STATE OF MINNESOTA
EQUIPMENT SPECIFICATION

SPECIFICATION: 472-213
February 11, 2013
Page 1 of 5

SALT BRINE PRODUCTION SYSTEMS/HEATED BINE SYSTEM SHELTERS/ AUTOMATED GROUND BASED
PUMPING STATIONS/STORAGE TANKS

SCOPE

This unit shall be the most current advertised production model as modified per specifications and approved by Mn/DOT, furnished with all standard equipment advertised, whether or not specifically called for here, except where the item is replaced by optional over standard equipment or conflicting equipment is specified. The unit shall be complete with all equipment required for immediate operation to function as listed below and the unit must meet all applicable codes and standards.

1.0 REQUIREMENTS FOR SALT BRINE PRODUCTION SYSTEMS

1.1 Brine tank minimum holding capacity shall be 500 gallons.
1.2 Main salt brine tank shall be constructed from stainless steel, rotationally molded polyethylene that is UV stabilized to provide protection from sunlight or made of fiberglass with a ceramic coating.
1.3 Brine tank shall have an open floor with no interior ribs to hinder cleaning. Tank shall have a pitched bottom to the lower sump area or a hinged sump to provide total drainage.
1.4 Hopper/rock salt tank shall be constructed from stainless steel, rotationally molded polyethylene that is UV stabilized to provide protection from sunlight or made of fiberglass with a ceramic coating.
1.5 Hopper shall have an open floor with no interior ribs to hinder cleaning. Hopper shall have a pitched bottom to lower sump area or a hinged sump to provide total drainage.
1.6 Hopper shall have a full-length water in-feed manifold to provide even filling and salt saturation.
1.7 Minimum rock salt holding capacity shall be 3 cubic yards.
1.8 Discharge shall be controlled by a 25’ remote waterproof toggle switch.
1.9 Effluent ejector pump shall be UL listed and have thermal overload protection.
1.10 Unit shall have a minimum #20 mesh monel screen for the intake.
1.11 Water service piping shall be 1-1/2" minimum throughout the entire system. Water in-feed to the hopper tank shall be controlled to maintain the level of brine in the main tank.
1.12 Water in-feed and salinity dilution shall be controlled by ball valves.
1.13 Unit shall be supplied with 1-1/2" glass filled polypropylene quick disconnect cam lock coupling from pump discharge.
1.14 Installation of the salt brine production systems is accomplished by connection of the threaded male end of the water in-feed piping to customer supplied water service.
1.15 Secondary containment system shall be constructed from stainless steel or rotationally molded polyethylene that is UV stabilized to provide protection from sunlight.
1.16 Secondary containment system shall be equipped with a minimum of one drain fitting.
1.17 Secondary containment system shall have a minimum containment capacity of 110% of the combined brine tank and hopper tank capacity.
1.18 Unit shall be self-supporting and require no complex saddling or support structures.
1.19 Mn/DOT may require inspection of similar unit in order to determine the unit meets specifications before award is made.
1.20 The Contract Vendor shall give adequate training in mounting and removal, operation, safety and maintenance of supplied equipment at delivery site before the purchase will be considered complete.
1.21 Each unit shall come complete with one set of parts, service and operations manuals, as well as a complete wiring diagram.
1.22 Manufacturer’s standard color is acceptable, however the paint must be lead free.
1.23 The responder shall furnish a standard manufacturer’s warranty. The contract vendor shall be responsible for the cost of any inspections, adjustments, parts, labor, travel, pickup and/or delivery charges that are a result of equipment failure(s) during the warranty period. This shall be performed immediately without any delay. This warranty shall commence when the unit is put into service. The responder shall state warranty for all items offered on pricing page.

2.0 HEATED BRINE SYSTEM SHELTER REQUIREMENTS
2.1 The shelter shall be constructed from stainless steel or rotationally molded polyethylene that is UV stabilized to provide protection from sunlight. The shelter shall be a “Building” that is large enough to house the Brine maker as listed in Sec 1.0.

2.2 The shelter shall be double walled with insulation between the two walls to obtain a minimum R-value of nine.

2.3 The shelter shall include a flange at the bottom to allow proper anchoring capabilities to customer supplied foundations.

2.4 The roof panels shall incorporate a stainless-steel hinge to allow the roof to be opened for salt loading.

2.5 Each shelter shall be equipped with a spill shield that allows over spilled salt to be directed into the hopper of the salt brine production system.

2.6 All bolts used to assemble the structure shall be a minimum of #304 stainless steel, including washers and nuts.

2.7 A one-piece, lockable door panel, which incorporates a stainless-steel hinge, shall be provided for entry into the shelter. Each door shall be equipped with stainless-steel toggle clamps to hold the door securely closed. A draw latch shall be mounted on each door, to allow the door to be securely closed from the inside.

2.8 Each shelter shall have a through wall pipe to provide a means of attaching a hose to the brine system allowing operators to pump salt brine directly from the brine system without having a discharge hose exiting through the door opening.

2.9 Mn/DOT may require inspection of similar unit in order to determine the unit meets specifications before award is made.

2.10 The Contract Vendor shall give adequate training in mounting and removal, operation, safety and maintenance of supplied equipment at delivery site before the purchase will be considered complete.

2.11 Each unit shall come complete with one set of parts, service and operations manuals, as well as a complete wiring diagram.

2.12 Manufacturer’s standard color is acceptable, however the paint must be lead free.

3.0 MIXING SYSTEM REQUIREMENTS

3.1 The mixing system shall be able to mix up to three separate de-icing chemicals and load into a plow truck.

3.2 The mixing system shall be able to change ratios of chemicals as the storm progresses. The system shall be able to mix two chemicals in a range from 60/40 to 95/5 and a three chemical blend from 50/40/10 to 90/5/5 and be automatically control by the mixing valves.

3.3 The system shall use stainless steel centrifugal pumps driven by a 2 HP electric motor for the primary pump. The pump shall be able to pump 120 GPM of water.

3.4 There shall be a stainless steel centrifugal pump with a 2 HP electric motor for the primary additive pump. The pump shall be able to pump 120 GPM of water.

3.5 The secondary additive pump shall be a stainless steel centrifugal pump driven by a ¾ HP electric motor.

3.6 All three pumps shall have flow meters on the discharge side and the two additive pumps shall have PWM regulating ball valve.

3.7 All Pumps shall have 3 way ball valves capable of diverting the flow back to the storage tanks.

3.8 The pumps and valves shall be contained inside a stainless steel housing with a steel base that is galvanized. There shall be a provision for the pumps and plumbing to be easily accessible for repairs.

3.9 The controller shall include a 2.8 inch Color display that has LED illumination and adjustable brightness controls. On the controller there shall be 5 silicone keyboard functions keys with feedback that will allow for all calibration and operating functions.

3.10 The controller shall be capable of 12 configurable inputs and 12 configurable outputs and shall also include a 2 color status LED.

3.11 The display shall be mounted in a NEMA 4 rated plastic enclosure that is large enough to enclose the controller and also tallow for the following switch mounting: On/Off, Blend/Recirculate, Reset, and emergency stop. The enclosure shall be mounted on the stainless steel pump enclosure in order to provide a turnkey package.

3.12 The system shall include a remote fill pendant that allows the operator to have start/stop and emergency stop controls while standing at the truck during the filling process. The pendant must include a minimum 25 foot cable and pendant and switches shall be able to withstand the outside elements.

3.13 The system shall come prewired and ready for connection to a customer supplied power source.

3.14 The unit shall have a one year warranty.

4.0 Storage Tanks

4.1 Tank shall be of fiberglass or heavy weight, rotationally molded, polyethylene construction.
4.2 Tank shall be a double wall type with 110% containment capability. Single wall tanks will not be accepted. The Polyethylene tanks shall meet the ASTM D-1998 Standard for tanks.

4.3 Tank shall be designed for above ground storage of various salt brine solutions. Tanks shall have a specific gravity rating of 1.5 or greater.

4.4 Tank shall have liner that is compatible with the liquid being stored.

4.5 Tank shall have a closed, non-removable top with a manway.

4.6 Fiberglass tanks shall use fiberglass fittings and have gel coat exterior.

4.7 Contract Vendor shall provide up to (3) three fittings, sized up to 3” N.P.T. in the tank, with the locations designated by the ordering entity.

4.8 Tank shall have a means of reading both liquid and containment tank levels.

4.9 Tank shall provide a method for moving from one location to another.

4.10 Tank shall have a top vent with screen.

4.11 Holding pond equipment is not acceptable.

5.0 ADDITIONAL ELECTRICAL SERVICE REQUIREMENTS

5.1 All electrical service shall be protected from hazardous shock by a 115-volt, GFI receptacle with trip and reset and be enclosed in a waterproof outdoor service enclosure.

5.2 All electrical components shall be listed and labeled by an approved nationally recognized testing laboratory (UL). Electrical connection is made by connecting the power service cord on the equipment to the customer supplied electrical service.

5.3 All units shall be flow tested to specification with a purchaser's representative present before the purchase will be considered complete.

5.4 System installation and set up charge if applicable, shall include all hoses, fittings, couplers, adaptors, electrical connectors and installation of all equipment or components at each installation sight.

6.0 RESPONDER INSTRUCTIONS

6.1 Responders shall make a pricing page for each salt brine production system, heated brine system shelter and/or ground based pumping station, and storage tanks they are offering. One model per pricing page. Be complete, especially when offering options. If you do not list an option, you cannot legally sell it on the contract.

6.2 Responders shall use the pricing page included so there is consistency for purchasers to compare pricing and options when determining what they want to purchase. This includes the base unit product information requested at the beginning of the pricing page. Deviating from using the pricing page is reason for rejecting a bid. Mn/DOT will convert Contract Vendor’s pricing page to a contract pricing page for communication to State Agencies and Cooperative Purchasing Venture members.

6.3 For optional items, which end up being in lieu of standard items, such as larger pump, etc., the price, shall be the difference paid to achieve the upgrade rather than the full purchase price.

6.4 Delivery costs are to be for loaded miles only. Responder must state starting location. Mileage distances will be determined from the website, http://maps.yahoo.com.

6.5 The responder must state company name, address, contact, phone number, fax number and toll free number if they have one at the top of each pricing page submitted.

6.6 Trade-ins will be allowed. Trade-in value will be offered by the contract vendors’ representative on a case-by-case basis. Buyer has the last right of refusal. All pertinent surplus property rules shall prevail.