State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130
(866) 900-7258

Request for Quotation

RFQ NUMBER	PAGE
6612C002	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
BUYER 33
304-558-2402

VENDOR
*709030104 ~~800-600-7258~~
CARGILL INC DEICING TECHNOLOGY
24950 COUNTRY CLUB BLVD #450

NORTH OLMSTED OH 44070

SHIP TO
DIVISION OF HIGHWAYS
VARIOUS LOCALES AS INDICATED
BY ORDER

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
07/18/2011				

BID OPENING DATE: 08/10/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001		EA		160-12	Please see BASE MODEL OPTION PACKAGES SHEETS (attached)	FOR PRICING

AUTOMATIC BRINE MAKER SYSTEMS

REQUEST FOR QUOTATION
(RFQ)
OPEN END CONTRACT

THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS, IS SOLICITING BID FOR AN OPEN END CONTRACT FOR NEW AUTOMATIC BRINE MAKER SYSTEMS PER THE ATTACHED SPECIFICATIONS.

EXHIBIT 3

LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE UPON AWARD AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.

UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.

RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL

RECEIVED
2011 AUG -8 AM 10:00

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
Jennie Hoban	(866) 900-7258	8/5/11

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
Value Added Pdts. Assoc.	41-0177680	

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

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WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.

OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK.)

QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY THE STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY ORDERED FOR DELIVERY DURING THE TERM OF THE CONTRACT, WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.

ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY RETAINED BY THE SPENDING UNIT.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
Lenore Robin	(866) 900-7258	8/5/11

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
Value Added Pdts. Assoc.	41-0177680	

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304-558-2402

VENDOR
*709030104 8XXX-XXXX-X293X
CARGILL INC DEICING TECHNOLOGY
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BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.

THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY ELECTRONIC MEDIUM SUCH AS CD-ROM.

REV. 05/26/2009

PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.

EXHIBIT 4

LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS REFUSAL TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEN TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS BID. SUCH REFUSAL SHALL NOT PREJUDICE THE AWARD OF THIS CONTRACT IN ANY

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
[signature]	(866) 900-7258	8/5/11

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
Value Added Pdts. Assoc.	41-0177680	

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~~XXXXXXXXXXXX~~
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VENDOR
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LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT

MANNER.

REV. 3/88

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER: PAUL REYNOLDS FILE 33

RFQ. NO.: 6612C002

BID OPENING DATE: 08/10/2011

BID OPENING TIME: 01:30 P.M.

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:
FAX: (440) 716-0550

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
Lenne Hohman	(866) 900-7258	8/5/11

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
Value Added Pdts. Assoc.	41-0177680	

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*709030104 ~~800x600x7258~~
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CONTACT PERSON (PLEASE PRINT CLEARLY):
LENORE HOHMAN
PH: (866) 600-7258
FAX: (440) 716-0550

PLEASE SEE BASE MODEL OPTION PACKAGES FOR ~~PRICING~~ (attached)

****** THIS IS THE END OF RFQ 6612C002 ****** TOTAL:

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE Lenore Hohman | TELEPHONE (866) 900-7258 | DATE 8/5/11

TITLE VALUE ADDED PDTS. ASSOC | FEIN | ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

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.

Rev. 09/08

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**
   ____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
   ____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
   ____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% resident vendor preference for the reason checked:**
   ____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% resident vendor preference for the reason checked:**
   ____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% resident vendor preference for the reason checked:**
   ____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
   ____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
   ____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Cargill, Inc. Deicing Technology Business Unit **Signed:** [signature]

Date: 8/5/11 **Title:** Value Added Products Associate

**Check any combination of preference consideration(s) indicated above, which you are entitled to receive.*

RFQ No. 6612C002

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate

DEFINITIONS:
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, Limited Liability Company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: Cargill, Inc. - Deicing Technology Business Unit

Authorized Signature: [signature] Date: 8/5/11

State of Ohio

County of Medina, to-wit:

Taken, subscribed, and sworn to before me this 5th day of ~~December~~ August, 2011.

My Commission expires February 25, 2013

AFFIX SEAL HERE

NOTORY PUBLIC [signature]

NOTARIAL SEAL
STATE OF OHIO

MONICA SUE PETKAC
Notary Public
In and for
the State of Ohio
My Commission Expires
February 25, 2013

11. Bid Schedule -- Automatic Brine Maker #6612C002

NOTE: The actual number or estimated number of units to be ordered is unknown.

		Unit Price Each
District 1	Boone County, Clay County, Kanawha County, Mason County and Putnam County	PLEASE SEE BASE MODEL
District 2	Cabell County, Lincoln County, Logan County, Mingo County and Wayne County	OPTION PACKAGES FOR PRICING
District 3	Calhoun County, Jackson County, Pleasants County, Ritchie County, Roane County, Wirt County and Wood County	(attached)
District 4	Doddridge County, Harrison County, Marion County, Monongalia County, Preston County and Taylor County	
District 5	Berkeley County, Grant County, Hampshire County, Hardy County, Jefferson County, Mineral County and Morgan County	
District 6	Brooke County, Hancock County, Marshall County, Ohio County, Tyler County and Wetzel County	
District 7	Barbour County, Braxton County, Gilmer County, Lewis County, Upshur County and Webster County	
District 8	Pendleton County, Pocahontas County, Randolph County and Tucker County	
District 9	Fayette County, Greenbrier County, Monroe County, Nicholas County and Summers County	
District 10	McDowell County, Mercer County, Raleigh County and Wyoming County	

TOTAL $ PLEASE SEE ATTACHED FOR PRICING

NOTE: Pricing would apply to all districts.

Cargill AccuBrine® automated brine maker

Base Model Option Packages

AccuBrine® Brine Maker Packages (Single Phase Electrical Hook Up)

ABM Base Model Package	Cost	$49,331
ABRTF (Remote Truck Fill) Package	Cost	$62,806
ABS (Accubrine Blending System 1 Additive) Package	Cost	$74,056
ABS2 (Accubrine Blending System 2 Additives) Package	Cost	$78,881

***All costs include installation, training, and shipping.**

AccuBrine® Brine Maker Packages (Three Phase Electrical Hook Up)

ABM Base Model Package	Cost	$49,868
ABRTF (Remote Truck Fill) Package	Cost	$63,443
ABS (Accubrine Blending System 1 Additive) Package	Cost	$74,493
ABS2 (Accubrine Blending System 2 Additives) Package	Cost	$79,318

***All costs include installation, training, and shipping.**

Installation & Training

Cargill technicians or dealer factory trained technicians come to customer site that has gone through all the pre-installation check list requirements. Technicians require the customer's crew to assist in installation in order to become familiar with how the Accubrine goes together. During this time the technician will also be training the crew on trouble shooting and maintenance. Following complete installation and trial brine making run the technician will open up to training for all crew that will be using and operating the Accubrine. During training your crew will learn how to operate and maintain the Accubrine.

Cargill AccuBrine® Maintenance Packages

MAINTENANCE PACKAGE

Pre-Season Start up Package Cost $2000

An approved technician will visit the customers site once per season to: • Inspect the AccuBrine® automated brine maker for potential issues • Provide training to operators on both operating the machine and system maintenance • Start-up the system and ensure proper function • Make a test batch of brine to calibrate the system • Save customers desired settings in the system •Inspect system for leaks.

Post Season Shut Down Package Cost $2000

An approved technician will visit the site post season to: • Inspect system for leaks • Check and verify concentration • Conduct training on operation and post season shutdown procedures (summarization)

Both Pre-Season & Post Season Packages Cost $4000

An approved technician will visit the customers site once per season to: • Inspect the AccuBrine® automated brine maker for potential issues • Provide training to operators on both operating the machine and system maintenance • Start-up the system and ensure proper function • Make a test batch of brine to calibrate the system • Save customers desired settings in the system •Inspect system for leaks. An approved technician will visit the site post season to: • Inspect system for leaks • Check and verify concentration • Conduct training on operation and post season shutdown procedures (summarization)

***Any needed parts or repairs are not covered under maintenance package costs.**

Options

300 GPM Pump Kit	$6,770
Heater Option	$6,360
Recycled Water & Dilute isolation Kit	$6,800
2" Storage Tank Fitting Kit	$320
3" Storage Tank Fitting Kit	$600

Intent

It is the intent of this document to provide specifications for a downward flow automatic brine production system(s) where the salt acts as a filter bed as the water moves down through to sump area and filter screen. The automatic brine production system(s) shall be capable of producing 5,000 gallons of brine per hour, (based on available water supply of 6,000 gallon /hr and storage tank configuration, static discharge of 45ft. / head pressure), flushing out all sediment collected in the bottom of the salt tank without removing salt, be completely automated and capable of producing brine without the intervention of an operator after initial system start, and automatically monitor and control brine concentration during production.

1. Salt Hopper	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.1 The salt hopper shall have a minimum capacity of 5 cubic yards.		
1.2 The salt hopper shall hold approximately .75 cubic yards of sediment without interfering with brine outlet.		
1.3 Minimum inside dumping width shall be no less than 120" inches.		
1.4 The hopper shall be constructed of 16,000 lb tensile strength fiberglass and isophthalic resin.		
1.5 All inside surfaces shall be coated with a ceramic resin .050" thick.		
1.6 Vessel shall have structural integral ribs to limit flex to within 1" from full to empty.		
1.7 Overall thickness of fiberglass and resin in the salt tank shall be .35" thick, structural areas such as ribs, corners and floor shall have additional layers of woven fiberglass matt for an overall thickness of .50"		

Salt Hopper (continued)	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.8 Sediment collection area shall have a 15 degree slope towards a 12"X 12" sump to promote debris clean out.		
1.9 For ease and expediency of cleaning, the system shall be capable of being cleaned via a flush mechanism not to exceed (15) minutes and to be accomplished without disassembly of any components of the unit. Units requiring any disassembly of components for clean out shall be deemed unacceptable.		
1.10 For ease and expediency of cleaning accumulated sediment, the system shall be capable of being cleaned with the salt hopper full of salt by a process of opening sump outlet cap and water flush valves. Any salt tanks that require dumping of the hopper or trap doors for clean out shall be deemed unacceptable.		
1.11 There shall be a fresh water flushing system to force sediment to sump and out of sump.		
1.12 There shall be a 4" stainless steel bulkhead fitting and 4" ball valve for clean out.		
1.13 There shall be no air gaps in the vessel areas between sloped floor and mounting feet.		
1.14 Areas with a void shall be filled with high-density foam rated for compression strength of 3 PSI with fiberglass coating on the exterior.		
1.15 All Valves, bulkhead fittings, etc. 1" and larger shall be manifold type fittings.		
1.16 There shall be a pressure transducer connected to the PLC to activate brine pump on and off and water flow into salt tank. These levels shall be adjustable from the HMI Interface and be adjustable to within 1 inch increments.		

Salt Hopper (continued)	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.17 Transducer shall have an air capillary to the inside of salt hopper.		
1.18 Vessel shall have 2" male cam-lock type fittings and on/off ball valves for hose connections (fresh water, brine return, brine outlet to pump).		
1.19 There shall be reinforced forklift pockets for moving the salt tank.		
1.20 All metallic items shall be 304 stainless steel.		
1.21 Salt tank shall have a stainless steel debris screen located above the sump and sediment collection area.		
1.22 The screen shall have 3/16" diameter perforations.		
1.23 To allow for maximum flow, the debris screen shall have 60 square feet of surface area.		
1.24 Debris screen shall be capable of supporting 10,000 lb of salt evenly distributed across the total area.		
1.25 Screen frame shall have six permanently attached 3/8" diameter stainless steel eyebolts connected to a poly sling for ease of removal and shall be removed in one piece.		

2. Control System	*Unit Complies with Requirements of Section 2. Control System*	
	Yes	*No*
2.1 The control system shall be a continuous brine production system to be located inside a climate controlled building.		
2.2 Main panel shall be constructed of 304 brushed stainless steel with valve labels and valve functions etched into the panel.		
2.3 The Brine concentration sensor shall monitor the brine for temperature and automatically compensate brine concentration accordingly.		
2.4 Brine pumped from the salt tank shall be monitored for salt concentration.		
2.5 Brine concentration sensor shall be a TOROIDAL type conductivity sensor.		
2.6 All brine exiting the salt tank shall pass over the brine concentration sensor that monitors brine between 19.6 and 27.0 % concentration by weight.		
2.7 System shall include a 256-color LCD touch screen display (7-1/2" diagonal). Information on the display screen shall include, but not be limited to:		
2.7.1 Actual brine production concentration in the form of % sodium chloride concentration by weight. For example 23.3% sodium chloride.		
2.7.2 Gallons of fresh water used to make brine. For example: Total gallons = 187,324,000, Gallons of brine produced and salt used.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.7.3 Self diagnostics of conductivity sensor. For example: Brine sensor failure fault.		
2.7.4 Status of machines operating mode. Normal "Automatic Mode" mode along with the status of all electrical components.		
2.7.5 Graphic illustrations such as liquid flow, system components, parts manuals, and operational instructions.		
2.7.6 Self diagnostics of electric valves indicating what valve is not functioning normally and valve status of open or closed position.		
2.8 Calibration shall be performed from the HMI interface located on the face of the machine. Programming parameters shall be password protected.		
2.9 There shall be 5 user selectable operating modes Normal (Brine production), Winterize, System test, System Rinse and Simulate.		
2.10 The programmable logic controller (PLC) shall have a non-volatile memory with EPROM back up of programming.		
2.11 As the brine concentration is pumped from the salt tank, the brine shall be monitored for the desired concentration. Systems requiring an operator to manually test brine concentration will be deemed unacceptable.		

Control System (continued)	*Unit Complies with Requirements of Section 2. Control System*	
	Yes	*No*
2.12 If the brine concentration is above the target, the brine shall be returned to the salt tank until the correct amount of water is automatically added and the brine reaches the desired concentration.		
2.13 Once brine is at the desired concentration (+ or -. 3% of target concentration) the brine is to be diverted to storage tanks.		
2.16 In the event that the concentration is below the minimum desired concentration, the system shall automatically divert brine to the salt tank for a second pass through the salt bed to achieve the desired concentration.		
2.17 The control system shall be configured to accept a signal from a pressure transducer located in a storage tank to automatically stop brine production when tank is full, or when production batch is complete. This circuit shall be capable of displaying storage tank volume.		
2.18 Control system shall monitor total gallons of water used, salt used, and brine produced daily and seasonally for record keeping.		
2.19 The control system shall be programmed with a winterization mode where the system will automatically cycle the brine pump and return the brine to the salt tank. The pump "on" and "off" times shall be programmable to desired parameters via the control panel.		
2.20 The control system shall have a component rinse mode that cycles valves on main control panel to rinse system with fresh water.		

Control System (continued)	*Unit Complies with Requirements of Section 2. Control System*	
	Yes	*No*
2.21 All electric valves shall include manual overrides for operation of system in the event of an electrical component failure.		
2.22 The system shall be designed with a manual valve counterpart to the electric valve to run parallel for a redundant manual control system.		
2.23 The system shall be completely self-diagnostic to include the pump, electrical valves and input signals.		
2.24 All electric valves and sensors shall communicate with the controller to confirm the current state.		
2.25 In the event of a component failure, the system shall automatically shut down and inform the operator of the specific failure along with a corrective measure. This includes how to manually override problem and provide a part number.		
2.26 All wetted parts on control panel except for pump shall manifold type glass filled polypropylene rated for 150 psi.		
2.27 Electric components mounted onto control panel shall have UL rated conduit protecting connections and wiring outside of the enclosure.		
2.28 Individual components over 10amps shall have circuit breakers. Components less than 10amps shall be fuse protected from inside of control panel. Fuses shall have diagnostic LED to detect fuse fault. Fuse fault shall illuminate red.		

3. Mechanical Components	***Unit Complies with Requirements of Section 3. Mechanical Components***	
	Yes	***No***
3.1 Pump shall be constructed of cast 304 stainless steel with a stainless steel shaft and impeller.		
3.2 Electric pump motor shall be thermally protected 3 HP 220 Volt single phase.		
3.3 Pump seals shall be constructed of silicon carbide.		
3.4 Pump shall be capable of delivering 5,000 gallons per hour of salt brine to storage tanks with a dynamic head of 45 ft.		
3.5 All fittings and valves shall be manifold type glass filled polypropylene.		
3.6 Wetted Steel components shall be kept to a minimum; all steel components shall be constructed of 304-grade stainless steel.		
3.7 All exposed electric components shall be rated at NEMA 12X.		
3.8 All fasteners shall be constructed of stainless steel.		

4. Warranty	***Unit Complies with Requirements of Section 4. Warranty***	
	Yes	***No***
4.1 A full parts and labor warranty shall be provided for the first year starting after installation and training are complete.		

5. Site Preparation	***Unit Complies with Requirements of Section 5. Site Preparation***	
	Yes	***No***
5.1 The customer will provide electric and water service to the machine.		
6. Features	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.1 Roll Tarp Cover		
6.1.1 A roll tarp with arches and roll mechanism shall be installed onto brine maker to keep heat in and debris out.		
6.1.2 Tarp shall be easily operated by one person to open top of brine maker for normal operation.		
6.2 Air purge system		
6.2.1 Air purge system shall divert compressed air through the water supply line leading to the salt tank. System shall be configured to automatically purge water from line via an electric valve each time the machine stops production. The purge "ON" time shall be configured via HMI (air supply to be supplied via purchasing agency).		
6.3 Storage tank pressure transducer assembly		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.3.1 An analog pressure sensor and interconnect kit to integrate into automation process. The sensor shall be capable of communicating with the automation process to shut off brine production when storage tank is full, and will indicate storage tank volumes.		
6.4 Warning Beacon		
6.4.1 The control system shall be capable of activating a remote mounted strobe lamp. Lamp shall blink quickly when a machine fault has occurred or blink slowly when low salt level is detected.		
6.4.2 Lamp, control relay and automation logic shall be supplied.		
6.5 Control panel 230 volt electrical service cable		
6.5.1 The system shall come pre-wired for electric service supply to include 10' of SOOW type cord with pre installed 1430P type plug. This will mate to customer supplied L1430R receptacle.		
6.6 Hose Kit		
6.6.1 The system shall come complete with 100' of 2" EPDM rubber suction discharge hose, 10' of 2" pressure hose, Stainless Steel T-Bolt type hose clamps and (3) Type C cam lock couplings.		

6. Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.7 LAN Access		
6.7.1 The system shall come complete with the ability to access the HMI (operator interface) via Internet Explorer, all set up and operation data shall be capable of being viewed remotely via the display. Integration with customer's network will be the responsibility of the end user.		
6.8 4" drain kit		
6.8.1 A 4" valve, hose barbs and cam lever couplings shall be supplied to drain the salt tank of liquid and sediment.		
6.9 Through Wall Manifold		
6.9.1 One 4 hole through wall manifold shall be supplied as a conduit for 2" hose and electrical connections exiting through wall (s)		
6.9.2 Wall manifold shall be constructed out of 14G Stainless Steel and shall have grommets supplied.		

7. Options	*Options Available and Unit Complies with Requirements of Section 7. Options*	
	Yes	*No*
7.1 In-line heater		
7.1.1 In line Heater An inline heater shall be supplied to be capable of heating the salt tank within the "Winterize Mode".		
7.1.2 Heaters shall be thermostatically controlled and capable of sustaining a temperature differential of 40 degrees used in conjunction with a permanently mounted roll tarp.		
7.1.3 Additional 230 VAC/50 amp electrical services are required for inline heater. To be provided by customer.		
7.2 2" Storage tank fitting kit		
7.2.1 2" Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		
7.3 Recycled Water Kit		
7.3.1 The system shall come complete with a 100 GPM cast stainless steel pump and 3 HP motor for using an external non pressurized water supply as the solvent for producing brine. The system shall default to the recycled water supply if recycle water is available.		
7.3.2 The system shall include a 3-way actuated valve to select between domestic water supply and recycled water supply, there shall be a pressure transducer assembly supplied to indicate low recycled water and to automatically switch to domestic supply when level is low.		

Options (continued)	***Options Available and Unit Complies with Requirements of Section 7. Options***	
	Yes	***No***
7.3.3 Pump shall be 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.4 300 GPM Pump Kit		
7.4.1 The system shall come complete with an additional transfer pump 300 GPM @ 45 Ft. Head pressure constructed of a cast stainless steel pump and 15 HP motor.		
7.4.2 Controls to include circuit protection, service disconnect, automation controls, Service disconnect, Circuit breaker, Aux relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.4.3 Pump shall be a 3 phase 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.5 3" Storage tank fitting kit		
7.5.1 3" Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		

Intent

It is the intent of this document to provide specifications for a downward flow automatic brine production system(s) where the salt acts as a filter bed as the water moves down through to sump area and filter screen. The automatic brine production system(s) shall be capable of producing 5,000 gallons of brine per hour, (based on available water supply of 6,000 gallon /hr and storage tank configuration, static discharge of 45ft. / head pressure). The system is capable of remotely filling trucks with brine, and recording truck fill data via RFID card reader system. The system is capable of flushing all sediment collected in the bottom of the salt tank without removing salt. Complete automation of producing brine without the intervention of an operator after initial system start, and automatically monitor and control brine concentration during production.

1. Salt Hopper	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.1 The salt hopper shall have a minimum capacity of 5 cubic yards.		
1.2 The salt hopper shall hold approximately .75 cubic yards of sediment without interfering with brine outlet.		
1.3 Minimum inside dumping width shall be no less than 120" inches.		
1.4 The hopper shall be constructed of 16,000 lb tensile strength fiberglass and isophthalic resin.		
1.5 All inside surfaces shall be coated with a ceramic resin .050" thick.		
1.6 Vessel shall have structural integral ribs to limit flex to within 1" from full to empty.		
1.7 Overall thickness of fiberglass and resin in the salt tank shall be .35" thick, structural areas such as ribs, corners and floor shall have additional layers of woven fiberglass matt for an overall thickness of .50"		

Salt Hopper (continued	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.8 Sediment collection area shall have a 15 degree slope towards a 12"X 12" sump to promote debris clean out.		
1.9 For ease and expediency of cleaning, the system shall be capable of being cleaned via flush components of the unit. Units requiring any disassembly of components for clean out shall be deemed unacceptable.		
1.10 For ease and expediency of cleaning accumulated sediment, the system shall be capable of being cleaned with the salt hopper full of salt by a process of opening sump outlet cap and water flush valves. Any salt tanks that require dumping of the hopper or trap doors for clean out shall be deemed unacceptable.		
1.11 There shall be a fresh water flushing system to force sediment to sump and out of sump.		
1.12 There shall be a 4" stainless steel bulkhead fitting and 4" ball valve for clean out.		
1.13 There shall be no air gaps in the vessel areas between sloped floor and mounting feet.		
1.14 Areas with a void shall be filled with high-density foam rated for compression strength of 3 PSI with fiberglass coating on the exterior.		
1.15 All Valves, bulkhead fittings, etc. 1" and larger shall be manifold type fittings.		
1.16 There shall be a pressure transducer connected to the PLC to activate brine pump on and off and water flow into salt tank. These levels shall be adjustable from the HMI Interface and be adjustable to within 1 inch increments.		

Salt Hopper (continued)	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.17 Transducer shall have an air capillary to the inside of salt hopper.		
1.18 Vessel shall have 2" male cam-lock type fittings and on/off ball valves for hose connections (fresh water, brine return, brine outlet to pump).		
1.19 There shall be reinforced forklift pockets for moving the salt tank.		
1.20 All metallic items shall be 304 stainless steel.		
1.21 Salt tank shall have a stainless steel debris screen located above the sump and sediment collection area.		
1.22 The screen shall have 3/16" diameter perforations.		
1.23 To allow for maximum flow, the debris screen shall have 60 square feet of surface area.		
1.24 Debris screen shall be capable of supporting 10,000 lb of salt evenly distributed across the total area.		
1.25 Screen frame shall have six permanently attached 3/8" diameter stainless steel eyebolts connected to a poly sling for ease of removal and shall be removed in one piece.		

2. Control System	*Unit Complies with Requirements of Section 2. Control System*	
	Yes	*No*
2.1 The control system shall be a continuous brine production system to be located inside a climate controlled building.		
2.2 Main panel shall be constructed of 304 brushed stainless steel with valve labels and valve functions etched into the panel.		
2.3 The Brine concentration sensor shall monitor the brine for temperature and automatically compensate brine concentration accordingly.		
2.4 Brine pumped from the salt tank shall be monitored for salt concentration.		
2.5 Brine concentration sensor shall be a TOROIDAL type conductivity sensor.		
2.6 All brine exiting the salt tank shall pass over the brine concentration sensor that monitors brine between 19.6 and 27.0 % concentration by weight.		
2.7 System shall include a 256-color LCD touch screen display (7-1/2" diagonal). Information on the display screen shall include, but not be limited to:		
2.7.1 Actual brine production concentration in the form of % sodium chloride concentration by weight. For example 23.3% sodium chloride.		
2.7.2 Gallons of fresh water used to make brine. For example: Total gallons = 187,324,000, Gallons of brine produced and salt used.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.7.3 Self diagnostics of conductivity sensor. For example: Brine sensor failure fault.		
2.7.4 Status of machines operating mode. Normal "Automatic Mode" mode along with the status of all electrical components.		
2.7.5 Graphic illustrations such as liquid flow, system components, parts manuals, and operational instructions.		
2.7.6 Self diagnostics of electric valves indicating what valve is not functioning normally and valve status of open or closed position.		
2.8 Calibration shall be performed from the HMI interface located on the face of the machine. Programming parameters shall be password protected.		
2.9 There shall be 5 user selectable operating modes Normal (Brine production), Winterize, System test, System Rinse and Simulate.		
2.10 The programmable logic controller (PLC) shall have a non-volatile memory with EPROM back up of programming.		
2.11 As the brine concentration is pumped from the salt tank, the brine shall be monitored for the desired concentration. Systems requiring an operator to manually test brine concentration will be deemed unacceptable.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.12 If the brine concentration is above the target, the brine shall be returned to the salt tank until the correct amount of water is automatically added and the brine reaches the desired concentration.		
2.13 Once brine is at the desired concentration (+ or -. 3% of target concentration) the brine is to be diverted to storage tanks.		
2.14 In the event that the concentration is below the minimum desired concentration, the system shall automatically divert brine to the salt tank for a second pass through the salt bed to achieve the desired concentration.		
2.15 The control system shall be configured to accept a signal from a pressure transducer located in a storage tank to automatically stop brine production when tank is full, or when production batch is complete. This circuit shall be capable of displaying storage tank volume.		
2.16 Control system shall monitor total gallons of water used, salt used, and brine produced daily and seasonally for record keeping.		
2.17 The control system shall be programmed with a winterization mode where the system will automatically cycle the brine pump and return the brine to the salt tank. The pump "on" and "off" times shall be programmable to desired parameters via the control panel.		
2.18 The control system shall have a component rinse mode that cycles valves on main control panel to rinse system with fresh water.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.19 All electric valves shall include manual overrides for operation of system in the event of an electrical component failure.		
2.20 The system shall be designed with a manual valve counterpart to the electric valve to run parallel for a redundant manual control system.		
2.21 The system shall be completely self-diagnostic to include the pump, electrical valves and input signals.		
2.22 All electric valves and sensors shall communicate with the controller to confirm the current state.		
2.23 In the event of a component failure, the system shall automatically shut down and inform the operator of the specific failure along with a corrective measure. This includes how to manually override problem and provide a part number.		
2.24 All wetted parts on control panel except for pump shall manifold type glass filled polypropylene rated for 150 psi.		
2.25 Electric components mounted onto control panel shall have UL rated conduit protecting connections and wiring outside of the enclosure.		
2.26 Individual components over 10amps shall have circuit breakers. Components less than 10amps shall be fuse protected from inside of control panel. Fuses shall have diagnostic LED to detect fuse fault. Fuse fault shall illuminate red.		

3. Mechanical Components	***Unit Complies with Requirements of Section 3. Mechanical Components***	
	Yes	***No***
3.1 Pump shall be constructed of cast 304 stainless steel with a stainless steel shaft and impeller.		
3.2 Electric pump motor shall be thermally protected 3 HP 220 Volt single phase.		
3.3 Pump seals shall be constructed of silicon carbide.		
3.4 Pump shall be capable of delivering 5,000 gallons per hour of salt brine to storage tanks with a dynamic head of 45 ft.		
3.5 All fittings and valves shall be manifold type glass filled polypropylene.		
3.6 Wetted Steel components shall be kept to a minimum; all steel components shall be constructed of 304-grade stainless steel.		
3.7 All exposed electric components shall be rated at NEMA 12X.		
3.8 All fasteners shall be constructed of stainless steel.		

4. Warranty	***Unit Complies with Requirements of Section 4. Warranty***	
	Yes	***No***
4.1 A full parts and labor warranty shall be provided for the first year starting after installation and training are complete.		

5. Site Preparation	***Unit Complies with Requirements of Section 5. Site Preparation***	
	Yes	***No***
5.1 The customer will provide electric and water service to the machine.		

6. Features	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6. Features		
6.1 Roll Tarp Cover		
6.1.1 A roll tarp with arches and roll mechanism shall be installed onto brine maker to keep heat in and debris out.		
6.1.2 Tarp shall be easily operated by one person to open top of brine maker for normal operation.		
6.2 Fully Automated, Remote Mounted, Truck Fill Package.		
6.2.1 Package shall be four electric ball valves, with manual override valves mounted onto an expandable modular panel.		
6.2.2 The system shall include a remote mounted NEMA 4X switch box with e-stop, pilot light and on/off switch.		
6.2.3 In the event that the system is producing brine at the same time as filling trucks, the system shall automatically divert brine to the truck fill hose.		
6.2.4 If brine is not being produced then brine from storage tanks shall be diverted to truck fill hose.		
6.2.5 System shall be automated with self diagnostics and the ability to be integrated with an RFID data logging device.		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.3 Truck Fill Data Logging.		
6.3.1 Remote Truck Fill Integrated Data Logging system complete with RFID reader and Tags.		
6.3.2 The system shall include a low frequency RFID reader, digital readout, keypad, mounted onto a NEMA 4X enclosure.		
6.3.3 Data recorded shall include Tag number, Date, Time, Quantity of material loaded, and material type.		
6.3.4 System shall be integrated into brine production system with automated truck filling system.		
6.4 Air purge system		
6.4.1 Air purge system shall divert compressed air through the water supply line leading to the salt tank. System shall be configured to automatically purge water from line via an electric valve each time the machine stops production. The purge "ON" time shall be configured via HMI (air supply to be supplied via purchasing agency).		
6.5 Storage tank pressure transducer assembly.		
6.5.1 An analog pressure sensor and interconnect kit to integrate into automation process. The sensor shall be capable of communicating with the automation process to shut off brine production when storage tank is full, and will indicate storage tank volumes.		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.6 Warning Beacon		
6.6.1 The control system shall be capable of activating a remote mounted strobe lamp. Lamp shall blink quickly when a machine fault has occurred or blink slowly when low salt level is detected.		
6.6.2 Lamp, control relay and automation logic shall be supplied.		
6.7 Control panel 230 volt electrical service cable.		
6.7.1 The system shall come pre-wired for electric service supply to include 10' of SOOW type cord with pre installed 1430P type plug. This will mate to customer supplied L1430R receptacle.		
6.8 Hose Kit		
6.8.1 The system shall come complete with 200' of 2" EPDM rubber suction discharge hose, 10' of 2" pressure hose, Stainless Steel T-Bolt type hose clamps and (3) Type C cam lock couplings.		
6.9 LAN Access		
6.9.1 The system shall come complete with the ability to access the HMI (operator interface) via Internet Explorer, all set up and operation data shall be capable of being viewed remotely via the display. Integration with customer's network will be the responsibility of the end user.		
6.10 4 drain kit		
6.10.1 A 4" valve, hose barbs and cam lever couplings shall be supplied to drain the salt tank of liquid and sediment.		
6.11 Through Wall Manifold		
6.11.1 One 5 hole through wall manifold shall be supplied as a conduit for 2" hose and electrical connections exiting through wall (s)		
6.11.2 Wall manifold shall be constructed out of 14G Stainless Steel and shall have grommets supplied.		

7. Options	***Options Available and Unit Complies with Requirements of Section 7. Options***	
	Yes	***No***
7.1 In line Heater		
7.1.1 An inline heater shall be supplied to be capable of heating the salt tank within the "Winterize Mode".		
7.1.2 Heaters shall be thermostatically controlled and capable of sustaining a temperature differential of 40 degrees used in conjunction with a permanently mounted roll tarp.		
7.1.3 Heaters shall be 240 V/AC. Have controls to include GFI circuit protection, service disconnect, RTD temperature probe, automation controls, starter contactor wired and mounted into a NEMA 4X enclosure.		
7.1.4 Additional 230 VAC/50 amp electrical service is required for inline heater. To be provided by customer.		
7.2 2" Storage tank fitting kit		
7.2.1 2 " Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		
7.3 Recycled Water Kit		
7.3.1 The system shall include a 3-way actuated valve to select between domestic water supply and recycled water supply, there shall be a pressure transducer assembly supplied to indicate low recycled water and to automatically switch to domestic supply when level is low.		

7. Options	*Options Available and Unit Complies with Requirements of Section 7. Options*	
	Yes	*No*
7.3.2 The system shall include a 3-way actuated valve to select between domestic water supply and recycled water supply, there shall be a pressure transducer assembly supplied to indicate low recycled water and to automatically switch to domestic supply when level is low.		
7.3.3 Pump shall be 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosures.		
7.4 300 GPM Pump Kit		
7.4.1 The system shall come complete with an additional transfer pump 300 GPM @ 45 Ft. Head pressure constructed of a cast stainless steel pump and 15 HP motor.		
7.4.2 Controls to include circuit protection, service disconnect, automation controls, Service disconnect, Circuit breaker, Aux relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.4.3 Pump shall be a 3 phase 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.5 3" Storage tank fitting kit		
7.5.1 3" Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		

Intent

It is the intent of this document to provide specifications for a downward flow automatic brine production system(s) where the salt acts as a filter bed as the water moves down through to sump area and filter screen. The automatic brine production system(s) shall be capable of producing 5,000 gallons of brine per hour, (based on available water supply of 6,000 gallon /hr and storage tank configuration, static discharge of 45ft. / head pressure), is capable of producing a blended product by injecting one additive with a ratio between 0 and 100%. The system is capable of remotely filling trucks with brine, blend or additive liquids, and recording truck fill data via RFID card reader system. The system is capable of flushing all sediment collected in the bottom of the salt tank without removing salt. Complete automation of producing brine without the intervention of an operator after initial system start, and automatically monitor and control brine concentration during production.

1. Salt Hopper	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.1 The salt hopper shall have a minimum capacity of 5 cubic yards.		
1.2 The salt hopper shall hold approximately .75 cubic yards of sediment without interfering with brine outlet.		
1.3 Minimum inside dumping width shall be no less than 120" inches.		
1.4 The hopper shall be constructed of 16,000 lb tensile strength fiberglass and isophthalic resin.		
1.5 All inside surfaces shall be coated with a ceramic resin .050" thick.		
1.6 Vessel shall have structural integral ribs to limit flex to within 1" from full to empty.		
1.7 Overall thickness of fiberglass and resin in the salt tank shall be .35" thick, structural areas such as ribs, corners and floor shall have additional layers of woven fiberglass matt for an overall thickness of .50"		

Salt Hopper (continued	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.8 Sediment collection area shall have a 15 degree slope towards a 12"X 12" sump to promote debris clean out.		
1.9 For ease and expediency of cleaning, the system shall be capable of being cleaned via a flush mechanism not to exceed (15) minutes and to be accomplished without disassembly of any components of the unit. Units requiring any disassembly of components for clean out shall be deemed unacceptable.		
1.10 For ease and expediency of cleaning accumulated sediment, the system shall be capable of being cleaned with the salt hopper full of salt by a process of opening sump outlet cap and water flush valves. Any salt tanks that require dumping of the hopper or trap doors for clean out shall be deemed unacceptable.		
1.11 There shall be a fresh water flushing system to force sediment to sump and out of sump.		
1.12 There shall be a 4" stainless steel bulkhead fitting and 4" ball valve for clean out.		
1.13 There shall be no air gaps in the vessel areas between sloped floor and mounting feet.		
1.14 Areas with a void shall be filled with high-density foam rated for compression strength of 3 PSI with fiberglass coating on the exterior.		
1.15 All Valves, bulkhead fittings, etc. 1" and larger shall be manifold type fittings.		
1.16 There shall be a pressure transducer connected to the PLC to activate brine pump on and off and water flow into salt tank. These levels shall be adjustable from the HMI Interface and be adjustable to within 1 inch increments.		

Salt Hopper (continued)	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.17 Transducer shall have an air capillary to the inside of salt hopper.		
1.18 Vessel shall have 2" male cam-lock type fittings and on/off ball valves for hose connections (fresh water, brine return, brine outlet to pump).		
1.19 There shall be reinforced forklift pockets for moving the salt tank.		
1.20 All metallic items shall be 304 stainless steel.		
1.21 Salt tank shall have a stainless steel debris screen located above the sump and sediment collection area.		
1.22 The screen shall have 3/16" diameter perforations.		
1.23 To allow for maximum flow, the debris screen shall have 60 square feet of surface area.		
1.24 Debris screen shall be capable of supporting 10,000 lb of salt evenly distributed across the total area.		
1.25 Screen frame shall have six permanently attached 3/8" diameter stainless steel eyebolts connected to a poly sling for ease of removal and shall be removed in one piece.		

2. Control System	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.1 The control system shall be a continuous brine production system to be located inside a climate controlled building.		
2.2 Main panel shall be constructed of 304 brushed stainless steel with valve labels and valve functions etched into the panel.		
2.3 The Brine concentration sensor shall monitor the brine for temperature and automatically compensate brine concentration accordingly.		
2.4 Brine pumped from the salt tank shall be monitored for salt concentration.		
2.5 Brine concentration sensor shall be a TOROIDAL type conductivity sensor.		
2.6 All brine exiting the salt tank shall pass over the brine concentration sensor that monitors brine between 19.6 and 27.0 % concentration by weight.		
2.7 System shall include a 256-color LCD touch screen display (7-1/2" diagonal). Information on the display screen shall include, but not be limited to:		
2.7.1 Actual brine production concentration in the form of % sodium chloride concentration by weight. For example 23.3% sodium chloride.		
2.7.2 Gallons of fresh water used to make brine. For example: Total gallons = 187,324,000, Gallons of brine produced and salt used.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.7.3 Self diagnostics of conductivity sensor. For example: Brine sensor failure fault.		
2.7.4 Status of machines operating mode. Normal "Automatic Mode" mode along with the status of all electrical components.		
2.7.5 Graphic illustrations such as liquid flow, system components, parts manuals, and operational instructions.		
2.7.6 Self diagnostics of electric valves indicating what valve is not functioning normally and valve status of open or closed position.		
2.8 Calibration shall be performed from the HMI interface located on the face of the machine. Programming parameters shall be password protected.		
2.9 There shall be 5 user selectable operating modes Normal (Brine production), Winterize, System test, System Rinse and Simulate.		
2.10 The programmable logic controller (PLC) shall have a non-volatile memory with EPROM back up of programming.		
2.11 As the brine concentration is pumped from the salt tank, the brine shall be monitored for the desired concentration. Systems requiring an operator to manually test brine concentration will be deemed unacceptable.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.12 If the brine concentration is above the target, the brine shall be returned to the salt tank until the correct amount of water is automatically added and the brine reaches the desired concentration.		
2.13 Once brine is at the desired concentration (+ or -. 3% of target concentration) the brine is to be diverted to storage tanks.		
2.14 In the event that the concentration is below the minimum desired concentration, the system shall automatically divert brine to the salt tank for a second pass through the salt bed to achieve the desired concentration.		
2.15 The control system shall be configured to accept a signal from a pressure transducer located in a storage tank to automatically stop brine production when tank is full, or when production batch is complete. This circuit shall be capable of displaying storage tank volume.		
2.16 Control system shall monitor total gallons of water used, salt used, and brine produced daily and seasonally for record keeping.		
2.17 The control system shall be programmed with a winterization mode where the system will automatically cycle the brine pump and return the brine to the salt tank. The pump "on" and "off" times shall be programmable to desired parameters via the control panel.		
2.18 The control system shall have a component rinse mode that cycles valves on main control panel to rinse system with fresh water.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.19 All electric valves shall include manual overrides for operation of system in the event of an electrical component failure.		
2.20 The system shall be designed with a manual valve counterpart to the electric valve to run parallel for a redundant manual control system.		
2.21 The system shall be completely self-diagnostic to include the pump, electrical valves and input signals.		
2.22 All electric valves and sensors shall communicate with the controller to confirm the current state.		
2.23 In the event of a component failure, the system shall automatically shut down and inform the operator of the specific failure along with a corrective measure. This includes how to manually override problem and provide a part number.		
2.24 All wetted parts on control panel except for pump shall manifold type glass filled polypropylene rated for 150 psi.		
2.25 Electric components mounted onto control panel shall have UL rated conduit protecting connections and wiring outside of the enclosure.		
2.26 Individual components over 10amps shall have circuit breakers. Components less than 10amps shall be fuse protected from inside of control panel. Fuses shall have diagnostic LED to detect fuse fault. Fuse fault shall illuminate red.		

3. Mechanical Components	***Unit Complies with Requirements of Section 3. Mechanical Components***	
	Yes	***No***
3.1 Pump shall be constructed of cast 304 stainless steel with a stainless steel shaft and impeller.		
3.2 Electric pump motor shall be thermally protected 3 HP 220 Volt single phase.		
3.3 Pump seals shall be constructed of silicon carbide.		
3.4 Pump shall be capable of delivering 5,000 gallons per hour of salt brine to storage tanks with a dynamic head of 45 ft.		
3.5 All fittings and valves shall be manifold type glass filled polypropylene.		
3.6 Wetted Steel components shall be kept to a minimum; all steel components shall be constructed of 304-grade stainless steel.		
3.7 All exposed electric components shall be rated at NEMA 12X.		
3.8 All fasteners shall be constructed of stainless steel.		

4. Warranty	***Unit Complies with Requirements of Section 4. Warranty***	
	Yes	***No***
4.1 A full parts and labor warranty shall be provided for the first year starting after installation and training are complete.		

5. Site Preparation	***Unit Complies with Requirements of Section 5. Site Preparation***	
	Yes	***No***
5.1 The customer will provide electric and water service to the machine.		

6. Features	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6. Features		
6.1 Roll Tarp Cover		
6.1.1 A roll tarp with arches and roll mechanism shall be installed onto brine maker to keep heat in and debris out.		
6.1.2 Tarp shall be easily operated by one person to open top of brine maker for normal operation.		
6.2 Fully Automated, Remote Mounted, Truck Fill Package.		
6.2.1 Package shall be four electric ball valves, with manual override valves mounted onto an expandable modular panel.		
6.2.2 The system shall include a remote mounted NEMA 4X switch box with e-stop, pilot light and on/off switch.		
6.2.3 In the event that the system is producing brine at the same time as filling trucks, the system shall automatically divert brine to the truck fill hose.		
6.2.4 If brine is not being produced then brine from storage tanks shall be diverted to truck fill hose.		
6.2.5 System shall be automated with self diagnostics and the ability to be integrated with an RFID data logging device.		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.3 Truck Fill Data Logging.		
6.3.1 Remote Truck Fill Integrated Data Logging system complete with RFID reader and Tags.		
6.3.2 The system shall include a low frequency RFID reader, digital readout, keypad, mounted onto a NEMA 4X enclosure.		
6.3.3 Data recorded shall include Tag number, Date, Time, Quantity of material loaded, and material type.		
6.3.4 System shall be integrated into brine production system with automated truck filling system.		
6.4 Air purge system		
6.4.1 Air purge system shall divert compressed air through the water supply line leading to the salt tank. System shall be configured to automatically purge water from line via an electric valve each time the machine stops production. The purge "ON" time shall be configured via HMI (air supply to be supplied via purchasing agency).		
6.5 Storage tank pressure transducer assembly.		
6.5.1 An analog pressure sensor and interconnect kit to integrate into automation process. The sensor shall be capable of communicating with the automation process to shut off brine production when storage tank is full, and will indicate storage tank volumes.		
6.6 Single Additive Injection System		
6.6.1 The control system shall be capable of automatically injecting a predetermined ratio of brine and a single additive into the finished product tank (0 to 100%).		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.6.2 There shall be an additive storage tank volume sensor to determine if enough additive is available to produce desired volume ratio batch.		
6.6.3 There shall be a blended product storage tank volume sensor to determine if enough volume is available to produce desired batch/ratio of blended product.		
6.6.4 Tank volume Sensors shall be solid state.		
6.6.5 There shall be actuated valves to divert brine or additive into the processing pump, with manual override valves mounted onto an expandable modular panel.		
6.6.6 Processing shall be graphically displayed onto HMI (operator display).		
6.6.7 Process shall be fully automated with self-diagnostics.		
6.7 Modular Plumbing Module		
6.7.1 The sub-panel shall come equipped with one additional modular plumbing module for recirculation of additive storage tank.		
6.7.2 Modules shall include electric ball valve, manual override valve and electric circuitry.		
6.7.3 Modules shall be mounted onto the stainless steel modular panel.		
6.7.4 Electric valves shall be controlled via the automation process where the operator may select a desired "on" and "off" time for desired recirculation intervals.		
6.8 Micro Ingredient Injection		
6.8.1 The control system shall be capable of automatically injecting a predetermined ratio of a micro ingredient into the finished product tank or truck fill if equipped.		
6.8.2 The system shall include a diaphragm pump and automation controls to inject a predetermined ratio of micro ingredient between a ratio of 1:1,000 and 1:10,000units. Set up shall be configured via the operator display.		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.9 Warning Beacon		
6.9.1 The control system shall be capable of activating a remote mounted strobe lamp. Lamp shall blink quickly when a machine fault has occurred or blink slowly when low salt level is detected.		
6.9.2 Lamp, control relay and automation logic shall be supplied.		
6.10 Control panel 230 volt electrical service cable.		
6.10.1 The system shall come pre-wired for electric service supply to include 10' of SOOW type cord with pre installed 1430P type plug. This will mate to customer supplied L1430R receptacle.		
6.11 Hose Kit		
6.11.1 The system shall come complete with 300' of 2" EPDM rubber suction discharge hose, 10' of 2" pressure hose, Stainless Steel T-Bolt type hose clamps and (3) Type C cam lock couplings.		
6.12 LAN Access		
6.12.1 The system shall come complete with the ability to access the HMI (operator interface) via Internet Explorer, all set up and operation data shall be capable of being viewed remotely via the display. Integration with customer's network will be the responsibility of the end user.		
6.13 4 drain kit		
6.13.1 A 4" valve, hose barbs and cam lever couplings shall be supplied to drain the salt tank of liquid and sediment.		
6.14 Through Wall Manifold		
6.14.1 Two 5 hole through wall manifolds shall be supplied as a conduit for 2" hose and electrical connections exiting through wall (s)		
6.14.2 Wall manifold shall be constructed out of 14G Stainless Steel and shall have grommets supplied.		

7. Options	***Options Available and Unit Complies with Requirements of Section 7. Options***	
	Yes	***No***
7.1 In line Heater		
7.1.1 An inline heater shall be supplied to be capable of heating the salt tank within the "Winterize Mode".		
7.1.2 Heaters shall be thermostatically controlled and capable of sustaining a temperature differential of 40 degrees used in conjunction with a permanently mounted roll tarp.		
7.1.3 Heaters shall be 240 V/AC. Have controls to include GFI circuit protection, service disconnect, RTD temperature probe, automation controls, starter contactor wired and mounted into a NEMA 4X enclosure.		
7.2 2" Storage tank fitting kit		
7.2.1 Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		
7.3 Recycled Water Kit		
7.3.1 The system shall come complete with a 100 GPM cast stainless steel pump and 3 HP motor for using an external non pressurized water supply as the solvent for producing brine. The system shall default to the recycled water supply if recycle water is available.		

Options (continued)	***Options Available and Unit Complies with Requirements of Section 7. Options***	
	Yes	***No***
7.3.2 The system shall include a 3-way actuated valve to select between domestic water supply and recycled water supply, there shall be a pressure transducer assembly supplied to indicate low recycled water and to automatically switch to domestic supply when level is low.		
7.3.3 Pump shall be 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosures.		
7.4 300 GPM Pump Kit		
7.4.1 The system shall come complete with an additional transfer pump 300 GPM @ 45 Ft. Head pressure constructed of a cast stainless steel pump and 15 HP motor.		
7.4.2 Controls to include circuit protection, service disconnect, automation controls, Service disconnect, Circuit breaker, Aux relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.4.3 Pump shall be a 3 phase 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.5 3" Storage tank fitting kit		
7.5.1 3" Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		

Intent

It is the intent of this document to provide specifications for a downward flow automatic brine production system(s) where the salt acts as a filter bed as the water moves down through to sump area and filter screen. The automatic brine production system(s) shall be capable of producing 5,000 gallons of brine per hour, (based on available water supply of 6,000 gallon /hr and storage tank configuration, static discharge of 45ft. / head pressure), is capable of producing a blended product by injecting up to two additives each with a ratio between 0 and 100%. The system is capable of remotely filling trucks with brine, blend or additive liquids, and recording truck fill data via RFID card reader system. The system is capable of flushing all sediment collected in the bottom of the salt tank without removing salt. Complete automation of producing brine without the intervention of an operator after initial system start, and automatically monitor and control brine concentration during production.

1. Salt Hopper	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.1 The salt hopper shall have a minimum capacity of 5 cubic yards.		
1.2 The salt hopper shall hold approximately .75 cubic yards of sediment without interfering with brine outlet.		
1.3 Minimum inside dumping width shall be no less than 120" inches.		
1.4 The hopper shall be constructed of 16,000 lb tensile strength fiberglass and isophthalic resin.		
1.5 All inside surfaces shall be coated with a ceramic resin .050" thick.		
1.6 Vessel shall have structural integral ribs to limit flex to within 1" from full to empty.		
1.7 Overall thickness of fiberglass and resin in the salt tank shall be .35" thick, structural areas such as ribs, corners and floor shall have additional layers of woven fiberglass matt for an overall thickness of .50"		

Salt Hopper (continued	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.8 Sediment collection area shall have a 15 degree slope towards a 12"X 12" sump to promote debris clean out.		
1.9 For ease and expediency of cleaning, the system shall be capable of being cleaned via a flush mechanism not to exceed (15) minutes and to be accomplished without disassembly of any components of the unit. Units requiring any disassembly of components for clean out shall be deemed unacceptable.		
1.10 For ease and expediency of cleaning accumulated sediment, the system shall be capable of being cleaned with the salt hopper full of salt by a process of opening sump outlet cap and water flush valves. Any salt tanks that require dumping of the hopper or trap doors for clean out shall be deemed unacceptable.		
1.11 There shall be a fresh water flushing system to force sediment to sump and out of sump.		
1.12 There shall be a 4" stainless steel bulkhead fitting and 4" ball valve for clean out.		
1.13 There shall be no air gaps in the vessel areas between sloped floor and mounting feet.		
1.14 Areas with a void shall be filled with high-density foam rated for compression strength of 3 PSI with fiberglass coating on the exterior.		
1.15 All Valves, bulkhead fittings, etc. 1" and larger shall be manifold type fittings.		
1.16 There shall be a pressure transducer connected to the PLC to activate brine pump on and off and water flow into salt tank. These levels shall be adjustable from the HMI Interface and be adjustable to within 1 inch increments.		

Salt Hopper (continued)	***Unit Complies with Requirements of Section 1. Salt Hopper***	
	Yes	***No***
1.17 Transducer shall have an air capillary to the inside of salt hopper.		
1.18 Vessel shall have 2" male cam-lock type fittings and on/off ball valves for hose connections (fresh water, brine return, brine outlet to pump).		
1.19 There shall be reinforced forklift pockets for moving the salt tank.		
1.20 All metallic items shall be 304 stainless steel.		
1.21 Salt tank shall have a stainless steel debris screen located above the sump and sediment collection area.		
1.22 The screen shall have 3/16" diameter perforations.		
1.23 To allow for maximum flow, the debris screen shall have 60 square feet of surface area.		
1.24 Debris screen shall be capable of supporting 10,000 lb of salt evenly distributed across the total area.		
1.25 Screen frame shall have six permanently attached 3/8" diameter stainless steel eyebolts connected to a poly sling for ease of removal and shall be removed in one piece.		

2. Control System	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.1 The control system shall be a continuous brine production system to be located inside a climate controlled building.		
2.2 Main panel shall be constructed of 304 brushed stainless steel with valve labels and valve functions etched into the panel.		
2.3 The Brine concentration sensor shall monitor the brine for temperature and automatically compensate brine concentration accordingly.		
2.4 Brine pumped from the salt tank shall be monitored for salt concentration.		
2.5 Brine concentration sensor shall be a TOROIDAL type conductivity sensor.		
2.6 All brine exiting the salt tank shall pass over the brine concentration sensor that monitors brine between 19.6 and 27.0 % concentration by weight.		
2.7 System shall include a 256-color LCD touch screen display (7-1/2" diagonal). Information on the display screen shall include, but not be limited to:		
2.7.1 Actual brine production concentration in the form of % sodium chloride concentration by weight. For example 23.3% sodium chloride.		
2.7.2 Gallons of fresh water used to make brine. For example: Total gallons = 187,324,000, Gallons of brine produced and salt used.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.7.3 Self diagnostics of conductivity sensor. For example: Brine sensor failure fault.		
2.7.4 Status of machines operating mode. Normal "Automatic Mode" mode along with the status of all electrical components.		
2.7.5 Graphic illustrations such as liquid flow, system components, parts manuals, and operational instructions.		
2.7.6 Self diagnostics of electric valves indicating what valve is not functioning normally and valve status of open or closed position.		
2.8 Calibration shall be performed from the HMI interface located on the face of the machine. Programming parameters shall be password protected.		
2.9 There shall be 5 user selectable operating modes Normal (Brine production), Winterize, System test, System Rinse and Simulate.		
2.10 The programmable logic controller (PLC) shall have a non-volatile memory with EPROM back up of programming.		
2.11 As the brine concentration is pumped from the salt tank, the brine shall be monitored for the desired concentration. Systems requiring an operator to manually test brine concentration will be deemed unacceptable.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.12 If the brine concentration is above the target, the brine shall be returned to the salt tank until the correct amount of water is automatically added and the brine reaches the desired concentration.		
2.13 Once brine is at the desired concentration (+ or -. 3% of target concentration) the brine is to be diverted to storage tanks.		
2.14 In the event that the concentration is below the minimum desired concentration, the system shall automatically divert brine to the salt tank for a second pass through the salt bed to achieve the desired concentration.		
2.15 The control system shall be configured to accept a signal from a pressure transducer located in a storage tank to automatically stop brine production when tank is full, or when production batch is complete. This circuit shall be capable of displaying storage tank volume.		
2.16 Control system shall monitor total gallons of water used, salt used, and brine produced daily and seasonally for record keeping.		
2.17 The control system shall be programmed with a winterization mode where the system will automatically cycle the brine pump and return the brine to the salt tank. The pump "on" and "off" times shall be programmable to desired parameters via the control panel.		
2.18 The control system shall have a component rinse mode that cycles valves on main control panel to rinse system with fresh water.		

Control System (continued)	***Unit Complies with Requirements of Section 2. Control System***	
	Yes	***No***
2.19 All electric valves shall include manual overrides for operation of system in the event of an electrical component failure.		
2.20 The system shall be designed with a manual valve counterpart to the electric valve to run parallel for a redundant manual control system.		
2.21 The system shall be completely self-diagnostic to include the pump, electrical valves and input signals.		
2.22 All electric valves and sensors shall communicate with the controller to confirm the current state.		
2.23 In the event of a component failure, the system shall automatically shut down and inform the operator of the specific failure along with a corrective measure. This includes how to manually override problem and provide a part number.		
2.24 All wetted parts on control panel except for pump shall manifold type glass filled polypropylene rated for 150 psi.		
2.25 Electric components mounted onto control panel shall have UL rated conduit protecting connections and wiring outside of the enclosure.		
2.26 Individual components over 10amps shall have circuit breakers. Components less than 10amps shall be fuse protected from inside of control panel. Fuses shall have diagnostic LED to detect fuse fault. Fuse fault shall illuminate red.		

3. Mechanical Components	***Unit Complies with Requirements of Section 3. Mechanical Components***	
	Yes	***No***
3.1 Pump shall be constructed of cast 304 stainless steel with a stainless steel shaft and impeller.		
3.2 Electric pump motor shall be thermally protected 3 HP 220 Volt single phase.		
3.3 Pump seals shall be constructed of silicon carbide.		
3.4 Pump shall be capable of delivering 5,000 gallons per hour of salt brine to storage tanks with a dynamic head of 45 ft.		
3.5 All fittings and valves shall be manifold type glass filled polypropylene.		
3.6 Wetted Steel components shall be kept to a minimum; all steel components shall be constructed of 304-grade stainless steel.		
3.7 All exposed electric components shall be rated at NEMA 12X.		
3.8 All fasteners shall be constructed of stainless steel.		

4. Warranty	***Unit Complies with Requirements of Section 4. Warranty***	
	Yes	***No***
4.1 A full parts and labor warranty shall be provided for the first year starting after installation and training are complete.		

5. Site Preparation	***Unit Complies with Requirements of Section 5. Site Preparation***	
	Yes	***No***
5.1 The customer will provide electric and water service to the machine.		

6. Features	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6. Features		
6.1 Roll Tarp Cover		
6.1.1 A roll tarp with arches and roll mechanism shall be installed onto brine maker to keep heat in and debris out.		
6.1.2 Tarp shall be easily operated by one person to open top of brine maker for normal operation.		
6.2 Fully Automated, Remote Mounted, Truck Fill Package.		
6.2.1 Package shall be four electric ball valves, with manual override valves mounted onto an expandable modular panel.		
6.2.2 The system shall include a remote mounted NEMA 4X switch box with e-stop, pilot light and on/off switch.		
6.2.3 In the event that the system is producing brine at the same time as filling trucks, the system shall automatically divert brine to the truck fill hose.		
6.2.4 If brine is not being produced then brine from storage tanks shall be diverted to truck fill hose.		
6.2.5 System shall be automated with self diagnostics and the ability to be integrated with an RFID data logging device.		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.3 Truck Fill Data Logging.		
6.3.1 Remote Truck Fill Integrated Data Logging system complete with RFID reader and Tags.		
6.3.2 The system shall include a low frequency RFID reader, digital readout, keypad, mounted onto a NEMA 4X enclosure.		
6.3.3 Data recorded shall include Tag number, Date, Time, Quantity of material loaded, and material type.		
6.3.4 System shall be integrated into brine production system with automated truck filling system.		
6.4 Air purge system		
6.4.1 Air purge system shall divert compressed air through the water supply line leading to the salt tank. System shall be configured to automatically purge water from line via an electric valve each time the machine stops production. The purge "ON" time shall be configured via HMI (air supply to be supplied via purchasing agency).		
6.5 Storage tank pressure transducer assembly.		
6.5.1 An analog pressure sensor and interconnect kit to integrate into automation process. The sensor shall be capable of communicating with the automation process to shut off brine production when storage tank is full, and will indicate storage tank volumes.		
6.6 Single Additive Injection System		
6.6.1 The control system shall be capable of automatically injecting a predetermined ratio of brine and a single additive into the finished product tank (0 to 100%).		

Features (continued)	*Unit Complies with Requirements of Section 6. Features*	
	Yes	*No*
6.6.2 There shall be two additive storage tank volume sensors to determine if enough volume of each additive is available to produce desired volume ratio batch.		
6.6.3 There shall be a blended product storage tank volume sensor to determine if enough volume is available to produce desired batch/ratio of blended product.		
6.6.4 Tank volume Sensors shall be solid state.		
6.6.5 There shall be actuated valves to divert brine or additive into the processing pump, with manual override valves mounted onto an expandable modular panel.		
6.6.6 Processing shall be graphically displayed onto HMI (operator display).		
6.6.7 Process shall be fully automated with self-diagnostics.		
6.7 Modular Plumbing Module		
6.7.1 The sub-panel shall come equipped with two additional modular plumbing modules for recirculation of two additive storage tanks.		
6.7.2 Modules shall include electric ball valve, manual override valve and electric circuitry.		
6.7.3 Modules shall be mounted onto the stainless steel modular panel.		
6.7.4 Electric valves shall be controlled via the automation process where the operator may select a desired "on" and "off" time for desired recirculation intervals.		
6.8 Micro Ingredient Injection		
6.8.1 The control system shall be capable of automatically injecting a predetermined ratio of a micro ingredient into the finished product tank or truck fill if equipped.		

Features (continued)	***Unit Complies with Requirements of Section 6. Features***	
	Yes	***No***
6.9 Warning Beacon		
6.9.1 The control system shall be capable of activating a remote mounted strobe lamp. Lamp shall blink quickly when a machine fault has occurred or blink slowly when low salt level is detected.		
6.9.2 Lamp, control relay and automation logic shall be supplied.		
6.10 Control panel 230 volt electrical service cable.		
6.10.1 The system shall come pre-wired for electric service supply to include 10' of SOOW type cord with pre installed 1430P type plug. This will mate to customer supplied L1430R receptacle.		
6.11 Hose Kit		
6.11.1 The system shall come complete with 400' of 2" EPDM rubber suction discharge hose, 10' of 2" pressure hose, Stainless Steel T-Bolt type hose clamps and (3) Type C cam lock couplings.		
6.12 LAN Access		
6.12.1 The system shall come complete with the ability to access the HMI (operator interface) via Internet Explorer, all set up and operation data shall be capable of being viewed remotely via the display. Integration with customer's network will be the responsibility of the end user.		
6.13 4 drain kit		
6.13.1 A 4" valve, hose barbs and cam lever couplings shall be supplied to drain the salt tank of liquid and sediment.		
6.14 Through Wall Manifold		
6.14.1 Three 4 hole through wall manifolds shall be supplied as a conduit for 2" hose and electrical connections exiting through wall (s)		
6.14.2 Wall manifold shall be constructed out of 14G Stainless Steel and shall have grommets supplied.		

7. Options	*Options Available and Unit Complies with Requirements of Section 7. Options*	
	Yes	*No*
7.1 In line Heater		
7.1.1 An inline heater shall be supplied to be capable of heating the salt tank within the "Winterize Mode".		
7.1.2 Heaters shall be thermostatically controlled and capable of sustaining a temperature differential of 40 degrees used in conjunction with a permanently mounted roll tarp.		
7.1.3 Heaters shall be 240 V/AC. Have controls to include GFI circuit protection, service disconnect, RTD temperature probe, automation controls, starter contactor wired and mounted into a NEMA 4X enclosure.		
7.2 2" Storage tank fitting kit		
7.2.1 Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		
7.3 Recycled Water Kit		
7.3.1 The system shall come complete with a 100 GPM cast stainless steel pump and 3 HP motor for using an external non pressurized water supply as the solvent for producing brine. The system shall default to the recycled water supply if recycle water is available.		
7.3.2 The system shall include a 3-way actuated valve to select between domestic water supply and recycled water supply, there shall be a pressure transducer assembly supplied to indicate low recycled water and to automatically switch to domestic supply when level is low.		

Options (continued)	***Options Available and Unit Complies with Requirements of Section 7. Options***	
	Yes	***No***
7.3.3 The system shall include a 3-way actuated valve to select between domestic water supply and recycled water supply, there shall be a pressure transducer assembly supplied to indicate low recycled water and to automatically switch to domestic supply when level is low.		
7.3.4 Pump shall be 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosures.		
7.4 300 GPM Pump Kit		
7.4.1 The system shall come complete with an additional transfer pump 300 GPM @ 45 Ft. Head pressure constructed of a cast stainless steel pump and 15 HP motor.		
7.4.2 Controls to include circuit protection, service disconnect, automation controls, Service disconnect, Circuit breaker, Aux relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.4.3 Pump shall be a 3 phase 230 V/AC. Includes controls for circuit protection, service disconnect, automation controls, auxiliary relay, starter contactor with thermal overload pre-wired and mounted into a NEMA 4X enclosure.		
7.5 3" Storage tank fitting kit		
7.5.1 3" Manifold type fitting kit with tank flange, valve, tee, hose clamps, and hose barbs (note: One kit required for each hose installed on each storage tank)		

ACCUBRINE®
AUTOMATED BRINE MAKER

AccuBrine® automated brine maker

Customer Reference List

City of Twinsburg, Ohio
Mr. Dennis Koballa
10231 Ravenna Rd
Twinsburg, Ohio 44087
Phone: 330-963-6274
Population: 10,000
Annual Brine Usage:

City of St. Cloud, MN
Joe Imhold
1200 15th Ave. SE
St. Cloud MN 56304
Phone: 320-650-2922
charles.koetter@ci.stcloud.mn.us
Population:
Annual Brine Usage:

City of St. Cloud, MN
Chuck Koetter
1200 15th Ave. SE
St. Cloud MN 56304
Phone: 320-249-4639
Population:
Annual Brine Usage:

Village of Fayetteville, NY
Jim Craw
5572 North Manilus Street
Fayetteville, NY
Phone: 315-952-3103
Population:
Annual Brine Usage:

City of Chicago, IL
Jim Fee
Room 704
121 No LaSalle St
Chicago, IL 60602
Phone: 312-744-1519
Population:
Annual Brine Usage:

MRDC Operations Corp.
Mark Kenny
203 Pioneer Ave.
Ormocto, NB Canada
Phone: 506-357-1240
Population:
Annual Brine Usage:

Minnesota DOT – Rochester, MN
Mr. Robert Langanki
2900 N.W. 48th St
Rochester MN 55901
Phone: 507-251-2314
Population:
Annual Brine Usage:

New Jersey DOT
Don Bourne
Route 70 and 295
Cherry Hill, NJ 08002
Phone: 609-352-8923
Population:
Annual Brine Usage:

City of Louisville, KY
Jeremy Raney
444 S 5th Street
Louisville, KY 40202
Phone: 502-574-5810
Population: 270,000
Annual Brine Usage: 180,000 gal

VMS INC.
Tom Glasheen
203 East Cary Street
Richmond, VA 23219
Phone: 804-261-8000
Population:
Annual Brine Usage:

City of Beloit, WI
Chris Walsh
2351 Springbrook Court
Beloit, WI 53511
Phone: 608-364-2918
Population: 36,000
Annual Brine Usage: 72,200 gal

City of Stamford, CT
Alan Bush
100 Magee Ave
Stamford, CT 06902
Phone: 203-977-4599
Email: ABush@ci.stamford.ct.us
Population:
Annual Brine Usage:

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City of Noblesville Indiana,
Len Finchum, Street Commissioner
1575 Pleasant Street
Noblesville, IN. 46060
Phone 317-776-6348
www.cityofnoblesville.org
Population: 56,000
Annual Brine Usage: 105,000 gal

City of Anderson Indiana,
Todd Leever, Street Commissioner
550 Baxter Road
Anderson, IN. 46011
Phone 765-548-6450
Cell 765-602-9711
tleever@cityofanderson.com
Population: 55,000
Annual Brine Usage: 55,000 gal

Scott Harless, Superintendent
Madison County Indiana Highway Dept.
2830 W. 8th St.
Anderson, IN. 46011
Phone 765-646-9240
sharless@madisoncty.com
Population: 70,000
Annual Brine Usage: 50,000 gal

Kentucky Transportation Cabinet
Department of Highways, Dist 5
Thomas Wright, P.E., Branch Manager
8310 Westport Road
Louisville, KY. 40242
Phone 502-210-5490
Population:
Annual Brine Usage: 30,000 gal

Scott Moe
Highland Park Public Works
Street Division Foreman
1150 Half Day Rd.
Highland Park, Il 60035
Phone 847-926-1147
Population:
Annual Brine Usage:

Cargill, Incorporated
15615 McGinty Road West
Wayzata, Minnesota 55391-2398

Jeanne Y. Smith
Assistant Secretary

I hereby certify that I am Assistant Secretary of the Executive Committee of Cargill, Incorporated, a Delaware corporation. I further certify that under the rules of said Committee, when a copy of the record of any action taken by said Committee is certified to be true and correct and is attested by me with the corporate seal, it is sufficient evidence of the taking and effectiveness of said action, without the signature of any member of said Committee. I further certify that the following is a true and correct copy of a resolution(s), rule(s) or action(s) duly adopted or taken, as the case may be, by said Executive Committee on June 6, 2008, and that said resolution(s), rule(s) or action(s) are on this date in full force and effect, to wit:

"WHEREAS, From time to time the salt business unit(s) seek to bid upon the sale and enter into various sales agreements covering the sale of certain salt products to a state, county, city, municipality or other corporate body; and

"WHEREAS, From time to time the Company is required to provide to the party seeking bids or to enter into the agreement, or their agent, evidence of the Company's authority to submit a bid and enter into these sale transactions, as well as evidence of the Company's signatory's authorization to execute the agreements on behalf of the Company.

"NOW, THEREFORE, BE IT RESOLVED, That any President, Senior Vice President or Vice President of the salt business unit(s) of the Company, and such other persons as may be designated from time to time by any of the foregoing officers, are and each of them hereby is authorized to sign and submit the bids or proposals of the Company and any related agreements for the sale of mineral rock salt, solar salt, salt chemical mixtures, evaporated salt and/or road deicing salt, to be submitted to any state, county, city, municipality, or corporate body with which the Company may do business and to include in such bids or proposals the certificate as to non-collusion as may be required, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalties of perjury.

"RESOLVED FURTHER, That this resolution is hereby designated the **"Salt Resolution"**.

"RESOLVED FURTHER, That this resolution supersedes all prior authority granted."

WITNESS MY HAND AND THE SEAL of Cargill, Incorporated this 5th day of August, 2011.

Jeanne Y. Smith
Assistant Secretary

1957688

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, That Cargill, Incorporated, a Corporation duly organized and existing under the laws of the State of Delaware, and having its Home Office in the City of Minneapolis, Minnesota, has made, constituted and appointed, and does by these presents, constitute and appoint:

Josette Bell	Chris Gampfer	Louise Moniere
Donna Bidak	Nadine Gilbert	Amanda Montanez
Tom Blackman	Lenore Hohman	Lisa Montonaro
Gloria Bohman	Kenneth G. Howe	Angele Peterson
Robert Bridgeforth	Gail Hubbell	Courtney Perram
Stacey Bruzda	Brittney Ingold	Monica Sue Petkac
David Bryden	Robin Kiewatt	Stewart Petrick
Pamela S. Burcewicz	Mary Kleiner	John Petryszyn
Tameka Caldwell-Roby	Phillip E. Knapp	Sean M. Riley
Deseree Caver	Amanda Knaus	Christine M. Rupert
Carol Chandler	Denise A. Koch	Anne Sarley
Annette Cillian	Sarah Liederbach	Rosemary Schwarz
Andre Desbiens	Mildred Lindsey	Sarah Stewart
Tony DiPietro	Alison Marincek	Jennifer Tyminski
Ken Ellen	David Marshall	Kent Watson
Ron Erjavec	Hilary Mayclin	Danielle Wilford
Joshua D. Evcic	Shawn Mayclin	Gord Williams
Dale Fehrenbach	Bill Miller	Irving Williamson
Jason Fenske	Brett Miller	Les Wright
Robin Fugo	Jacques Moniere	Ellen Ziegman

each its true and lawful Attorneys-in-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, seal, acknowledge and deliver bids, bid bonds, contracts, performance bonds, and such other documents as may be necessary or required in connection with the bid, sale or delivery of mineral rock salt, solar salt, salt chemical mixtures, evaporated salt, and/or road deicing salt, to any state, county, city, municipality, or corporate body with which the Company may do business and to bind the Corporation thereby as fully and to the same extent as if such documents were signed by an officer of Salt, sealed with the Corporate Seal of the Corporation and duly attested by its Assistant Corporate Secretary, hereby ratifying and confirming all the said Attorney(s)-in-Fact may do in the premises.

IN WITNESS WHEREOF, Cargill, Incorporated has caused these presents to be signed by its President, Cargill Deicing Technology, and its Assistant Corporate Secretary, and its Corporate Seal to be hereunto affixed this 25th day of July, 2011.

Cargill, Incorporated

By: _____
Dale A. Fehrenbach, President, Cargill Deicing Technology

Attest: _____
Jeanne Y. Smith, Assistant Corporate Secretary

3344555

STATE OF OHIO

) ss

COUNTY OF CUYAHOGA Medina

On 8/5/11, before me, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared Lenore Hohman known to me to Attorney-in-Fact of CARGILL, INCORPORATED, the Corporation described in and that executed the within and fore-going instrument, and known to me to be the person who executed the said instrument in behalf of the said corporation; and he duly acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year stated in the certificate above.

Monica Sue Petkac

Notary Public

NOTARIAL SEAL STATE OF OHIO

MONICA SUE PETKAC
Notary Public
In and for
the State of Ohio
My Commission Expires
February 25, 2013

PAGE ONE

EVIDENCE OF CASUALTY INSURANCE

POLICY YEAR
06/01/11-06/01/12

PRODUCER

Hays Companies
IDS Center, Suite 700
80 South 8th Street
Minneapolis, MN 55402

PHONE NO. 612-333-3323 FAX NO. 612-373-7270

INSURED

CARGILL, INCORPORATED,
ITS SUBSIDIARIES, AND BUSINESS UNITS
PO BOX 5612, MS-12
MINNEAPOLIS, MN 55440-5612

THIS DOCUMENT IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE DOCUMENT HOLDER. THIS DOCUMENT DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

INSURER A:	National Union Fire Insurance Company
INSURER B:	Commerce & Industry Insurance Company
INSURER C:	Insurance Company of the State of Pennsylvania
INSURER D:	Illinois National Insurance Company
INSURER E:	New Hampshire Insurance Company
INSURER F:	Chartis Casualty Company

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS DOCUMENT MAY BE DISPENSED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADDL INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PROJECT [ ] LOC	GL1914645	06/01/11	06/01/12	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS-COMP/OP AGG	$10,000,000 NONE NONE 10,000,000 $100,000,000 $100,000,000
A A A		AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS [X] CARGO LEGAL LIABILITY AND CONTINGENT CARGO LEGAL LIABILITY	CA3506253 (AOS) CA3506254 (VA)	06/01/11 06/01/11	06/01/12 06/01/12	COMBINED SINGLE LIMIT (Ea Accident) BODILY INJURY (Per Person) BODILY INJURY (Per Accident) PROPERTY DAMAGE (Per Accident)	$10,000,000
		EXCESS/UMBRELLA LIABILITY [ ] OCCUR [ ] CLAIMS MADE [ ] DEDUCTIBLE [ ] RETENTION				EACH OCCURRENCE AGGREGATE	
A B C D E F E		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? NO If yes, describe under SPECIAL PROVISION BELOW	WC015883508 (CA) WC015883509 (FL) WC015883515 (AOS) WC015883510 (MI) WC015883511 (MN) WC015883512(AR, GA, KS) WC015883513 (T X)	06/01/11 06/01/11 06/01/11 06/01/11 06/01/11 06/01/11 06/01/11	06/01/12 06/01/12 06/01/12 06/01/12 06/01/12 06/01/12 06/01/12	[X] WC STATU-TORY LIMITS [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE – EA EMPLOYEE E.L. DISEASE – POLICY LIMIT	$5,000,000 $5,000,000 $5,000,000
E A		OTHER WORKERS COMPENSATION EXCESS WORKERS COMPENSATION	WC015883514 (MA, ND, NY, WA, WI, WY) XWC1192395 (OH, USLH)	06/01/11 06/01/11	06/01/12 06/01/12	Per WC/EL Limits Above Statutory Excess $1,000,000 SIR	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

SEE ATTACHED ADDENDUM

AUTHORIZED SIGNATURE

PAGE TWO **ADDENDUM TO EVIDENCE OF CASUALTY INSURANCE** | POLICY YEAR 06/01/11-06/01/12

The Named Insured under the general liability and auto liability policies includes Cargill, Incorporated and any subsidiary, affiliate, or business unit where Cargill, Incorporated (Cargill) owns an interest of more than 50% or exercises active management control.

A Partial Listing of U.S. Subsidiaries and Business Units insured by the general and automobile liability policies include (but is not limited to):

Cargill AgHorizons
Cargill Animal Nutrition
Cargill Case Ready
Cargill Cocoa and Chocolate Inc.
Cargill Corn Milling North America
Cargill Deicing Technology
Cargill Dressings, Sauces & Oils
Cargill Dry Corn Ingredients, Inc.
Cargill Financial Services Corporation
Cargill Flavor Systems
Cargill Food Distribution
Cargill Grain and Oilseeds North America
Cargill Health & Nutrition
Cargill Kitchen Solutions, Inc.
Cargill Malt
Cargill Meat Logistics Solutions, Inc.
Cargill Meat Solutions Corporation
Cargill Pork
Cargill Pork, LLC
Cargill Regional Beef
Cargill Salt
Cargill Specialty Canola Oils
Cargill Texturizing Solutions
Cargill Turkey Production, LLC
Cargill Value Added Meats-Food Service
Cargill Value Added Meats-Retail
G & M Stevedoring Co., Inc.
Horizon Milling, LLC (JV)

PLEASE NOTE: Cargill and certain U.S. subsidiaries are self-insured for workers' compensation under the Federal Longshore and Harbor Workers' Compensation Act. Cargill and certain U.S. subsidiaries are self-insured for workers' compensation through the Department of Labor in the State of Ohio. Policy number XWC1192395 provides workers' compensation coverage excess of the authorized self-insured limit in jurisdictions where Cargill or a Cargill subsidiary is self-insured. Cargill operations in North Dakota, Washington and Wyoming are insured for workers' compensation under the monopolistic state fund of each state. The workers' compensation policies listed in the preceding page insure Cargill and non-self-insured U.S. subsidiaries in the remaining states where Cargill has operations or employees.

- Under the General Liability policy, Additional Insured—Vendors (CG 20 15 07 04) is provided to vendors of products of the Named Insured as described above, if required in a written contract with such Named Insured.
- Under the General Liability policy, Additional Insured status for persons or organizations other than vendors is provided, if required in a written contract with the Named Insured as described above, with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by any Named Insured's acts or omissions or the acts or omissions of those acting on any Named Insured's behalf in the performance of the any Named Insured's continuing operations, or in connection with any Named Insured's completed operations or premises owned by or rented to any Named Insured or equipment owned by or rented to any Named Insured.
- Under the Automobile Liability policies, Additional Insured status is provided if required in a written contract with the Named Insured as described above.
- Under the General Liability, Automobile Liability and Workers Compensation policies, a Waiver of Subrogation is provided if required in a written contract with the Named Insured as described above.
- Contractual Liability (tort liability assumed in an "insured contract") is included under the Commercial General Liability and Automobile Liability policies.

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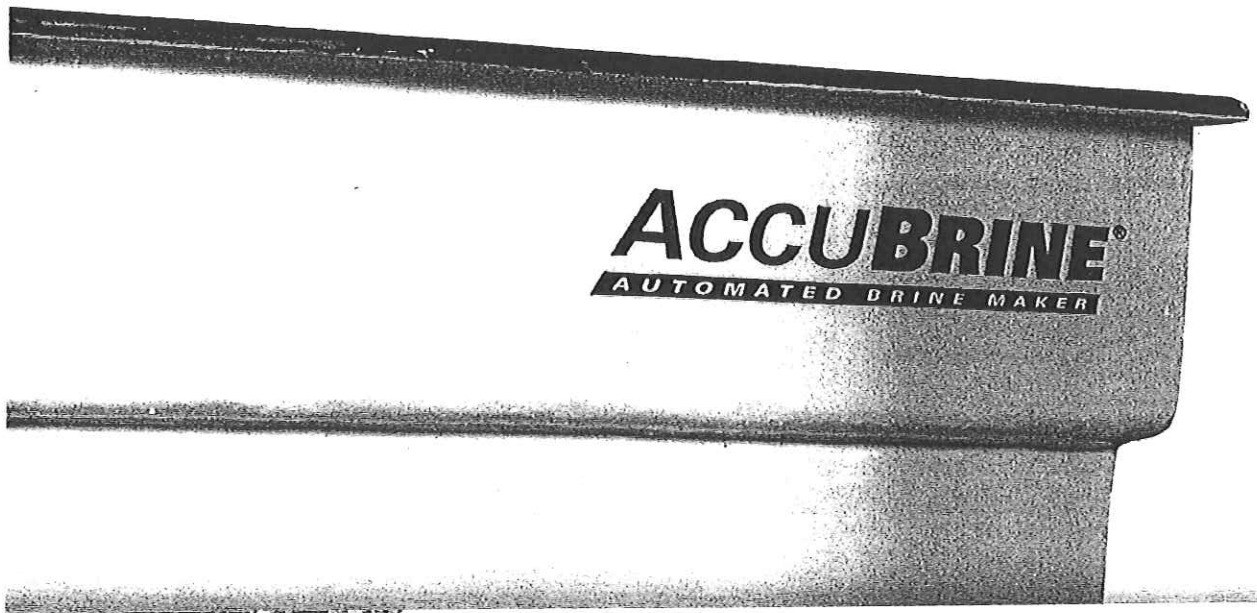

KEEP ROADS SAFER BY STAYING AHEAD OF THE STORM.

Cargill®

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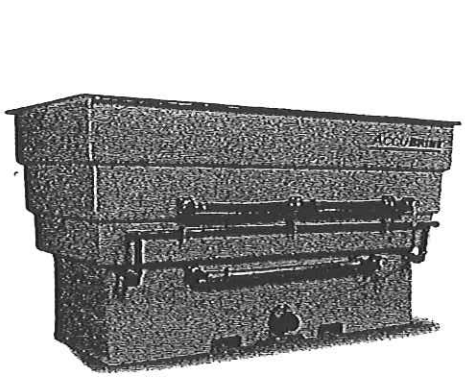
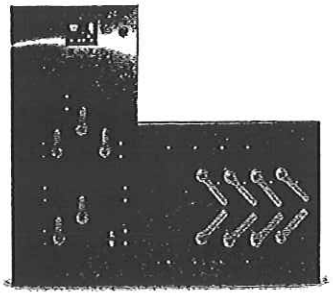
Providing customers with deicing solutions that save lives, enhance commerce and reduce environmental impact.





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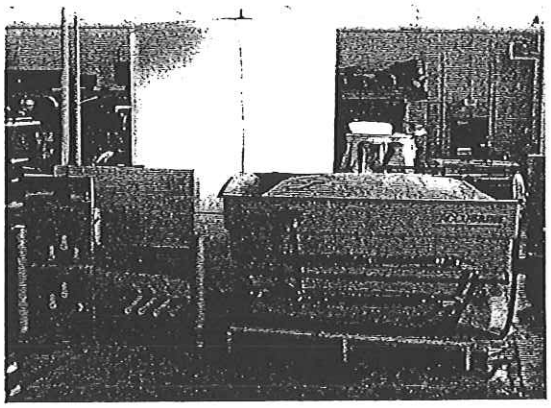

Cargill®

Cargill Deicing Technology
24950 Country Club Blvd. Suite 450
North Olmsted, OH 44070
phone: 866-900-SALT (7258)

www.cargilldeicing.com

ABSS-1101 5/10/2011

You Can Buy A Cheaper Brine Maker. But Will It Cost You Less?

The AccuBrine® automated brine maker was designed to lower your overall brine costs, not just your equipment purchase.

Not All Brine Makers Were Created Equal. See For Yourself.

Brine Maker Feature Comparison Sheet

System Capabilities	Description	AccuBrine® automated brine maker				Other	Other	Other
		Base	RTF	ABS	ABS2			
Production								
Brine	Variable up to 5,000 gallons/hr max	●	●	●	●			
Clean Out								
System mode	Rinses salt tank with operator oversight	●	●	●	●			
Salt tank entry	Operator entry not required	●	●	●	●			

System Controls	Description	AccuBrine® automated brine maker				Other	Other	Other
		Base	RTF	ABS	ABS2			
Production								
Brine solution	Produced automatically at the touch of a button	●	●	●	●			
Salinity								
Measurement	Automatic temperature compensation	●	●	●	●			
Accuracy	Accurate to 0.1%	●	●	●	●			
Diagnostics								
Warning beacon	Alerts to low salt levels and system faults.	●	●	●	●			
Self monitoring	Monitors operation and notifies of system faults.	●	●	●	●			
Fault diagnosis	Recommends corrective action	●	●	●	●			
Recirculation								
Product quality	Recirculates finished product			●	●			
Tank farm	Recirculate and monitor product levels in multiple storage tanks			●	●			
Remote Fill								
Remotely load trucks	System can load trucks from remote location controlled by driver.		●	●	●			
Customized Brine Solution								
One additive	Automatic blending of one ingredient			●	●			
Two additive	Automatic blending of two ingredients				●			
Micro ingredient	Automatically blend dye, anti-foam agent, etc.			●	●			
Security								
Password protected	Multiple modes of access to prevent unauthorized access to features	●	●	●	●			

www.accubrine.com

Data Tracking and Control	Description	AccuBrine® automated brine maker				Other	Other	Other
		Base	RTF	ABS	ABS2			
Material usage - by day and season								
Salt	Tracks pounds of salt used	●	●	●	●			
Water	Tracks gallons of water used	●	●	●	●			
Production rates and amounts								
Brine	Volumes produced	●	●	●	●			
RFID load out system								
Load out control	Manages volumes and product types		●	●	●			
Data logging	Tracks usage by truck		●	●	●			

Construction Materials	Description	AccuBrine® automated brine maker				Other	Other	Other
		Base	RTF	ABS	ABS2			
Salt Tank								
Marine grade fiberglass	Resists salt induced corrosion and can be placed outside.	●	●	●	●			
Tank liner	Protects from abrasion and wear	●	●	●	●			
Control Panel								
Stainless steel	Rugged, durable, and long lasting	●	●	●	●			
HMI/PLC	Color touch screen for ease of use	●	●	●	●			
Other								
Pumps	Stainless steel for longer life	●	●	●	●			
Hardware	Stainless steel for longer life	●	●	●	●			
Valves	Over amp protection, self verify open/closed position	●	●	●	●			
Fittings	Fiberglass/polyethylene composite	●	●	●	●			
Tank volume sensors	Eliminates the use of high maintenance, inaccurate flow meters	●	●	●	●			

Available Options	Description	AccuBrine® automated brine maker				Other	Other	Other
		Base	RTF	ABS	ABS2			
Water Recycle								
Recycle it	Use waste or altemative water for brine production	*Available as an option on all models*						
High Volume Pump Kit								
300 gallon per hour	Load high capacity trucks faster	*Available as an option on all models*						

ACCUBRINE®

AUTOMATED BRINE MAKER

Brine Production Made Simple

Manufactured by:
Cargill Deicing Technology
24950 Country Club Blvd., Ste 450
North Olmsted, OH 44070
866-900-SALT(7258)
www.accubrine.com

Cargill®

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