



ADDENDUM #1

DIGESTER 5 INTERIOR COATING PROJECT

BID #13/14-018 – PWP# WA-2014-112

BIDS DUE NO LATER THAN: 1:45 PM ON MARCH 19, 2014

PUBLIC BID OPENING: 2:00 PM ON MARCH 19, 2014

This addendum is to notify all potential proposers of clarifications made to the Bid documents as stated below.

GENERAL

Mandatory Pre-Bid Meeting Sign-In Sheet

A Mandatory pre-bid meeting was held March 5, 2014 at 10:30AM at the job site. *Attached is a list of all recognized attendees from that meeting.* No bids will be accepted from bidders not in attendance at the pre-bid meeting.

Interior Coating Inspection Report

Attached to this addendum is a report titled “TMWRF-Interior Coating Inspection Digester No. 5.” The date of the report is November 10, 2006. While the report may be considered stale due to its date, bidders may be able to gain better insight as to the potential condition of the interior of the unit. This report is provided as informational only and the City does not warrant or guarantee that the condition of the unit has remained the same since this report was drafted.

Please note and adjust your bid according to the revisions, additions, deletions, clarifications or modifications as presented on this Addendum #1, which are made a part of this bid. NOTE: To avoid disqualification, this Addendum 1 (and any other addenda) must be signed by an authorized representative of the bidding firm in the space provided and must be submitted with your firm’s sealed proposal (not later than 1:45 pm on March 19, 2014). Failure to return this addendum, duly signed, may be cause for rejection of the bid. ALL ADDENDA SHOULD BE SIGNED AND PLACED IN SEQUENTIAL ORDER AND ATTACHED TO THE FRONT OF THE BID PACKAGE, COMPLETE WITH ALL REQUIRED DOCUMENTS.

CONTRACTOR BUSINESS NAME

Dan Marran, C.P.M., CPPO
Contracts and Risk Manager

X _____
Authorized Signature

March 6, 2014

Printed Name of Person Signing

Truckee Meadows Water Reclamation Facility

Bid # 13/14-018

PWP Number PWP-WA-2014-112

Digester # 5 Interior Coating pre-bid walk through

3/5/2014

Sign in Sheet

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JIM CALDWELL	SO CAL PACIFIC DBA NATIONAL COATING & LINING CO.	JCALDWELL@NC-ILC.COM	951 326 7655
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Truckee Meadows Water Reclamation Facility

Bid # 13/14-018

PWP Number PWP-WA-2014-112

Digester # 5 Interior Coating pre-bid walk through

3/5/2014

Sign in Sheet

Name

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Company

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Email

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TMWRF- Interior Coating Inspection Digester No. 5

TO: Mike Damoth/CH2M HILL
COPIES: Matt Larsen/Carollo Engineers
FROM: Rod Jackson
DATE: November 10, 2006

This memorandum presents the results of our inspection of the interior protective coating on the cover of Digester No. 5 at the Truckee Meadows Wastewater Reclamation Facility (TMWRF) in Reno, Nevada. The inspection was conducted on November 7, 2006. TMWRF operations staff provided access to the digester and confined space management services.

The digester had been previously taken out of service and cleaned in preparation for replacement of the internal piping and mixing facilities by a construction contractor.

Background

Digester No. 5 was constructed about 1986. It is 90-feet in diameter and consists of a reinforced concrete tank with a fixed steel cover. The cover itself is constructed from welded steel plates over a structural steel frame. Record drawings of the digester are attached for reference.

The digester cover is attached to the top of the concrete tank wall, which is 32 feet above grade. The cover is slightly domed, and the concrete floor is sloped toward the center of the tank. Therefore, the height of the cover ranges from 32 feet to approximately 43 feet above floor of the tank.

The interior of the cover was specified to receive a protective coating of 10 to 12 mils of Sikagard 62 epoxy (1 mil = 0.001 inch). The exterior of the roof portion of the cover is coated with polyurethane foam insulation and a slip-resistant topcoat.

Inspection Methods

The condition of the interior coating was assessed by visual inspection from the floor of the tank. We used high-intensity lighting and binoculars to observe the condition of the coating across the cover.

Due to the height of the cover of Digester No. 5, it was not possible to conduct a close examination of the interior coating using an extension ladder as was done for the other digesters in the plant. The height of the cover on No. 5 exceeds the safe work height for extension ladders. Nor could we access the interior of the cover from the roof openings because they were blocked by the temporary exhaust fans required for ventilation of the tank. Therefore, inspection was limited to observations from the floor of the tank. Photographs were taken, and selected pictures are attached to this report.

Inspection Results

We found that some details of the cover construction did not appear to match the record drawings. The cover connection to the tank wall is not constructed as shown on drawing M-17, Detail 2. The configuration of the connection is shown in Photos 1 and 2. The connections consist of steel beams held in place by brackets on the top of the wall. A steel angle covers the joint between the tank wall and the side wall of the cover.

According to the drawings, the seal between the skirt portion of the steel cover and the concrete tank wall was constructed with hot coal tar pitch and oakum caulking in the annular space around the cover. The seal is hidden by the steel angle on top of the cover, and we could not get close enough to see the lower part of the seal from inside the tank. There was no sign of leakage around the top perimeter of the cover, so whatever method of sealing that was actually used has apparently been successful.

The interior coating on the digester cover does not appear to be Sikagard 62 epoxy. This conclusion is based primarily on the fact that the coating is uniformly black in color rather than the gray color of Sikagard 62. The black coating is probably coal tar epoxy unless the Sikagard 62 was applied and simply turned black in service.

The general appearance of the interior of the cover is shown in Photos 3 through 6. There are several areas where the coating has deteriorated and rust is present due to corrosion:

1. The coating has deteriorated at connections between the steel framing members. Virtually all connections show some rust, but none of the framing members have buckled or sagged.
2. Corrosion has occurred at the interfaces between the steel plates and the steel framing members. This indicates that the steel plates may not be welded to the top of the framework, thereby allowing corrosion occur at unpainted areas along the mating surfaces between the plates and framework.
3. The coating has deteriorated on the steel plates in a band about 7 to 15 feet from the wall of the tank. Rust is evident on the plates within this band. The steel surface appears to be pitted.

Although deterioration of the coating and rusting of the steel are evident in the areas noted above, it does not appear that corrosion has caused extensive damage. The steel plates appear to be free of perforations, and the framing members appear to be straight and intact.

The center portion of the cover is covered by white deposits and appears to be in better condition than the rest of the cover, with the exception of rust at the bolted connections of the framing members to the center ring. All other framing connections appear to be welded, although it is difficult to tell for certain from floor level.

The interior coating appears to be largely intact on the skirt around the perimeter of the cover. The exterior surfaces of these plates are not visible, because they lie within the annular space between the tank wall and the cover.

There are approximately 25 locations on the top of the cover where the coating over the polyurethane foam insulation has been damaged or deteriorated. These areas should be

repaired to prevent water from entering the insulation and contacting the steel. Trapped moisture could cause corrosion on the top of the cover.

Conclusions and Recommendations

The interior coating on the steel cover of Digester No. 5 has deteriorated and allowed corrosion of the steel to occur in localized areas. The large number and wide distribution of these deteriorated areas across the cover precludes the use of spot repairs to restore the coating. Therefore, it is reasonable to plan to recoat the entire interior of the cover.

The interior coating on the cover of Digester No. 5 appears to be in generally better condition than the coatings on Digesters No. 1 and 3, and also somewhat better than the coating on Digester No. 4. Of the 5 digesters, No. 2 seems to have the least amount of deteriorated coating and resulting corrosion.

A recoating project for Digester No. 5 would require erection of a raised floor in the tank for access to the cover. An initial abrasive blast cleaning would be done to remove the existing coating and allow close inspection for corrosion damage. After any indicated steel repairs are made, a second abrasive blast surface cleaning would be done to prepare the steel surfaces for coating. A new epoxy coating would be installed consistent with current industry practices for digesters.

The interior framing of the cover has many angles and edges that should be stripe-coated to improve durability, because these are usually the areas where the coating deteriorates first. If the steel plates are not welded to the structural members, it would be advisable to try to temporarily lift the plates a few inches off the members to allow blasting and coating of the interfaces.

The outdoor exposed portion of the skirt and connection brackets should be abrasive blasted and recoated with an epoxy/urethane system for sunlight exposure. The portion of the skirt below the top of the tank wall cannot be recoated with the cover in place. However, it is quite possible that the coal tar pitch used for the digester seal is intact and providing corrosion protection for the steel. A close inspection should be made when the raised floor is erected in the tank. Assuming that the seal is in good condition, it should be covered during the recoating project to protect the soft seal from the harsh effects of abrasive blasting.

The damaged coating for the polyurethane foam insulation on the exterior of the cover should also be repaired to prevent the insulation from becoming wet and causing corrosion of the underlying steel.

Photographs
TMWRF Digester No. 5
November 7, 2006



Photo 1: Overview of digester cover. Gray surface is coated polyurethane foam insulation. Edge of steel cover is visible behind handrail. Two cover connection brackets are visible at photo right center.



Photo 2: Skirt' area of cover. Top of concrete tank wall is at photo lower left. Cover includes coated foam insulation, sidewall, and steel angle. Connection bracket is visible at far top left of photo.

Photographs
TMWRF Digester No. 5
November 7, 2006



Photo 3: Typical condition of cover interior. Center of cover is at photo upper left.
Black areas appear to be coated with coal tar epoxy.
Orange areas are rusty steel exposed at areas of deteriorated coating.

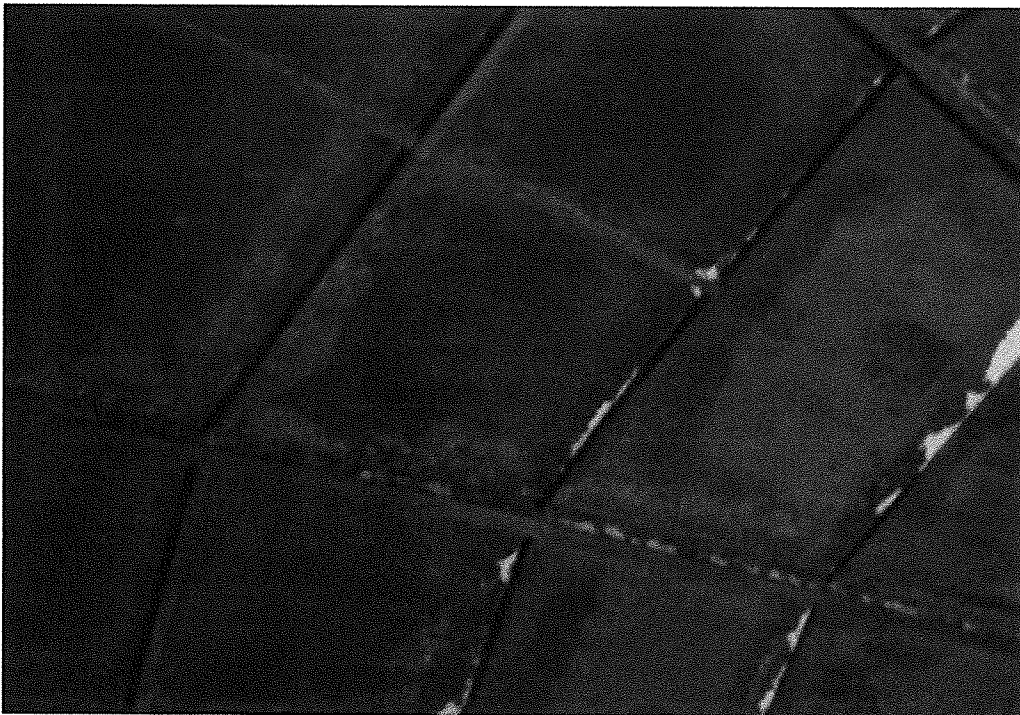


Photo 4: Typical appearance of steel framing showing rust (corrosion products) along edges.
White areas are deposits from digester operation.

Photographs
TMWRF Digester No. 5
November 7, 2006



Photo 5: Center portion of cover as viewed from floor of digester.
White areas are deposits from digester operation.
Orange-brown areas are rusted steel, including connection bolts at center ring.



Photo 6: Typical damaged area in polyurethane foam insulation on top of cover.
Area shown is approximately 1 foot square. About 25 such areas exist.