TECHNICAL SPECIFICATIONS FOR LIQUID AMMONIUM SULFATE

1. GENERAL

The intent and purpose of this specification document is to provide for the delivery of liquid ammonium sulfate to TAMPA BAY WATER, a Regional Water Supply Authority’s Brandon Urban Dispersed Well No. 7 located at 1702 Miller Road Valrico, FL 33594-4736.

2. VENDOR QUALIFICATIONS/SUBMITTALS

Each prospective vendor shall submit a sample of their product representative of their manufacturing process to an approved testing laboratory for analysis. The laboratory shall ascertain whether the vendor’s product is in compliance with this Specification for concentration, specific gravity, and density. The cost of the analysis shall be borne by the vendor. Failure to submit a sample or meet the requirements of the Specification shall result in the vendor being disqualified from this product procurement.

Each prospective vendor shall submit a reference list of customers that use or have used ammonium sulfate for water treatment. Failure to disclose references will be grounds for disqualifying the vendor from this product procurement. Previous performance will be considered as part of the evaluation of quotations.

3. DELIVERY REQUIREMENTS

3.1 Vendor shall make “normal” deliveries within 48 hours after receipt of order and must make “emergency” deliveries within 24 hours. An emergency delivery is defined as a delivery which is necessary in order to prevent Tampa Bay Water from running out of liquid ammonium sulfate in less than 24 hours. Tampa Bay Water shall endeavor to minimize the number of “emergency” deliveries.

3.2 All deliveries of liquid ammonium sulfate shall be freight prepaid, F.O.B. to 1702 Miller Road Valrico, FL 33594-4736. The site has limited access. Smaller than normal transportation equipment may be required (see attached Site Plan).

3.3 The storage tank volume is 600 gallons; there are two 300 gallon tanks.

3.4 Estimated usage is 17 gallons per day.

3.5 Delivery time of day shall be arranged upon placement of order and shall be between the hours of 8:00 A.M. and 4:30 P.M. Requests to deviate from this schedule must be confirmed with Tampa Bay Water 48 hours prior to the scheduled delivery and must conform to the delivery conditions set forth in these specifications. Deliveries made to unmanned facilities must be coordinated with Tampa Bay so delivery personnel can gain access to the facility.
3.6 Packaging and shipment of liquid ammonium sulfate shall conform to all current regulations of the State of Florida, the United States Department of Transportation and all other applicable regulatory agencies.

3.7 All delivery personnel must have company cell phones to facilitate deliveries unmanned and manned facilities.

3.8 Tampa Bay Water reserves the right to change quantities and delivery dates at its discretion with a 24-hour notice.

3.9 The vendor shall be responsible for pumping liquid ammonium sulfate into the storage tanks at the delivery site and shall provide all necessary hoses, fittings, air-paddling, pumps, etc. required to safely and efficiently “offload” the liquid ammonium sulfate into designated storage tanks. Vendor shall furnish a Tampa Bay Water approved, leak-free connection device between the transportation equipment and Tampa Bay Water’s intake receptacle. Vendor shall be responsible for ascertaining the correct storage tanks and fill point locations to prevent accidental discharge of the product into the wrong storage tank(s).

3.10 The vendor shall be responsible for any spills resulting from the failure of its or its subcontractor’s delivery equipment or from failure of attendant delivery personnel in the proper performance of their duties. Proper performance shall require delivery personnel’s constant inspection and observation of unloading operations and knowledgeable response to problems or emergencies, which would most commonly be expected to occur. Tampa Bay Water reserves the right to refuse any and all deliveries made with equipment that is poorly maintained and/or leaking ammonium sulfate. The vendor shall observe the entire filling operation at each delivery site and shall immediately report any spills caused during the filling operations. The vendor shall take immediate and appropriate actions to clean up any spilled liquid ammonium sulfate. If the spill is not cleaned up, Tampa Bay Water will hire a qualified company to clean up the spill, and the cost of such service will be charged to the vendor and deducted from the amount due to the vendor. If the Tampa Bay Water’s unloading equipment such as pipe, valves or level indication and alarms should fail and the spillage is not the fault of the vendor or its subcontractor, the vendor shall be relieved of cleanup of the spill.

3.11 The transporting equipment shall be clean and free of residue that may contaminate the vendor’s product or impede the unloading process. It is the vendor’s responsibility to verify the cleanliness of the transporting equipment before loading. All appurtenant valves, pumps, and discharge hoses used for the delivery of ammonium sulfate shall be supplied by the vendor and shall be clean and free from contaminating material. Tampa Bay Water may reject a load if the equipment is not properly cleaned.

3.12 All delivery vehicle drivers shall have a proper commercial driver’s license.

3.13 Delivery Shipments shall be rejected which fail to meet any of the requirements of the Specification. In the event a delivery shipment is rejected, upon notification to the vendor that the shipment is rejected, vendor shall be required to ship a
replacement delivery to the affected location within four (4) hours from time of notification. Failure to provide replacement product that meets the Specification within the specified time period will constitute failure to comply with the delivery requirements set forth in this document.

4. PRODUCT MATERIAL REQUIREMENTS

4.1 The liquid ammonium sulfate delivered under this specification must conform to the American National Standards Institute/National Sanitation Foundation Institute for Drinking Water Treatment Chemical – Health Effects, ANSI/NSF 60.

4.2 The liquid ammonium sulfate delivered under this specification must conform to the American National Standards Institute/American Water Works Association standard for ammonium sulfate ANSI/AWWA B302-05 or the most current standard.

4.3 The liquid ammonium sulfate solution will be made at the manufacturer’s or vendor’s site such that a homogeneous, well-mix product is received at Tampa Bay Water’s location as identified in section 3.2 of these specifications.

4.4 The chemical and physical properties of the liquid ammonium sulfate delivered under this specification shall be as follows:

- **Appearance and odor:** Clear, pale yellow liquid with no odor
- **pH:** 4.0-7.0
- **Solubility in water:** Complete
- **Specific Gravity:** 1.20-1.23
- **Sulfuric Acid Diammonium:** 38-40% (wt% dry salt)
- **Ammonium Sulfate solution:** 10%

4.5 The liquid ammonium sulfate supplied shall contain no soluble materials or organic substances in quantities capable of producing deleterious or injurious effects on the health of those consuming water treated with the liquid ammonium sulfate.

5. QUALITY ASSURANCE, SAFETY AND TRAINING

5.1 Sampling and Testing

5.1.1 All Sampling and Testing shall be in accordance with EPA and AWWA B302-05 standards, latest revision.

5.1.2 The approved laboratories are listed below for all sampling and. No other Laboratory shall be used unless authorized by Tampa Bay Water.

- **NovaChem Laboratories (formerly Novatek)**
  - 5172 College Corner Pike
  - PO Box 608
  - Oxford, Ohio 45056
  - Ph: 513-523-3605
  - Fax: 513-523-4025

- **Thornton Laboratories**
  - 1145 East Cass Street
  - Tampa, Florida 33602
  - Ph: 813-223-9702
  - Fax: 813-223-9332
  - Attn: Steve Thickett
5.1.3 Sampling and Testing Prior to Unloading: The vendor's transportation equipment shall have a sample port to provide a sample for analysis prior to hooking up and transferring the load to a Tampa Bay Water storage tank. At the sole discretion of Tampa Bay Water, the vendor's delivery personnel (driver) may be asked to provide a sample of liquid ammonium sulfate before transferring the load to a Tampa Bay Water storage tank. Tampa Bay Water will supply the sample container and the driver shall collect the sample from the transportation equipment and turn it over to a Tampa Bay Water representative. The sample shall be considered representative of the load. Tampa Bay Water reserves the right to subject samples of the liquid ammonium sulfate to quick analyses to ensure that it meets basic conditions of the specification with respect to specific gravity, weight percent of sulfuric acid diammonium, ammonium sulfate, and suspended solids. Any load tested by Tampa Bay Water that fails to comply with the Specification shall constitute grounds for rejection of that load. No payment shall be made for ammonium sulfate that is rejected. The vendor or its subcontractors shall allow 60 minutes for this testing to be completed. If testing cannot be completed within the 60 minute period, Tampa Bay Water shall allow the vendor to transfer the load. In the event that the load is rejected, the vendor shall have four (4) hours to supply another shipment. In the event that the vendor is unable or unwilling to supply another shipment within this time period, Tampa Bay Water has the right to procure a shipment from another source. Three rejections of a load or shipment during any period of this purchase order shall constitute automatic termination of the vendor's purchase order from Tampa Bay Water.

5.1.4 Sampling and Test of Shipment after Unloading. Tampa Bay Water reserves the right to subject samples of the liquid ammonium sulfate to complete analyses to ensure that it meets EPA specifications, AWWA B302-05 specifications, latest revision, and the Specification. Three failures during any period of this purchase order shall constitute automatic termination of the vendor's purchase order from Tampa Bay Water.

5.1.5 Certified Analysis. Vendor shall supply an affidavit, signed by a corporate designated official, certifying that the liquid ammonium sulfate furnished by the vendor, complies with all applicable requirements of this Specification and AWWA Standard B302-05, latest revision. The affidavit shall also indicate compliance with Water Chemicals Codex directives, latest revision, for impurity limits.

5.2 Manufacturer's Laboratory Delivery Reports

5.2.1 A certified report from the manufacturer shall be submitted for each liquid ammonium sulfate delivery to Tampa Bay Water.
5.2.2 The report shall contain the following data:
- Date and Time of Manufacture
- Percent by Weight Sulfuric Acid Diammonium
- Percent by Weight Ammonium Sulfate
- Specific Gravity
- pH
- Suspended Solids Test Time

5.2.3 No deliveries will be accepted by the Tampa Bay Water unless accompanied by said certified laboratory report for the specific batch of liquid ammonium sulfate delivered showing the above data and that it conforms to the Specification. Failure to comply with this provision three (3) times during the purchase order period shall constitute sufficient grounds for termination of the purchase order from Tampa Bay Water.

5.3 Quarterly Reports

5.3.1 At the start of the purchase order and every 90 days, the vendor shall utilize one of the approved testing agencies listed in this Specification to analyze a sample of the liquid ammonium sulfate delivered to Tampa Bay Water. The vendor shall supply the sample container and the driver shall collect the sample from the transportation equipment. This sample will be given to Tampa Bay Water at the time of the sample and Tampa Bay Water shall forward the sample to the approved authorized testing agency. Any failure to comply with the Specification shall constitute grounds for cancellation of the purchase order from Tampa Bay Water.

5.3.2 Charges for the manufacturer’s certified report and all quarterly reports by outside testing agencies should be included in the quoted price.

6. OCCUPATIONAL HEALTH AND SAFETY

6.1 Vendor must ensure delivery personnel’s compliance with all OSHA requirements, including personal protective equipment for vendor delivery personnel, including without limitation chemical goggles, transparent face shield and hard hat, rubber gloves, rubber boots, and rubber or plastic-coated fabric apron or slicker suit. Vendor delivery personnel must wear at minimum, chemical goggles and rubber gloves when handling hoses and valves.

6.2 Material Safety Data Sheets. In compliance with Chapter 442 Florida Statutes, any chemical delivered from the vendor must be accompanied by a Material Safety Data Sheet (MSDS). The MSDS must be maintained by the user agency and must include the following information:
- The Chemical Name and the common name of the toxic substance
- The hazards and other risks in the use of the toxic substance, including:
  - The potential for fire, explosion, corrosivity and reactivity;
- The known acute and chronic health effects of risks from exposure, including the medical conditions which are generally recognized as being aggravated by exposure to the toxic substance; and
- The primary routes of entry and symptoms of overexposure.

- The proper precautions, handling practices, necessary personal protective equipment, and other safety precautions in the use of, or exposure to, the toxic substances, including appropriate emergency treatment in the case of overexposure.
- The emergency procedure for spills, fire, disposal and first aid.
- A description, in lay terms, of the known specific potential health risks posed by the toxic substance intended to alert any person reading this information.
- The year and month, if available, that the information was complied and the name, address, and emergency telephone number of the manufacturer responsible for preparing the information.
- Any questions regarding this requirement shall be directed to:
  Department of Labor and Employment Security
  Bureau of Industrial Safety and Health
  Toxic Waste Information Center
  2551 Executive Center, Circle West
  Tallahassee, Florida 32301-5014
  Phone: 800/367-4378

6.3 Emergency Plan of Action and Safety Training

6.3.1 Within 30 days of award and acceptance of the purchase order for the supply of liquid ammonium sulfate, the vendor shall provide in writing, an emergency contingency plan, with appropriate telephone contacts, for Tampa Bay Water to follow in case an emergency supply of liquid ammonium sulfate is needed.

6.3.2 The responsibility for compliance with Federal and State rules and regulations regarding vendor caused spills or releases shall be the sole responsibility of the vendor. The vendor shall indemnify and hold Tampa Bay Water harmless for any failure to properly report and/or comply with this provision. In addition, vendor shall bear all expenses of spills, unless caused by the sole negligence of Tampa Bay Water.

6.3.3 Safe Handling Training. The vendor shall provide an appropriate safe handling training course for liquid ammonium sulfate within the first month of the purchase order, to current Tampa Bay Water operations personnel and shall be available to conduct “refresher” courses or new employee training at six (6) month intervals during the purchase order period. The vendor shall provide this assistance at no charge to Tampa Bay Water.
6.3.4 Technical Assistance. The vendor shall provide technical assistance, as needed, regarding the application of its product and disposal and handling of residues and sludge’s produced by the application of liquid ammonium sulfate in the water treatment process. The vendor shall provide this assistance at no charge to Tampa Bay Water.

7. TERMINATION

In addition to the various statements in this Specification stating the grounds for automatic termination of the vendor's purchase order to supply liquid ammonium sulfate to Tampa Bay Water, and in addition to any other remedies, including the right to obtain cover and charge vendor for the costs of cover vendor's failure to comply with this Specification three (3) times over the duration of this purchase order shall constitute sufficient grounds for termination of the purchase order by Tampa Bay Water. These failures any three of which can result in termination of the purchase order, include, but are not limited to, failure to deliver in a timely manner, failure to deliver with proper equipment, failure of the liquid ammonium sulfate to meet the Specification at anytime, failure to provide a certificate of analysis, failure to comply with the safety and OSHA requirements of the Specification, failure to provide drivers with company cell phones, failure to provide requested technical assistance and/or training and failure to respond in a timely manner to any Tampa Bay Water emergency.

8. SECURITY PROVISIONS

8.1 All Shippers and vendors shall provide Tampa Bay Water with a summary of the actions taken to reduce the possibility of criminal activity during packaging and shipment of products and materials to our facilities.

8.2 All vendors (and their transportation companies) shall send a list of names of representatives that are authorized to enter our facilities on their behalf. This list will be kept current with any personnel changes being reflected on the list.

8.3 All delivery personnel must have a photo ID and appropriate company identification.

8.4 All vendors and delivery personnel must sign in and out of Tampa Bay Water facilities. The purpose of their visit will be verified and validated by Tampa Bay Water personnel.

8.5 Chemical deliveries will strictly follow Tampa Bay Water bulk off-loading policy and procedure where applicable.

8.6 No unscheduled or after-hours deliveries will be accepted without written permission from Tampa Bay Water.

8.7 All deliveries must be made through the main entrance.