EXHIBIT A
SCOPE OF WORK
PURCHASE OF LIQUID FERRIC CHLORIDE ($FeCl_3$)
SPECIFICATION NO. C-2023-1381BD

A. **General** - Ferric Chloride is used to enhance primary solids coagulation and maintain hydrogen sulfide levels below Air Quality Management District (AQMD) permit levels. Ferric Chloride also reduces plant odors and corrosion. It is estimated that Orange County Sanitation District ("OC San") may use up to 7,000 net dry tons of Ferric Chloride annually. The quantity stated is an estimate only. OC San does not guarantee Ferric Chloride usage. The actual quantity used may be sporadic and is based on treatment requirements unique to each plant.

B. **Technical** –The Ferric Chloride supplied under these specifications shall be clean and free from all dirt, wood, plastic particulate matter or substances that precipitate out as a water-soluble gelatinous mass, which could cause pumping failure. It shall contain no foreign substances, organic or inorganic and will not adversely impact treatment plant process, receiving water, sludge quality or cause OC San to exceed its National Pollutant Discharge Elimination System Permit (NPDES) requirements. The liquid Ferric Chloride delivered shall meet the following criteria and purity requirements:

1. $FeCl_3$: 25%-45% by weight, (+/- 2% based on manufacturer's certification)
2. $FeCl_2$: less than 0.5% by weight
3. Free Acid (as HCl): less than 1% by weight
4. Specific Gravity 1.237 – 1.488 @ 20 degrees Centigrade
5. Total Insoluble Matter: less than 0.03% by weight
6. Sulfate: less than 1% by weight
7. Following heavy metals not to exceed the following concentrations, based on the FeCl3 dry weight. The maximum metal concentrations shall not exceed 1000 mg/Kg.

Element	Name	Maximum Concentration	
		mg/kg Dry FeCl3	mg/kg (typical 40% FeCl3 solution)
Ag	Silver	3	1
Al	Aluminum	875	350
As	Arsenic	15	6
Ba	Barium	350	140
Be	Beryllium	17	7
B	Boron	350	140
Cd	Cadmium	10	4
Co	Cobalt	52	21
Cr	Chromium	201	80
Cu	Copper	350	140
Hg	Mercury	0.087	0.035
Mn	Manganese	2000	800
Mo	Molybdenum	39	15
Ni	Nickel	63	25
Pb	Lead	63	25
Sb	Antimony	8.7	3.5
Se	Selenium	38	15
Ti	Titanium	2000	800
Tl	Thallium	350	140
V	Vanadium	350	140
Zn	Zinc	524	210

C. **Product Certification** – A Certificate of Analysis must accompany each shipment and be provided to OC San Operations staff upon arrival. A certified analysis is defined as a statement signed by the manufacturer or supplier's representative declaring the product delivered meets the listed product specifications. Repeated deviations from the specifications of more than twice per calendar month may be used as grounds for terminating the Agreement. The Certificate of Analysis shall contain the analysis date, Bill of Lading number, percent ferric chloride, percent ferrous chloride, percent free acid as HCL, percent ferric iron, percent ferrous iron, Specific gravity at 20 degrees centigrade, pounds dry FeCl3 per gallon, and the percent total insoluble matter. The analyses shall be run in accordance with the American Water Works Association (AWWA) Standard for Liquid Ferric Chloride Method ANSI/AWWA B407-18.

D. **Product Sample Delivery** – OC San reserves the right to randomly test any product load or request a sample separate from product delivery. The sample container shall be a clean 500 mL plastic container with leak free lid. The bottle shall be labeled with the delivery location, shipper number, delivery date, percent ferric chloride, percent ferrous chloride, and specific gravity. A delivery statement shall accompany all shipments and state the delivered weight, delivered gallons, delivered dry tons, specific gravity of the product, and percent ferric chloride of the delivered solution.

E. **Product Quality** – OC San may terminate the Agreement if more than two (2) deliveries of Ferric Chloride do not meet the specifications per calendar month.

Analysis of product samples and product troubleshooting analysis are the responsibility of the Supplier. OC San reserves the right to verify product quality using the methods below, on a periodic basis, or more frequently, as needed, at the Supplier's expense.

Criteria	Analysis Methods
Specific Gravity @ 20 deg C	ANSI/AWWA B407-18 -Sec. 5.3
Total insoluble matter (% w/w)	ANSI/AWWA B407-18 -Sec. 5.4
Total Iron, Fe, (% w/w)	ANSI/AWWA B407-18 -Sec. 5.5
Ferrous Chloride Iron, Fe, (% w/w)	ANSI/AWWA B407-18 -Sec. 5.6
Ferric Chloride Iron, Fe, (% w/w)	ANSI/AWWA B407-18 -Sec. 5.7
Free acid expressed as HCl (% w/w)	ANSI/AWWA B407-18 -Sec. 5.8
Sulfate %/w)	SM4500-SO_4^{2-} D
Metals	Plasma Emission Spectroscopy (ICPES) SM 3120 B
Mercury	Cold Vapor Atomic Absorption (CVA) SM 3112 A

F. **Measurement and Payment** – OC San will pay only for the actual dry tons of Ferric Chloride delivered into OC San's storage, based upon certified tare weight and net weight. Dry tons invoiced by Supplier and payable by OC San will be for the total net dry tons of Ferric Chloride 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.

G. **Delivery Requirements** - Refer to the "Bulk Chemical Delivery Procedure for Contract Drivers" for additional requirements (reference Appendix “A-1").

1. Supplier shall be notified by OC San staff when to provide the delivery. A method of communication for subsequent deliveries shall be clarified between the Supplier and OC San.

2. Supplier shall deliver the Ferric Chloride to either Plant No. 1 or Plant No. 2 as ordered. Supplier shall be required to deliver on any day of the week, on an as needed basis.

- Plant No. 1 is located at 10844 Ellis Avenue, Fountain Valley, CA 92708
- Plant No. 2 is located at 22212 Brookhurst Street, Huntington Beach, CA 92646

3. At time of all deliveries, Supplier shall provide all the necessary, fully trained, and qualified personnel to be in continuous attendance during the transfer of Ferric Chloride.

4. Supplier shall allow a two-hour unloading time for each delivery. The Supplier's personnel shall provide one (1) copy of the delivery package to OC San’s operator(s) prior to connection. The delivery package includes the weight ticket, the analysis report and the Bill of Lading.

5. Supplier shall provide all necessary safety equipment required by the Supplier or its contract hauler.

6. Supplier shall provide a twenty-four (24) hour phone number where qualified personnel can be contacted in the event of an emergency. It will be the Supplier's responsibility to update any changes or phone numbers.

7. **Bills of Lading** must be labeled with the information listed below in order to be accepted:

a) Approved name/number of product.
b) Specify “Ferric Chloride” ($FeCl_3$).
c) Deliver and place into Ferric Chloride ($FeCl_3$) Tank.

If the above information is not on the Bill of Lading, off-loading will not take place without confirmation from OC San’s Operations and Maintenance Supervisor and/or Supplier that the shipment is the product ordered.

8. OC San’s plant gates are equipped with intercoms for the purpose of announcing arrivals. Please follow instructions - **DO NOT BLOW HORNS**.

9. Chemical delivery driver must sign in at the Control Center at Plant No. 1 or the Operations Center at Plant No. 2.

10. Ferric Chloride drivers, under no circumstances, are to remove or clean basket strainers at storage vessel. If there is an issue, please notify OC San Operations.

11. Chemical deliveries will be refused for any of the following:

a) Incorrect chemical sample color or appearance.
b) Ferric Chloride basket strainers plug up more than two (2) times during off-loading.
c) Unsafe delivery vehicle off-loading equipment.

12. The driver is responsible for clean-up 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 manufacturers recommended clean-up procedures. OC San only has

plant water available for use by the driver. Neutralizing agents, special equipment or chemicals required for clean-up must be furnished by the Supplier.

13. The driver shall not over-pressurize the off-loading system, piping or appurtenances. Chemical shall not be off-loaded at a rate greater than can be off-loaded in one (1) or two (2) hours nor at pressures greater than thirty (30) psi. The driver shall not surge or create hammer pressures in the system when clearing or purging the tank, hose or piping.

14. OC San reserves the right to request Ferric Chloride deliveries to be on schedule convenient to the needs of the treatment plants. Deliveries will be made, seven (7) days a week and received between the hours of 7:00 am and 4:00 pm Pacific Standard Time, or as required. Plant No. 2 is located in close proximity to residential homes off of Brookhurst Street. The drivers shall not arrive early to the Plant unless required by OC San. The drivers are discouraged from arriving early and parking along Brookhurst Street before entering the Plant site.

15. In the event of an emergency, immediately call the Control Center or Operations Center for assistance:

Plant 1: 714-593-7133 or

Plant 2: 714-593-7677

H. **Rejection of Shipment** -OC San may reject any delivery of Ferric Chloride which does not meet the product specifications. Supplier shall be responsible for removing the rejected material within 48 hours at no cost to OC San. OC San may request a report of incidents. OC San may terminate the Agreement if more than two (2) deliveries of Ferric Chloride are rejected in a calendar month or deemed to not meet the specifications.