

# Brine Maker Maintenance Instructions

## Initial Hopper Charge Procedure

1. Make sure that Hopper is all the way down on the frame
2. Make sure hopper hoses are connected (Recirc, and Transfer)
3. Make sure the recirc valve is open
4. Set the transfer valve to production position
5. Make sure water shutoff valve is open
6. set brine maker controls (hydraulic motor, transfer, recirc, and tap water) to auto
7. once the water level is above 18" in the hopper add salt
  - a. enough salt should be added so it mounds 2-3" above the tap water fill level (approximately at the wing nuts)
8. Once tap water reaches the fill level, tap water valve will turn off
9. When salinity light turns off check salinity at the test port (on the water tap valve assembly) to ensure proper salinity levels.

**The hopper must be cleaned regularly to remove undissolved debris regularly (approx. 100-200yds of salt used) during brine making operations.**

## Measuring un-dissolved debris in the hopper:

1. When the Brine maker calls for salt (the red light is on)
2. Probe the bottom of the hopper with a broomstick or similar item
3. If there is more than 18 inches of debris in the bottom of the hopper a clean out is needed

## Production Cleanout Procedure:

1. Move transfer valve from production to the pump down position
2. Turn on hydraulic pump (manual)
3. Turn on Transfer pump (manual)
4. Pump as much brine out of the hopper as possible
  - a. The Brine will still be relatively saturated since the brine being produced for much of the production cycle is at 90%+ concentration, and the "Low Salinity" limit is set to roughly 86% concentration. This means that brine in the storage tanks should not drop below desired levels at any point due to pump down operations.  
**NOTE: It is a good idea to check salinity often during operations, and just prior to pump down to make sure that proper concentration is maintained.**
5. Pump down is complete when the transfer pump suction port is above the brine level in the hopper (you can hear the transfer pump sucking air).  
**NOTE: If there is a large amount of debris in the bottom of the hopper the baffle plate slots may be covered. If this happens the transfer pump may offload brine faster than the pump down well can refill. If this happens the transfer pump may need to be cycled off and on several times to get all the brine out of the hopper.**
6. Turn off the transfer pump and hydraulic pump.
7. Open baffle cover and rinse floats and baffle area
8. Secure baffle cover back into place
9. Once the hopper is pumped down:
  - a. Close the recirculation valve.

- b. Move the transfer valve to the Production position
  - c. Disconnect the hoses from the recirc. And transfer ports
10. The hopper can now be dumped
- a. Hopper should be cleaned immediately as the debris can form a solid cake that is very difficult to remove if left to dry

**CAUTION! Check that all personnel are clear of the hopper, and that the hoses are disconnected before operating the hopper dump!**

11. Position front loader bucket in front of and below hopper spout.
12. Run hopper up to dump debris
13. Once hopper is in the fully up position, and the bulk of the debris is removed the open the water tap valve (manual) to rinse the remaining debris.
14. Check that the spray bars are undamaged, and flowing tap water properly
15. Spray out remaining debris with a hose or similar
16. Once the hopper is clean, lower it back into place

**CAUTION! Check that all personnel are clear of the hopper before operating hopper down!**

17. Reconnect hoses
18. Open the Recirc. Valve
19. Make sure the transfer valve is in the production position.
20. Charge hopper according to the **Initial Hopper Charge Procedure Above**

### **Spring Cleanout:**

1. Follow **Production Cleanout Procedure** above
2. Once the hopper is clean and back in position
  - a. Fill hopper until Recirc level is reached (approximately half way to the tap water fill level)
  - b. Run the Recirc pump for several minutes to clear out brine and debris from Recirc/Tap Water assembly & hoses
  - c. Disconnect transfer hose
  - d. Turn on transfer to empty wash water through transfer pump
  - e. Reconnect transfer hose
  - f. Remove hoses from Truck Fill Pump
  - g. Rinse thoroughly with a hose or similar (several minutes) to ensure that all salt brine/debris is removed from pump

**Note: pumps can be treated with an anticorrosive such as RV or 50/50 Antifreeze once the brine has been thoroughly rinsed out**