

CSI has developed a procedure to upgrade a single-wall (SW) sump in the field to a double-wall (DW) sump by installing a new interior sump wall. The wall is designed to allow the field installation of the necessary piping penetrations to provide access to the sump interior. The procedure is then completed by the installation of a DW sump top with gasket and watertight lid.

All of the sump components in the field are constructed with materials that have passed UL compatibility testing and are identical to the parts manufactured in the plants for our UL listed single-wall and double-wall tank sumps. These parts are then partitioned and remanufactured within the existing sump.

This service must be performed by CSI technicians in order to retain the active CSI tank sump warranty.

PROCEDURES

1. All layups are at least 5 plies of 1.5oz/ft² glass mat with resin providing a thickness that meets or exceeds the CSI specification thickness for a UL listed double-wall inner sump wall.
2. The top section of the existing SW sump is removed.
3. As a precaution, the SW collar is laminated internally to the tank top. In addition, the internal adhesive joint on the SW collar is laminated and sealed.
4. Inner wall collar
 - 4.1. A new collar is cut to fit at the bottom of the sump onto the tank top.



Collar cut to fit the curvature of the tank top

- 4.2. A drain fitting is laminated into the collar to provide access to drain the annular space if required.



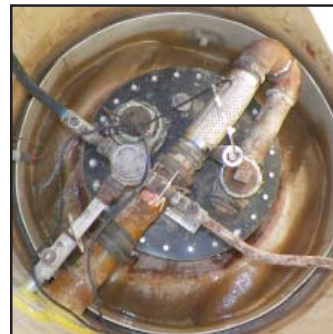
Drain fitting for annular space

- 4.3. The collar is cut in multiple pieces and placed into the SW sump.



New collar inside sump

- 4.4. The collar is laminated to the tank top and the collar vertical seams are laminated together.



Laminated collar and vertical seam(s)

- 4.5. The top of the collar extends above the existing SW interior adhesive joint.

- 4.6. Reticulated foam is inserted in the gap between the original collar and the new inner wall collar

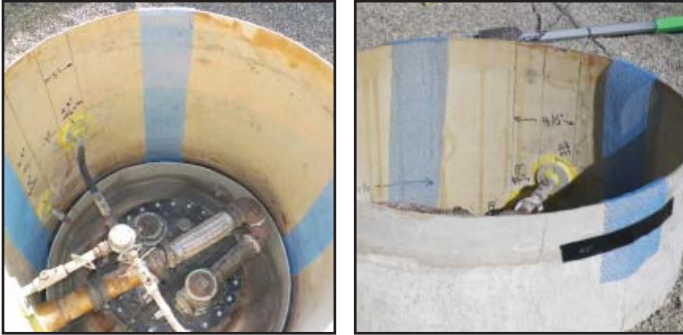
5. New inner sump wall

- 5.1. Pipe that will form the new sump inner wall is vertically slit and doghouse cutouts are made where current fittings are installed in the existing SW sump.



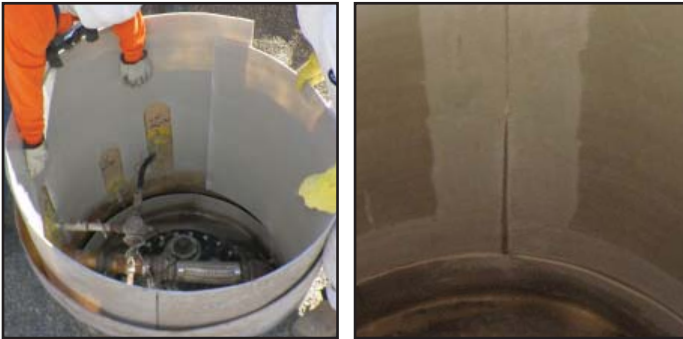
New inner wall includes doghouse cuts for existing piping

5.2. Separator material is placed vertically inside the SW sump wall at 90° intervals. The material is positioned within 6" of the new collar and overlapping the sump top. The overlapping excess is taped to the exterior of the sump.



Separator material between inner and outer walls

5.3. The new inner wall is placed into the sump resting on the existing adhesive joint and expanded into position fitting snugly against the separator strips on the existing SW sump.



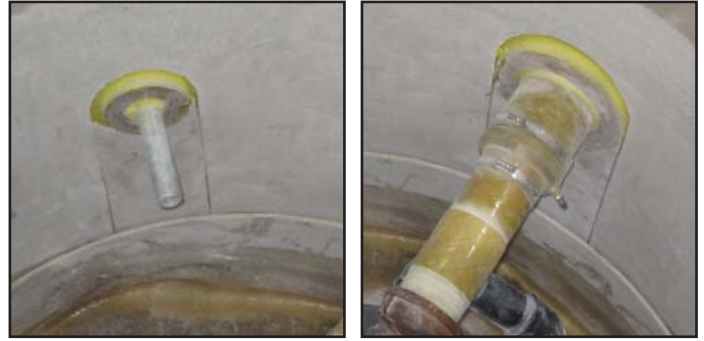
New inner wall inserted and resting on adhesive joint.

5.4. Separator is placed behind the doghouse cutout openings.



Separator material behind doghouse cut piping inserts

5.5. The doghouse cutout is fitted and placed under the existing penetration, fitting snugly against the separator strips on the existing SW sump.



Cutout placed against separator material under penetration

5.6. The inner wall is laminated to the new inner collar.

5.7. The inner wall vertical seam is laminated together and layups are applied over the doghouse cutouts to complete the new inner wall. These layups cover the slits, extend onto the new inner wall and the new inner wall collar, and extend to the adhesive that seals the existing penetration fitting to the sump outer wall.



Layups applied to vertical seam and doghouse cutouts

5.8. The top of the new inner wall extends 2" above the top of the existing sump wall.

6. New double-wall sump top

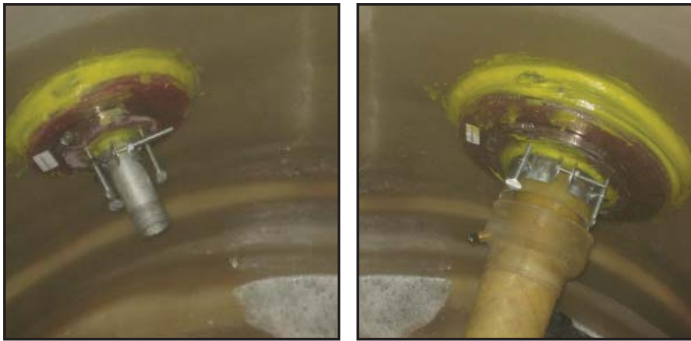
- 6.1. A DW top is installed at the top of the sump walls
- 6.2. An interior layup is applied attaching the DW top inner wall to the new sump inner wall.
- 6.3. An exterior layup is applied attaching the DW top exterior wall to the existing sump outer wall.
- 6.4. The top includes a neck complete with gasket groove, gasket, and an integral monitoring fluid reservoir.



New double-wall sump top includes monitoring fluid reservoir

7. The piping penetrations are modified to provide double-wall up to the pipe penetration. This procedure is not performed by CSI Field Service technicians.

The following image is an example of a new flange added to an original fitting. The new flange is sealed to the new sump inner wall around the flange and sealed to the pipe penetrating into the sump. This provides a final penetration that is double walled all the way to the pipe that penetrates the sump walls.



Double-wall piping is sealed to the new inner wall of the sump

8. The annular space of the completed DW sump is pressure tested and soaped for leaks.

9. The system is then set up for monitoring.

- 9.1. Using CSI's MFFK Kit (Monitoring Fluid Fill Kit):

- 9.1.1. Air is evacuated from the annular space.
 9.1.2. The annular space is filled with monitoring fluid. Either 30% calcium chloride brine solution or propylene glycol is suitable for monitoring fluid.



Brine filling sump with MFFK Kit

- 9.2. Liquid level sensor is installed in the reservoir.
 9.3. Alternatively, the annular space can be monitored with a third party vacuum monitoring system. This procedure is not performed by CSI Field Service technicians.

10. A new watertight sump lid is installed onto the sump neck.



New watertight fill/vapor lid for sump

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