Utility Service Co.
INCORPORATED
535 Courtney Hodges Blvd
Perry, GA 31069
(478) 988-5200
Fax (478) 987-2991

30,000

~~125,000~~ Gallon Elevated Tank Elevated Water Storage Tank Inspection Report

Lassen County Water District, CA

Prepared For:
Stephen Jackson
General Manager

Prepared By:
Kevin Barnes
Water Systems Consultant
8/10/2011

General Information

Introduction

On May 17, 2011 Utility Service Co., Inc. conducted a visual inspection of the ~~125,000~~ 30,000 gallon elevated water storage tank. The purpose of the inspection was to determine the condition of the **coatings** and **structure**, and evaluate the tank for compliance with current **sanitation** guidelines, **safety** & **security** regulations and guidelines in accordance with AWWA, OSHA, California Department of Health, US EPA, US Dept of Homeland Security and related state and federal agencies.

The information gained from this inspection will be used to compile recommendations for maintenance and to offer a contractual agreement to provide this service. In this report, you will find a description of the current condition of this tank along with photographs to support the recommendations.

Tank Details

CAPACITY:	~~125,000~~ 30,000 Gallons	**DESIGN:**	Elevated
INSPECTION DATE:	May 17, 2011	**INSPECTOR:**	Kevin Barnes
CONSTRUCTION STYLE:	Welded Steel	**CONSTRUCTION DATE:**	1939
BUILDER:	Unknown	**HEIGHT/ DIMENSION:**	8" Diameter Riser 65' LWL
EXTERIOR COATING:	Metallic	**EXTERIOR LEAD/ CHROMIUM PRESENCE:**	Test/ Positive
INTERIOR COATING:	Epoxy Ester	**INTERIOR LEAD/CHROMIUM PRESENCE:**	Test / Positive
INTERIOR DRY	Epoxy Ester	**INTERIOR LEAD/CHROMIUM PRESENCE:**	Test / Positive

Estimated Replacement Value

The replacement cost of this tank is estimated at $387,000.

Exterior Coatings Conditions

Riser, Legs and Structural Members

The exterior coating system is failing overall, but has good adhesion. The exterior coating system was last renovated in 70's and flaking and blistering defects with average thickness of 8.2 mils.

Tank Bowl

The coating system on the tank bowl is in fair condition. The exterior coating system on the tank bowl exhibits slight chalking, mild blistering and areas of heavy mildew.

Tank Sidewalls, Roof and Catwalk

The exterior coating system on the tank sidewalls and roof is in poor condition and appearance. The exterior coating system exhibits flaking, thinning to the primer coat and large areas of graffiti.

Recommendations

- **The exterior coating system should be properly prepared and over-coated in year 1 (2011).**

Interior Coatings Conditions

Roof and Area Above High Water Level

The interior epoxy coating system on the roof plates and the area above the high water level is in good fair condition with some early corrosion visible at the area of the sidewall and roof connection.

Sidewalls

The interior epoxy coating system on the tank sidewalls is in fair condition with some large areas of flash rusting above the high water level.

Bowl

The interior epoxy coating system on the tank bowl could not be examined in this visual inspection.

Wet Riser

The interior epoxy coating system on the tank riser could not be examined during this visual inspection.

Recommendations

- **The interior epoxy coating system should be removed by blasting to a SP#10 near white and a new two-coat epoxy applied in year one (2011).**

Safety/Sanitation/Structural/Security Conditions

Safety

Ladders

The access ladders have no cable climb safety devices but are in fair condition. There is no lockable door to prevent access to the ladder.

Balcony, Balcony Railing

The balcony and balcony railing comply with current OSHA guidelines. The coating system on the balcony and balcony railing is in good condition.

Riser Protective Railing

It was not possible to inspect the riser railing system on this tank.

Aviation Warning Lights

There are no aviation warning lights on this tower.

Riser Access Hatch

There is no riser access hatch.

Secondary Access Hatch

The secondary roof hatch is 24" in diameter.

SANITATION

Roof Hatch

The 24" diameter roof hatches meets current OSHA requirement standards. The roof hatch is required to be a minimum of 24 inch diameter and be framed 4" to 6" above the surface of the roof at the opening and that it should be fitted with a solid watertight cover which overlaps the framed opening and extends down around the frame a minimum of two inches to prevent contaminated rainwater from entering the tank.

Roof Vent

Guidelines require that a tank have a vent, which is both freeze-proof and insect-proof, on the top of the tank to prevent contamination from birds, bats and insects. These guidelines also suggest the screen be protected from direct contact with the elements. The roof vent does not comply with current guidelines.

Overflow

The overflow pipe does not meet current guidelines which require the overflows on elevated tanks; standpipes discharge at an elevation no higher than 12 to 24 inches above ground and discharge over a drainage inlet structure or splash plate.

STRUCTURAL

Foundations

The concrete foundations should be coated to prevent freeze-thaw damage. The foundations and grouting appear to be in good condition.

Wind Rods

The wind rods are all in good condition.

Anchor Chains and Bolts

The anchor bolts appear to be tight and in good condition.

SECURITY

Site

The site is open and at the corner of two roads in the middle of town. The area is populated enough that during nightfall tampering could be detected. Current US Dept. of Homeland security guidelines and MN Dept of Health guidelines suggest that all water tank sites be fenced and locked and 'Tampering with this facility is a Federal Offence" signs be posted on and around the site. These signs are available from California Rural Water and CA Dept of Health.

Tank

The access to the tank yard was unlocked and there is no ladder gate. The roof access hatch was also not locked.

SUMMARY AND RECOMMENDATIONS

SUMMARY

Overall this water storage tower is in fair condition. The exterior coating system should be over-coated within the next year. The interior epoxy coating systems should be removed and coated with a two coat epoxy also in the next year (2011).

RECOMMENDATIONS

- **Over-coat exterior coating system in year 1 (2011)**
- **SP#10 Blast of the interior with a 2 coat epoxy then applied**
- **Spot repair defects in dry interior above the high water level.**
- **Remove the spider rods.**
- **Install Standard Ladder gate.**
- **Install 6" overflow pipe down to ground level with flap and screen.**
- **Install Flex cable safety climb on access, dome and interior ladders.**
- **Install 12" steel vent.**
- **Secure the dome ladder (remove rolling wheels).**
- **Install shell manway.**
- **Remove and replace interior shell ladder.**

125,000-Gallon Elevated Tank
Lassen County Water District, CA

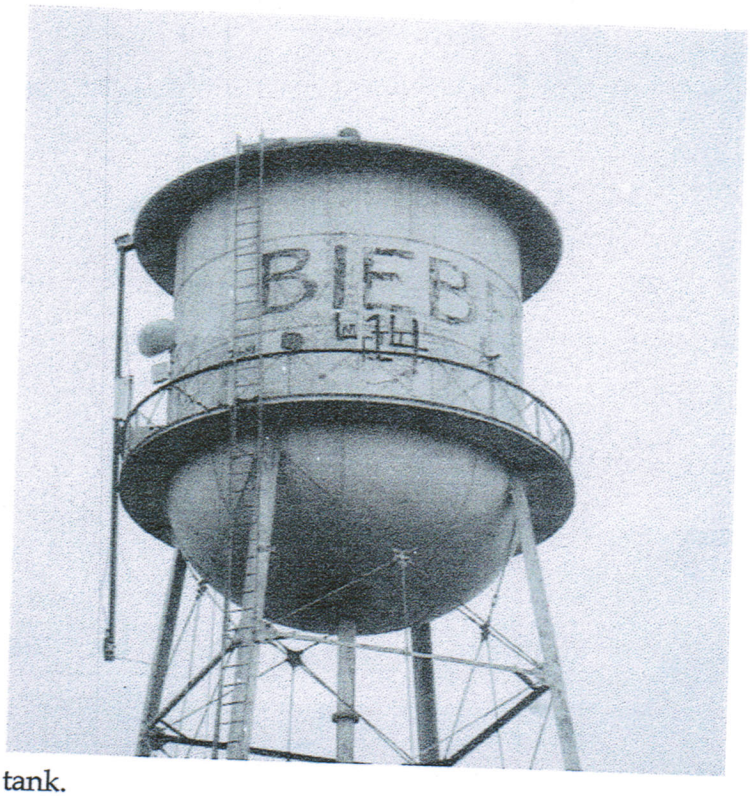

Photo #1 Bieber tank.

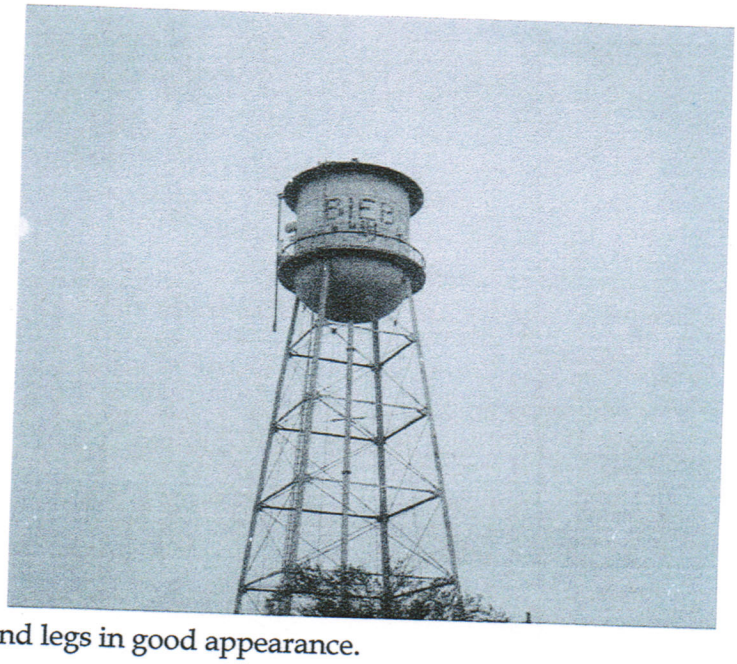

Photo #2 Bowl and legs in good appearance.

Photo #3 Foundation plates and anchor bolts are in good shape.

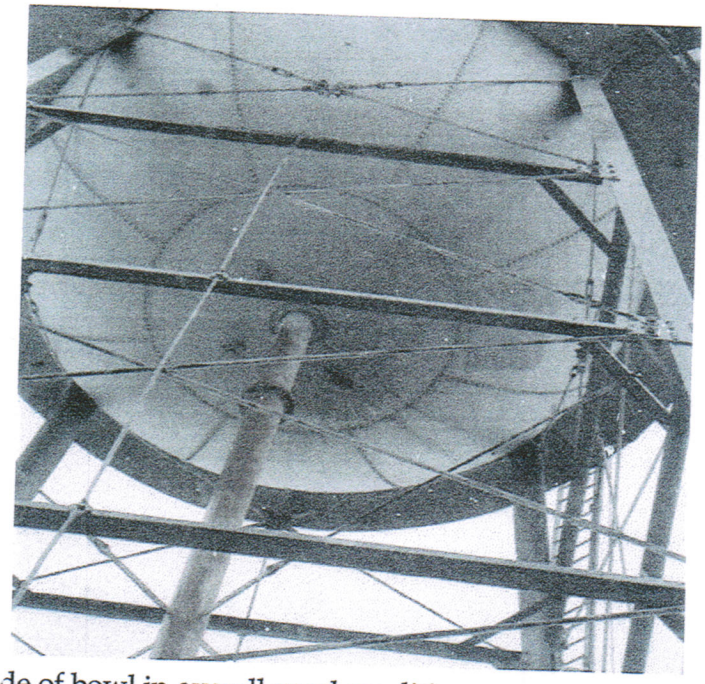

Photo #4 Underside of bowl in overall good condition.

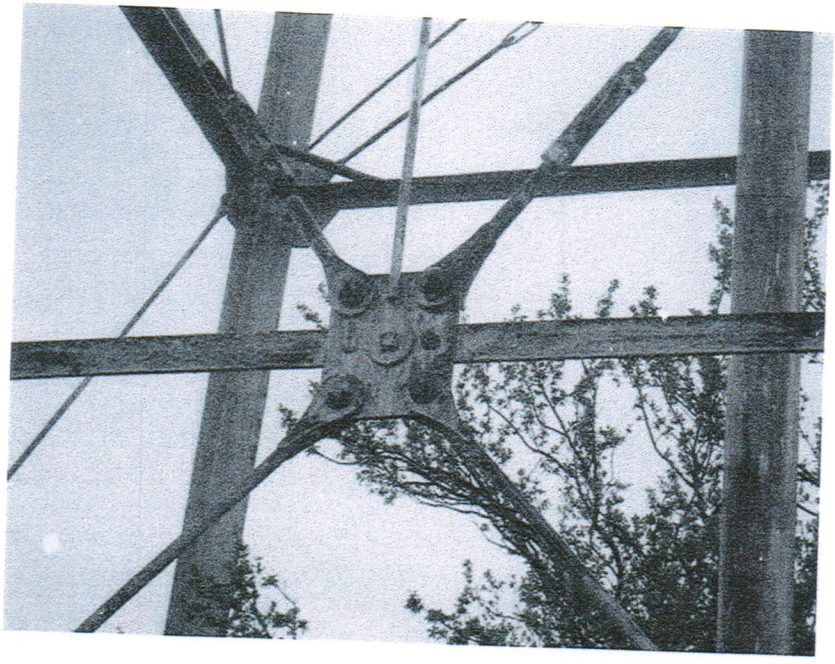

Photo #5

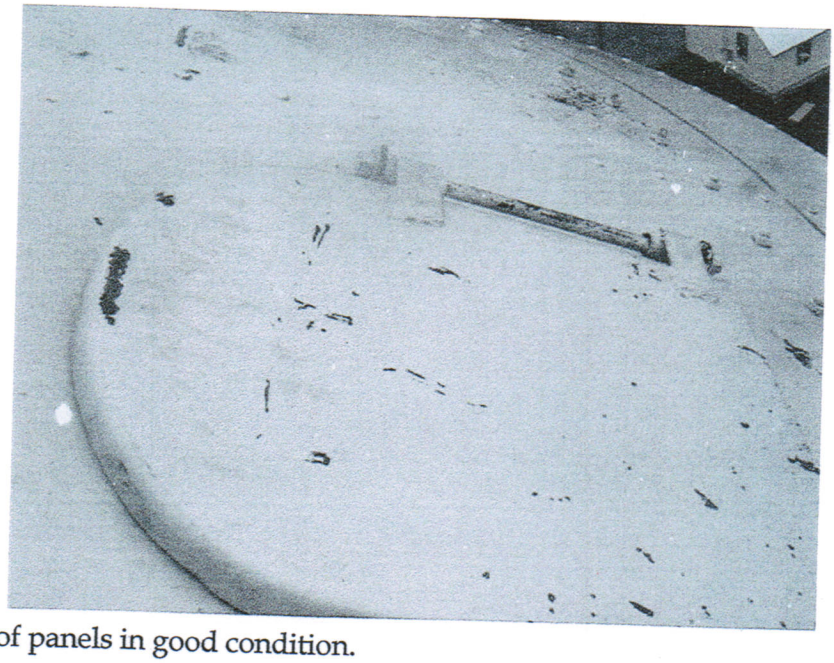

Photo #6 Roof panels in good condition.

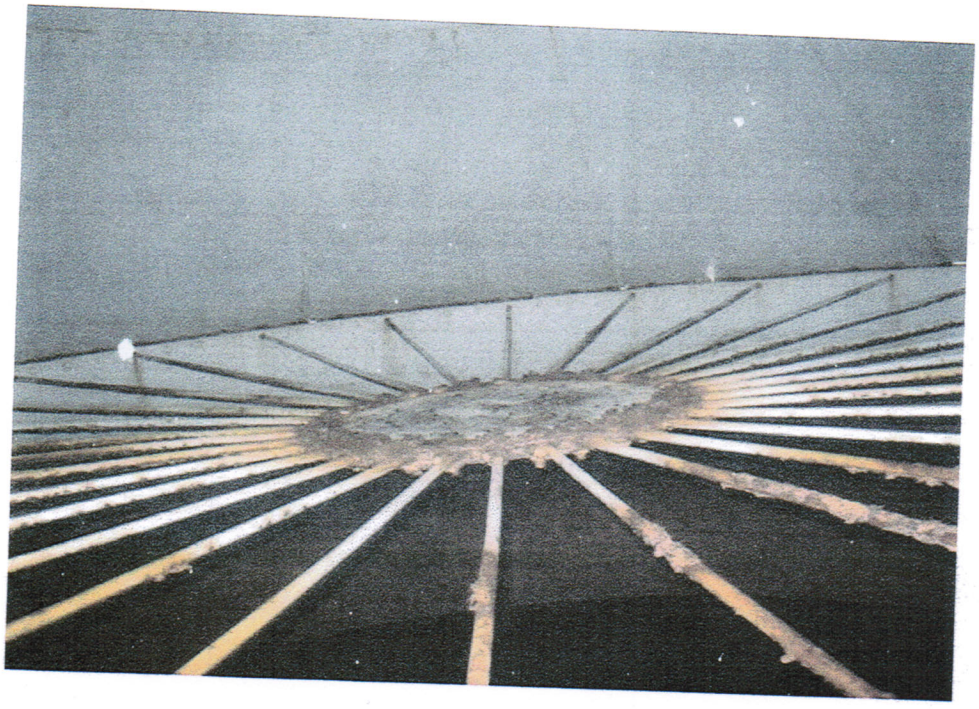

Photo #7 Spider rods that should be removed.

Photo #8 Some corrosion on the interior roof structure.

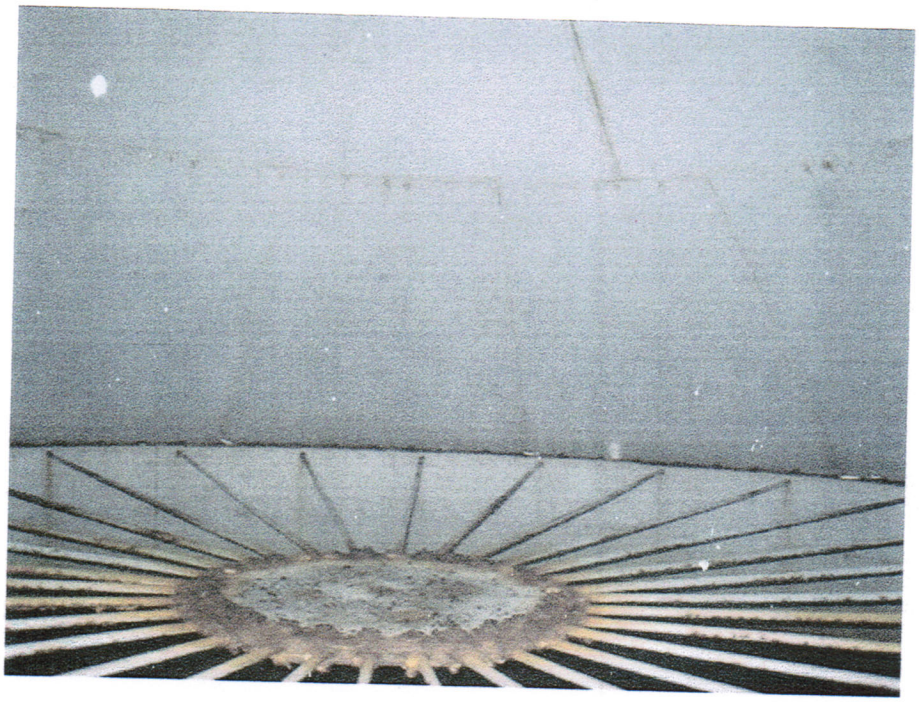

Photo #9 Minor corrosion on edges

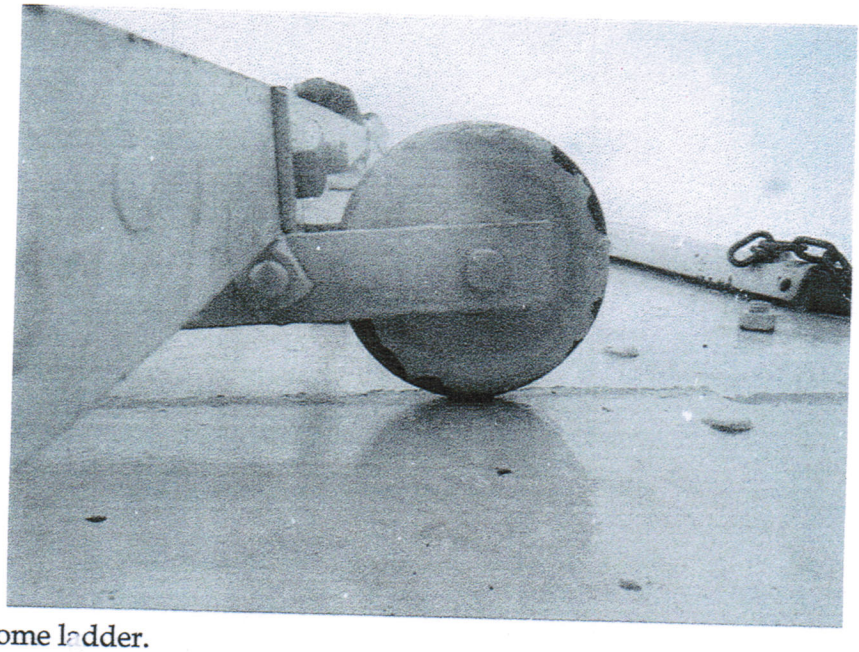

Photo #10 Dome ladder.

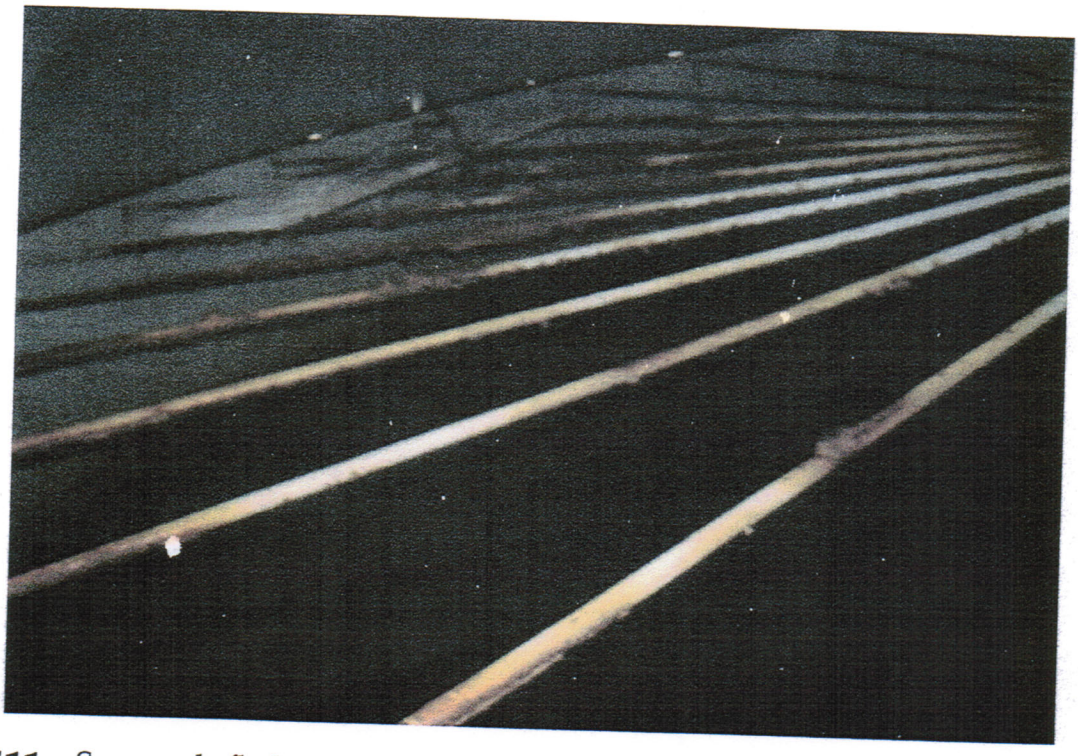

Photo #11 Some early flash rusting on walls above high water level.

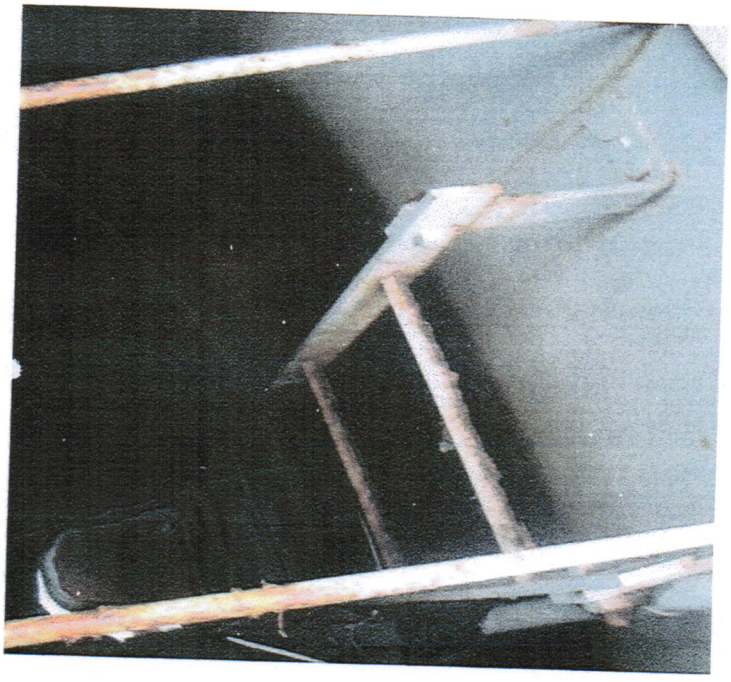

Photo #12

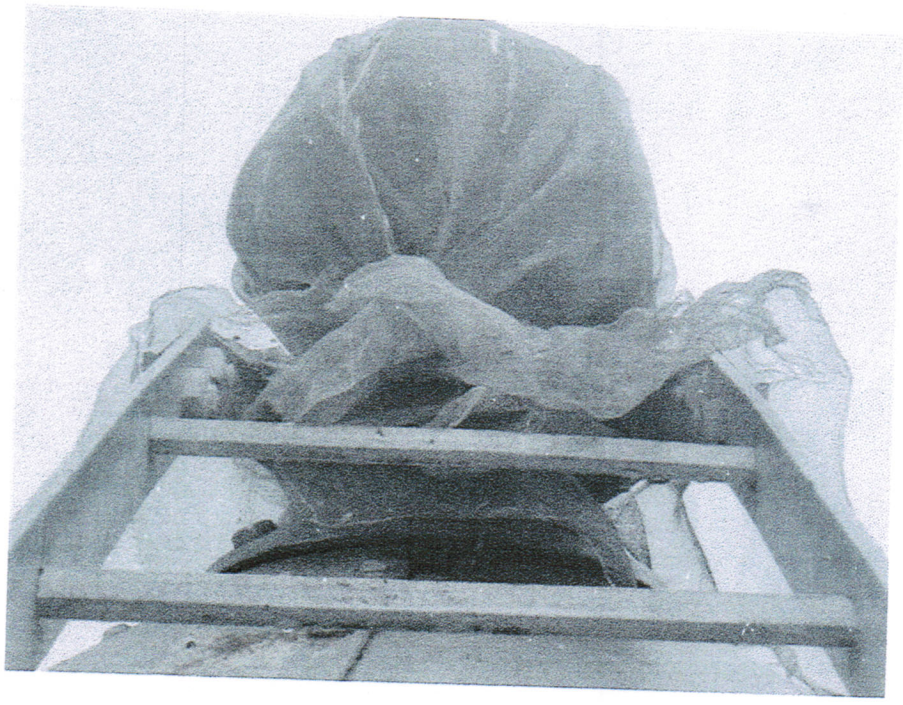

Photo #13

Photo #14

Photo #15

Photo #16

Lassen County Water District, CA
Projected Schedule of Work and Fees
for Full Service Maintenance Program

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Elevated Tank 125,000 Gal	Exterior Renovation, Interior Renovation & Repairs	Visual Inspection & Emergency Service	Washout Inspection & Emergency Service	Visual Inspection & Emergency Service	Washout Inspection & Emergency Service	Visual Inspection & Emergency Service	Washout Inspection & Emergency Service	Visual Inspection & Emergency Service	Washout Inspection & Emergency Service	Visual Inspection & Emergency Service
YEARLY TOTAL	$ 62,001	$ 62,001	$ 62,001	$ 12,786	$ 12,786	$ 12,786	$ 14,192	$ 14,192	$ 14,192	$ 15,753
MONTHLY TOTAL	$ 5,167	$ 5,167	$ 5,167	$ 1,066	$ 1,066	$ 1,066	$ 1,183	$ 1,183	$ 1,183	$ 1,313

- Lifetime Warranty on Coatings and Workmanship (under MP)
- Visual Inspection annually with detailed report
- Washout Inspection included bi-annually with detailed report
- All Tank Maintenance and Repairs included
- Emergency Service included
- Graffiti removal included
- Future Exterior and Interior Renovations included
- Initial Renovation costs spread over 3 years with No Interest