

## 1. SCOPE OF WORK

The intent of this request is to provide for the purchase of new automatic brine makers which shall be capable of producing brine, without the intervention of an operator after the initial system start and automatically monitor and control brine concentration during production at a minimum of 3,000 gallons of brine per hour.

## 2. EQUIPMENT REQUIREMENTS

The automatic brine maker shall be no larger than 132"L x 102"W x 84"H.

The entire automatic brine maker including control system shall be contained and easily fit into a 15'L x 15'W x 10'H heated room supplied by the Division of Highways.

The automatic brine maker shall be designed and constructed to be easily filled with rock salt using a standard 2 cubic yard or 3 cubic yard loader bucket. To accommodate an 8' wide loader bucket, the salt hopper should have an approximate width of 120 inches.

All metallic items shall be 304 stainless steel.

The salt hopper shall be constructed of either 10-GA 304 stainless steel or 16,000 lb. tensile strength fiberglass & isophthalic resin with all inside surfaces coated with a ceramic resin 0.050" thick.

The salt hopper shall have a minimum capacity of 4.0 cubic yards with an additional minimum 0.5 cubic yards of sediment collection in the bottom of the tank.

Salt tank shall have a 3/16" diameter stainless steel debris screen located above the sediment collection area capable of supporting the salt capacity of the hopper.

If fiberglass, the vessel shall have structural integral ribs to limit flex to within 1" from empty to full. The overall thickness of fiberglass and resin in the tank shall be 0.35" thick, with structural areas such as ribs, corners and floor having additional layers of woven fiberglass matt for an overall thickness of 0.50".

The screen frame shall be designed to be easily removed in one piece.

There shall be a 4" stainless steel bulkhead fitting and 4" stainless steel ball valve installed as a sediment drain in the sediment collection area. Sediment shall be removed by using a fresh water flushing system to force sediment through the sediment drain from the sediment collection area into a loader bucket.

The vessel shall have 2" male cam-lock fittings and on/off ball valves for hose connections to fresh water, brine return and brine outlet to pump.

The pump shall be 304 stainless steel with a stainless steel shaft and impeller.

Pump shall be capable of delivering 5,000 gallons per hour of salt brine to the storage tanks with a dynamic head of 45 feet.

Electric pump motor shall be thermally protected 3 HP 220 Volt single phase.

All fittings and valves shall be manifold type glass filled polypropylene.

All exposed electric components shall be rated at NEMA 12X

The Division of Highways will provide electrical and water service to the placement area of the automatic brine maker.

There shall be reinforced forklift pockets for moving the automatic brine maker.

### 3. **CONTROL SYSTEM REQUIREMENTS**

The control system shall be a continuous brine production system located adjacent to the automatic brine maker in the heated room supplied by the Division of Highways.

The main panel shall be constructed of 304 brushed stainless steel with labels and functions etched into the panel.

The control system shall be capable of producing brine in concentrations of 20.0% to 26.0% and automatically adjust water or salt content to reach the desired concentration.

The control system shall include a display screen that includes information such as brine production concentration, % sodium chloride by weight, self-diagnostics with sensors and valves, gallons of freshwater used, gallons of brine produced and salt used.

When brine is at the desired concentration, + or – 0.3% of target concentration, the brine is to be diverted to storage tanks provided by the Division of Highways.

The control system shall be designed to automatically stop brine production when the tank is full or when production batch is complete.

The control system shall be able to monitor total gallons of freshwater used, salt used and brine produced daily and seasonally for record keeping.

The control system shall have manual overrides that will allow the system to be operated in the event of an electrical component failure.

### 4. **BID SCHEDULE**

Bidding price shall be one price per District, FOB job site per county. The District will advise the awarded vendor of the job site on an Agency Release at the time of need.

Qualified vendors who submit a valid low bid will be awarded a contract for those items for which their bid is lowest per District. The State of West Virginia reserves the right to make multiple awards on this contract when it is in the best interest of the State.

The actual number of units to be ordered is unknown. An Agency Release will be issued to the awarded vendor at the time of need.

5. **DELIVERY**

Delivery of the automatic brine maker shall be made to the specified job site within thirty (30) calendar days of the date of the Agency Release by the awarded vendor. The Division of Highways shall provide a loader with forks, or forklift and operator to unload and install the brine maker at the time of delivery.

6. **PRE-SERVICE**

The automatic brine maker shall be completely serviced, all equipment installed and all adjustments made which are required to prepare the unit ready for immediate and continuous operation upon delivery.

7. **WARRANTY**

The awarded vendor(s) shall provide to the Division of Highways a copy of the manufacturer's standard one (1) year minimum warranty and service policy upon delivery of the automatic brine maker.

8. **SERVICE MANUALS, PARTS LISTS, TRAINING**

Two (2) copies of parts lists, service and maintenance manuals and operator's manuals shall be furnished with the automatic brine maker at the time of delivery. The vendor is required to provide on-site training on operation and maintenance of each automatic brine maker placed.

9. **VENDOR'S INVOICES**

Vendor's invoices must be submitted in original and four copies and contain the following:

- a. Division of Highways Agency Release Number and Contract Number.
- b. Unit price with the total cost of each item.

Note: Under no circumstance will the Division of Highways accept, or pay for, quantities of material in excess of the quantity stated on the Agency Release.

10. **PURCHASING CARD ACCEPTANCE**

The State of West Virginia currently utilizes a VISA Purchasing Card Program which is issued through a bank. The successful vendor(s) must accept the State of West Virginia VISA Purchasing Card for payment of all orders placed by the Division of Highways as a condition of award.