



SECTION K

TANK 2B INSPECTION REPORT

CSA 64 RECOATING TANKS 2A AND 2B PROJECT

FOR

**COUNTY SERVICE AREA 64
HESPERIA, CALIFORNIA**

PROJECT NO.: 30.30.0115



21670 E Geddes Place
Centennial, CO 80016
Office Phone: 800-637-1322
Office Fax: 303-309-0097

Inspection Report for San Bernardino County

06/28/2019

75' Diameter x 32' High Steel Welded On-Grade

CSA 64 1MG 2B Tank

Diver: Paul Madden

Tender: Chris Storey

Stand-by: Ian Stephens

NOT FOR BID



Utility: San Bernardino County

Date: June 28th, 2019

Attn: Chris Bishop

Inspection Details

This is an inspection report completed on June 28th, 2019 for San Bernardino County by Marine Diving Solutions, LLC. Marine Diving Solutions employs commercial divers to provide thorough exterior and interior inspections. We do not employ engineering consultants. This report was produced from the divers' visual inspection findings and our HD quality videos.

Diving Procedures

All of Marine Diving Solution's divers have graduated from accredited dive programs and have undergone further company training on water tank and reservoir operations. All work is completed per OSHA, AWWA and ANSI standards.

MDS's potable dive equipment is dedicated to only diving in potable water as to not cause any cross contamination. Our divers are sealed in a dry suit and dive helmet to ensure no part of their body comes in contact with the water. They are then disinfected with a 200ppm chlorine solution to meet AWWA and state standards. The diver is then free to go into the confined space inside the water storage tanks. Underwater, the diver can do a more detailed inspection or clean the loose sediment from the floor of the tank. All diving operations are conducted to meet all AWWA, OSHA and Navy Diving standards. MDS's dive crew uses a 3" trash pump with a vacuum attachment to remove the sediment at a rate of 200-300gpm. The dive crew is able to perform all of the cleaning and inspections while the tank is left online and without disturbing any of the distribution. MDS's dive crew is trained in all aspects in a wide variety of tanks and are also capable of doing in water repairs that are within AWWA, OSHA and NSF standards.

EXTERIOR

Wall Panels

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: Less than 2%.

Uniform Surface Corrosion: Yes No

Percent of USC: 2%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Dents Present: Yes No

Summary: The wall panels have good coating conditions overall. De-lamination and surface corrosion noted.

NOT FOR BID

EXTERIOR

Ladder

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: Less than 1%.

Uniform Surface Corrosion: Yes No

Percent of USC: N/A.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Safety Climb Present: Yes No

Type of safety climb and deficiencies noted: Safety cage. None.

Support Condition: Good.

Summary: The exterior ladder has good coating conditions overall. Minor de-lamination occurring. The ladder has a safety cage. The ladder rung diameter is $\frac{3}{4}$ ". The ladder width is 16.75" and the distance between the ladder and tank is 8.75". The ladder complies with OSHA code.

EXTERIOR

Manway (s)

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: Less than 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Bolts missing: Yes No

Leakage Present: Yes No

Summary: The manways have good coating conditions overall. Minor surface corrosion noted.

NOT FOR BID

EXTERIOR

Foundation

Foundation Present: Yes No

Concrete Foundation: Yes No

Cracking Present: Yes No

Type of Cracking: N/A.

Spalling Present: Yes No

Depth of Spalling: N/A.

Anchor Bolts Exposed: Yes No

Undermining of Foundation Present: Yes No

Summary: The foundation consists of a metal foundation ring with gravel fill.

NOT FOR BID

EXTERIOR

Overflow

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: Less than 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

End Cap Present: Yes No- Unknown.

Fine Mesh Screen Present: Yes No- Unknown.

Support Condition: Good.

Summary: The overflow has good coating conditions overall. Minor surface corrosion present.

EXTERIOR

Roof Panels

Coating Conditions Overall: Fair.

De-lamination of the coating: Yes No

Percent of De-lamination: 20%.

Uniform Surface Corrosion: Yes No

Percent of USC: 3-5%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Cathodic protection plates present: Yes No

Cathodic protection plates missing: Yes No

Low Spots Present: Yes No

Summary: The roof panels have fair coating conditions overall. Heavy de-lamination noted. Surface corrosion occurring.

EXTERIOR

Hatch

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: Less than 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Hatch Found Locked: Yes No

Gasket Present: Yes No

Gasket Condition: N/A.

Size of Hatch: 36" x 36".

Summary: The hatch has good coating conditions overall. Minor surface corrosion noted. Recommend installing a gasket to prevent bugs/insects from entering the tank.

EXTERIOR

Vent

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: Less than 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Fine Mesh Screen Present: Yes No

Vent Cap Condition: Good.

Size of Vent: 9.5' circumference.

Frost Proof Vent: Yes No

Summary: The vent has good coating conditions overall. Minor surface corrosion noted. A fine mesh screen is present and intact.

INTERIOR

Ladder

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Blistering Present: Yes No

Percent of Blistering: 1-2%.

Safety Climb Present: Yes No

Type of safety climb and deficiencies noted: Notched rail. None.

Support Condition: Good.

Summary: The ladder has good coating conditions overall. Minor surface corrosion and blistering noted.



INTERIOR

Wall Panels

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: 1%.

Uniform Surface Corrosion: Yes No

Percent of USC: 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Blistering Present: Yes No

Percent of Blistering: N/A.

Summary: The wall panels have good coating conditions overall. Minor sediment staining occurring. Minor surface corrosion and de-lamination noted.



INTERIOR

Floor Panels

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Blistering Present: Yes No

Percent of Blistering: N/A.

Abnormal Sediment: Yes No

Summary: The floor panels have good coating conditions overall. Minor surface corrosion noted.



INTERIOR

Manway (s)

Position of Manway(s): 5:00 and 11:00.

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: 1%.

Blistering Present: Yes No

Percent of Blistering: N/A.

Summary: The manways have good coating conditions overall. Minor surface corrosion and calcium deposits present.



INTERIOR

Roof Panels

Coating Conditions Overall: Poor.

De-lamination of the coating: Yes No

Percent of De-lamination: 5-10%.

Uniform Surface Corrosion: Yes No

Percent of USC: 10%.

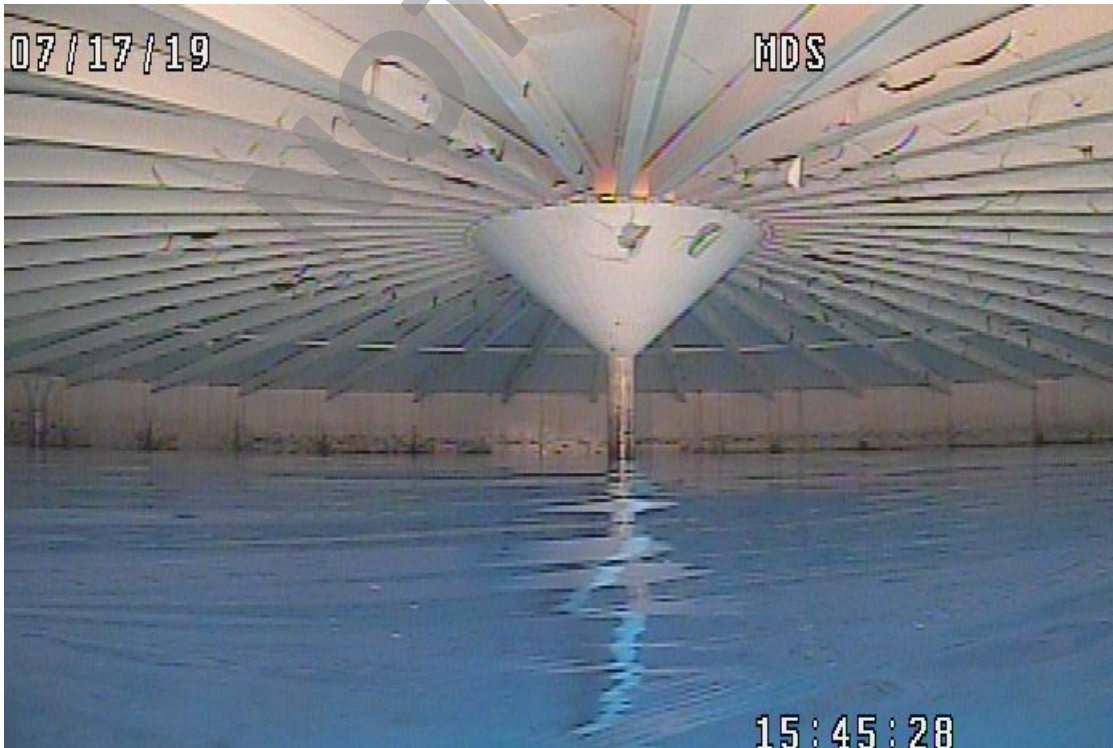
De-alloying present: Yes No

Percent of De-alloying: N/A.

Seam Condition: Good.

Daylighting Visible: Yes No

Summary: The roof panels have poor coating conditions overall. De-lamination occurring on the support beams. Heavy surface corrosion noted. Some condensation occurring around the 8:00 position.



INTERIOR

Support Column

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: 3%.

Uniform Surface Corrosion: Yes No

Percent of USC: N/A.

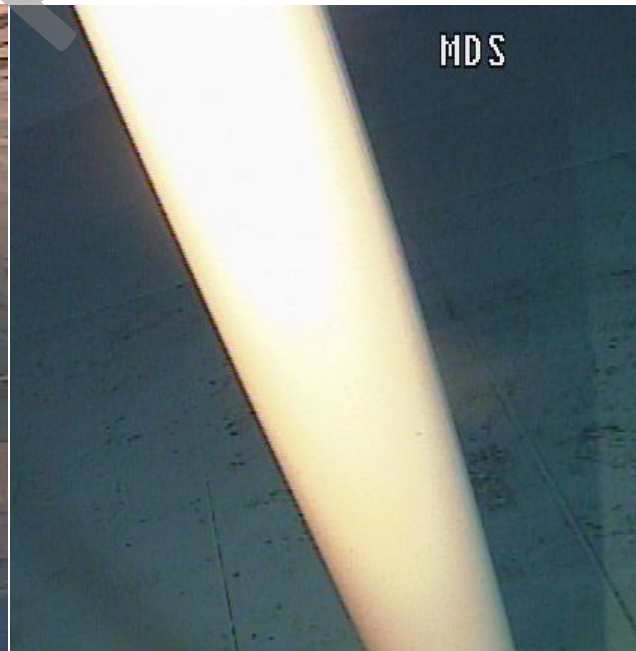
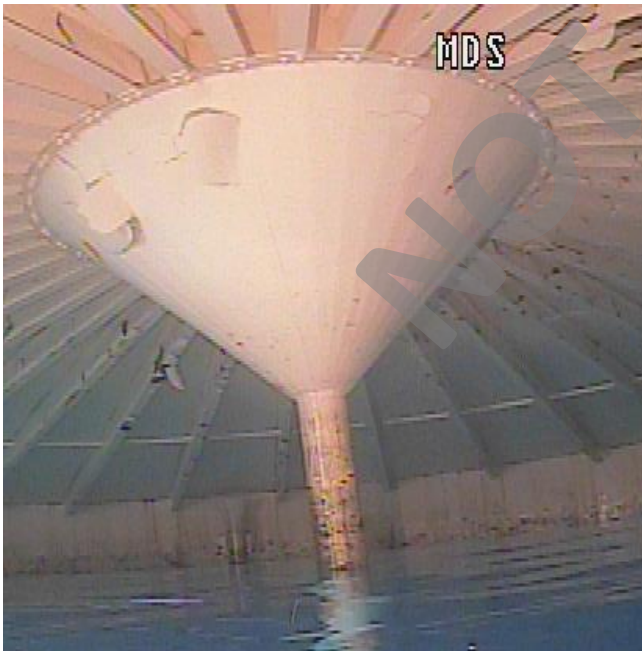
De-alloying present: Yes No

Percent of De-alloying: N/A.

Blistering Present: Yes No

Percent of Blistering: N/A.

Summary: The support column has good coating conditions overall. De-lamination occurring. Minor sediment staining present.



INTERIOR

Inlet/Outlet

Position of Inlet/Outlet: 10:00.

Coating Condition Overall: Good.

Common Inlet/Outlet: Yes No

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

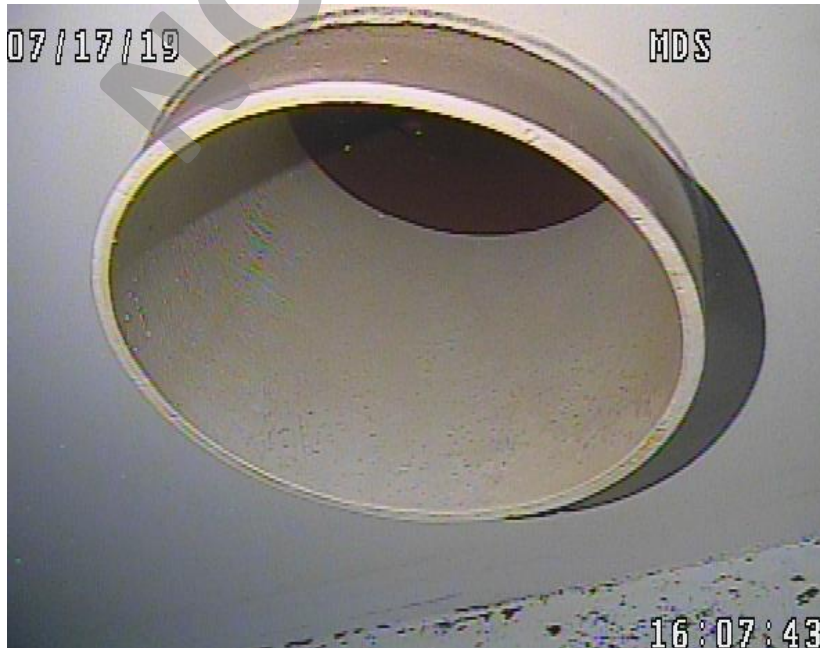
Uniform Surface Corrosion: Yes No

Percent of USC: N/A.

Blistering Present: Yes No

Percent of Blistering: N/A.

Summary: The inlet/outlet has good coating conditions overall. No major discrepancies noted.



INTERIOR

Drain

Position of Drain: 5:00.

Coating Condition Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: N/A.

Uniform Surface Corrosion: Yes No

Percent of USC: N/A.

Blistering Present: Yes No

Percent of Blistering: N/A.

Summary: The drain has good coating conditions overall. No major discrepancies noted.



INTERIOR

Overflow

Position on Overflow: 4:00.

Coating Conditions Overall: Good.

De-lamination of the coating: Yes No

Percent of De-lamination: 1%.

Uniform Surface Corrosion: Yes No

Percent of USC: 1%.

De-alloying present: Yes No

Percent of De-alloying: N/A.

Blistering Present: Yes No

Percent of Blistering: N/A.

Standoff support condition: Good.

Summary: The overflow has good coating conditions overall. Minor mineral deposits forming. Heavy sediment staining occurring. Minor de-lamination and surface corrosion of the coating noted.



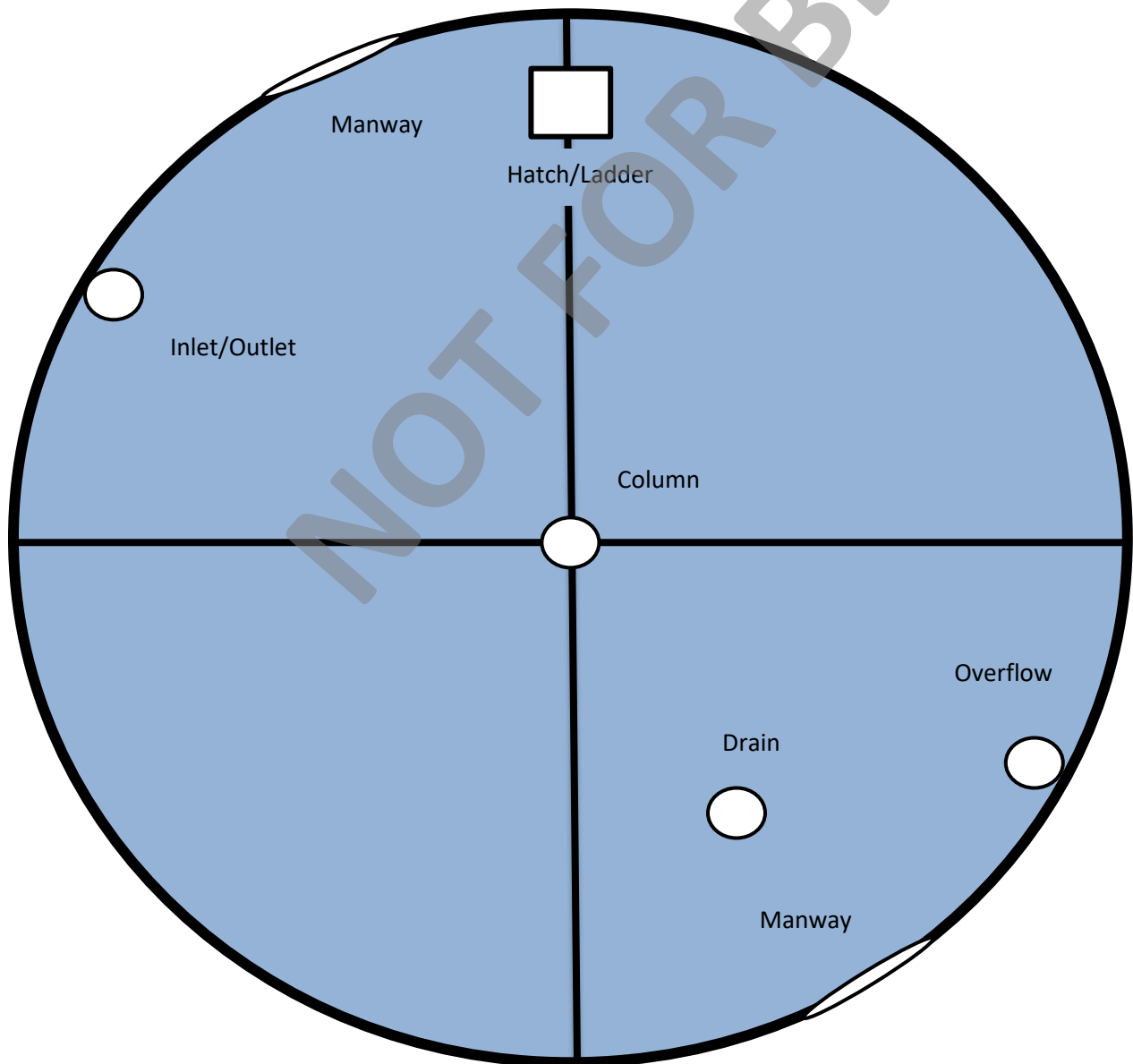


Round Tank

San Bernardino, CA

75' Diameter x 32' High

Steel Welded On-grade- 1MG CSA 64 2B Tank





Post Inspection Recommendations

Tank Description

Tank Type:

Steel Welded On-grade

Dimensions:

75' Diameter x 32' High

Volume (g):

1MG CSA 64 Tank 2B

Type of discrepancies noted

De-lamination

U.S.C.

Blistering

Pitting

De-alloying

C.C.C.

Corrosion Nodules

Abnormal Sediment

Summary

-The exterior roof has moderate de-lamination of the coating.

-Recommend installing a gasket to the hatch to prevent bugs/insects from entering tank.

-The interior roof has surface corrosion and de-lamination on the support beams.

-Recommend cleaning and inspecting every 3-5 years.

Contact our office at 1-800-637-1322 for repair quotes.