections are responsible, as stated in each, for preparation and field touch-up of abrasions, welds, and damaged primed areas of primed or galvanized components after erection.
- D. The following surfaces or items are not required to be painted under this Section:
 - 1. Portions of metal, other than aluminum, embedded in concrete. This does not apply to the back face of items mounted to concrete or masonry surfaces, which shall be painted before erection. Aluminum to be embedded in or in contact with concrete or masonry shall be coated to prevent electrolysis.
 - 2. Non-ferrous metals (except copper) and stainless steels, unless specified or noted otherwise.
 - 3. Fencing.
 - 4. Concealed surfaces of pipe or crawl spaces.
 - 5. Acoustical ceilings and acoustical metal panels.
 - 6. Tile.

7. Exterior concrete, unless specified or noted otherwise.
8. Door hardware, except door closers that are not finished.
9. Manhole frames and covers.
10. Fiberglass other than piping.
11. Packing glands and other adjustable parts, and nameplates and data plates of mechanical equipment.
12. Epoxy flooring.
13. Plumbing fixtures.
14. Furniture.
15. Maintenance equipment.
16. Factory prefinished architectural components.
17. Membrane roofing.
18. Acoustical metal deck.
19. Mechanical and electrical equipment that has been factory finished as specified in Divisions 11, 13, 15, and 16.

1.2 RELATED WORK

- A. Valve Identification is included in Division 1.
- B. Waterproofing and Dampproofing is included in Division 7.
- C. Surface Preparation and Shop Prime Painting is included in Section 09901.
- D. Building Signage is included in Division 10.
- E. Project signs are included in Division 1.
- F. Concrete is included in Division 3.
- G. Masonry is included in Division 4.
- H. Metals are included in Division 5.

1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01300.
- B. Product Data: For each type of product indicated.
- C. Samples: Submit the following for each type of coating system and in each color and gloss of finish coat indicated.
 - 1. Color cards for initial color selections.
 - 2. Three sets of 8-in by 8-in samples, on 1/4-in hardboard, of all colors required for all types of paint. Resubmit until approved.
- D. Schedule of Painting Operations: Submit to the Engineer, in accordance with Section 01300, a complete Schedule of Painting Operations within 90 days after the Notice to Proceed. This Schedule is imperative so that the various fabricators may be notified of the proper shop prime coat to apply. Properly notify and coordinate the fabricators' surface preparation and painting operations with these specifications. This Schedule shall include for each surface to be painted, the brand name, the percent volume of solids, the coverage, and the number of coats the Contractor proposes to use in order to achieve the specified DFT, and color charts. When the Schedule has been approved, apply all material in strict accordance with the approved Schedule and the manufacturer's instructions. Wet and dry paint film gauges shall be made available to the Engineer to verify the proper application while work is in progress.
- E. Documentation of the compatibility between prime coats and finish coats shall be submitted along with the date and ambient conditions for all prime coat installation with an established recoat window allowed for each prime system. Corrective surface preparation techniques shall be submitted for all systems in the event that the recoat window is missed.
- F. Product List: For each product indicated. Cross-reference products to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 REFERENCE STANDARDS

- A. Steel Structures Painting Council (SSPC)
 - 1. SSPC SP-1 - Surface Preparation Specification No. 1 Solvent Cleaning.
 - 2. SSPC SP-2 - Surface Preparation Specification No. 2 Hand Tool Cleaning.
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.5 DELIVERY, STORAGE AND HANDLING

- A. All painting materials shall be delivered to the mixing room in unbroken containers, bearing the manufacturer's brand, date of manufacture, and name. They shall be used without adulteration and mixed, thinned, and applied in strict accordance with manufacturer's directions for the applicable materials and surface before using.
- B. Painting materials shall be delivered to the job site in the original unopened containers, bearing the manufacturer's label. A Product Data Sheet and Material Safety Data Sheet for all painting, activators, thinners, accelerators, and other materials shall be obtained from the manufacturer for each shipment of materials to the job site. Painting materials shall be stored in a dry, well-ventilated area, not in direct contact with the ground, where the temperature is maintained between 40 and 120 degrees F. Damaged materials and/or materials exceeding the shelf life shall not be used.
- C. Paints shall be mixed in proper containers of adequate capacity. All paints shall be thoroughly stirred before use and shall be kept stirred while using. No unauthorized thinners or other materials shall be added to any paint. Air shall not be used directly for agitation. Pigmented material shall be strained after mixing. Where application equipment has strainers, they should be sized so as to allow pigment to pass but not foreign material. Multiple (2 or more) component catalyzed materials may not be used beyond the recommended pot life.
- D. Work areas will be designated by the Owner for storage and mixing of all painting materials. Materials shall be in full compliance with the requirements of pertinent codes and fire regulations. Proper containers outside of the buildings shall be provided and used for painting wastes, and no plumbing fixture shall be used for this purpose.
- E. All recommendations of the paint manufacturer in regard to the health and safety of workmen shall be followed.

1.6 PROJECT CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F.
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

1.8 QUALITY ASSURANCE

A. Manufacturer Representative

1. The Contractor shall require the paint manufacturer to furnish a manufacturer's qualified technical representative to visit the project site for technical support as required and ordered and as may be necessary to resolve field questions or problems attributable to or associated with the manufacturer's products furnished under this Contract or the application thereof.

B. Pre-Painting Conference

1. Well in advance of commencement of painting operations, but after major equipment has been delivered, a pre-painting conference shall be held. All parties with an interest in the painting work shall attend, including the Contractor, the manufacturer, the Owner, the Engineer, and the painting Contractor. The Contractor shall contact each party and arrange the meeting.
2. The conference shall include an inspection of the areas to be painted by all parties and a discussion of the conformance of each area with the specifications. Important issues such as environmental conditions, climate control systems, original primer, DFT, and monitoring the number of coats that have been field applied shall be discussed and problems shall be resolved.
3. A written record of the meeting shall be submitted to the Engineer.

C. Cold Weather Construction

1. All paint shall be at room temperature before applying, and no painting shall be done when the temperature is below 50 degrees F, in dust-laden air, when rain or snow is falling, or until all traces of moisture have completely disappeared from the surface to be painted. Lower temperatures will only be allowed with written instructions from the paint manufacturer.

D. Inspection and Testing

1. All materials and work shall be accessible and subject to inspection by the Engineer.
2. The completed work shall be inspected visually by the Engineer for skips, holidays, hiding, uniform color and appearance, and other imperfections. All defective work shall be corrected by the Contractor.

3. Coating thickness on steel shall be determined in accordance with SSPC PA 2. The number of readings will be a minimum of that stated in SSPC PA 2.
4. Coating integrity for coatings in immersion areas or subjected to splash and spillage shall be determined in accordance with NACE RP0188-88 using the low voltage wet sponge test method. All holidays will be clearly marked for repair.
5. The Contractor shall furnish to the job site and use for coating inspection and make available to the Engineer, the following test equipment:
 - a. Wet film thickness gauge.
 - b. Dry film thickness gauge (with certified thickness calibrator) equal to Mikrotest III; Elcometer Inspector III; or Positest.
 - c. Surface Temperature Gauge.
 - d. Holiday Detector, low voltage type such as Tinker & Razor Model M-1, Series 9533.
 - e. SSPC VIS-1-89T "Pictorial Surface Preparation Standard."
 - f. Keane-Tator Surface Comparator Number 372, or equal.
 - g. NBS Certified Coating Thickness Standards.
 - h. Sling Psychrometer.
 - i. Surface moisture metering device equal to Delmhors Model DB.

E. Warranty Inspection

1. A warranty inspection shall be conducted during the 11th month following completion of all coating and painting work. The Contractor, painting Contractor, and a representative of the coating material manufacturer shall attend this inspection with the Engineer and representative of the Owner.
2. All defective work shall be repaired in accordance with these specifications and to the satisfaction of the Engineer. The Owner may, by written notice to the Contractor, reschedule the warranty inspection to another date within the 1-year correction period or may cancel the warranty inspection altogether. If a warranty inspection is not held, the Contractor is not relieved of his responsibilities under the Contract Documents.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All painting materials shall be supplied by one manufacturer, unless otherwise approved by the Engineer. The paint schedule has been prepared on the basis of Tnemec Company Inc. products and application recommendations, unless otherwise noted in the schedule. Equals by Ameron (VyGuard), Carboline, or ICI/Devoe. All materials shall meet NSF Standard 61 and be fully equal to the Tnemec products listed in the following schedule. No brand other than those named will be considered for approval unless the brand and type of paint proposed for each item in the following schedule together with sufficient data substantiated by certified tests, conducted at no

expense to the Owner, to demonstrate its equality to the paint(s) named, is submitted in writing to the Engineer for approval within 30 days after the signing of the Notice to Proceed. The type and number of tests performed shall be subject to the Engineer's approval.

- B. Shop priming shall be done with primers that are guaranteed by the manufacturer to be compatible with the finish paints to be used. Refer to Section 09901 for special primers.
- C. No paint containing lead will be allowed. Oil shall be pure boiled linseed oil.

2.2 PAINT TYPES

- A. The following types of paints by Tnemec Co. have been used as a basis for the paint schedule:

| <u>Series</u> | <u>Series Name</u> | <u>Generic Description</u> | <u>Finish</u> |
|---------------|-----------------------|-------------------------------|---------------|
| 6 | Tneme-Cryl | 100% acrylic latex emulsion | semi-gloss |
| 30 | Spra-Saf EN | Hydrophobic Acrylic | |
| 36 | Undercoater | Wood Primer | |
| 39-1261 | Silicone Aluminum | high heat Silicone Aluminum | |
| 46H-413 | Hi-Build Tneme-Tar | Coal-Tar Epoxy | |
| 54-562: | Masonry Filler | Modified Epoxy Block Filler | |
| 61 | Tneme-Liner | Amine Epoxy | |
| 66 | Hi-Build Epoxoline | Polyamide Epoxy | |
| N69 | Hi-build Epoxoline II | Polyamidoamine Epoxy | |
| 73 | Endura-Shield | Semi-Gloss Acrylic Urethane | |
| 90-97 | Tneme-Zinc | Organic Zinc-Rich Urethane | |
| 113 | H.B. Tneme-Tufcoat | Water Based Epoxy | |
| 115 | Uni-Bond DF | Cross Linking Acrylic | |
| 135 | Chembuild | Surface Tolerant Epoxy | |
| N140 | Pota-Pox Plus | Polyamidoamine Epoxy (NSF 61) | |
| 156 | Enviro-Crete | Elastomeric Acrylate | |

| | | |
|-------------|------------------|--|
| 201 | Epoxoprime | Clear 100% Solids Epoxy |
| 211-212/213 | Glass Beads | Non-skid Additive for Series 291 |
| 218 | Mortarclad | Epoxy Modified Concrete |
| 222 | Deco-Tread | Colored Quartz Filled Epoxy |
| 275 | Stranlok | Fiber Reinforced Novolac Epoxy |
| 280 | Tneme-Glaze | 100% Epoxy |
| 282 | Tneme-Glaze | 100% Novolac Epoxy |
| 284 | Deco-Clear | 100% Solids Clear Epoxy |
| 287 | Enviro-Tread | Water Based Epoxy |
| 291 | CRU | Aliphatic Polyester Polyurethane Gloss |
| 434 | Perma-Shield H2S | Modified Aliphatic Amine Epoxy Mortar |
| 435 | Perma-Glaze | Modified Polyamine Epoxy |

2.3 PAINT SCHEDULE

A. The following surfaces shall have the types of paints scheduled below applied at the dry film thickness (DFT) in mils per coat noted:

B. Ferrous Metals

1. Submerged or subject to splashing

Surface Preparation: SSPC-SP5

Stripe Coat: Series 435-5021 (10 mils DFT) applied by brush over weld seams

1st Coat: Series 435-5022 (15-20 mils DFT)

2nd Coat: Series 435-5021 (15-20 mils DFT)

Min total DFT for 2 coats: 30 mils

2. Nonsubmerged (exterior)

Surface Preparation: SSPC-SP6

Stripe Coat: Series 90-97 (2.5 - 3.5 mils DFT) applied by brush over weld seams

Primer: Series 90-97 (2.5 - 3.5 mils DFT)

Int. Coat: Series N69 (3.0 - 5.0 mils DFT)

Topcoat: Series 73 (2.0 - 3.0 mils DFT)

Min total DFT for 3 Coats: 9.5 mils

C. Non-Ferrous Metals and Galvanized Steel

1. Submerged or subject splashing

Surface Preparation: SSPC-SP1 and SSPC-SP7
 1st Coat: Series N69 (4.0 - 6.0 mils DFT)
 2nd Coat: Series N69 (4.0 - 6.0 mils DFT)
 Min total DFT for 2 Coats: 10.0 mils

2. Nonsubmerged (exterior)

Surface Preparation: SSPC-SP1 and scarify
 Primer: Series N69 (3.0 - 5.0 mils DFT)
 Topcoat: Series 73 (2.0 - 3.0 mils DFT)
 Min total DFT for 2 Coats: 6.5 mils

3. Nonsubmerged (interior)

Surface Preparation: SSPC-SP1 and scarify
 1st Coat: Series N69 (2.0 - 4.0 mils DFT)
 2nd Coat: Series N69 (2.0 - 4.0 mils DFT)
 Min total DFT for 2 Coats: 6.0 mils

4. Aluminum in contact with dissimilar metals (nonsubmerged)

Surface Preparation: SSPC-SP1 and scarify
 1st Coat: Series N69 (2.0 - 4.0 mils DFT)
 2nd Coat: Series N69 (2.0 - 4.0 mils DFT)
 Min total DFT for 2 Coats: 6.0 mils

D. Concrete Masonry Units (Block)

1. Interior (conditioned office space)

Surface Preparation: Clean and dry
 Block Filler: Series 54-562 @ 60 - 80 SF/gal
 1st Coat: Series 6 (2.0 - 3.0 mils DFT)
 2nd Coat: Series 6 (2.0 - 3.0 mils DFT)
 Min total DFT for 2 coats (excluding block filler): 5.0 mils

2. Interior (unconditioned process/pump rooms)

Surface Preparation: Clean and dry
 Block Filler (2 coats): Series 54-562 @ 60 - 80 SF/gal (8.0 - 10.0 mils DFT per coat)
 1st Coat: Series 113 (4.0 - 6.0 mils DFT)
 2nd Coat: Series 113 (4.0 - 6.0 mils DFT)

Min total DFT for 2 Coats: 8.0 mils

E. Concrete (precast and cast in place)

1. Submerged or subject to splashing

Surface Preparation: SSPC-SP13
 Surfacer: Series 218 applied at 1/16"±
 1st Coat: Series N69 (4.0 - 6.0 mils DFT)
 2nd Coat: Series N69 (4.0 - 6.0 mils DFT)
 Min total DFT for 2 coats (excluding surfacer): 10.0 mils

2. Nonsubmerged (interior conditioned space)

Surface Preparation: Clean and dry
 1st Coat: Series 6 (2.0 - 3.0 mils DFT)
 2nd Coat: Series 6 (2.0 - 3.0 mils DFT)
 Min total DFT for 2 Coats: 5.0 mils

3. Nonsubmerged (exterior)

Surface Preparation: Clean and dry
 1st Coat: Series 156 (4.0 - 6.0 mils DFT)
 2nd Coat: Series 156 (4.0 - 6.0 mils DFT)
 Min total DFT for 2 coats: 10.0 mils

F. Surfaces exposed to severe H₂S / H₂SO₄

Surface Preparation: SSPC-SP13
 Surfacer: Series 218 (1/16" DFT)
 Mortar Coat: Series 434 (1/8" DFT)
 Glaze Coat: Series 435 (15-20 mils DFT)

G. Plastic piping nonsubmerged

1. Interior

Surface Preparation: SSPC-SP1 and scarify
 1st Coat: Series N69 (2.0 - 3.0 mils DFT)
 2nd Coat: Series N69 (2.0 - 3.0 mils DFT)
 Min total DFT for 2 coats: 5.0 mils

2. Exterior

Surface Preparation: SSPC-SP1 and scarify
 1st Coat: Series N69 (2.0 - 3.0 mils DFT)
 2nd Coat: Series 73 (2.0 - 3.0 mils DFT)

Min total DFT for 2 coats: 5.0 mils

H. Ductile iron pipe

1. Immersion

Surface Preparation: SSPC-SP6

1st Coat: Series N69 (6.0 – 8.0 mils DFT)

2nd Coat: Series N69 (6.0 – 8.0 mils DFT)

Min total DFT for 2 coats: 14.0 mils

2. Exterior

Surface Preparation: SSPC-SP6

1st Coat: Series N69 (6.0 – 8.0 mils DFT)

2nd Coat: Series 66 (2.0 – 4.0 mils DFT)

3rd Coat: Series 73 (2.0 – 3.0 mils DFT)

Min total DFT for 3 coats: 12.0 mils

I. Previously painted steel surfaces with solvent based coatings

1. Immersion

Surface Preparation: Pressure clean (3500 PSI) spot (SSPC-SP10) near white metal and brush blast (SSPC-SP7)

Spot Primer: Series N69 (3.0 – 5.0 mils DFT)

1st Coat: Series N69 (4.0 – 6.0 mils DFT)

2nd Coat: Series N69 (4.0 – 6.0 mils DFT)

2. Interior non-immersion

Surface Preparation: Pressure clean (3500 PSI) or solvent clean (SSPC-SP1) and spot power tool clean (SSPC-SP3)

Spot Primer: Series 135 (3.0 – 5.0 mils DFT)

Barrier Coat: Series 135 (3.0 – 5.0 mils DFT)

Top Coat: Series N69 (4.0 – 6.0 mils DFT)

3. Exterior:

Surface Preparation: Pressure clean (3500 PSI) or solvent clean (SSPC-SP1) and spot power tool clean (SSPC-SP3)

Spot Primer: Series 135 (3.0 – 5.0 mils DFT)

Barrier Coat: Series 135 (3.0 – 5.0 mils DFT)

Top Coat: Series 73 (2.0 – 3.0 mils DFT)

J. Overhead ceilings including (metal decking, rafters, ductwork, conduit, etc.)

1. Interior dry environments

Surface Preparation: Pressure clean (3500 PSI)

Coating: Series 115 (2.0 – 4.0 mils DFT)

2. Interior wet environments

Surface Preparation: Pressure clean (3500 PSI) and brush blast (SSPC-SP7)

Spot Primer: Series 135 (3.0 – 5.0 mils DFT)

1st Coat: Series 135 (3.0 – 5.0 mils DFT)

2nd Coat: Series 66 (3.0 – 5.0 mils DFT)

3. Exterior

Surface Preparation: Pressure clean (3500 PSI) and spot power tool clean (SSPC-SP3)

Spot Primer: Series 135 (3.0 – 5.0 mils DFT)

1st Coat: Series 30 (2.0 – 4.0 mils DFT)

2nd Coat: Series 30 (2.0 – 4.0 mils DFT)

K. Wood (interior and exterior)

Surface Preparation: Clean and dry

Primer: Series 36 (2.0 – 3.0 mils DFT)

1st Topcoat: Series 6 (2.0 – 3.0 mils DFT)

2nd Topcoat: Series 6 (2.0 – 3.0 mils DFT)

Min total DFT for 3 Coats: 7.5 mils

- L. Any surfaces not specifically named in the Schedule and not specifically excepted shall be prepared, primed, and painted in the manner and with materials consistent with these specifications. The Engineer shall select which of the manufacturer's products, whether the type is indicated herein or not, shall be used for such unnamed surfaces. No extra payment shall be made for this painting.

2.4 LETTERING OF TITLES

- A. Each pipe system shall be labeled with the name of the materials in each pipeline and alongside this an arrow indicating the direction of flow of liquids. Titles shall be as so described in attached schedule. Titles shall not be located more than 5-li-ft apart, and shall also appear directly adjacent to each side of any wall the pipeline breaches, adjacent to each side of the valve regulator, flowcheck, strainer cleanout, and all pieces of equipment.
- B. Titles shall identify the contents by complete name. Identification title locations shall be determined by the Engineer but in general they shall be placed where the view is unobstructed and on the two lower quarters of pipe or covering where they are overhead. Title should be clearly visible from operating positions especially those

adjacent to control valves.

- C. Titles on equipment shall be applied at eye level on machines where possible or at the upper most broad vertical surface of low equipment. Where more than one piece of the equipment item to be titled exists, the items shall be numbered consecutively as indicated on the mechanical drawings or as directed by the Engineer; for example Pump No. 1, Pump No. 2, etc. Titles shall be composed and justified on the left hand side as follows:

- 1. Pump No. 1

- D. Application of titles

- 1. The color of the titles shall be black or white, as approved, to best contrast with the color of the pipes and equipment and shall be stencil applied.
- 2. Text is to be in ALL CAPS worded exactly as shown in the Schedule. Titles are to be printed in a single line.
- 3. Letter sizes

| Outside Diameter of Pipe or Covering | Size of Legend Letters |
|--------------------------------------|------------------------|
| (in) | (in) |
| 3/4 to 1-1/4 | 1/2 |
| 1-1/2 to 2 | 3/4 |
| 2-1/2 to 6 | 1-1/4 |
| 8 to 10 | 2-1/2 |
| More than 10 | 3-1/2 |

Equipment titles are to be 2-in high.

- 4. Arrow sizes. Where "a" is equal to 3/4 of outside diameter of pipe or covering, the arrow shaft shall be 2 "a" long by 3/8 "a" wide. The arrow head shall be an equilateral triangle with sides equal to "a." Maximum "a" dimension shall be 6-in.
- 5. When using direction arrows, point arrowhead away from pipe markers and in direction of flow. If flow can be in both directions, use a double-headed directional flow.

2.5 TITLES FOR EQUIPMENT

- A. Titles shall be provided in vinyl film on all equipment using 2-in high Optima Bold upper case, Grid 2 spacing, white or black in color as approved depending on substrate. Titles shall be mounted at eye level on machines where possible or at the

upper most broad vertical surface of low equipment. Where more than one piece of the equipment item to be titled exists, the items shall be numbered consecutively as indicated on the mechanical drawings or as directed by the Engineer; for example Pump No. 1, Pump No. 2, etc. Titles shall be composed in more than one line if required and justified on the left-hand side as approved.

2.6 METAL TAGS

- A. For pipelines smaller than 3/4-in in diameter, securely fasten metal tags, 2-1/2-in by 1/2-in, of Birmingham or Stubs aluminum with lettering etched and filled with enamel. Tags shall be approved by the Engineer.

2.7 VALVE MARKERS

- A. Furnish and install aluminum tags with engraved lettering as approved by Engineer on all above ground chemical system and process piping valves.

2.8 FABRICATED EQUIPMENT

- A. Unless otherwise indicated, all fabricated equipment shall be shop primed and shop or field finished.
- B. All items to be shop primed shall be thoroughly cleaned of all loose material prior to priming. If, in the opinion of the Engineer, any prime coating shall have been improperly applied or if material contrary to these specifications shall have been used, that coating shall be removed by sandblasting to white metal and reprimed in accordance with these specifications.
- C. All shop prime coats shall be of the correct materials and applied in accordance with these specifications. Remove any prime coats not in accordance with these specifications by sandblasting and apply the specified prime coat at no additional cost to the Owner.
- D. Shop primed surfaces shall be cleaned thoroughly and damaged or bare spots retouched with the specified primer before the application of successive paint coats in the field.
- E. The Contractor shall be responsible for and take whatever steps are necessary to properly protect the shop prime and finish coats against damage from weather or any other cause.
- F. A shop finish coat shall be equal in appearance and protection quality to a field applied finish coat. If, in the opinion of the Engineer, a shop finish coat does not give the appearance and protection quality of other work of similar nature, prepare the surfaces and apply the coat or coats of paint as directed by the Engineer to accomplish the desired appearance and protection quality. Submit to the Engineer substantial evidence that the standard finish is compatible with the specified finish coat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
 - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Concrete: 12 percent.
 - b. Masonry (Clay and CMU): 12 percent.
 - c. Wood: 15 percent.
 - d. Gypsum Board: 12 percent.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 4. Coating application indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. All surfaces to be painted shall be prepared as specified herein and shall be dry and clean before painting. Special care shall be given to thoroughly clean interior concrete and CMU surfaces to receive polyamide cured epoxy paint of all marks before application of finish.
- B. All metal welds, blisters, etc, shall be ground and sanded smooth. All pits and dents shall be filled and all imperfections shall be corrected so as to provide a smooth surface for painting. All rust, loose scale, oil, tar and asphalt bearing coatings, grease and dirt shall be removed by use of approved solvents, wire brushing, grinding or sanding.
- C. Concrete surfaces shall have been finished as specified in Section 03350. Report unsatisfactory surfaces to the Engineer. Concrete shall be left for one month minimum before painting and shall be free of dust, oil, curing compounds and other foreign matter.
- D. Concrete masonry unit surfaces shall be smooth and cleaned of all dust, loose mortar and other foreign matter.
- E. All PVC pipe and other plastic matrix surfaces to be painted shall be sanded to an approved profile and cleaned of residue before painting.

- F. All PVC pipe and other plastic matrix surfaces to be painted shall be lightly sanded and cleaned of residue before painting.
- G. Galvanized, aluminum, and copper surfaces shall have all oxidation and foreign material removed before painting by SSPC SP-1, using an approved V.O.C. compliant method. Galvanized and, when ordered, the other metal surfaces specified above shall be hand tool cleaned to SSPC SP-2 standards to provide a uniform 1 mil surface profile.
- H. Existing Surfaces to be Repainted
 - 1. Existing masonry, steel and other previously field painted surfaces indicated on drawings, or so noted, shall be repainted.
 - 2. Preparation shall be in general as specified above for new surfaces except that all loose paint shall be removed and all edges of existing paint shall be feathered to ensure a smooth surface.
 - 3. Paint removal, capture of its residue, and its disposal shall be handled in accordance with all laws and regulations concerning disposal of hazardous materials.
 - 4. Primer (spot) and paint used for a particular surface shall, in general, be as scheduled for that type of new surface. Provide an approved organic zinc-rich (min. 83% zinc in dried film) primer as specified. Confirm with the paint manufacturer that the paint proposed for a particular repaint condition will be compatible with the existing painted surface. Perform adhesion and compatibility tests on existing substrates as ordered and required. Repainted areas shall be covered by the same guaranty specified for remainder of Project.

3.3 WORKMANSHIP

A. General

- 1. At the request of the Engineer, sample areas of the finished work prepared in strict accordance with this Section shall be furnished and all painting shall be equal in quality to the approved sample areas. Finished areas shall be adequate for the purpose of determining the quality of workmanship. Experimentation with factory or paint manufacturer's warehouse mixed colors shall be furnished to the satisfaction of the Engineer where standard chart colors are not satisfactory.
- 2. Protection of furniture and other movable objects, equipment, fittings and accessories shall be provided throughout the painting operation. Canopies of lighting fixtures shall be loosened and removed from contact with surface, covered and protected and reset upon completion. Remove all electric plates,

surface hardware, etc, before painting, protect and replace when completed. Mask all machinery name plates and all machined parts not receiving a paint finish. Dripped or spattered paint shall be promptly removed. Lay drop cloths in all areas where painting is being done to adequately protect flooring and other work from all damage during the operation and until the finished job is accepted.

3. On metal surfaces apply each coat of paint at the rate specified by the manufacturer to achieve the minimum dry mil thickness required. If material has thickened or must be diluted for application by spray gun, the coating shall be built up to the same film thickness achieved with undiluted material. One gallon of paint as originally furnished by the manufacturer shall not cover a greater area when applied by spray gun than when applied unthinned by brush. Deficiencies in film thickness shall be corrected by the application of an additional coat(s). On masonry, application rates will vary according to surface texture; however, in no case shall the manufacturer's stated coverage rate be exceeded. On porous surfaces, it shall be the painter's responsibility to achieve a protective and decorative finish either by decreasing the coverage rate or by applying additional coats of paint.

B. Field Priming

1. Steel members, metal castings, mechanical and electrical equipment and other metals which are shop primed before delivery at the site will not require a prime coat on the job. All piping and other bare metals to be painted shall receive one coat of primer before exposure to the weather, and this prime coat shall be the first coat as specified in the painting schedule. Surface preparation of bare metal shall be the responsibility of the Contractor.
2. Equipment which is specified to receive a baked-on enamel finish or other factory finish shall not be field painted unless the finish has been damaged in transit or during installation. Surfaces that have been shop painted and have been damaged, or where the shop coat or coats of paint have deteriorated, shall be properly cleaned and retouched before any successive painting is done on them in the field. All such field painting shall match as nearly as possible the original finish. Preparation and painting shall be provided by the Contractor.
3. Equipment shipped with a protective shop painting coat or coats shall be touched up to the satisfaction of the Engineer with primers as recommended by the manufacturer of the finish paint. Preparation and painting shall be provided by the Contractor.

C. Field Painting

1. All painting at the site shall be under the strict inspection of the Engineer. Only skilled painters and, where dictated by special conditions or systems and so ordered, specialist painters shall be used on the work.
2. All paint shall be at room temperature before applying, and no painting shall be done when the temperature is below 60 degrees F, in dust-laden air, when rain or snow is falling, or until all traces of moisture have completely disappeared from the surface to be painted.
3. Successive coats of paint shall be different shades (from paint manufacturer's stock or shop mixed paint) of the required colors so as to make each coat easily distinguishable from each other with the final undercoat the approximate shade of the finished coat to ensure no show-through as approved.
4. Finish surfaces shall not show brush marks or other irregularities. Undercoats shall be thoroughly and uniformly sanded with the type paper appropriate for the undercoats to remove defects and provide a smooth even surface. Top and bottom edges of doors shall be painted.
5. Painting shall be continuous and shall be accomplished in an orderly manner so as to facilitate inspection. Materials subject to weather shall be primed coated as quickly as possible. Surfaces of exposed members that will be inaccessible after erection shall be cleaned and painted before erection.
6. All painting shall be performed by approved methods with number of coats modified as required to obtain the total dry film thickness specified. Spray painting shall be performed specifically by methods submitted and as approved by the Engineer.
7. All surfaces to be painted as well as the atmosphere in which painting is to be done shall be kept warm and dry by heating and ventilation, if necessary, until each coat of paint has hardened. Any defective paint shall be scraped off and repainted in accordance with the Engineer's directions.
8. Before final acceptance of the work, all damaged surfaces of paint shall be cleaned and repainted as directed by the Engineer.
9. Only the aluminum work noted on the Drawings or in the Painting Schedule shall be field painted.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when coatings are being applied:

1. Owner will engage the services of a qualified testing agency to sample coating material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with specified requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Engineer, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 COLOR CODING FOR PIPES AND EQUIPMENT

- A. Color coding shall consist of color code painting and identification of all exposed conduits, trough items, and pipelines for the transport of gases, liquid, and semi-liquids including all accessories such as valves, insulated pipe coverings, fittings, junction boxes, bus bars, connectors, and all operating accessories which are integral to the whole functional mechanical pipe and electrical conduit system. Colors shall be as noted in the Color Coding Schedules at the end of this Section.
- B. All hangers and pipe support floor stands shall be painted the same color and with the same paint as the pipe it supports. The system shall be painted up to but not including the flanges attached to the mechanical equipment nor the flexible conduit connected to electrical motors. When more than one pipe system is supported on the same bracket, the bracket shall be painted the same color as the adjacent wall or ceiling. Colors shall be as noted in the Color Coding Schedule as selected and approved by Engineer.
- C. All systems that are an integral part of the equipment, that is originating from the

equipment and returning to the same piece of equipment, shall be painted between and up to but not including, the fixed flanges or connections on the equipment.

- D. The color code establishes, defines, and assigns a definite color for each category of pipe. Pipelines, equipment, or other items that are not listed in the Color Coding Schedule shall be assigned a color by the Engineer and shall be treated as an integral part of the Contract.
- E. Banding for pipes shall be as specified in the Color Coding Schedule. Bands shall be 2-in wide and spaced 5-ft on center, located on each end of the pipe title, at 2-ft from the title bands, and at wall penetrations.
- F. All moving parts, drive assemblies, and covers for moving parts which are potential hazards shall be Safety Orange #CA26.
- G. All safety equipment shall be painted in accordance with OSHA standards.
- H. All inline equipment and appurtenances not assigned another color shall be painted the same base color as the piping. The pipe system shall be painted with the pipe color up to but not including the flanges attached to pumps and mechanical equipment assigned another color. Tanks shall be painted the color of the piping system that they serve, unless the tank is fiberglass and levels are monitored through the tank.
- I. All conduit shall be painted to match its background surface.
- J. Control panels shall be factory finished.
- K. All colors will be confirmed by the Engineer from color charts submitted by the Contractor, based on the color coding schedule herein.

3.7 COLOR IDENTIFICATION

- A. All color numbers and names herein refer to master color card. Colors of specified equal manufacturers may be substituted with approval of the Engineer.
- B. Building surface colors shall be painted as scheduled in the Color Coding Schedule or as selected by the Engineer.
- C. The following Tnemec colors shall be used as a basis for the Color Coding Schedule:

| <u>Colors</u> | <u>Tnemec Name</u> | <u>Tnemec #</u> |
|----------------------|----------------------|-----------------|
| White | White | 11WH |
| International Orange | International Orange | 05SF |
| Safety Yellow | Lemon Yellow | 02SF |
| Safety Green | Hunter Green | 08SF |

| | | |
|-------------|-------------|------|
| Brown | | 24YB |
| Dark Brown | | 23YB |
| Safety Red | Chilean Red | 07SF |
| Gray | Slate Gray | 32GR |
| Safety Blue | True Blue | 11SF |
| Black | Black | 35GR |

3.8 COLOR CODING SCHEDULE

- A. Color selection for the following items are to be reviewed by the Engineer and approved by the Owner at the time of shop drawing review. The Contractor shall submit color charts for color selections.

| <u>Piping and Legend</u> | <u>Color</u> | <u>Bands</u> |
|--------------------------|--------------|---------------|
| Basin Drain | Brown | White |
| Drain | Gray | Safety Blue |
| Dewatering Filtrate | Gray | Safety Green |
| Digester Sludge | Brown | International |
| Grit Basin Influent | | |

| <u>Piping and Legend</u> | <u>Color</u> | <u>Bands</u> |
|--------------------------|---------------|----------------------------|
| High Pressure Air | Green | |
| Instrument Air | Green | |
| Irrigation Water | Blue | Black |
| Low Pressure Air | Green | |
| Natural Gas | Orange | Black |
| Non Potable Water | Blue | Black |
| Polymer Solution | White | Safety Green/Black/Red |
| Potable Water | Safety Green | |
| Return Activated Sludge | Brown | Gray/Red |
| Raw Sewage | Gray | Black |
| Scum | Dark Brown | Gray |
| Secondary Effluent | Gray | International Orange/Brown |
| Sludge | Brown | Safety Blue/Black |
| Sanitary Force Main | | |
| Sample | Safety Green | Safety Yellow |
| Storm Water | | |
| Thickened Sludge | Brown | Red/Black |
| Vacuum | Safety Yellow | Safety Blue |
| Water Activated Sludge | Brown | Gray/Black |

Building and Architectural Components

Interior Wall Color Sherwin Williams SW 6105 Divine White

Interior Metal Doors and Frames to match wall color

Other Colors, if not identified in appropriate Specification Sections, shall be selected by the Engineer and approved by the Owner.

END OF SECTION

**SECTION 11215
VERTICAL TURBINE EFFLUENT PUMPS**

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section covers the work necessary for furnishing vertical turbine pumps, complete with accessories, for reuse pumping.
- B. Installation shall be performed by the Installing Contractor in accordance with Drawings and Specifications to provide a working system.
- C. Related work:
 - 1. Documents affecting Work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Painting as included in Section 09900
 - 3. Electrical as included in Division 16

1.02 SPARE PARTS

- A. Provide standard spare parts as recommended by the equipment manufacturer for one (1) year of service at design loading, as well as the following part(s):
 - 1. One set of all pump shaft and driver bearings.
- B. Furnish all special tools and test equipment required for the proper servicing of all equipment. All such tools and test equipment shall be furnished in a suitable steel tool chest.
- C. All spare parts shall be properly protected for long periods of storage and packed in containers that are clearly identified markings as to contents.

1.03 QUALITY ASSURANCE

- A. Referenced manufacturers are National Pump Company, Fairbanks Nijhuis, Layne/Verti-Line, Patterson Pump Company, Xylem Goulds or Peerless Pump Company. Equal products of other manufacturers complying with these specifications may be provided as outlined in the Bid Form and as approved by the Engineer. The SUPPLIER shall submit completed pump data sheets similar to that included at the end of this section.
- B. Technical Services: Provide service of manufacturer's service engineer, complying

with the following:

- Erection and installation: Two days, one trip.
 - Start-up and training: Two days, one trip
- b. To assure unity of responsibility, the motors, and supporting sole plates shall be furnished and coordinated by the pump manufacturer. The manufacturer shall assume responsibility for the satisfactory operation of the entire pumping system including pumps, motors, and sole plates, as specified.
- c. The equipment furnished shall be designed and constructed to operate satisfactorily when installed as shown on the Drawings.

1.04 REFERENCE STANDARDS

- A. Design, manufacturing and assembly of elements of the equipment specified herein shall be in accordance with, the following:
1. American Gear Manufacturers Association (AGMA)
 2. American Institute of Steel Construction (AISC)
 3. American Iron and Steel Institute (AISI)
 4. American Society of Mechanical Engineers(ASME)
 5. American National Standards Institute (ANSI)
 6. American Water Work Association (AWWA)
 7. American Welding Society (AWS)
 8. American Bearing Manufacturers Association (ABMA)
 9. Hydraulic Institute Standards - 2.6
 10. Institute of Electrical and Electronics Engineers (IEEE)
 11. National Electrical Code (NEC)
 12. National Electrical Manufacturers Association (NEMA)
 13. Occupational Safety and Health Administration (OSHA)
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 DELIVERY STORAGE AND HANDLING

- A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the unit and equipment are ready for operation.
- d. All equipment and parts must be properly protected against any damage during shipment. Store the equipment in accordance with manufacturer's recommendations.

VERTICAL TURBINE EFFLUENT PUMPS

- e. Factory assembled parts and components shall not be dismantled for shipment unless transportation restrictions require a partial dis-assembling of the unit, and the CMAR is notified and acknowledges in writing.
- f. The finished surfaces of all exposed flanges shall be protected by wooden or equivalent blank flanges, strongly built and securely bolted thereto.
- g. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
- h. For protection of bearings during shipment and installation, the bearing shall be properly processed. Anti-friction bearings, if pre-lubricated, shall be protected in accordance with the bearing manufacturer's recommendations against formation of rust during a long period of storage while awaiting completion of installation and start-up of the machine in which they are used. Anti-friction bearings which are not pre-lubricated shall be properly treated in accordance with the bearing manufacturer's recommendation against formation of rust during a long period of storage while waiting completion of installation and start-up by the application of Exxon, Rust-Ban No. 392 or equal treatment.

PART 2 - PRODUCTS

2.01 VERTICAL TURBINE PUMPS

- A. Provide open lineshaft, water lubricated type pumps, complete with motor, discharge head, pump can and all specified appurtenances.
 - 1. Pumps to conform to AWWA Specification E103 as amended to date.
- B. Performance and design requirements:
 - 1. Elgin Reuse Pump Nos. 1 and 2
 - a. Primary design point: 2,800 gpm at 126' TDH
 - b. Efficiency at primary design point: 83-percent
 - c. NPSHR: 14'
 - d. Maximum speed: 1,200 rpm
 - e. Motor Horsepower: 125 hp
 - f. Minimum shutoff head: 210 feet
 - g. Column size: 14"
 - h. Discharge flange: 14"
 - i. Operational current: 460 v, 3 phase, 60 hertz
 - 2. FWB Reuse Pump Nos. 1 and 2
 - a. Primary design point: 1,400 gpm at 75' TDH
 - b. Efficiency at primary design point: 79-percent
 - c. NPSHR: 8.8'
 - d. Maximum speed: 1,200 rpm

VERTICAL TURBINE EFFLUENT PUMPS

- e. Motor Horsepower: 50 hp
 - f. Minimum shutoff head: 123 feet
 - g. Column size: 10"
 - h. Discharge flange: 10"
 - i. Operational current: 460 v, 3 phase, 60 hertz
3. Provide pumps with net positive suction head requirements (NPSHR) less than the net positive suction head available (NPSHA) at all operating conditions.
- C. Impellers:
1. Furnish enclosed type, carefully machined and dynamically balanced.
 - a. Provide of silicon bronze ASTM B 584 C87500.
 - b. Lock securely to the Type 416 stainless steel bowl shaft using a Type 416 stainless steel collet, for bowls 18" and larger, and Type 316 stainless steel collet for bowls 16" and smaller.
- D. Bowls:
1. Furnish cast iron Class 30 bowls with properly designed guide vanes.
 2. Fusion bonded epoxy lined bowls.
 - a. Provide coatings in contact with water that are NSF certified.
 3. Use leaded bronze SAE660 bowl bearings.
 4. Fit each bowl casing with replaceable bronze or cast iron wear rings, compatible with the bowl assembly material.
- E. Discharge column and lineshaft:
1. Furnish outer discharge column of carbon steel ASTM A 53 Grade A36 with flanged joints and Type 316 stainless steel bolting.
 2. Provide column and lineshaft in maximum lengths of five feet.
 3. Furnish Type 416 stainless steel lineshaft, with Type 316 stainless steel sleeves at each bearing point and Type 416 stainless steel screw couplings.
 4. Place lineshaft sleeves on full size shaft (no undercutting) and secure in place without welding.
 - a. Replacement sleeves shall permit field installation without special tools.
 5. Provide lineshaft of adequate size to transmit the full horsepower of the pumping unit without slip, vibration or excessive elongation.

VERTICAL TURBINE EFFLUENT PUMPS

- a. Provide keyed design of lineshaft capable of taking rotation in either direction.
 - b. Provide stainless steel ASTM A276 Type 304 lineshaft couplings including keys and fasteners.
 - c. Threads, except on fasteners, will not be accepted in the construction of the couplings.
- F. Lineshaft bearings:
1. For column 12" and smaller use Bronze ASTM A 534-C93200 bearings with cast iron retainers, column flanges to be maintained with register fits at the column flanges and bearing retainer.
 2. For column 14" and larger use rubber bearings with integral steel retainers, the retainers to be bored on a completed column assembly, and the flanges machined for a register fit.
- G. Discharge head:
1. Provide discharge head of ASTM A48 cast iron construction or fabricated from ASTM A-36 steel with a minimum 3/8" wall thickness.
 2. Provide with miterless long radius elbow.
 3. Furnish with suitable centering ring to receive a vertical hollow shaft motor.
 4. Design heads for above ground discharge and fit with flanged discharge of size indicated in pump schedule.
 - a. Use ANSI 125 lb. flange on cast heads.
 - b. Use 150 lb. design flange on fabricated heads.
 5. Provide stuffing box fitted with split type follower and a Type 316 stainless steel sleeve, o-ring mounted and easily replaced through the stuffing box.
 6. Provide pre-lube (water) connection.
 7. Furnish two-piece, Type 416 stainless steel headshaft with Type 416 stainless steel flanged coupling with Type 316 stainless steel bolts.
- H. Base plates:
1. Provide with separate cast iron sub-base to be permanently grouted and anchored to concrete foundation.
 2. Plates to be drilled and tapped to accept pump base flange and anchor bolts.

VERTICAL TURBINE EFFLUENT PUMPS

3. Use stainless steel anchor bolts for anchoring base plate to the concrete base.
- I. Factory coatings:
1. Prime coat interior and exterior of pump and exterior of motor per Section 09900 in the manufacturer's shop before shipment.
 2. Finish coat interior and exterior of pump column and bowl assembly and interior of discharge discharge per Section 09900.
 3. Manufacturer's standard color may be applied to surfaces that will be hidden from view in the final installation.
- J. Nameplate: Provide each pumping unit with a stainless steel nameplate with the following information:
1. Manufacturers name, address and telephone number.
 2. Model number.
 3. Serial number.
 4. Head, capacity and RPM at rated condition.
 5. Motor horsepower, RPM and frame size.
- K. Mechanical seals:
1. Provide mechanical seals unless specified otherwise.
 2. Provide stationary balanced O-ring type.
 3. Materials:
 - a. Metal parts except springs: 316 stainless steel.
 - b. Springs: Hastelloy C.
 - c. Seal faces: Unfilled carbon graphite silica-free grade 99.55 ceramic.
 - d. Elastomers: Viton.
 4. Acceptable Manufacturer: Chesterton or equal.

2.02 DRIVE MOTOR

A. General:

1. Provide direct connected, high efficiency, totally enclosed, fan cooled, corrosive and mill duty, vertical hollow shaft, squirrel cage induction motors, built to form an integral part of the pump head assembly.
 - a. Elgin Reuse Pump Nos. 1 and 2: Inverter duty motor rated for future VFD service.
 - b. FWB Reuse Pump Nos. 1 and 2: Inverter duty motor rated for future VFD service.
2. Provide energy efficient motors which have nominal efficiencies equal to or greater than that stated in NEMA MG-1.
3. Motors shall utilize the inverter grade insulation system which consists of at a minimum Class F or better insulation materials with additional phase insulating material, extra end-turn bracing and Class H spike resistant wire. The resultant system shall withstand 2000 volt transients without premature motor failure and have no cable limitations in motor application.
4. Motors shall operate successfully under inverter running conditions at rated load with variation in the voltage or the frequency not exceeding the following conditions:
 - a. +/-10% rated voltage at rated constant volts/hertz ratio except for specific torque boost situations.
 - b. Motors shall operate successfully under running conditions at rated load and volts/hertz ratio when the voltage unbalance at the motor terminals does not exceed one percent.
5. Inverter Operating Characteristics - With rated volts/hertz ratio applied, motor performance shall be as follows for critical operating characteristics:
 - a. Torque - Motors shall meet or exceed the minimum locked rotor (starting) and breakdown torque specified in NEMA Standard MG1 Part 12 for Design B for the rating specified when on sine wave power.
 - b. Currents -Maximum overload current shall be 150% of nameplate for 60 seconds or 175% for 3 seconds.
6. Motors shall not be overloaded at the design condition or at any point on the pump curve, excluding the service factor.
7. Provide minimum service factor of 1.15 and bearings designed for an average life of 20 years.
8. Provide non-reversing ratchets.

VERTICAL TURBINE EFFLUENT PUMPS

9. Furnish high thrust or extra high thrust in conformance with thrust requirements of the pump schedule.
 10. Furnish motor in current NEMA design, cast iron frame with copper windings, and having a minimum efficiency rating of 90% and a minimum power factor rating of 85%.
 11. Maximum sound pressure level of the motors, when measured at a distance of one meter away shall not exceed 90 dB(A).
 12. Thermal protection system consisting of thermistors and a monitoring relay:
 - a. Three (3) thermistors embedded in the coils, one in each phase, protecting the stator windings from damaging temperatures resulting from motor overload, too-frequent starting, blocked air passages, and locked-rotor current.
 - b. Monitor and alarm panel enclosure shall be NEMA 4X stainless steel with hinged cover.
 - c. Provide power from panel from the motor controller.
 - d. Panel shall contain adjustable RTD monitors and relays that will latch when a high temperature setting is reached.
 - e. Panel door shall include two LED type indicating lights, one for winding high temperature and one for bearing high temperature, and one alarm reset pushbutton.
 13. Provide silicone rubber strip type space heaters rated 120 volts.
 14. Acceptable manufacturers: Baldor, U.S. Motors, General Electric, or equal.
- B. Characteristics: Provide motors properly selected to perform under these operating conditions:

2.03 PRESSURE GAUGES

- A. Provide pressure gauges where indicated on the drawings and not otherwise specified in separate sections of these Specifications.
1. Provide solid front rounded type, 4 or 4-1/2" phenolic or stainless steel case with blow-out back, Type 316 stainless steel bourdon tube, glycerin fill, 1/2" NPT bottom male threaded connection, Teflon coated 400 series, stainless steel rotary movement, black micro-adjusted corners and black figures with white plastic dials, and a threaded ring.
 2. Provide gauge accurate to within 1/2% of the total scale range.
 3. Provide glycerin filled diaphragm isolators on all gauges except for those

VERTICAL TURBINE EFFLUENT PUMPS

used on potable water systems.

- a. Provide diaphragm material resistant to chemicals in the process line being measured.
 - b. Type 316L stainless steel housing and components.
 - c. 1/2" connection.
 - d. Provide fill/bleed connection.
 - e. Viton o-rings with Teflon back-up ring.
4. Select gauge at the nearest standard range which provides a top limit above the pump shutoff head at the operating conditions but no greater than 10% above the shut off head.
 5. Each gauge connection to consist of a shutoff valve and 1/2" stainless steel piping connections.
 - a. Shutoff valve to be Type 316 stainless steel ball valve with T-handle operator.
 6. Provide gauges manufactured by Ametek, Ashcroft, U.S. Gauge or Wika.

2.04 SPECIAL COATINGS

- A. Manufacturer shall coat inside and outside of column piping, outside of bowls and inside of discharge head. Tnemec system of 3 mils Series Omnithane, 4 mils of Series N149-1255 Pota-Pox and 4 mils Series N140-15BL White Pota-Pox.

2.05 AIR RELEASE VALVE

- A. Provide automatic air release valves to suite the pumping conditions.

2.06 INSTRUMENTS

A. The following instruments shall be supplied for the project:

1. Float switches. The total number of floats supplied shall be as dictated by the project plans. The floats shall match the Owner's standard.
2. Submersible pressure transducer (level). The submersible pressure transducer shall match the Owner's standard. The transducer shall be provided with cable clamp installation/mounting hardware.
3. Pressure transducer (system pressure): The pressure transducer shall match the Owner's standard throughout the distribution system.

PART 3 - EXECUTION

3.01 INSTALLATION

VERTICAL TURBINE EFFLUENT PUMPS

- A. Install the pump in accordance with the pump Manufacturer's directions and these Specifications.
- B. Handle carefully and protect the pump and appurtenances to avoid damaging the equipment. If the pump and column are laid down, support them with blocks to prevent damage. Install pumps with shaft plumb. Level base by means of steel wedges (steel plates and steel shims). Wedge taper shall not be greater than 1/4-inch per foot. Use double wedges to provide a level bearing surface for the pump base. Secure each pair of wedges in their final positions with tack weld on each side after leveling is complete. Accomplish wedging so that there is not change of level or springing on the foundation when the foundation bolts are tightened. Adjust pump assemblies such that the driving units are properly aligned, plumb, and level with the driven units and all interconnecting shafts and couplings. Flexible couplings shall not be considered to compensate for misalignment. Carefully fit and coat all bolt threads with lubricant to facilitate future removal.
- C. After the pump has been set in position, aligned, and wedged to the proper elevation, grout the space between the bottom of the pump baseplate and the concrete foundation. Use a poured, non-shrinking grout. The arrangement of the column shall be straight and vertical when the installation is complete. Grout shall be water tight to prevent static water from escaping.

3.02 PAINTING

- A. Shop and field painting for the aboveground discharge head, motor, piping and associated exposed metals shall be in accordance with and as specified in Section 09900 Painting.

3.03 TESTING

- A. Prior to acceptance of the installed pump, demonstrate proper operation of the pump at the guarantee point, at which time data shall be taken on the total head, flow, and horsepower requirements of the pump. Furnish all instruments and labor required for this procedure.
- B. A test log shall be presented to the ENGINEER upon the completion of **the field test that records the following:**
 - 1. Flow, measured by flowmeter.
 - 2. Discharge pressures as measured by calibrated gauges, converted to feet of liquid pumped and corrected to centerline discharge, calculated velocity heads at discharge flanges and total head, all tabulated in feet.
 - 3. Motor phase-to-phase voltage, phase current and 3-phase kilowatts.

VERTICAL TURBINE EFFLUENT PUMPS

- C. Balance of Vibration: The rotating parts of each pump and its driving motor shall be statically and dynamically balanced before final assembly. The driving motor alone shall operate without vibration in excess of the limited stated in the latest revision of NEMA MG 1. The complete unit, consisting of the motor and pump, connected and in normal operation, shall not develop amplitudes of vibration exceeding limits recommended by the latest revision of Hydraulics Institute Standards for vertical turbine pumps handling clean liquids.
- D. Test Failures: Units failing the field tests shall be realigned and retested.

(See **PUMP DATA SHEETS** next page)

END OF SECTION

**PUMP DATA SHEET
VERTICAL TURBINE PUMP**

SUPPLIER NAME _____ DATE _____

PUMP DATA

RPM _____

Manufacturer & Model No. _____

Number of Stages _____

Nominal Size of Bowls _____

Max OD of Bowls _____

Overall Length Bowl Section _____

Pump Shaft Diameter _____

Pump Shaft Materials _____

Number of Pump Bearings _____

Pump Bearing Material _____

Description of Pump Bearings _____

Pump Bowl Catalog No. _____

Pump Bowl Material & Lining _____

Impeller Type & No. _____

Impeller Material _____

Type Lubrication _____

HP Demand at Guar. Point _____

COLUMN SHAFT DATA

Column Size _____

Type Column Couplings _____

Lineshaft Size _____

Lineshaft Insert Material _____

Lineshaft Coupling Material _____

Lineshaft Bearing Materials & Descr. _____

DISCHARGE HEAD

Manufacturer & Model No. _____

Guide Bearing Material _____

Guide Bearing Lubrication _____

Guide Bearing Type _____

Weight _____

THRUST BEARING

Manufacturer & Model No. _____

Max. Total Thrust at Guar. Point _____

Rating Life in Hours _____

MOTOR

Manufacturer & Model No., Type _____

Nominal HP _____

Power Factor at Guar. Point _____

Weight _____

Overall Efficiency at Guar. Point _____

END OF SECTION

VERTICAL TURBINE EFFLUENT PUMPS