PHOTOGRAPHIC SURVEY

PROJECT: Corrosion and Seismic/Structural/Safety Engineering Evaluation of Two Welded Steel Water Storage Tanks

STRUCTURE: Interior of a 2.5 MG Welded Steel Water Storage Tank (Hawkins South Tank)

OWNER: City of South Gate

LOCATION: South Gate, California

PHOTOGRAPHED BY: Andre Harper, Project Engineer

DATE: February 2022

I-1 View of the roof and structural members, illustrating random minor corrosion along the upper rafter flanges and roof lap joints.
I-2  Same as Photo I-1, except in the inner bay. Note minor corrosion along the roof lap joints.

I-3  View of the center support plate, illustrating minor corrosion at the rafter ends and nuts and bolts securing the rafters to the center support plate.

I-4  View of the rafters just below the edge of the center vent, illustrating random spots of corrosion on the topside of the rafters.
I-5  Same as Photo I-4, except in a different location.

I-6  Same as Photos I-4 and I-5, except in a different location.

I-7  View of a portion of the inner bay, illustrating minor corrosion randomly along the upper rafter flanges and roof lap joints.
I-8  View of a portion of the outer bay, illustrating minor corrosion along the upper and lower rafter flanges.

I-9  Same as Photo I-8, except in a different location.

I-10 View of a girder to column connection, illustrating minor corrosion and staining at the nuts and bolts and along the lower flange of the left girder.
I-11  Same as Photo I-10, except from the opposite side of a connection. Note moderate corrosion along the lower flanges of the girders.

I-12  View of rafter to girder connections, illustrating minor corrosion at the nuts and bolts securing the connections. Note minor to moderate corrosion along the upper and lower girder flanges.

I-13  Same as Photo I-12, except in a different location.
I-14 Close-up view of the roof, illustrating a large area of moderate corrosion on the roof. Note coating patch around a cathodic protection (CP) handhole.

I-15 View of a rafter, illustrating moderate general corrosion along the upper flange and an area of the web.

I-16 View of a tie-rod, illustrating minor to moderate corrosion at the tie-rod ends and along the upper rafter flanges.
I-17  Close-up view of tie-rod ends, illustrating moderate corrosion at the threaded ends.

I-18  View of a CP handhole and adjacent insulator mount, illustrating minor corrosion at the circumference of the handhole and moderate to severe corrosion of the insulator mounting bracket.

I-19  View of the roof to knuckle transition, illustrating minor corrosion at the lap joints and otherwise good condition of the coating system on the roof and knuckle.
I-20 View of the knuckle and adjacent knuckle braces, illustrating minor corrosion at the nuts and bolts securing the connections and otherwise good condition of the coating system.

I-21 Same as Photo I-20, except in a different location.

I-22 Close-up view of a knuckle brace, illustrating moderate corrosion at the nuts and bolts securing the rafter to the knuckle brace and knuckle brace to the shell.
I-23  Same as Photo I-22, except from the opposite side of a knuckle brace.

I-24  View of a knuckle brace to shell connection, illustrating minor corrosion along the edge of the knuckle brace and the nuts and bolts securing the connection.

I-25  Same as Photo I-24, except from the opposite side of a knuckle brace.
I-26 View of the overflow, illustrating staining on the interior funnel and otherwise good condition of the overflow.

I-27 View of the liquid level indicator (LLI) roof penetrations, illustrating staining at the penetrations and otherwise good condition of the coating system.

I-28 View of the LLI float, illustrating generally good condition of the float and guide wires.
I-29  View of the roof hatch, illustrating minor to moderate corrosion along the interior of the hatch curb and along the adjacent upper rafter flange.

I-30  View of the ladder, illustrating generally good condition of the ladder and coating on the adjacent knuckle plates.

I-31  View of the ladder just below the waterline, illustrating light brown staining on the ladder, safety climb rail, stand-off brackets, and adjacent shell.
I-32  Same as Photo I-31, except further down the ladder. Note blistered coating on the stand-off brackets and side rails.

I-33  Same as Photos I-31 and I-32, except further down the ladder.

I-34  Same as Photos I-31 through I-33, except at the bottom of the ladder.
I-35  View of a horizontal weld, illustrating light brown staining and otherwise generally good condition of the coating system.

I-36  View of the lower shell course, illustrating the generally good condition of the coal tar enamel coating system. Note isolated small spot of corrosion in the center of the photo.

I-37  Same as Photo I-36, except in a different location. Note random spots of corrosion.
I-38  View of a manhole, illustrating minor corrosion at the circumference of the cover and random spots on the adjacent shell.

I-39  Same as Photo I-38, except at the other manhole. Note pieces of duct tape hanging along the circumference of the cover.

I-40  View of the overflow pipe and a stand-off bracket, illustrating generally good condition of the coating system on both.
I-41  Same as Photo I-40, except in a different location. Note moderate corrosion where the U-bolt has moved.

I-42  View of the bottom of the overflow pipe, illustrating generally good condition of the coating system on the pipe and bottom plates.

I-43  View of an overflow stand-off bracket at the shell, illustrating cracked coating on the shell and bracket. Note minor corrosion at cracks on the shell.
I-44 View of a sample port shell penetration, illustrating good condition of the coating system in this area.

I-45 Same as Photo I-44, except at a different sample port. Note minor corrosion on the interior of the penetration and spots on the adjacent shell.

I-46 View of the shell to bottom transition, illustrating generally good condition of the coating system.
I-47  Same as Photo I-46, except in a different location.

I-48  View of a column at the coating transition, illustrating blisters with moderate corrosion present.

I-49  View of a column base, illustrating minor corrosion at the edge of the column base retainer clip and otherwise good condition of the coating system.
I-50  Same as Photo I-49, except at a different column base. Note random spots of corrosion on the column and base plate.

I-51  Close-up view of a corner of a column base plate, illustrating random spots of minor corrosion.

I-52  Same as Photo I-51, except at a corner with a retainer clip.
I-53  View of bottom plates, illustrating generally good condition of the coating system. Note light brown sediment collecting against the raised edges of the coating.

I-54  Same as Photo I-53, except in a different location. Note several spots of corrosion in this area.

I-55  Close-up view of the bottom, illustrating an isolated spot of corrosion.
I-56  Same as Photo I-55, except in a different location. Note larger area of corrosion present in this location.

I-57  View of the drain and sump, illustrating corrosion at the upper edge of the drainpipe and random spots in the sump.

I-58  View of the inlet/outlet pipe, illustrating chipped coating and minor corrosion at the upper edge of the pipe.
I-59  View of the bottom at the LLI guide wires and anchor clips, illustrating random spots of corrosion on the bottom plates.

I-60  View of a CP anode, illustrating minor deterioration of the anode.

I-61  View of a CP reference cell, illustrating generally fair condition of the wiring and cell.