**CHEMICAL SUPPLIER AGREEMENT**
**Regional Odor and Corrosion Control System (ROCCS) Program**
**Specification No. C-2023-1378BD**

**THIS AGREEMENT** is made and entered into as of the date fully executed below, by and between Orange County Sanitation District (hereinafter referred to as "OC San") and Hill Brothers Chemical Company (hereinafter referred to as "Supplier") collectively referred to as the "Parties".

## R E C I T A L S

**WHEREAS**, OC San desires to temporarily engage Supplier to provide Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate and associated ROCCS Program services as described in Exhibit "A"; and

**WHEREAS**, Supplier submitted its Proposal on February 7, 2023; and

**WHEREAS**, on April 26, 2023, the Board of Directors of OC San, by minute order, authorized execution of this Agreement between OC San and Supplier; and

**WHEREAS**, OC San has chosen Supplier to provide Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate and associated ROCCS Program services in accordance with Ordinance No. OC San-56; and

**NOW, THEREFORE**, in consideration of the mutual promises and mutual benefits exchanged between the Parties, the Parties mutually agreed as follows:

## 1. Introduction

1.1 This Agreement and all exhibits hereto (called the "Agreement") is made by OC San and the Supplier. The terms and conditions herein exclusively govern the purchase of Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate and associated ROCCS Program services as described in Exhibit "A".

1.2 Exhibits to this Agreement are incorporated by reference and made a part of this Agreement as though fully set forth at length herein.

Exhibit "A" Scope of Work
Exhibit "B" Proposal
Exhibit "C" Determined Insurance Requirement Form
Exhibit "D" OC San Contractor Safety Standards
Exhibit "E" Human Resources Policies

1.3 In the event of any conflict or inconsistency between the provisions of this Agreement and any of the provisions of the exhibits hereto, the provisions of this Agreement shall in all respects govern and control.

1.4 This Agreement may not be modified, changed, or supplemented, nor may any obligations hereunder be waived or extensions of time for performance granted, except by written instrument signed by both Parties.

1.5 The various headings in this Agreement are inserted for convenience only and shall not affect the meaning or interpretation of this Agreement or any section or provision hereof.

1.6 The term “days”, when used in the Agreement, shall mean calendar days, unless otherwise noted as workdays.

1.7 The term “workday”. Workdays are defined as all days that are not Saturday, Sunday, or OC San observed holidays. Meetings with OC San staff shall be scheduled from Monday through Thursday between the hours of 8 a.m. and 4 p.m. (exception is Operations staff who maintain plant operations 24 hours per day 7 days per week and work a rotated 12-hour shift) and shall conform to OC San work schedules.

1.8 OC San holidays (non-working days) are as follows: New Year’s Day, Martin Luther King, Jr. Day, Presidents Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, Christmas Eve, and Christmas Day.

1.9 Work Hours: The work required under this Agreement may include normal business hours, evenings, and weekends.

1.10 Supplier shall provide OC San with all required premiums and/or overtime work at no charge beyond the total amount of the Agreement.

1.11 Except as expressly provided otherwise, OC San accepts no liability for any expenses, losses, or action incurred or undertaken by Supplier as a result of work performed in anticipation of purchases of said services by OC San.

**2. Delivery**

2.1 LOCATIONS: Deliveries shall be made in accordance with the Scope of Work, Exhibit “A”.

2.2 OC San will pay only for the actual quantity of Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate delivered, based upon certified tare weight and net weight. The quantity invoiced by Supplier and payable by OC San will be for the total net weight of Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate delivered (loaded gross weight minus the tare weight). Tare weight shall be determined immediately after each delivery and prior to cleaning, emptying, or clearing the delivery tank.

2.3 A bill of lading shall accompany all shipments in accordance with Exhibit “A”.

**3. Possession** Ownership and control of all Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate delivered pursuant to this Agreement shall remain solely and exclusively with Supplier, until complete transfer of possession by delivery to OC San at the designated locations is made by Supplier.

**4. Quantity**

4.1 OC San makes no guarantee to actual use or quantity of Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate purchased. Use may be sporadic based on the wastewater treatment requirements unique to each treatment plant.

4.2 OC San will, through the term of this Agreement, purchase Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate from Supplier exclusively, except when OC San determines Supplier cannot make delivery within the time specified, with the quality and quantity specified, at the Agreement price, the level of Service is inadequate, OC San unapproved increase in rate or for any other default or breach of this Agreement. In such event, OC San may purchase Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate elsewhere and

charge Supplier any difference in the delivered price to OC San from that provided in this Agreement, or alternatively, OC San may terminate the Agreement based on said breach or failure to deliver the specified product. Quality control tests will be performed by OC San on the delivered Ferrous Chloride, Magnesium Hydroxide and Calcium Nitrate to ensure it is consistent with the requirements specified in Exhibit ”A”.

**5. California Department of Industrial Relations Registration and Record of Wages**

5.1 Pursuant to Labor Code sections 1720 et seq., and as specified in Title 8, California Code of Regulations section 16000, prevailing wages are required for all Work under this Agreement. It is Supplier’s responsibility to interpret and implement any prevailing wage requirements and Supplier agrees to pay any penalty or civil damages resulting from a violation of the prevailing wage laws.

5.2 Supplier and its subcontractors shall comply with the registration requirements of Labor Code section 1725.5. Pursuant to Labor Code section 1771.4(a)(1), the Work is subject to compliance monitoring and enforcement by the California Department of Industrial Relations (DIR).

5.3 Pursuant to Labor Code section 1773.2, a copy of the prevailing rate of per diem wages is available upon request at OC San’s principal office. The prevailing rate of per diem wages may also be found at the DIR website for prevailing wage determinations at http://www.dir.ca.gov/DLSR/PWD.

5.4 Supplier and its subcontractors shall comply with the job site notices posting requirements established by the Labor Commissioner per Title 8, California Code of Regulations section 16461(e). Pursuant to Labor Code sections 1773.2 and 1771.4(a)(2), Supplier shall post a copy of the prevailing rate of per diem wages at the job site.

5.5 Supplier and its subcontractors shall maintain accurate payroll records and shall comply with all the provisions of Labor Code section 1776. Supplier and its subcontractors shall submit payroll records to the Labor Commissioner pursuant to Labor Code section 1771.4(a)(3). Pursuant to Labor Code section 1776, the Supplier and its subcontractors shall furnish a copy of all certified payroll records to OC San and/or the general public upon request, provided the public request is made through OC San, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement of the Department of Industrial Relations. Pursuant to Labor Code section 1776(h), penalties for non-compliance with a request for payroll records may be deducted from progress payments.

5.5.1 As a condition to receiving payments, Supplier agrees to present to OC San, along with any request for payment, all applicable and necessary certified payrolls and other required documents for the time period covering such payment request. Pursuant to Title 8, California Code of Regulations section 16463, OC San shall withhold any portion of a payment, up to and including the entire payment amount, until certified payroll forms and any other required documents are properly submitted. In the event certified payroll forms do not comply with the requirements of Labor Code section 1776, OC San may continue to withhold sufficient funds to cover estimated wages and penalties under the Agreement.

5.6 The Supplier and any of its subcontractors shall comply with Labor Code section 1774 and section 1775. Pursuant to Labor Code section 1775, the Supplier and any of its subcontractors shall forfeit to OC San a penalty of not more than two hundred dollars ($200)

for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the DIR for the work or craft in which the worker is employed for any Work.

5.6.1 In addition to the penalty, and pursuant to Labor Code section 1775, the difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Supplier or its subcontractor.

5.7 Supplier and its subcontractors shall comply with Labor Code sections 1810 through 1815. Supplier and its subcontractors shall restrict working hours to eight (8) hours per day and forty (40) hours per week, except that Work performed in excess of those limits shall be permitted upon compensation for all excess hours worked at not less than one and one-half (1.5) times the basic rate of pay, as provided in Labor Code section 1815. The Supplier shall forfeit, as a penalty to OC San, twenty-five dollars ($25) per worker per calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of Labor Code sections 1810 through 1815.

5.8 Supplier and its subcontractors shall comply with Labor Code sections 1777.5, 1777.6, and 1777.7 concerning the employment of apprentices by Supplier or any subcontractor.

5.9 Supplier shall include, at a minimum, a copy of the following provisions in any contract it enters into with any subcontractor: Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860, and 1861.

5.10 Pursuant to Labor Code sections 1860 and 3700, the Supplier and its subcontractors will be required to secure the payment of compensation to employees. Pursuant to Labor Code section 1861, Supplier and its subcontractors, by accepting this Agreement, certify that:

> "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Agreement."

## 6. Pricing and Invoicing

6.1 Supplier will invoice for Ferrous Chloride, Magnesium Hydroxide, Calcium Nitrate and associated ROCCS Program services provided in accordance with Exhibit "A", and in accordance with the unit price(s) listed in Exhibit "B". Prices shall include all cartage and taxes except California State Sales Tax. The sales tax will be paid by OC San.

6.2 OC San shall pay, net thirty (30) days, upon receipt and approval by OC San of itemized invoices, submitted in a form acceptable to OC San to enable audit of the charges thereon. Supplier shall email invoices to OC San Accounts Payable at APStaff@ocsan.gov and "INVOICE" with the Purchase Order Number and **ROCCS Program** shall be referenced in the subject line. All invoices shall include a description of the delivery location, the delivery date, and the unit price(s).

## 7. Modifications

7.1 This Agreement may be modified or changed only by written instrument in the form of an amendment to this Agreement signed by both Parties.

7.2 Pricing modifications: The prices established in this Agreement shall remain firm for the period of six (6) months. Any adjustments made will allow for increases or decreases in the manufactured cost of Ferrous Chloride, Magnesium Hydroxide or Calcium Nitrate and will be based upon OC San validated information furnished by Supplier and OC San sources. Adjustments will only be reviewed on an annual basis. OC San reserves the right to agree with or reject the proposed unit price increase or decrease.

7.3 Price changes may be made through the OC San Purchase Order Process.

**8. Agreement Term** The Services provided under this Agreement shall be for the period of one (1) year commencing on the effective date of the Notice to Proceed.

**9. Renewals**

9.1 OC San may exercise the option to renew the Agreement for up to a twelve (12) month period at a time not to exceed a combined total Agreement term of five (5) years based upon the criteria set forth in Exhibit "A", if mutually acceptable terms can be negotiated. OC San shall make no obligation to renew nor give reason if it elects not to renew. The prices established in the original Agreement may be adjusted. The adjustment will allow for any increase or decrease in the manufactured cost of Ferrous Chloride, Magnesium Hydroxide or Calcium Nitrate.

9.2 Adjustments to price of Ferrous Chloride, Magnesium Hydroxide or Calcium Nitrate will be based upon OC San validated information furnished by Supplier and OC San sources. Adjustments will only be reviewed once every six (6) months. OC San reserves the right to agree with or reject the proposed unit price increase or decrease.

9.3 Renewals may be made through the OC San Purchase Order Process.

**10. Termination**

10.1 OC San reserves the right to terminate this Agreement for its convenience, with or without cause, in whole or in part, at any time, by written notice from OC San. Upon receipt of a termination notice, Supplier shall immediately discontinue all work under this Agreement (unless the notice directs otherwise). OC San shall thereafter, within thirty (30) days, pay Supplier for work performed (cost and fee) to the date of termination. Supplier expressly waives any claim to receive anticipated profits to be earned during the uncompleted portion of this Agreement. Such notice of termination shall terminate this Agreement and release OC San from any further fee, cost or claim hereunder by Supplier other than for work performed to the date of termination.

10.2 OC San reserves the right to terminate this Agreement immediately upon OC San's determination that Supplier is not meeting specification requirements for delivery of quantities needed, the level of service is inadequate, for poor quality of product, for OC San unapproved increase in unit price(s), or any other default or breach of this Agreement.

10.3 OC San may also immediately terminate for default of this Agreement in whole or in part by written notice to Supplier:

- if Supplier becomes insolvent or files a petition under the Bankruptcy Act; or
- if Supplier sells its business; or
- if Supplier breaches any of the terms of this Agreement; or
- if total amount of compensation exceeds the amount authorized under this Agreement.

10.4 All OC San property in the possession or control of Supplier shall be returned by Supplier to OC San upon demand, or at the termination of this Agreement, whichever occurs first.

**11. Indemnification and Hold Harmless Provision** Supplier shall assume all responsibility for damages to property and/or injuries to persons, including accidental death, which may arise out of or be caused by Supplier's services under this Agreement, or by its subcontractor or by anyone directly or indirectly employed by Supplier, and whether such damage or injury shall accrue or be discovered before or after the termination of the Agreement. Except as to the sole active negligence of or willful misconduct of OC San, Supplier shall indemnify, protect, defend and hold harmless OC San, its elected and appointed officials, officers, agents and employees, from and against any and all claims, liabilities, damages or expenses of any nature, including attorneys' fees: (a) for injury to or death of any person or damage to property or interference with the use of property, arising out of or in connection with Supplier's performance under this Agreement, and/or (b) on account of any goods and services provided under this Agreement. This indemnification provision shall apply to any acts or omissions, willful misconduct, or negligent misconduct, whether active or passive, on the part of Supplier of or anyone employed by or working under Supplier. To the maximum extent permitted by law, Supplier's duty to defend shall apply whether or not such claims, allegations, lawsuits, or proceedings have merit or are meritless, or which involve claims or allegations that any of the parties to be defended were actively, passively, or concurrently negligent, or which otherwise assert that the parties to be defended are responsible, in whole or in part, for any loss, damage, or injury. Supplier agrees to provide this defense immediately upon written notice from OC San, and with well qualified, adequately insured, and experienced legal counsel acceptable to OC San. This section shall survive the expiration or early termination of the Agreement.

**12. Insurance** Supplier shall purchase and maintain, throughout the life of this Agreement and any periods of warranty or extensions, insurance in amounts equal to the requirements set forth in the signed Acknowledgement of Insurance Requirements, Exhibit “C“. Supplier shall not commence work under this Agreement until all required insurance is obtained in a form acceptable to OC San, nor shall Supplier allow any subcontractor to commence service pursuant to a subcontract until all insurance required of the subcontractor has been obtained. Failure to maintain required insurance coverage shall result in termination of this Agreement.

**13. Equipment Loss** OC San will be responsible for any loss or damage to Supplier-owned equipment, when OC San determines OC San is at fault, only to the extent of OC San’s fault, and will reimburse Supplier for such loss or damage upon receipt of invoices, minus a deduction for any amount determined to be the fault of Supplier or its subcontractor or a third party.

**14. Conflict of Interest and Reporting** Supplier shall at all times avoid conflict of interest or appearance of conflict of interest in performance of this Agreement.

**15. Supplier’s Relationship to OC San** Supplier’s relationship to OC San in the performance of this Agreement is that of an independent contractor. The personnel performing Services under this Agreement shall, at all times, be under Supplier’s exclusive direction and control, and shall be employees of Supplier and not employees of OC San. Supplier shall pay all wages, salaries and other amounts due its employees in connection with this Agreement, and shall be responsible for all legal reports and obligations respecting them, such as social

security, income tax withholding, unemployment compensation, worker's compensation and similar matters.

**16. OC San Safety Standards**

16.1 In addition to the requirements set forth in Exhibit "A", Supplier shall meet with personnel from OC San's Risk Management Division prior to providing Services to OC San to review safety and accident prevention policies and procedures. All subcontractors should be present at this meeting. Supplier is responsible to inform all subcontractors of the items discussed at this meeting. Supplier shall not be permitted to provide Services to OC San prior to this meeting.

16.2 OC San requires Supplier and its subcontractor(s) to follow and ensure their employees follow all Federal, State, and local regulations as well as OC San Safety Standards while working at OC San locations. If during the Agreement it is discovered that OC San Safety Standards do not comply with Federal, State, or local regulations, then the Supplier is required to follow the most stringent regulatory requirement at no additional cost to OC San. Supplier and all of its employees and subcontractors shall adhere to all applicable OC San Safety Standards attached hereto in Exhibit "D".

**17. Drug-Free Workplace** All employees of Supplier who will perform work under this Agreement must adhere to the California Drug-Free Workplace Act, Government Code Sections 8350 through 8357.

**18. Assignments** Neither this Agreement nor any interest herein or any claim hereunder may be assigned by Supplier either voluntarily or by operation of law, nor may all or substantially all of this Agreement be further subcontracted by Supplier without the prior written consent of OC San.

**19. Attorney's Fees** If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs and necessary disbursements, in addition to any other relief to which it may be entitled.

**20. Permits, Ordinances and Regulations** Any and all fees required by Federal, State, County, City and/or municipal laws, codes and/or tariffs that pertain to work performed under the terms of this Agreement shall be paid by Supplier. Fees demanded for obtaining certificates, including associated inspection fees and expenses of regulatory inspectors shall be paid by Supplier.

**21. Training Certification** When required by regulation, certificates of training shall be maintained on-site for the duration of the activity that requires an employee of Supplier to be certified. Certificates shall be current. Lack of certificates when required will be cause for removal of offending personnel from the site, termination of the Agreement, or both.

**22. Compliance with Law** Supplier warrants that under the performance of this Agreement, it shall comply with all applicable Federal, State and local laws, and all lawful orders rules and regulations thereunder. In connection with the execution of this Agreement, Supplier shall not discriminate against employees or an applicant for employment because of race, religion, color, sex or national origin. Supplier shall take affirmative action to ensure that applicants are employed and employees are treated during their employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or

recruitment advertising; lay-off or termination; rate of pay, or other forms of compensation; and selection for training, including apprenticeship.

**23. Disputes**

23.1 This Agreement shall be governed by and interpreted under the laws of the State of California and the Parties submit to jurisdiction in Orange County, in the event any action is brought in connection with this Agreement or the performance thereof. Pending final resolution of a dispute hereunder, Supplier shall proceed diligently with the performance of this Agreement and in accordance with OC San's decision.

23.2 In the event of a dispute as to the construction or interpretation of this Agreement, or any rights or obligations hereunder, the Parties shall first attempt, in good faith, to resolve the dispute by mediation. The Parties shall mutually select a mediator to facilitate the resolution of the dispute. If the Parties are unable to agree on a mediator, the mediation shall be conducted in accordance with the Commercial Mediation Rules of the American Arbitration Agreement, through the alternate dispute resolution procedures of Judicial Arbitration through Mediation Services of Orange County ("JAMS"), or any similar organization or entity conducting an alternate dispute resolution process.

23.3 In the event the Parties are unable to timely resolve the dispute through mediation, the issues in dispute shall be submitted to arbitration pursuant to California Code of Civil Procedure, Part 3, Title 9, Sections 1280 et seq. For such purpose, an agreed arbitrator shall be selected, or in the absence of Agreement, each party shall select an arbitrator, and those two (2) arbitrators shall select a third. Discovery may be conducted in connection with the arbitration proceeding pursuant to California Code of Civil Procedure Section 1283.05. The arbitrator, or three (3) arbitrators acting as a board, shall take such evidence and make such investigation as deemed appropriate and shall render a written decision on the matter in question. The arbitrator shall decide each and every dispute in accordance with the laws of the State of California. The arbitrator's decision and award shall be subject to review for errors of fact or law in the Superior Court for the County of Orange, with a right of appeal from any judgment issued therein.

**24. Right to Review Services, Facilities, and Records**

24.1 OC San reserves the right to review any portion of the Services performed by Supplier under this Agreement, and Supplier agrees to cooperate to the fullest extent possible. Supplier shall furnish to OC San such reports, statistical data, and other information pertaining to Supplier's Services as shall be reasonably required by OC San to carry out its rights and responsibilities under its agreements with its bondholders or noteholders an in connection with the issuance of its official statements and other prospectuses with respect to the offering, sale, and issuance of its bond and other obligations.

24.2 The right of OC San to review or approve specifications, procedures, instructions, reports, test results, calculations, schedules, or other data that are developed by Supplier shall not relieve Supplier of any obligation set forth herein.

**25. Severability** Any provision of this Agreement which is found to be invalid or unenforceable shall be ineffective to the extent of such invalidity or unenforceability, and the invalidity or unenforceability of such provision shall not affect the validity or enforceability of the remaining provisions hereof.

**26. Waiver** The waiver of either party of any breach or violation of, or default under, any

provision of this Agreement, shall not be deemed a continuing waiver by such party of any other provision or of any subsequent breach or violation of this Agreement or default thereunder.

**27.** **Breach** Any breach by Supplier to which OC San does not object shall not operate as a waiver of OC San to seek remedies available to it for any subsequent breach.

**28.** **South Coast Air Quality Management District's (SCAQMD) Requirements** It is Supplier's responsibility that all equipment furnished and installed be in accordance with the latest rules and regulations of the South Coast Air Quality Management District (SCAQMD). All work practices, which may have associated emissions such as sandblasting, open field spray painting or demolition of asbestos containing components or structures, shall comply with the appropriate rules and regulations of the SCAQMD.

**29.** **Performance** Time is of the essence in the performance of the provisions hereof.

**30.** **Familiarity with Work** By executing this Agreement, Supplier warrants that: 1) it has investigated the work to be performed; and 2) it understands the facilities, difficulties and restrictions of the work under this Agreement. Should Supplier discover any latent or unknown conditions materially differing from those inherent in the work or as represented by OC San, it shall immediately inform OC San of this and shall not proceed, except at Supplier's risk, until written instructions are received from OC San.

**31.** **Damage to OC San's Property** Any OC San property damaged by Supplier, its subcontractor(s), or by the personnel of either will be subject to repair or replacement by Supplier at no cost to OC San.

**32.** **Third Party Rights** Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than OC San and Supplier.

**33.** **Authority to Execute** The persons executing this Agreement on behalf of the Parties warrant that they are duly authorized to execute this Agreement and that by executing this Agreement, the Parties are formally bound.

**34.** **Read and Understood** By signing this Agreement, Supplier represents that it has read and understood the terms and conditions of the Agreement.

**35.** **Entire Agreement** This Agreement constitutes the entire agreement of the Parties and supersedes all prior written or oral and all contemporaneous oral agreements, understandings, and negotiations between the Parties with respect to the subject matter hereof.

**36.** **Notices** All notices under this Agreement must be in writing. Written notice shall be sent by registered or certified mail, postage prepaid, return receipt requested, or by any other overnight delivery service which delivers to the noticed destination and provides proof of delivery to the sender. Any facsimile notice must be followed within three (3) days by written notice. All notices shall be effective when first received at the following addresses:

| | |
|---|---|
| OC San: | Jackie Lagade<br>Principal Buyer<br>Orange County Sanitation District<br>10844 Ellis Avenue<br>Fountain Valley, CA 92708<br>JLagade@OCSan.gov |
| Supplier: | Ed Gunderson<br>District Representative/Project Manager<br>Hill Brothers Chemical Company<br>3000 E. Birch Street Suite 108<br>Brea, CA 92821<br>Ed@hillbrothers.com |

[Intentionally left blank. Signatures follow on next page.]

**IN WITNESS WHEREOF**, intending to be legally bound, the Parties hereto have caused this Agreement to be signed by the duly authorized representatives.

**ORANGE COUNTY SANITATION DISTRICT**

Dated: _____ By: _____
Chad P. Wanke
Chair, Board of Directors

Dated: _____ By: _____
Kelly A. Lore
Clerk of the Board

Dated: _____ By: _____
Ruth Zintzun
Purchasing & Contracts Manager

**HILL BROTHERS CHEMICAL COMPANY**

Dated: _____ By: _____

_____
Print Name and Title of Officer

JL

# Exhibit “A”

## SCOPE OF WORK

**EXHIBIT A**
**SCOPE OF WORK**
**Regional Odor and Corrosion Control System (ROCCS) Program**
**SPECIFICATION NO. C-2023-1378BD**

## 1 Background

The Orange County Sanitation District (OC San) operates approximately 388 miles of sewer pipes ranging in size from 12-inch diameter to 108-inch diameter. This extensive system covers an area of approximately 4790 square miles in twelve (12) major, separate drainage basins, and serves a population of approximately 2.6 million people. The collection system conveys wastewater generated by residential, commercial, and industrial sources from twenty (20) cities.

To maintain a "good neighbor" policy, OC San strives to control odors in its collection system and provide treatment plant odor control reliability. The Regional Odor and Corrosion Control System (ROCCS) Program addresses three (3) primary concerns:

1. Minimizes regional collection system odors in the communities served,
2. Extends the useful life of our regional collection system by reducing corrosion, and
3. Optimizes and integrates the odor control program in the collection system and the two (2) treatment plants.

## 2 Description

Supplier must provide complete turn-key services which include application and field services, delivery of all chemicals and their tanks along with, storage containment and other necessary materials to ensure the odor control program success. Supplier must also collect wastewater samples, hydrogen sulfide samples, and maintain chemical dosing systems to cost effectively control odors to specified level of service (LOS) within the OC San wastewater collection system.

Supplier shall provide and implement a multi-technology strategy for treating hydrogen sulfide and odor generating compounds within the OC San wastewater collection system and pump stations.

Furthermore, Supplier shall furnish all the labor, treatment technology, and other resources deemed necessary to provide the services described in this Scope of Work (SOW) to ensure that the ROCCS objectives and requirements are met in a safe, reliable, and cost-effective manner.

Table 1: Chemical Feed Facility Locations and Volume

| Sewer Trunks System | Feed Facility Locations | Chemicals and Storage Tanks | Volume Ranges Monthly (gal) |
|---|---|---|---|
| Miller-Holder | Hager Pacific Invest. Location<br>6600 Regio<br>Buena Park, CA 90620 | Ferrous Chloride (33-36%) | 20,000 – 36,000 |
| | | | |
| Miller-Holder | Midway City Yard<br>14451 Cedarwood Street<br>Westminster, CA 92683 | Ferrous Chloride (33-36%) | 15,000 – 28,000 |
| | | | |

| | | | |
|---|---|---|---|
| Miller-Holder | Garden Grove Sanitation Dist.<br>12782 Bailey Street<br>Garden Grove, CA 92845 | Calcium Nitrate (60-65%) | 2,500 – 4,000 |
| Baker<br>Gisler<br>Interceptor | CMSD Mendoza Pump Station<br>2899 Mendoza, Costa Mesa, CA 92626 | Ferrous Chloride (33-36%) | 13,000 – 24,000 |
| Baker<br>Gisler<br>Interceptor | Main Street PS<br>1499 Main Street, Irvine CA 92714 | Calcium Nitrate (60-65%)<br><br>Magnesium Hydroxide (58-63%) | 5,000 – 16,000<br><br>10,000 – 25,000 |
| Euclid | REHABFIT LLC<br>835 S. Brea Blvd.<br>Brea, CA 92821 | Magnesium Hydroxide (58-63%) | 30,000 – 50,00 |
| Knott | Pacific Quality Partners 1355 West Imperial Highway Brea, CA 92821 | Ferrous Chloride (33-36%) | 36,000 – 55,000 |
| | | | |
| Knott | Seal Beach Pump Station *<br>13900 Seal Beach Boulevard<br>Seal Beach, CA 90740 | Magnesium hydroxide | 17,000 – 50,000 |
| Knott | Midway City Yard<br>14451 Cedarwood Street<br>Westminster, CA 92683 | Ferrous Chloride (33-36%) | 28,000 – 36,000 |
| | | | |
| Newport | OC San<br>Bay Bridge Pump Station<br>290 East Coast Highway<br>Newport Beach, CA 92660 | Calcium Nitrate (60-65%) | 8,000 – 15,000 |
| | | Magnesium Hydroxide (58-63%) | 10,000 – 28,000 |
| Newport | OC San<br>Crystal Cove Pump Station**<br>7423 East. Coast Hwy,<br>Newport Beach<br>CA. 92657 | Calcium Nitrate (60-65%) | 800 – 2,300 |
| Newport | 15th Street Pump Station ***<br>1514 Balboa Blvd.<br>Newport Beach, CA 92663 | TBD | TBD |

***Notes on Future Plans of OC San:***

- ***The magnesium hydroxide dosing tank at Seal Beach Pump Station may move to Westside Pump Station***
- ***Calcium nitrate at Crystal Cove Pump Station may be replaced with ferrous chloride***
- ***A new dosing station at 15th Street Pump Station will be added.***
- ***Dosing sites with Calcium nitrate may be replaced with Calcium ammonium, and those with Magnesium hydroxide may be replaced with comparable pH adjustor where applicable.***

## 3 Project Elements

OC San requires chemicals, application, and field services, which involve operation and maintenance of thirteen (13) existing and up to two (2) new odor control chemical dosing stations within the OC San wastewater collection system.

A. Supplier shall supply and deliver chemicals listed in Table 1 at the specified locations.
B. Supplier shall provide all equipment, resources, and materials, including chemical storage tanks and containment along with a control system as specified in Section 3.4 of this SOW.
C. Supplier is responsible for the continuous operation & maintenance of all the equipment and assets to ensure the success for odor control treatment.
D. Supplier shall deliver, install, start-up, and operate equipment for the chemical feed systems as specified in Appendices A-F.
E. Supplier shall provide field and application services and ensure scope elements are completed successfully.
F. OC San requires the Supplier to provide a list of all patents, patent applications, trademark registrations, and trademark applications that are related to the product(s). If any of the products are subject to a third-party license agreement, OC San requires that the relationship be disclosed. Supplier should also indicate if any license fee(s) will be of an added cost to OC San.

### 3.1 Safety

a) Supplier shall conform to all requirements regarding Hazardous Materials Disclosure and Chemical Inventory and Business Emergency Plan Programs in compliance and conformance with all applicable Federal, State, and local laws and regulations and OC San policies for all chemical dosing sites.
b) Supplier shall conform to all requirements regarding Orange County Fire Authority (OCFA) Hazardous Materials Services (HMS) including the procedures and compliance with requirements governing chemical inventory: Title 42, section 11022 of the United States Code and chapter 6.95 of Division 20 of the California Health and Safety Code (H&SC).
c) Supplier shall have a Hazardous Materials Technician on staff to insure all OCFA requirements specified comply for the existing and new feed stations.
d) The Supplier is required to comply with all applicable Federal, State, and local regulations, including all industry standards and practices for protection of workers from exposure to potentially harmful levels of hydrogen sulfide and other compounds typically present in municipal wastewater collection systems.

### 3.2 Infrastructure and Deliverables

a) The Supplier shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, and all other facilities and incidentals necessary for the execution, testing, installation, initial operation and continued performance of the dosing equipment and accessories.
b) Supplier shall furnish chemical storage tank(s) and feed system for each feed facility location.
c) Supplier must provide and manage all chemical deliveries and chemical feed systems and operations to meet the established goals of the odor control program.
d) Supplier will provide a monitoring and control system capable for remote enterprise inventory management system. This includes telemetry diagnostic, monitoring chemical feed and profile adjustments for each location.
e) Supplier shall provide digital alarm system to monitor chemical tank levels, pump performance, chemical feed rates, spill containment level, utility, and equipment failure.

f) Supplier shall provide a turnkey chemical storage, containment, and feed system at each designated feed site. This involves sizing the chemical tanks and pumps, the plumbing system, and mixing system for the chemical application type. Each standard storage and feed system design specification is provided in Appendices A-F and a general list of the key elements are shown here:
    - Tank system
    - Chemical transfer system
    - Monitor/Controller
    - Dosing system(s) sized for the targeted feed rate
    - Site containment system
    - Safety shower/eyewash station
    - Ladder for tank roof access

### 3.3 Operation and Maintenance Services

a) Supplier shall monitor each feed facility to ensure reliable chemical supply.
b) Supplier shall respond to all alarms, system performance, chemical spill, and utility failure remotely within one (1) hour and then, if necessary, a physical visit to the odor control station within two (2) hours of receiving the alarm. In addition, the Supplier shall provide an initial notification to OC San staff via email on the cause of alarm and the action taken. Then a formal incident report shall be provided to OC San within five (5) business days of the alarm event.
c) Supplier shall provide a skilled designated resource team that will interface with OC San and have oversight over all the chemical feed facilities.
d) Supplier shall develop and schedule routine preventive maintenance (PM) on all equipment and control systems. Minimum frequency for servicing (i.e. inspecting filters and replacing as needed, testing safety shower, etc.) each chemical feed station is three (3) times per week. Inspections, which may be done remotely via camera systems two (2) days each week, are required five (5) times per week.
e) Supplier shall pump out rainwater collected inside the containment area within three (3) business days following a rain event at the dosing site.
f) Supplier shall develop an inspection plan for each chemical feed facility. Inspection plan shall include, but is not limited to, trouble shooting and investigation of control system alarms and diagnostic problems, pump profiling / calibration, required adjustments to feed rate programs based on optimized dose rate targets and general dose site facility up-keep. OC San must review and approve the inspection plan prior to implementation.
g) Supplier shall maintain all process equipment and control systems in good operating and reliable condition. Supplier shall provide appropriate resources and materials for scheduled routine preventive maintenance and repair or replacement of failed equipment components on a 4-hour response basis.
h) Supplier shall provide a field technician to verify that chemical deliveries at each designated site are performed safely and in compliance with standard operating procedures and that all metering tickets are in order and accurate.
i) Supplier shall provide engineering “As-Built” drawings, for all chemical dosing site installations. This may include, but is not limited to, chemical storage tanks, containment, ladders, PLC diagrams, piping configurations and plumbing system.
j) Supplier shall provide the required engineering and field labor for equipment installation services for any additional dose sites requested by OC San.
k) Supplier shall provide chemicals that meet the required specification. To ensure product quality, the Supplier shall be required to provide a certificate of analysis for each chemical delivery. In addition, the Supplier shall provide chemical manufacturer’s product analysis. The load selected for product analysis will be determined by OC San.

l) Supplier shall notify OC San representative in accordance with OC San standard procedures prior to site access to all dosing stations and manhole sites. OC San will provide Supplier with procedure for notification during normal working hours, weekends, and holidays including after normal working hours.
m) Supplier shall provide material safety data sheet for all the chemicals supplied for odor control.

### 3.4 Telemetry Monitoring and Control System

a) Supplier shall provide a Cloud-based service, or OC San approved equal, to support remote monitoring and control system. The data center must be in the United States. Supplier's remote chemical facility monitoring, and control system shall have the general capability that includes, but is not be limited to, the monitoring of tank levels, feed rates, pump performance, containment level, and alarm notifications.
b) Supplier shall provide at each chemical dosing facility, a monitoring and control system platform capable of supporting remote inventory management/reporting, customized chemical dosing profiles, remote system diagnostics, and site monitoring.
c) Supplier shall furnish a chemical feed system designed to match the chemical product feed rate to the actual sulfide demand within the sewer pipeline system. The system shall allow the end user (Supplier's staff) to enter a 24-point hourly curve for each day of the week as the dosing profile. Supplier shall provide direct interactive end user interface and control for OC San staff via a dedicated internet website. The end user interface will allow OC San to directly download daily inventory and diagnostic data reports on each site as well as control/monitor chemical feed rates if needed.
    i. Communication to the website must use Secure Socket Layer enabled by SSL certificates, TLS protocol 1.2 or higher.
    ii. Supplier shall be responsible for annual security vulnerability assessments on the website and mitigate any critical vulnerabilities identified. OC San reserves the right to audit Supplier's website security to ensure compliance with the requirements herein.
    iii. Optional use of a multi-factor authentication is preferred.
    iv. System should log access attempts with accessible reports of these for OC San for auditing purposes.
d) Supplier shall ensure monitor telemetry and controller is fully functional at all dosing sites within thirty (30) days from the effective date of the Notice to Proceed.
e) Supplier shall provide parallel signals to and from all the furnished monitored and controlled system inputs and outputs. The parallel signals shall include, but not be limited to, metering pump control, speed control, storage tank levels and all chemical dosing site alarms including run status, and equipment controls provided.

## 4 Resources and Qualifications

A. Supplier shall provide qualified field technicians with at least three (3) years of relevant field experience.
B. The Supplier shall have a project manager and field technician located in Los Angeles County, Orange County, Riverside County, San Diego County, or San Bernardino County.
C. Supplier shall provide an organizational chart of responsible people dedicated to OC San and on a weekly basis a four-week look ahead for contract services activities.
D. Technician duties include, but are not limited to:
    1) Locating and installing sensors and monitoring equipment.
    2) Coordinating and operating all components of the odor control system.

3) Locating the dosing systems, adjusting the feed rates, sealing openings to prevent short circuiting, directing airflows in the affected sewers to maintain proper ventilation and ensuring the injection of chemicals are always in the applied sewers.

E. The Supplier shall provide a designated “Project Manager”, with at least five (5) years of relevant experience with an odor control chemical feed facility. Key personnel must be available for the duration of the Agreement and no person designated as "key" to the services shall be removed or replaced without the prior written concurrence of OC San.
   1) The Project Manager shall serve as the primary individual responsible for interfacing with OC San and the oversight of the requirements and responsibilities of this SOW.

## 5 Reports, Meetings, and Schedules

A. Supplier shall submit an end of the year, annual summary of their preventive maintenance schedule to OC San and shall document and report all service-related activity in monthly reports.

B. Progress Reports
   1) Supplier shall provide raw data obtained from the chemical dosing system’s PLC by the close of business each Wednesday.
   2) Supplier shall provide weekly progress reports by the close of business each Wednesday. The progress report shall describe the system performance, status, preventive and corrective maintenance actions, total daily chemical usage based upon tank level, total daily chemical usage based upon flow meters, monthly chemical usage based upon both methods, and average daily usage for the month, key observations, and any interruptions or problems in service, and shall also provide information on daily, weekly, and seasonal trends in both chemical feed rates and usage. Usage information shall be supplemented with graphical details.
   3) Supplier shall provide a monthly progress report by the 10$^{th}$ of each month which includes the following:
      - Updated Service Project Schedule
      - General List of Work Items completed to date.
      - Work Schedule for the upcoming month.
      - Corrective Plan to complete service operations and maintenance project within schedule and budget (if needed).
      - Potential Changes in service project statement of work.
      - Updated Service Project Decision Log (list of major decisions and the rationale for each).
      - OC San Comment Log and Response Status.
      - Applicable billing/outstanding invoices.
      - Any other outstanding service project issues.
   4) Data reports shall be in Excel format and Word documents, as appropriate.

C. Supplier shall provide a weekly inspection plan report for the chemical feed facility process. Report shall include the overall system performance, explanation of any feed rate variance greater than ten percent (10%) from hourly target feed rate, average daily feed rate, target feed rate, actual feed rate, and approximate tank level. The report format shall be reviewed and approved by OC San.

D. Supplier shall conduct monthly progress meetings with the OC San Project Manager and stakeholders, to review the status of the ROCCS Program, schedule, invoicing, and any issues which may affect the ROCCS Program. These meetings shall be held at a mutually agreeable time, generally around the second week of the month.

E. Supplier shall participate in OC San quarterly audits. This involves onsite walk throughs, review of site security, equipment condition checks, and housecleaning.

## 6 Specifications: Equipment, Chemical, and Storage

A. Detailed chemical, equipment, monitoring and control system specifications are provided in the following Appendices:

1) Appendix A – Ferrous Chloride Supply & Delivery Technical Grade Specification
2) Appendix B – Ferrous Chloride Storage and Handling General Equipment
3) Appendix C – Calcium Nitrate and/or Calcium Ammonium Supply & Delivery Technical Grade Specification
4) Appendix D – Calcium Nitrate and/or Calcium Ammonium Storage and Handling General Equipment
5) Appendix E – Magnesium Hydroxide Supply & Delivery Technical Grade Specification
6) Appendix F – Magnesium Hydroxide Storage and Handling General Equipment

B. Supplier may propose alternative chemical equipment, monitoring and control system specifications to OC San for consideration and acceptance.

## 7 System Mobilization and Demobilization

A. Supplier shall coordinate and be responsible for the cost of mobilizing all equipment and engineering services related to the successful installation and operation of the chemical feed sites.

B. Mobilization shall include all activities and associated costs for transportation of Supplier's personnel, equipment, and operating supplies to the site; establishment of feed facility, fencing, and other necessary general facilities for the Supplier's operations at the site; premiums paid for performance including coinsurance and reinsurance agreements as applicable; and other items specified but not limited to:
1) Any work that is necessary to provide access to the site including, but not limited to, grading, temporary culverts, and clearing.

2) Any fence removed for access shall be replaced with same or like materials as approved by OC San.

C. Upon termination of this Agreement, Supplier shall demobilize and restore the site to pre-setup conditions. Demobilization shall include all activities and costs for transportation of personnel, equipment, and supplies from the site, including the disassembly, removal, and site cleanup, buildings, and other facilities assembled on the site specifically for this Agreement. Supplier shall also submit an outline of their proposed schedule to transition the different elements of this project, including a projected time schedule and a coordination with other suppliers to ensure that the ROCCS Program objectives and requirements are met in a safe, reliable, and cost-effective manner.

D. OC San may reimburse the Supplier for direct mobilization or demobilization expenses for field-scale comparison tests, up to a maximum amount of $50,000 per year. Reimbursable expenses include equipment rental such as a crane or backhoe and subcontractor work. Receipts must accompany Supplier’s invoices for OC San to reimburse Company.

## 8 Alternative Odor Control Evaluation

A. OC San periodically evaluates its treatment approach and anticipates conducting future trials for odor control based on changing regulations, costs, and conditions. OC San reserves the right to try new products, technologies, equipment, or methods to remove and reduce corrosion and odors at selected sites. However, OC San does not guarantee that these technologies will be evaluated or utilized during the term of the Agreement. The Supplier should anticipate mobilizing equipment and service for two (2) trials per year. The results of the testing may alter the treatment approach or add a dosing station site to the SOW. The final decision to regularly dose at a site is at the sole discretion of OC San.

B. The Supplier would be required to assess sewer trunkline(s) for current conditions, mobilize equipment, dose the chemical, monitor and sample to optimize dose rates. Supplier shall notify OC San in accordance with established standard procedures prior to site access to all dosing stations and manhole sites.

C. If the Supplier uses any design, device or materials covered by letters, patent or copyright, the Supplier shall provide proof in a form acceptable to OC San of rights to supply such patented or copyrighted design, device, or material. It is mutually agreed and understood, without exception, that the Agreement prices shall include all royalties or costs arising from the use of such design, device, or materials, in any way involved in the work.

## 9 General Services

As the collection system is expanded and modified over time, the corrosion and odor mitigation demands will change as well. Therefore, Supplier must be flexible and adjust the service to meet the changing needs.

Supplier shall provide, upon request from OC San, technical resources, materials, equipment, products, and staffing for special project work including slow chemical feed by tanker truck into sewer trunk lines to support CIP and special projects.

A. Emergency Events, Alarms and Notification
   1) An emergency event means a leak or product spill. In an emergency event, Supplier shall physically be at the chemical feed location within two (2) hours of the alarm.
   2) Supplier shall respond to all alarms remotely within one (1) hour and then, if necessary, a physical visit to the odor control station within two (2) hours of receiving the alarm.
   3) The Supplier shall provide an initial notification to OC San staff via email on the cause of the emergency and action taken. A formal incident report shall be provided to OC San within five (5) business days of the emergency events.
   4) Supplier shall contain and mitigate all emergency events.

B. OC San may require an emergency back-up supply of its chemicals. On a case-by- case basis, OC San may need to alter its chemical choice due to impacts at the treatment plants, impacts on trunk systems, costs, or chemical availability. In such events, OC San may seek secondary chemicals, and request price proposals for this service.

## 10 Hydrogen Sulfide (H2S) Treatment Validation

A. Supplier shall provide field sampling personnel and instrumentation for data collection and sampling to assist OC San staff in monitoring effectiveness of the chemical addition to obtain LOS. The effort shall include collection system monitoring, both routine weekly monitoring and up to eight (8) annual intensive tests per Agreement term.

   The routine monitoring shall consist of deployment/retrieval of data logging instruments and liquid-phase grab samples (24-hour sampling may be considered where sample

integrity can be maintained). The weekly monitoring shall be conducted on rotating days and times with eighty percent (80%) or more taking place during weekday business hours (6 am – 4 pm) and the remaining twenty percent (20%) may be during night shifts or weekends.

B. Supplier shall notify OC San in accordance with standard procedures prior to site access to all dosing stations and manhole sites.

C. Supplier shall provide equipment necessary for wastewater liquid sampling, i.e. LaMotte (or OC San approved equal) hydrogen sulfide test kit, temperature and pH meter, and nitrate test strips.

- OC San provides H2S monitors (i.e. Smartcover, Acrulog, Odalog, and RTX meters).

D. All sampling and monitoring data shall be reported to OC San within twenty-four (24) hours of obtaining results. The report format and document nomenclature shall be approved by OC San prior to commencement of monitoring, sampling, and reporting. Routine weekly monitoring shall include:
   - Total and dissolved sulfide, pH, temperature (grab)
   - Total and ferrous iron (grab)
   - Vapor H2S (24-hour continuous data logging year around)
   - Residual nitrate mg/L total nitrate–nitrogen (grab)

   Analytical methods and number of sites requiring each analysis are listed in Table 2:

**TABLE 2 – ANALYTICAL METHODS**

| Liquid (grab) samples | Methods & Procedures | Number of Sites |
|---|---|---|
| Total sulfide | Std. Methods 4500-S2- D. Methylene Blue | 12-15 |
| Dissolved sulfide | Std. Methods 4500-S2 using pre-flocculation to remove insoluble sulfides | 12-15 |
| Wastewater pH | HACH portable meter of equivalent | 5-10 |
| Temperature | NIST calibrated thermometer | 5-10 |
| Total iron | Std. Methods 3500-Fe D. Phenanthroline (Hach colorimeter) | 5-10 |
| Residual nitrate mg/L Nitrate - Nitrogen | CHEMets kit or equal and/or Hach Aquacheck Nitrate-Nitrite test strips | 5-10 |
| Dissolved iron | Ferrous iron Std. Methods 3500-Fe without hydroxylamine reduction step Per total iron | 5-10 |
| H2S, vapor | Acrulog, SmartCover or equivalent OdaLogs | 12-15 |

E. Each fiscal year, the Supplier will conduct up to eight (8) detailed monitoring and analyses events for trunk line assessments, base lining, or troubleshooting an odor source.

F. The monitoring locations will be selected by OC San. For each monitoring event, vapor-phase hydrogen sulfide shall be monitored for a 2-week period (24-hr/day). For each monitoring event, liquid sampling/analyses shall be conducted up to three (3) times during the 2-week monitoring period and at four (4) locations minimum. For each location, up to

four (4) grab samples shall be collected/analyzed. 24-hour sample collection may be substituted if sample integrity can be maintained and OC San agrees in advance. An alternative test plan may be developed for OC San to consider.

G. Routine monitoring shall include but not limited to all the following Table 3:

**TABLE 3 – ANALYTICAL METHODS for Routine Grab and Continuous Monitoring**

| Samples | Procedure | Frequency |
|---|---|---|
| Total sulfide, liquid | Std. Methods 4500-S2- D. Methylene Blue | Hourly for a 24-hour period |
| Dissolved sulfide, liquid | Std. Methods 4500-S2 using pre-flocculation to remove insoluble sulfides | Hourly for a 24-hour period |
| Wastewater pH, liquid | HACH portable meter of equivalent | Hourly for a 24-hour period |
| Temperature, liquid | NIST calibrated thermometer | Hourly for a 24-hour period |
| Total iron, liquid | Std. Methods 3500-Fe D. Phenanthroline (Hach colorimeter) | Hourly for a 24-hour period |
| Residual nitrate mg/L Nitrate - Nitrogen, liquid | CHEMets kit or equal and/or Hach Aquacheck Nitrate-Nitrite test strips | Hourly for a 24-hour period |
| Dissolved iron, liquid | Ferrous iron Std. Methods 3500-Fe without hydroxylamine reduction step Per total iron | Hourly for a 24-hour period |
| H2S, vapor | Acrulog, SmartCover or equivalent OdaLogs | Continuous, 24 hours |
| BOD, liquid | EPA SM5210B | Composite from 24-hour sampler |
| COD, liquid | HACH (8000) EPA 5220D | Composite from 24-hour sampler |
| Total Suspended Solids (TSS), liquid | EPA SM2540D | Composite from 24-hour sampler |
| Salinity/ Conductivity | YSI Model 30 portable conductivity/salinity meter | Hourly for a 24-hour period |

## 11 Program Extension Options for the Purpose of Transition

In the event that at the end of this Agreement, Supplier is required to transition the ROCCS program responsibility to a new supplier, OC San may require the Supplier to enter into a month-to-month agreement, for a minimum of three (3) months, to ensure that the program remains in full compliance up until the time that the said transition is fully completed. During said month-to-month agreement, Supplier shall charge OC San at the same pricing and rates as then current in this Agreement.

# APPENDIX A

# For

# Regional Odor and Corrosion Control Services (ROCCS)

**APPENDIX A**
**FERROUS CHLORIDE**
**SUPPLY AND DELIVERY TECHNICAL GRADE**
**SPECIFICATION NO. C-2023-1378BD**
**(Ferrous Chloride for Wastewater Treatment)**

## A. Disclaimer:

1. The ferrous chloride must contain nothing that will adversely affect or interfere with normal operation of the Agency's treatment processes or be injurious to the ferrous chloride feeding equipment.
2. Product shall not cause scale formation in OC San piping or equipment.
3. The ferrous chloride supplied under these specifications shall be clean and free from all dirt, wood, and plastic particulate matter.
4. Product shall contain no foreign substances, organic or inorganic, in injurious quantities. An injurious quantity shall be defined as the minimum capable of producing ill effects in the treatment plant process, in the receiving water, or causing OC San to exceed its NPDES requirements, other OC San obligation.
5. OC San reserves the right to reject a load or terminate the Agreement if the stated requirements are not met.

## B. General Specifications:

Supplier shall conform to the technical grade chemical specifications.

Ferrous Chloride ($FeCl_2$)

General Specifications:

| | Minimum | Maximum |
|---|---|---|
| Ferrous Chloride | 33% | 36% |
| Free HCl | 1% | 2% |
| Specific Gravity @ 20 C | 1.38 | 1.41 |
| Product Mass (Lbs/Gal @ 68 F) | 11.52 | 11.77 |
| % Insoluble | 0.0% | 0.03% |
| Iron (Fe) lbs Fe/gallon @ 20 C | 1.68 | 1.88 |
| Sulfate (%) | | <1% |

## C. Documentation

A certificate of analysis prepared by a reputable outside laboratory or bidder's in- house laboratory if ISO certified shall be submitted for each ferrous chloride delivery. The certificate of analysis shall be based on a representative sample of the specific batch or lot of chemical currently being

used to make deliveries. Failure to supply the required certificate of analysis shall be sufficient cause to reject the load. Charges for certificate of analysis shall be included in the bid price. This report shall contain the following:

- Date of manufacture
- Date of delivery
- Shipper ID
- Specific gravity
- Total insoluble matter, percent by weight
- Ferrous chloride, $FeCl_2$, percent by weight
- Percent of free acid, expressed as HCl
- Iron content, expressed as lb/gallon
- Percent of Sulfate

One 200 mL sample of the delivered product shall be provided by the Bidder at the time of each delivery if requested by the Agency either when the order is placed or at the time of delivery. In order to ensure these samples are representative of the chemicals being delivered, the samples shall be drawn from the delivery truck at the time of delivery.

No deliveries will be accepted by the Agency unless accompanied by said certificate of analysis for the specific batch or lot of chemical delivered and the quality specifications listed in the bid contract documents are met.

a. Charges for certificate of analysis from an ISO certified laboratory shall be included in the bid price.

b. Failure to supply the required certificate of analysis shall be sufficient cause to reject the load. A certificate of analysis that does not meet the current AWWA Standard B407 shall be cause to reject the load.

c. One 200 mL sample of the delivered product shall be provided by the Bidder at the time of each delivery if requested by the Agency either when the order is placed or at the time of delivery. Inxorder to ensure these samples are representative of the chemicals being delivered, the samples shall be drawn from the delivery truck at the time of delivery.

d. Where the Agency has specific impurity limits other than those listed in 4. And 5. Above, the certificate of analysis that accompanies the delivery should specify the actual concentrations of the said impurities.

## D. Deliveries

At the time of deliveries, Supplier shall provide all the necessary, fully trained and qualified personnel for a minimum of 3-man days per week to be in continuous attendance during the transfer of chemical. OC SAN will provide staff to act as an observer during connection and disconnection. Supplier personnel shall provide a written copy of the delivery statement to OC SAN's representative prior to connection. Supplier shall provide all necessary safety equipment required by Supplier or any subcontract hauler.

Supplier shall provide a telephone number at each tank location where qualified personnel can be contacted in the event of an emergency on a twenty-four (24) hour basis. It will be Supplier's responsibility to update any changes or phone numbers. Supplier shall be responsible for cleanup of spilled material. Clean up must be conducted in conformance with OC SAN's safety procedures, Environmental Protection Agency (EPA), regional and local regulations and ordinances, and product manufacturer's recommended clean-up procedures. All equipment and materials required for cleanup must be furnished by Supplier.

Supplier shall be responsible for ensuring compliance with all Federal, State, and local environmental health and safety regulations concerning the transport, delivery, transfer and cleanup of hazardous materials while performing under the Agreement.

Supplier shall observe the entire filling operation at each delivery site and shall be responsible for minimizing and cleaning up any spillage due to such operation. After off-load is complete Supplier shall not blow-down inside tank causing spill and unsafe conditions. Any spillage shall be reported immediately to OC SAN's representative. If OC SAN must hire a Supplier to clean up the spill, all costs for cleanup will be Supplier's responsibility. No leakage to atmosphere or environment will be permitted. No waste material shall be disposed of in OC SAN receptacles. No vehicle washing may be done on OC SAN property or dosing sites. Certified scales shall determine delivery weight of material. Supplier shall, for all loads of Ferrous Chloride delivered, furnish certificates of weight and delivery slips. A written delivery statement shall accompany all shipments and state the delivered product being shipped, and the actual content of the chemicals delivered.

At a minimum, the invoice shall include a description of the delivery location, the delivery date, the unit price, the weight of product delivered, the percent solution, weight, gallons, actual specific gravity and other parameters used to determine the cost for the shipment. Supplier shall email OC SAN staff forty-eight (48) hours in advance of delivery to confirm delivery.

Supplier shall be responsible for ensuring that sufficient product is available in the tanks to achieve treatment objectives. Scheduled deliveries will be made Monday through Friday 7:00am to 2:00pm. However, Supplier shall be required to deliver on any day of the week, on an as needed basis. Supplier will give OC SAN or representatives at least 48-hour email notice prior to all deliveries, as appropriate, except in case of emergencies, when deliveries within a 24-hour period will be required.

Supplier shall not over- pressurize the off-loading system, piping or appurtenances. Chemical shall not be off-loaded at an unsafe rate or at pressures greater than 35 psi. In addition, when Supplier clears or purges the tank, hose or piping, he will not surge the system or create hammer pressures in the system.

## E. Truck Delivery Sample

OC SAN may request truck driver to take grab sample of the delivered product to be pulled and analyzed at a frequency as determined by OC SAN to verify that the delivered product meets the specifications herein. Upon OC SAN's request, the delivered load shall be sampled from the cargo trailer at the point of delivery, the truck driver shall take two (2) samples from each cargo trailer load, with Supplier's furnished bottles and sampler, in the presence of an on-site OC SAN representative. Each sample shall be labeled with the date, chemical name, shipping invoice number, and sampler's name. A sampler and sample bottles shall accompany every delivery truck. The samples will be provided to OC SAN personnel staff for observation and logging. Two (2) sample containers shall be provided in 1000ml plastic/glass containers with lids utilizing Falcon Model #4020 manufactured by Becton Dickinson Labware, Lincoln Park, New Jersey, or approved equal.

## F. Certified Laboratory Report

Supplier shall at the beginning of each Agreement term and at the mid-point of the term of the agreement period or when a significant change occurs in Supplier's manufacturing process, submit a certified laboratory report of delivered, accepted, and approved product to:

Orange County Sanitation District
ATTN: "*Project Manager*"
10844 Ellis Avenue
Fountain Valley, CA 92708

OC SAN shall be responsible for sending the sample to the certified laboratory. The report shall be received by OC SAN within thirty (30) calendar days of said delivery and shall contain date and location of delivery and the following in the specified units:

1. In Percent by Weight
    a. Ferrous chloride ($FeCl_2$)
    b. Total iron (Fe)
    c. Percent total iron as ferrous
    d. Free acid (expressed as HCl)
    e. Insoluble matter
2. In Pounds per Gallon
    a. Ferrous chloride ($FeCl_2$), dry
    b. Specific weight of solution
3. Physical Property
    a. Specific gravity
4. Heavy Metals and Miscellaneous Constituents (in mg/kg anhydrous $FeCl_2$)
    a. Antimony
    b. Arsenic
    c. Cadmium
    d. Chromium
    e. Lead
    f. Mercury
    g. Nickel
    h. Zinc

The method(s) used to perform the laboratory analysis result for each constituent required under the Agreement shall be disclosed in all reports to OC SAN.

Analysis for Heavy Metal determination shall be performed by ICP/MS, ICP/AES, or Atomic Adsorption method, with the appropriate adjustments for Iron interference, or equivalent method as approved by OC SAN.

## G. Storage Facility

Supplier shall maintain a minimum one (1) week supply of ferrous chloride at storage or warehouse locations in the U.S. within an eighteen (18) hour drive of the delivery points.

## H. Safety & Permitting

A meeting with personnel from OC SAN's Safety and Risk Management Division will be required before the start of any work. OC SAN requires personal protective equipment be worn at the chemical dosing sites in accordance with OC SAN Safety Standards. Face shields may also be required to be worn when working around pressured chemical systems at connections, disconnections, adjustments and observations. It is the responsibility of Supplier to ensure that the delivery truck drivers are trained in these requirements.

Safety showers and eyewash stations are located at the chemical dosing sites. Supplier shall review the shower and eyewash locations prior to off-loading chemicals. Supplier shall comply with OC SAN's safety policies while at the chemical dosing sites. Supplier shall provide safety equipment. **Lack of safety equipment or failure to use safety equipment will be cause for rejection of the product.**

# APPENDIX B

# For

# Regional Odor and Corrosion Control Services (ROCCS)

**APPENDIX B**
**FERROUS CHLORIDE**
**STORAGE AND HANDLING SYSTEM EQUIPMENT**
**SPECIFICATION NO. C-2023-1378BD**

## A. General

The standard design consists of a tank system, chemical transfer system, dosing system(s), a monitor/controller and a site containment system.

Each ferrous chloride storage and feed system shall include, but not be limited to the following items:

- Storage tank system
- Chemical transfer system
- Dosing system(s)sized for the targeted feed rate dosing module
- Monitor/Controller
- Site containment system
- Safety shower/eyewash station

Supplier shall be responsible for supplying a complete and fully functioning package for the ferrous chloride systems. This responsibility covers all aspects of the design including but not limited to chemical compatibility of all materials in contact with the chemical.

Tank and appurtenances shall be upgraded as industry standards and regulations change.

## B. Storage Tank System

The suggested tank module consists of a single wall high-density linear polyethylene tank with fiberglass reinforced plastic (FRP) reinforcing to control deflection during filling with heated ferrous chloride. The molding resin used shall be virgin, as compounded by the manufacturer, with the following chemical properties as a minimum:

| Property | ASTM | Value |
|---|---|---|
| Resin Density | D1505 | 0.938-0.944 g/cc |
| Tensile Yield Stress | D638 | 2600 psi |
| Elongation at Break | D638 | 350% |
| ESCR (100% Igepal, Cond. A, F50) | D1693 | 400-1000 hours |
| ESCR (10% Igepal, Cond. A, F50) | D1693 | 200-500 hours |
| Vicat Softening Temperature | D1525 | 235°F |
| Flexural Modulus | D790 | 97,000-103,000 psi |

1. The tank wall thickness shall be rated for >1.9 specific gravity, extra heavy wall, and the overall minimum required wall thickness shall be in accordance with ASTM D1998.

2. The tank wall shall contain between 0.25-0.50 percent ultraviolet stabilizer that is compounded in the resin. No titanium, or carbon-based pigments shall be used.

3. Tanks are sized at 10,000 to 12,000 gal for maximum storage efficiency.

4. Tank vents shall comply with California Code of Regulations (CCR), Title 8 for normal venting of atmospheric tanks. Sufficient venting, pursuant to industry standards, shall provide adequate relief in the event of deflagration of the tank contents.

5. Each tank shall have a dedicated Schedule 80 CPVC fill line. All connections are welded couplings with all attachments below liquid level having dual gussets for additional strength. Gaskets shall be of a Polytetrafluoroethylene compound, or a suitable Fluoroelastomer - Terpolymer. Bolts made of Type 316 stainless steel.

6. All tanks shall be outfitted with a reverse level indicator with a chemically compatible float device and a rigid external level indicator scaled to the specific tank size.

7. Proper caution, or warning signs, shall be affixed to the tank in a manner consistent with all Federal, State, and local codes.

8. For deflection control with warm solutions and for application of custom paint schemes the entire tank is covered with a fiberglass reinforced polyester wrapping. The wraps include a minimum of one (1) woven roving reinforcing per 1/8" planned wrap thickness to increase tensile strength of the tank wall with the bottom half of the tank receiving 3/8" thick material and the upper half at ¼" thick. When wrapping the tank the tank shall be filled with water for an expanded configuration.

9. The tank includes lifting lugs and a tee vent assembly and a nameplate for identification.

10. The tank systems are delivered with a standard rust brown gel coat paint system. The gel coat paint is non-hazardous and can be easily applied for repairs or system cleanup onsite. Other colors are available upon request.

## C. Transfer system

1. Suction, discharge, and injection pipe (rigid and flexible) shall be constructed of PVC & CPVC thermoplastic. All rigid piping in the transfer system shall be a minimum of heavy-duty Schedule 80 CPVC. Pipe shall conform to ASTM D-1784 standard for manufacturing and ASTM D-1785 and F-441 standards for dimensions and workmanship.

    1.1 All fittings shall be injection molded of PVC fitting compound of cell classification 12454-B and of CPVC fitting compound of cell classification 23447-B as described in ASTM D-1784.

    1.2 All threaded fittings shall conform to thread standard ANSI/ASME B1.20.1 for tapered pipe thread.

    1.3 All socket weld fittings dimensions and tolerances shall conform to appended table PVC IPS schedule 80 socket dimensions.

2. Hand valves within the system shall provide safety isolation, operational functionality, and isolation of pump components for inspection and repair.

2.1 All hand valves (ball and butterfly) shall bear the manufacturer's name (or trademark), material designation, size, and IPS schedule.

3. Gaskets shall be either Viton B (or equal Fluoroelastomer – Terpolymer), or a Polytetrafluoroethylene compound. O-rings shall be Viton B, or approved equal Fluoroelastomer - Terpolymer. Pipe compound shall be Loctite 567, or approved equal.

4. All shop and field assembly work that involves solvent cemented joints (socket weld) shall conform to ASTM D-2855 practice for make-up procedures.

## D. Dosing System

1. The skid shall be enclosed in lockable, weather resistant, hardcover enclosure. The enclosure shall be constructed of LDPE, with UV inhibitors and shall include an integrated spill/lead containment sump with leak detection hardware. The enclosure shall be of a design that complies with 40 CFR 122.26: BMP for Stormwater Pollution Prevention Plan.

2. The chemical metering pump(s) shall be motor-driven mechanically actuated multi-diaphragm style pump(s).

2.1 The motor driven pump shall be sized to support the full range of operation and shall be designed specific for the corrosive ferrous chloride service with a Kynar pump head, Viton GFLT diaphragms and o-rings, Hastelloy valves and seats.

2.1.1 The unit shall have a C-face adapter and coupling, driven by a 1.5hp, 3phase, 230/460V, and 1750rpm Inverter Duty Motor- Marathon Black Max, and 1000 to one turndown ratio.
2.1.2 A NEMA 4X, AC variable frequency drive with single phase, 115V input and 3 phase, 230V out to the pump motor is required.
2.1.3 Suggested pump for this application is A Wanner Hydra-Cell D10EKMGTTTMA, or approved equal.

2.2 The chemical dosing pumps shall be mated to a flanged magnetic flow meter with ½" 150 lb flanged connections. The unit shall be designed for corrosive ferrous chloride service with all wetted parts to be PTFE. Unit body shall be 304/316 stainless steel. Unit shall include Hastelloy C Electrodes and conductivity ring. Unit shall include a remote mount interface panel. System performance per the following:

2.2.1 0.25% accuracy at 1 to 39 fps independent of fluid viscosity, temperature or density
2.2.2 0.1% repeatability
2.2.3 Accurate to minimum fluid conductivity of 5.0 micromhos/cm
2.2.4 Bi-directional flow
2.2.5 Analog output - 4-20 mA scaled analog output (pulse output to 5kHz)
2.2.6 Digital output – 24 VDC, 100mA max
2.2.7 Noise dampening programmable from 1 to 6
2.2.8 Pulse width programmable to 500ms
2.2.9 Automatic correction for zero stability

2.2.10 LCD display
2.2.11 Panel rating of NEMA 4X
2.2.12 ½ npt cord grip connector
2.2.13 Ambient temperate - -4 to 140 F

2.3 The back pressure valve (BPV) provided shall have a PVC body and wetted components, a PTFE faced diaphragm, and a ¾" FNPT process connection. The BPV shall be capable of handling 400 gph (pulsating).

3. Monitor / Controller

3.1 A continuous level device, intended for dynamic tank level readings, shall be provided for the storage tank. The device consists of a loop powered ultrasonic level element incorporating: user programmable functions, a PVDF or PFE transducer, Hart compliance, and 4-20 mA scalable analog output.

3.2 An integrated telemeter/controller device shall be provided. All incoming data (real-time and historic) received by the device shall be accessible to a central control center, at any time during the day. All control functionality shall be accessible to a central control center, for remote adjustment and actuation, at any time during the day. Communication shall be via: a hardwire (twisted-pair) landline, a RTU to landline, or a cellular phone.

3.3 The device shall be capable of receiving analog inputs from associated instrumentation. One (1) channel shall be dedicated to receiving an analog input from any standard continuous level device, and correlating the signal to gallons of product with the tank. This value shall be displayed on a local display. One (1) channel shall be dedicated to receiving an analog input from a pressure transducer, and correlating the signal to a pump health value, for diagnostic and preventive maintenance issues.

3.3.1 The device shall be capable of providing analog and discrete outputs to associated pumps. A minimum of two (2) channels shall be dedicated to providing an analog output to a pump. This output shall allow for independent profiling of a dynamic pump, in one (1) hour increments, repeated over a 24-hour day, and seven (7) distinct days of the week. A minimum of two (2) digital outputs shall be dedicated to providing a discrete output to the pumps. These outputs shall provide a start-stop function for a steady-state pump, or a pacing function for a relay driven pump.
3.3.2 The device shall incorporate a remote flow meter on the fill line and a totalizer function within the computer that will enable the control center to determine the amount of fluid added to the storage tank during a refill.
3.3.3 The device shall have an internet webpage access that will allow for the monitor and control of the dosing system and storage tank. Remote monitor capabilities shall include real time and historical tank level readings, current pump speed, and pump status. Remote control aspects shall include ability to pause pump operation, switch the active pump from one to the other, and change pump speed as situations may require. Supplier shall provide OC SAN with the ability to disable process control to the SCADA system.

3.3.4 The device shall incorporate a Human Machine Interface to enable local control functions and minor parameter changes such as the driver of the chemical truck to enter the amount delivered and an ability to change pump profiles based on a 24/7 requirement. Both functions shall have different passwords in order to limit access to control. This HMI terminal shall be touch screen capable.

3.3.5 The device shall be housed in a NEMA 4X rated electrical enclosure(s). The device shall be capable of providing the operating temperature inside the enclosure, as well as calculating the nominal environmental temperature, for both device and instrumentation health. Any penetrations into the enclosure should maintain the NEMA 4X integrity.

3.3.6 The device shall have the appropriate spare channels, capable of receiving output from standard instrument suites. The device shall have a local bus connection for system diagnosis and adjustment by a technician.

3.3.7 The enclosure that receives any voltage above 30volts shall be UL-508 certified as a minimum standard of safety.

3.3.8 The device shall have additional input/outputs that can incorporate such features as (but not limited to):

3.3.8.1 Leak detection
3.3.8.2 Presence of fluid in containment system (rainwater, etc.)
3.3.8.3 Site requirements (lights, etc.)

3.3.9 The device shall have the flexibility to incorporate other communication protocols such as MODBUS or PROFIBUS

3.3.10 The device shall have additional communication abilities to send e-mail or SMS alerts, cautions, or advisory information to designated personnel for (but not limited to):
3.3.10.1 Low tank level
3.3.10.2 High tank level
3.3.10.3 Pump failure
3.3.10.4 Received gallons of product
3.3.10.5 Fluid in containment
3.3.10.6 Leak detected in pump skid

4. Site Containment System

4.1 Site containment shall be erected with galvanized corrugated steel panels, of 33” in height, creating the perimeter wall of the containment.

4.1.1 Panels shall be fastened to an appropriate substrate utilizing anchor lugs (chair) fastened with 3/8-inch wedge anchors, for penetrations up to 3 inches, and ½-inch HILTI quick bolts for penetrations 4-inch, or greater; or approved equal.

4.1.2 Panels shall be joined with fluted galvanized steel angle and appropriate self-tapping fasteners.

4.2 The containment area shall be filled with sand to create a level surface.

4.3 The area delineated by the perimeter wall shall have a geotextile pad to prevent unwanted penetrations and tears in the containment liner.

4.4 The entire containment shall be lined with an EPDM liner and fastened to the wall utilizing the fluted joining angle.

4.5 Foot traffic into the containment shall be via “OSHA compliant crossover stairs” provided by containment manufacturer.

Site containment shall be sized to contain one hundred percent (100%) of the storage vessel, plus 5 inchesof freeboard, capable of containing uncharacteristic twenty-five (25) year rain event.

Supplier shall provide all labor, supervision, materials, equipment, and incidental items required to control aqueous hydrogen sulfide within the wastewater collection system to the target levels specified herein.

# APPENDIX C

# For

# Regional Odor and Corrosion Control Services (ROCCS)

**APPENDIX C**
**CALCIUM NITRATE/CALCIUM AMMONIUM NITRATE**
**CHEMICAL SUPPLY AND DELIVERY TECHNICAL GRADE**
**SPECIFICATION NO. C-2023-1378BD**

**(Calcium Nitrate/Calcium Ammonium Nitrate for Wastewater Treatment)**

## A. Disclaimer:

a. The calcium ammonium nitrate must contain nothing that will adversely affect or interfere with normal operation to OCSAN's treatment processes or be injurious to the chemical feeding equipment.

b. Product shall not cause scale formation in OCSAN piping or equipment.

c. The calcium ammonium nitrate supplied under these specifications shall be clean and free from all dirt, wood, and plastic particulate matter.

d. Product shall contain no foreign substances, organic or inorganic, in injurious quantities. An injurious quantity shall be defined as the minimum capable of producing ill effects in the treatment plant process, in the receiving water, or causing OCSAN to exceed its NPDES requirements, other OCSAN obligation.

e. OCSAN reserves the right to reject a load or terminate the Agreement if the stated requirements are not met.

## B. General Specifications:

Supplier shall conform to the following technical grade chemical specifications.

1.1. Calcium Ammonium Nitrate 17% ($Ca(NO_3)_2$)

| | |
|---|---|
| Total Nitrogen | 17 % |
| Ammoniacal Nitrogen | 5.4 % |
| Nitrate Nitrogen | 11.6 % |
| Nitrate Nitrogen | 1.464 (lb/gal) |
| Specific Gravity | 1.518 |
| PH Range | 5.0 – 6.5 |
| Density | 12.6 (lbs/gal) |
| Water Insolubles | <0.03 % |

1.2. Calcium Nitrate 9%

| | |
|---|---|
| Total Nitrogen | 9 % |
| Ammoniacal Nitrogen | 0.5 % |
| Nitrate Nitrogen | 8.42 % |
| Nitrate Nitrogen | 1.026 (lb/gal) |

| | |
|---|---|
| Specific Gravity | 1.465 |
| PH Range | 5.0 – 6.5 |
| Density | 12.2 (lbs/gal) |
| Water Insolubles | <0.03 % |

The product supplied shall not be a reconstituted, reclaimed or spent product. The delivered product shall be clean and free from dirt, wood, and plastic particulate matter that could cause pumping failure. It shall contain no foreign substances, organic or inorganic, in injurious quantities. An injurious quantity shall be defined as the minimum capable of producing ill effects in the treatment plant process, in the receiving water, or causing OCSAN to exceed its NPDES requirements, other OCSAN obligation, impacts plant processes negatively, or does not conform with the quality criteria outlined in this technical specification. OCSAN reserves the right to reject a load or terminate the Agreement if the stated requirements are not met.

**C. Documentation**

A certificate of analysis prepared by a reputable outside laboratory or bidder's in-house laboratory if ISO certified shall be submitted for each calcium ammonium nitrate delivery. The certificate of analysis shall be based on a representative sample of the specific batch or lot of chemicals currently being used to make deliveries. Failure to supply the required certificate of analysis shall be sufficient cause to reject the load. Where the Agency has specific impurity limits other than those listed above, the certificate of analysis that accompanies the delivery should specify the actual concentrations of the said impurities. Charges for certificate of analysis shall be included in the bid price. This report shall contain the following:

- Date of manufacture
- Date of delivery
- Shipper ID
- Specific gravity
- Calcium ammonium nitrate as double salt (% weight/weight)
- Active Nitrate Content, expressed as %
- Ammoniacal Nitrogen content (% weight/weight)

One 200 mL sample of the delivered product shall be provided by the Bidder at the time of each delivery if requested by the Agency either when the order is placed or at the time of delivery. In order to ensure these samples are representative of the chemicals being delivered, the samples shall be drawn from the delivery truck at the time of delivery.

**D. Deliveries**

At the time of deliveries, Supplier shall provide all the necessary, fully trained and qualified personnel for a minimum of 3-man days per week to be in continuous attendance during the transfer of chemical. OCSAN will provide staff to act as an observer during connection and disconnection. Supplier's personnel shall provide a written copy of the delivery statement to OCSAN's representative prior to connection. Supplier shall provide all necessary safety equipment required by Supplier or any subcontract hauler. Supplier shall provide a telephone number at each tank location where qualified personnel can be contacted in the event of an

emergency on a twenty-four (24) hour basis. It will be Supplier's responsibility to update any changes or phone numbers. Supplier is responsible for cleanup of spilled material. Clean-up must be conducted in conformance with OCSAN's safety procedures, Environmental Protection Agency (EPA), regional and local regulations and ordinances, and product manufacturer's recommended clean-up procedures. All equipment and materials required for cleanup must be furnished by Supplier

Supplier shall be responsible for ensuring compliance with all Federal, State, and local environmental health and safety regulations concerning the transport, delivery, transfer and cleanup of hazardous materials while performing under the Agreement.

Supplier shall observe the entire filling operation at each delivery site and shall be responsible for minimizing and cleaning up any spillage due to such operation. Any spillage shall be reported immediately to OCSAN's representative. If OCSAN must hire a Supplier to clean up the spill, all costs for cleanup will be Supplier's responsibility. No leakage to atmosphere or environment will be permitted. No waste material shall be disposed of in OCSAN receptacles. No vehicle washing may be done on OCSAN property or dosing sites.

Certified scales shall determine delivery weight of material. Supplier shall furnish certificates of weight and delivery slips for all loads of Calcium ammonium nitrate delivered. At a minimum, the invoice shall include a description of the delivery location, the delivery date, the unit price, the weight of product delivered, the percent solution, weight, gallons, actual specific gravity and other parameters used to determine the cost for the shipment

Supplier shall email OCSAN staff twenty-four (24) hours in advance of delivery to confirm delivery. Supplier shall be responsible for ensuring that sufficient product is available in the tanks to achieve treatment objectives. Scheduled deliveries will be made Monday through Friday 7:00am to 2:00pm. However, Supplier shall be required to deliver on any day of the week, on an as needed basis. OCSAN representatives will give Supplier at least 48-hour verbal notice prior to all requested deliveries, as appropriate, except in case of emergencies, when deliveries within a 24-hour period will be required.

Supplier shall not over-pressurize the off-loading system, piping or appurtenances. Chemical shall not be off-loaded at an unsafe rate or at pressures greater than 35 psi. In addition, when Supplier clears or purges the tank, hose or piping, he will not surge the system or create hammer pressures in the system.

OCSAN may request a sample of the delivered product to be pulled and analyzed at a frequency determined by OCSAN to verify that the delivered product meets the specifications herein. Upon OCSAN's request, the delivered load shall be sampled from the cargo trailer at the point of delivery. Supplier shall take two (2) samples from each cargo trailer load, with Supplier's furnished bottles and sampler, in the presence of an on-site OCSAN representative. Each sample shall be labeled with the date, chemical name, shipping invoice number, and sampler's name. A sampler and sample bottles shall accompany every delivery truck. Two (2) samples will be provided to OCSAN staff for observation and logging. The two (2) sample containers shall be provided in 1000ml plastic/glass containers with lids utilizing Falcon Model #4020 manufactured by Becton Dickinson Labware, Lincoln Park, New Jersey, or approved equal.

## E. Safety & Permitting

A meeting with personnel from OCSAN's Safety and Risk Management Division will be required before the start of any work. OCSAN requires personal protective equipment be worn at the chemical dosing sites in accordance with OCSAN Safety Standards. Face shields may also be required to be worn when working around pressured chemical systems at connections, disconnections, adjustments, and observations. It is the responsibility of the Supplier to ensure that its drivers are trained in these requirements.

Safety showers and eyewash stations are located at the chemical dosing sites. Supplier must review the shower and eyewash locations prior to off-loading chemicals. Supplier shall comply with OCSAN's safety policies while at the chemical dosing sites. Supplier shall provide safety equipment. **Lack of safety equipment or failure to use safety equipment will be cause for rejection of the product.**

# APPENDIX D

# For

# Regional Odor and Corrosion Control Services (ROCCS)

**APPENDIX D**
**CALCIUM NITRATE**
**STORAGE AND HANDLING EQUIPMENT**
**SPECIFICATION NO. C-2023-1378BD**

## 1. General

The standard design consists of a tank system, chemical transfer system, dosing system(s), a monitor/controller and a site containment system.

Each calcium nitrate storage and feed system shall include, but not be limited to the following items:

- Storage tank system
- Chemical transfer system
- Dosing system(s)sized for the targeted feed rate dosing module
- Monitor/Controller
- Site containment system
- Safety shower/eyewash station

Supplier shall be responsible for supplying a complete and fully functioning package for the calcium nitrate systems. This responsibility covers all aspects of the design including but not limited to chemical compatibility of all materials in contact with the chemical.

Tank and appurtenances shall be upgraded as industry standards and regulations change.

## 2. Storage Tank System

The tank working capacity ranges from 3,000 gallons to 12,000 gallons with specific tanks selected based on usage, space availability, logistics etc. Supplier shall recommend a tank size for each application. Each tank system has integral secondary containment and is designed with a completely sealed containment area. The tank module consists of gallon high density cross linked polyethylene double wall storage tank with bottom draw.

2.1. The tank wall thickness shall be extra heavy wall, and the overall minimum required wall thickness shall be in accordance with ASTM D1998.

2.2. The tank wall shall contain between 0.25-0.50 percent ultraviolet stabilizer that is compounded in the resin. No titanium, or carbon-based pigments shall be used.

2.3. Tanks are sized at 3,000 to 12,000 gallons for maximum storage efficiency.

2.4. Tank vents shall comply with California Code of Regulations (CCR), Title 8 for normal venting of atmospheric tanks. Sufficient venting, pursuant to industry standards, shall provide adequate relief.

2.5. Each tank shall have a dedicated Schedule 80 CPVC fill line. All connections are welded couplings with all attachments below liquid level having dual gussets for additional strength. Gaskets shall be of a Polytetrafluoroethylene compound, or a suitable Fluoroelastomer - Terpolymer. Bolts made of Type 316 stainless steel.

2.6. All tanks shall be outfitted with a reverse level indicator with a chemically compatible float device and a rigid external level indicator scaled to the specific tank size.

2.7. Proper caution, or warning signs, shall be affixed to the tank in a manner consistent with local codes.

2.8. The tank shall include lifting lugs and a tee vent assembly and a name plate for identification.

2.9. The tank systems shall be delivered with a gel coat paint system. The gel coat paint is non-hazardous and can be easily applied for repairs or system cleanup onsite. Other colors shall be available upon request.

## 3. Transfer system

3.1. Suction, discharge, and injection pipe (rigid and flexible) shall be constructed of PVC & CPVC thermoplastic. All rigid piping in the transfer system shall be a minimum of heavy-duty Schedule 80 CPVC. Pipe shall conform to ASTM D-1784 standard for manufacturing and ASTM D-1785 and F-441 standards for dimensions and workmanship.

3.1.1. All fittings shall be injection molded of PVC fitting compound of cell classification 12454-B and of CPVC fitting compound of cell classification 23447-B as described in ASTM D-1784.

3.1.1.1. All threaded fittings shall conform to thread standard ANSI/ASME B1.20.1 for tapered pipe thread.

3.1.1.2. All socket weld fittings dimensions and tolerances shall conform to appended table PVC IPS schedule 80 socket dimensions.

3.1.2. Hand valves within the system shall provide safety isolation, operational functionality, and isolation of pump components for inspection and repair.

3.1.2.1. All hand valves (ball and butterfly) shall bear the manufacturer's name (or trademark), material designation, size, and IPS schedule.

3.1.3. Gaskets shall be either Viton B (or equal Fluoroelastomer – Terpolymer), or a Polytetrafluoroethylene compound. O-rings shall be Viton B, or approved equal Fluoroelastomer - Terpolymer. Pipe compound shall be Loctite 567, or approved equal.

3.1.4. All shop and field assembly work that involves solvent cemented joints (socket weld) shall conform to ASTM D-2855 practice for make-up procedures.

## 4. Dosing System

4.1. The skid shall be enclosed in lockable, weather resistant, hardcover enclosure. The enclosure shall be constructed of LDPE, with UV inhibitors and shall include an integrated spill/lead containment sump with leak detection hardware. The enclosure shall be of a design that complies with 40 CFR 122.26: BMP for Stormwater Pollution Prevention Plan.

4.2. The chemical metering pump(s) shall be motor-driven mechanically actuated multi-diaphragm style pump(s).

4.2.1. The motor driven pump shall be sized to support the full range of operation and shall be designed specific for the chemical.

4.3. The chemical dosing pumps shall be mated to a flanged magnetic flow meter with ½-inch 150 lb flanged connections. The unit shall be designed for specific chemical in service. Unit shall include a remote mount interface panel. Suggested system performance per the following:

- 0.25% accuracy at 1 to 39 fps independent of fluid viscosity, temperature or density
- 0.1% repeatability
- Accurate to minimum fluid conductivity of 5.0 micromhos/cm
- Bi-directional flow
- Analog output - 4-20 mA scaled analog output (pulse output to 5kHz)
- Digital output – 24 VDC, 100mA max
- Noise dampening programmable from 1 to 6
- Pulse width programmable to 500ms
- Automatic correction for zero stability
- LCD display
- Panel rating of NEMA 4X
- ½ npt cord grip connector
- Ambient temperate - -4 to 140 Fahrenheit

4.4. The back-pressure valve (BPV) provided shall have a PVC body and wetted components, a PTFE faced diaphragm, and a ¾" FNPT process connection. The BPV shall be capable of handling 400 gph (pulsating).

## 5. Monitor / Controller

5.1. A continuous level device, intended for dynamic tank level readings, shall be provided for the storage tank. The device consists of a loop powered ultrasonic level element incorporating: user programmable functions, a PVDF or PFE transducer, Hart compliance, and 4-20 mA scalable analog output.

5.2. An integrated telemeter/controller device shall be provided. All incoming data (real-time and historic) received by the device shall be accessible to a central control center, at any time during the day. All control functionality shall be accessible to a central control center, for remote adjustment and actuation, at any time during the day. Communication shall be via: a hardwire (twisted-pair) landline, a RTU to landline, or a cellular phone.

5.2.1. The device shall be capable of receiving analog inputs from associated instrumentation. One (1) channel shall be dedicated to receiving an analog input from any standard continuous level device, and correlating the signal to gallons of product with the tank. This value shall be displayed on a local display. One (1) channel shall be dedicated to receiving an analog input from a pressure transducer, and correlating the signal to a pump health value, for diagnostic and preventive maintenance issues.

5.2.2. The device shall be capable of providing analog and discrete outputs to associated pumps. A minimum of two (2) channels shall be dedicated to providing an analog output to a pump. This output shall allow for independent profiling of a dynamic pump, in one (1) hour increments, repeated over a 24-hour day, and seven (7) distinct days of the week. A minimum of two (2) digital outputs shall be dedicated to providing a discrete output to the pumps. These outputs shall provide a start-stop function for a steady-state pump, or a pacing function for a relay driven pump.

5.2.3. The device shall incorporate a remote flow meter on the fill line and a totalizer function within the computer that will enable the control center to determine the amount of fluid added to the storage tank during a refill.

5.2.4. The device shall have an internet webpage access that will allow for the monitor and control of the dosing system and storage tank. Remote monitor capabilities shall include real time and historical tank level readings, current pump speed, and pump status. Remote control aspects shall include ability to pause pump operation, switch the active pump from one to the other, and change pump speed as situations may require. Supplier shall provide OC SAN with the ability to disable process control to the SCADA system.

5.2.5. The device shall incorporate a Human Machine Interface to enable local control functions and minor parameter changes such as the driver of the chemical truck to enter the amount he delivered and an ability to change pump profiles based on a 24/7 requirement. Both functions shall have different passwords in order to limit access to control. This HMI terminal shall be touch screen capable.

5.2.6. The device shall be housed in a NEMA 4X rated electrical enclosure(s). The device shall be capable of providing the operating temperature inside the enclosure, as well as calculating the nominal environmental temperature, for both device and instrumentation health. Any penetrations into the enclosure should maintain the NEMA 4X integrity.

5.2.7. The device shall have the appropriate spare channels, capable of receiving output from standard instrument suites. The device shall have a local bus connection for system diagnosis and adjustment by a technician.

5.2.8. The enclosure that receives any voltage above 30volts shall be UL-508 certified as a minimum standard of safety.

5.2.9. The device shall have additional input/outputs that can incorporate such features as (but not limited to):

- Leak detection
- Presence of fluid in containment system (rainwater, etc.
- Site requirements (lights, etc.)

5.2.10. The device shall have the flexibility to incorporate other communication protocols such as MODBUS or PROFIBUS

5.2.11. The device shall have additional communication abilities to send e-mail or SMS alerts, cautions, or advisory information to designated personnel for (but not limited to):

- Low tank level
- High tank level
- Pump failure
- Received XXXX gallons of product
- Fluid in containment
- Leak detected in pump skid

# APPENDIX E

# For

# Regional Odor and Corrosion Control Services (ROCCS)

**APPENDIX E**
**MAGNESIUM HYDROXIDE**
**SUPPLY AND DELIVERY TECHNICAL GRADE**
**SPECIFICATION NO. C-2023-1378BD**

## A. Disclaimer:

1. The magnesium hydroxide must contain nothing that will adversely affect or interfere with normal operation of the Agency's treatment processes or be injurious to the magnesium hydroxide feeding equipment.
2. Product shall not cause scale formation in OC SAN piping or equipment.
3. The magnesium hydroxide supplied under these specifications shall be clean and free from all dirt, wood, and plastic particulate matter.
4. Product shall contain no foreign substances, organic or inorganic, in injurious quantities. An injurious quantity shall be defined as the minimum capable of producing ill effects in the treatment plant process, in the receiving water, or causing OC SAN to exceed its NPDES requirements, other OC SAN obligation.
5. OC SAN reserves the right to reject a load or terminate the Agreement if the stated requirements are not met.

## B. Product Description

Supplier will supply magnesium hydroxide as the primary hydrogen sulfide control agent delivered in bulk trailers to each designated chemical feed site conforming to the following specifications:

| General Specifications: | Typical | Minimum | Maximum |
|---|---|---|---|
| Percent Solids (%) | 60% | 58% | 62% |
| Density (lb/Gal) | 12.9` | 12.5 | 13.1 |
| Viscosity (cps) | 150 | 100 | 500 |
| Median Particle Size (micron) | 6 | | 10 |
| Specific Surface Area ($m^2/g$) | 14 | 12 | 25 |
| Caustic Magnesia Activity | 75 | 70 | 150 |
| $CaCO_3$ Equivalent | 1 lb. Equivalent to .59 lb. $Mg(OH)_2$ | | |
| % of MgO in Dry Solids (%) | 93% | 92 | |

Additional dose sites can be added or relocated on a full-service basis at the request of OC SAN as needed and in accordance with the terms and conditions of the Agreement.

## C. Documentation

A certificate of analysis prepared by a reputable outside laboratory or bidder's in- house laboratory if ISO certified shall be submitted for each magnesium hydroxide delivery. The certificate of analysis shall be based on a representative sample of the specific batch or lot of chemical currently being used to make deliveries. Failure to supply the required certificate of

analysis shall be sufficient cause to reject the load. Charges for certificate of analysis shall be included in the bid price. This report shall contain the following:

- Date of manufacture
- Date of delivery
- Shipper ID
- Specific gravity
- Percent solids in solution (%)
- Density (lb/Gal)
- Percent of MgO in dry solids
- Caustic Magnesia Activity
- Alkalinity (as $CaCO_3$)
- Median particle size
- Specific surface area

One 500 mL sample of the delivered product shall be provided by the Bidder at the time of each delivery if requested by the Agency either when the order is placed or at the time of delivery. In order to ensure these samples are representative of the chemicals being delivered, the samples shall be drawn from the delivery truck at the time of delivery. Where the Agency has specific impurity limits other than those listed above, the certificate of analysis that accompanies the delivery should specify the actual concentrations of the said impurities.

## D. Deliveries

At the time of deliveries, Supplier shall provide all the necessary, fully trained and qualified personnel for a minimum of 3-man days per week to be in continuous attendance during the transfer of chemical. OC SAN will provide staff to act as observer during connection and disconnection. Supplier personnel shall provide a written copy of the delivery statement to OC SAN's representative prior to connection. Supplier shall provide a telephone number at each tank location where qualified personnel can be contacted in the event of an emergency on a twenty-four (24) hour basis. It will be Supplier's responsibility to update any changes or phone numbers. Supplier is responsible for cleanup of spilled material. Clean up must be conducted in conformance with OC SAN's safety procedures, Environmental Protection Agency (EPA), regional and local regulations and ordinances, and product manufacturer's recommended clean-up procedures. All equipment and materials required for cleanup must be furnished by Supplier.

Supplier shall be responsible for ensuring compliance with all Federal, State, and local environmental health and safety regulations concerning the transport, delivery, transfer, storage and cleanup of hazardous materials while performing under the Agreement.

Supplier shall observe the entire filling operation at each delivery site and shall be responsible for minimizing and cleaning up any spillage due to such operation. Any spillage shall be reported immediately to OC SAN. If OC SAN must hire a Supplier to clean up the spill, all costs for cleanup will be Supplier's responsibility. No leakage to atmosphere or environment will be permitted. No waste material shall be disposed of in OC SAN receptacles. No vehicle washing may be done on OC SAN property or dosing sites.

Certified scales shall determine delivery weight of material. Supplier shall furnish certificates of weight and delivery slips for all loads of Magnesium Hydroxide delivered. A written delivery statement shall accompany all shipments and state the delivered name of the product being shipped, and the actual content of the chemicals delivered. At a minimum, the invoice shall

include a description of the delivery location, the delivery date, the unit price, the weight of product delivered, the percent solution, weight, gallons, actual specific gravity and other parameters used to determine the cost for the shipment.

Supplier shall email OC SAN staff twenty-four (24) hours in advance of delivery to confirm delivery. Supplier shall be responsible for ensuring that sufficient product is available in the tanks to achieve treatment objectives. Scheduled deliveries will be made Monday through Friday 7:00am to 2:00pm. However, Supplier shall be required to deliver on any day of the week, on an as needed basis. OC SAN or representatives will give Supplier at least 48-hour verbal notice prior to all requested deliveries, as appropriate, except in case of emergencies, when deliveries within a 24-hour period will be required.

Supplier shall not over- pressurize the off-loading system, piping or appurtenances. Chemical shall not be off-loaded at an unsafe rate or at pressures greater than 35 psi. In addition, when Supplier clears or purges the tank, hose or piping, he will not surge the system or create hammer pressures in the system.

**E. Truck Delivery Sample**

OC SAN may request samples of the delivered product to be pulled and analyzed at a frequency determined by OC SAN to verify that the delivered product meets the specifications herein. Upon OC SAN's request the delivered load shall be sampled from the cargo trailer at the point of delivery, the truck driver shall take two (2) samples from each cargo trailer load, with Supplier's furnished bottles and sampler, in the presence of on-site OC SAN representative. Each sample shall be labeled with the date, chemical name, shipping invoice number, and sampler's name. A sampler and sample bottles shall accompany every delivery truck. Two (2) samples will be provided to OC SAN staff for observation and logging. Two (2) sample containers shall be provided in 1000ml plastic/glass containers with lids utilizing Falcon Model #4020 manufactured by Becton Dickinson Labware, Lincoln Park, New Jersey, or approved equal.

**F. Safety & Permitting**

A meeting with personnel from OC SAN's Safety and Risk Management Division will be required before the start of any work. OC SAN requires personal protective equipment be worn at the chemical dosing sites in accordance with OC SAN Safety Standards. Face shields may also be required to be worn when working around pressured chemical systems at connections, disconnections, adjustments and observations. It is the responsibility of Supplier to ensure that its drivers are trained in these requirements.

Safety showers and eyewash stations are located at the chemical dosing sites. Supplier must review the shower and eyewash locations prior to off-loading chemicals. Supplier shall comply with OC SAN's safety policies while at the chemical dosing sites. Supplier shall provide safety equipment. **Lack of safety equipment or failure to use safety equipment will be cause for rejection of the product.**

# APPENDIX F

# For

# Regional Odor and Corrosion Control Services (ROCCS)

**APPENDIX F**
**MAGNESIUM HYDROXIDE**
**STORAGE AND HANDLING SYSTEM EQUIPMENT**
**SPECIFICATION NO. C-2023-1378BD**

## A. General

The standard design consists of a tank system, chemical transfer system, dosing system(s), a monitor/controller and a site containment system.

Each magnesium hydroxide storage and feed system shall include, but not be limited to the following items:

- Storage tank system
- Chemical transfer system
- Dosing system(s)sized for the targeted feed rate dosing module
- Monitor/Controller
- Site containment system
- Safety shower/eyewash station

Supplier shall be responsible for supplying a complete and fully functioning package for the magnesium hydroxide systems. This responsibility covers all aspects of the design including, but not limited to chemical compatibility of all materials in contact with the chemical. Tank and appurtenances shall be upgraded as industry standards and regulations change.

## B. Dosing System

The skid shall be enclosed in lockable, weather resistant, hardcover enclosure. The enclosure shall be constructed of low-density polyethylene (LDPE), with ultraviolet (UV) inhibitors and shall include an integrated spill/lead containment sump with leak detection hardware. The enclosure shall be of a design that complies with 40 CFR 122.26: BMP for Stormwater Pollution Prevention Plan.

Supplier shall provide chemical metering hose (peristaltic) type pumps. There shall be two (2) pumps on a skid. The pump shall be continuously operated. Output volume shall be adjustable while pumps are in operation from a predetermined minimum to the proper maximum capacity to fulfill all pumping requirements for the intended sewer flow. The chemical metering pumps shall be capable of pumping magnesium hydroxide slurry against pressures up 50 psig. All wetted parts shall be specifically designed and warranted for use with commercially available magnesium hydroxide.

The pump is to be of the peristaltic hose pump type using a thick-walled hose to maintain positive hydraulic pressure as the measuring wheels roll over the hose. The process head will have unrestricted flow path without the use of check valves or any other obstructions.

The hose in the pump shall be rubber or equivalent. The metering pump shall be self-priming and capable of indefinite operation without process slurry. The hose must operate under full head pressure without stressing the hose and barb connection at the suction or discharge.

The chemical dosing system shall operate remotely with a programmable logic controller (PLC), running twenty-four (24) set points per day and seven (7) days, or a computer system with cell based two-way communications.

Connections to the pump shall be by Supplier preferred tubing.

## C. Monitor / Controller

The device shall be capable of providing analog and discrete outputs to associated pumps. A minimum of two (2) channels shall be dedicated to providing an analog output to a pump. This output shall allow for remote wireless independent profiling of a dynamic pump, in one (1) hour increments, repeated over a 24-hour day, and seven (7) days of the week. A minimum of two (2) digital outputs shall be dedicated to providing a discrete output to the pumps. These outputs shall provide a remote wireless start-stop function for a steady-state pump, and/or a pacing function for a relay driven pump.

The device shall have an internet webpage access that will allow for the monitor and control of the dosing system and storage tank. Remote monitor capabilities shall include real time and historical tank level readings, current pump speed, and pump status. Remote control aspects shall include ability to pause pump operation, switch the active pump from one to the other, and change pump speed as situations may require. Supplier will provide OCSD with the ability to disable process control to the SCADA system.

The device shall incorporate a Human Machine Interface to enable local control functions and minor parameter changes such as the amount of chemical delivered and an ability to change pump profiles based on a 24/7 requirement. Both functions shall have different passwords to limit access to control.

The device shall have the appropriate spare channels, capable of receiving output from standard instrument suites. The device shall have a local bus connection for system diagnosis and adjustment by a technician.

The device shall have additional input/outputs that can incorporate such features as (but not limited to):

- Leak detection
- Presence of fluid in containment system (rainwater, etc.)
- Site requirements (lights, etc.)

The device shall have the flexibility to incorporate other communication protocols such as MODBUS or PROFIBUS

The device shall have additional communication abilities to send e-mail or SMS alerts, cautions, or advisory information to designated personnel for (but not limited to):

- Low tank level
- High tank level
- Pump failure
- Fluid in containment

## D. Site Containment System

1. Site containment shall be built with galvanized corrugated steel panels, of 42 inches in height, creating the perimeter wall of the containment.

    a) Panels shall be fastened to an appropriate substrate utilizing anchor lugs (chair) fastened with 3/8-inch wedge anchors, for penetrations up to 3 inches, and ½-inch HILTI, or approved equal, quick bolts for penetrations 4 inches, or greater.
    b) Panels shall be linked with fluted galvanized steel angle and appropriate self-tapping fasteners.

2. The containment area can be filled with sand to create a level surface.

3. The area delineated by the perimeter wall can have a geotextile pad to prevent unwanted penetrations and tears in the containment liner.

4. The entire containment shall be lined with a 30-mil plastic liner and fastened to the wall utilizing the fluted joining angle.

5. Foot traffic into the containment shall be via “OSHA compliant crossover stairs” provided by containment manufacturer.

6. Site containment shall be sized to contain one hundred percent (100%) of the storage vessel, plus 5 inches of Freeboard, capable of containing uncharacteristic twenty-five (25) year rain events.