

City of Lynchburg
Procurement Division
900 Church Street
Lynchburg, Virginia 24504
Telephone No.: (434) 455-3970
Fax No.: (434) 845-0711

**Addendum for Invitation for Bids
College Hill 10.5 MG Tank Rehabilitation**

13-829

Date: 2/11/2013
From: Lisa Moss, Buyer VCA
RE: Addendum No. 1

This Addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become a part of the Contract Documents. The Bidder shall indicate receipt of this Addendum and all previously issued Addenda on the Bid Form.

1. What are the dimensions of the tank?
235 ft, Sidewall height 28ft. The tank is deeper inside, but the interior depth is not relevant to this work.
2. What is the schedule of work for this project—start/finish dates, completion days?
As stated in the Project manual; the work shall be completed within 60 days after issuance of Notice to Proceed. Estimated start time for this project will be late Spring 2013 when temperatures are adequate for this type of work.
3. Has there been an estimate put on this project?
The City does not release this information.
4. Is there a physical address for the tank?
525 Taylor Street, Lynchburg, VA 24501
5. Section 00 43 73, item 1.03 Bid Bond shall be revised as follows: **“A. Bid Bond shall be based on 5% of the total.”**
6. Is the tank a ground level storage tank?
Yes
7. **There are no drawings for this project. However, attached below is the latest inspection report on the tank.**

Company Name: _____ Address: _____ Date: _____

Authorized Signature: _____ Title: _____

Print Name: _____ Telephone No.: _____

Fax No.: _____

June 24, 2009

City of Lynchburg
Dept. of Utilities
525 Taylor Street
Lynchburg, VA 24501

Attn: Gregory Poff

Re: 10,500,000 Gallon College Hill Reservoir
Maintenance (Dive) Inspection

Dear Greg:

Please find enclosed the above referenced report for the 10,500,000 gallon water storage tank. The inspection was completed on April 21, 2009. The report consists of: 1) cover page; 2) conclusions and recommendations; 3) detailed report; 4) Field Inspection Report (FIR); 5) photographs and descriptions; and 6) CD.

Brief explanation: 1) The cover page is self-explanatory. 2) Conclusions and recommendations explain in short form what was found on the tank and what DIXON recommends for repair and maintenance of the tank. 3) This section is the long report that goes into detail to explain what exactly was found and why DIXON makes the recommendations. 4) Field Inspection Report (FIR) is the form that was completed when the inspection team was on-site and includes the dimensions and conditions of the tank. 5) Photographs and descriptions give the Owner a visual record of the condition of the tank and appurtenances. 6) CD is an Adobe PDF format of the complete report and photos for your convenience.

If you have any questions or concerns, please call me at (616) 374-3221 ext. 310.

Thank you for choosing DIXON for your inspection needs.

DIXON ENGINEERING, INC.,

Thomas Rounds
Project Manager

Enclosures

Dixon Engineering, Inc.

Maintenance (Dive) Inspection

10,500,000 Gallon Reservoir

College Hill
Lynchburg, Virginia

Inspection Performed: April 21, 2009
Report Prepared: June 22, 2009
Reviewed by Ira M. Gabin, P.E.: June 24, 2009

Phone (616) 374-3221
Fax (616) 374-7116
<http://www.dixonengineering.net>
dixon@dixonengineering.net

Dixon Engineering Inc.
1104 Third Ave. Lake Odessa, MI 48849

INSPECTION:

On April 21, 2009, Dixon Engineering, Inc. (DIXON) performed a maintenance (dive) inspection on the 10,500,000 gallon reservoir water storage tank owned by the City of Lynchburg, VA. Purposes of the inspection were to evaluate the interior and exterior coatings' performance and life expectancy; assess the condition of metal surfaces and appurtenances; review safety and health aspects; and make budgetary recommendations for continued maintenance of the tank. All recommendations are incorporated into this report, with budgeting estimates for repairs. The inspection was performed by Thomas Rounds, Project Manager and certified diver; Tucker Adams, certified diver; and Roy Wise, Staff Technician. The dive profile used was 36 ft. for ninety minutes. The diver and all equipment were chlorinated prior to entry into the wet interior. Chlorine residuals were taken prior to the inspection, and after the diver exited the tank. Pre-entry yielded a .7 ppm chlorine residual, and an exit residual of .75 ppm. No cleaning, paint thickness testing, or adhesion testing is done in the wet interior during a dive inspection.

The tank was built in 1963 by Chicago Bridge and Iron with a height-to-high water line of 36 ft. It is welded construction. The exterior and wet interior were last painted in 1999 by G & M Painting. The tank has a subgrade wet interior surface area.

CONDITIONS and RECOMMENDATIONS:

Exterior Coating Conditions:

The exterior coating is a multiple coat epoxy urethane system that is faded and there is some loss of gloss. Surfaces have faded due to exposure to ultraviolet rays, which is a normal occurrence for an exterior coating system. The coating is adequately protecting the metal, and aesthetics are fair. There are several areas where the existing coating appeared to be improperly catalyzed.

The sidewall coating is in good-to-fair condition. Primary method of deterioration is abrasion. A few coating breaks were found. The sidewall coating has been repainted where prior damage existed. The sidewall coating is 12 – 24 mils thick.

The exterior roof is constructed of aluminum and is intact. No leaking was observed.

Exterior Coating Recommendations:

Take no immediate action on the exterior. Budget for overcoating in 2012, or when aesthetics dictate. Current adhesion showed the existing coating would support an additional recoat.

The recommended procedure is to high pressure water clean (5,000 – 10,000 psi) to remove any delaminating or flaking coating and contaminants, followed by spot power tool cleaning to bare metal (SSPC-SP11) any rusted or failed areas.

The coating system would consist of a spot prime coat on the bare metal, a full coat of epoxy, followed by two full coats of polyurethane. The polyurethane system offers excellent abrasion resistance, with high gloss and sheen retention. The coating has a minimum temperature requirement for application, and is sensitive to moisture during the curing process. If moisture is present during the curing process, the appearance will become cloudy, with little or no gloss. The expected life of the system is twelve-to-fifteen years. The system can be recoated again in twelve-to-fifteen years, and a second time approximately twelve years after the first recoating, extending the life of the coating to thirty-five to forty years before total removal would again be necessary. We estimate project length at forty days. The tank would be removed from service to reduce moisture condensation on the surface.

Wet Interior Coating Conditions:

The wet interior coating is an epoxy system applied by G & M Painting in 1999. The sidewall coating is in fair condition, 98% intact, with no significant damage at the high water line, which would be the area most affected by ice pressures and ice movement. Causes of deterioration are blisters, primer bleed-through, and delamination. The coating is still protecting the metal, with the exception of several spot coating breaks.

Coating on the bottom of the tank is in poor condition 90% intact. Cause of deterioration is blisters. Blisters are present on over 75% of the floor panels. The bottom of the tank is covered with light-to-moderate mud sediment, approximately ¼ in.

Moderate, previous pitting of the metal was found on the sidewalls and floor.

Overall adhesion of the coating is fair.

Wet Interior Coating Recommendations:

The existing coating has not deteriorated to the point where replacement is warranted. The cathodic protection system is adequately protecting all areas below the high water line where the coating has deteriorated. Long-term budget for repainting in five years, based on results of the next inspection. Due to the cost of repainting the wet interior, monitoring existing conditions may delay the need for recoating.

Cathodic Protection Conditions:

The tank has a functioning cathodic protection system. It is a ring, ice-free system that is in good condition. Tank surfaces below the high water line are protected by the system. The supporting ropes and anode wires are in good condition, with no anode breaks noted. The pressure fitting exiting the sidewall showed no signs of leaking.

Cathodic Protection Recommendations:

Continue operation of the submerged cathodic protection system. Have a qualified contractor maintain the system.

Site Conditions:

The tank site is small in size and is fenced with a sliding, double locking security gate. There is a small size staging area for contractors' equipment. The site is well maintained and routinely mowed. Immediately adjacent are high rise apartments and parking. The site is accessible from a municipal paved drive, and the tank is located approximately 100 ft. from the main access road. Drainage for the site is away from the foundation. There were no signs of underground pipe leaks.

Site Recommendations:

Regularly mow the grass away from the tank.

Foundation Conditions:

The exposed foundation is in good condition and showed minor amounts of deterioration (cracking).

Foundation Recommendations:

High pressure wash the concrete and patch the small areas of deterioration. Coat the exposed concrete with an epoxy polyurethane coating to prevent further deterioration.

Grout/Caulk Conditions:

The caulk is in fair condition, with 20 ft. deteriorated between the base pad and foundation.

Grout/Caulk Recommendations:

Remove all loose or deteriorated caulk and repair with a urethane caulk.

Wet Interior Metal Conditions:

The steel structure is in good condition above and below the high water line.

STEEL TANK FIELD INSPECTION REPORT
STANDPIPE/RESERVOIR TANK

DATE: April 21, 2009

I. TANK DATA

OWNER: City of Lynchburg

CLIENT CODE: 46-61-01-08

TANK NAME: College Hill 10,500,000 Gallon Reservoir

LOCATION: Street: Taylor

City: Lynchburg

State: VA

TANK SIZE: Capacity: 10,500,000 gallons

Height to overflow (HWL): 27 feet

Sidewall height: 28 feet

CONSTRUCTION: Welded

Type of structure: Reservoir

Type of Roof: Geodesic dome

DATE CONSTRUCTED: 1963

MANUFACTURER: CB&I

CONTRACT NUMBER: 8-6752

COATING HISTORY	<u>EXTERIOR</u>	<u>DRY INTERIOR</u> <u>N/A</u>	<u>WET INTERIOR</u>
DATE LAST COATED	<u>1999</u>		<u>1999</u>
CONTRACTOR	<u>G&M</u>		<u>G&M</u>
COATING SYSTEM	<u>Polyurethane</u>		<u>Epoxy</u>
SURFACE PREPERATION	<u>SSPC SP6</u>		<u>SSPC SP10</u>
COATING SAMPLES	<u>No</u>		<u>No</u>
HEAVY METAL	<u>No</u>		<u>No</u>

INSPECTED BY: Dixon Engineering, Inc.

INSPECTORS: Inspector: Tucker Adams; Top person: Tom Rounds;

Ground person: Roy Wise

TYPE OF INSPECTION: Dive

DATE LAST INSPECTED: 08/05

II. INSPECTION DATA **SITE CONDITIONS**

Fenced: **Yes**
Control building: **Yes**
 Location: **Adjacent to tank**
Antenna control site: **No**
Site conditions: **Well maintained**
Neighborhood: **Residential - Municipal**
To the North: **All municipal property**
To the East: **Pump house**
To the South: **Multi-story apartment**
To the West: **Tanks**
Power lines within 50 feet: **No**
Site drainage: **Away from tank**
Indications of underground leakage: **No**
Shrub, tree, etc. encroachment: **No**

Piping:

Pit: **No**

EXTERIOR COATING

Sidewall:

Lettering: **No**
Logo: **No**
Topcoat condition: **Fair**
Primer/Previous coating condition: **Fair**
 Describe coating: **Chalking – Some abrasions and evident spot repairs**
Metal condition: **Good**
Sidewall comments: **Exterior coating 12 – 24 mils**

Roof: N/A – aluminum geodesic dome

EXTERIOR APPURTENANCES

Anchor bolts: N/A

Foundation:

Foundation exposed: **Yes**
Height exposed: **6 – 8 inches**
Undermining of foundation: **No**

EXTERIOR APPURTENANCES

Exposed foundation condition: **Good**
Chipped or cracked: **Yes**
Severity: **Minor**
Exposed rebar: **No**
Type of grout: **Cement**
Condition: **Good**
Grout missing: **No**
Comments: **Hairline cracks**

EXTERIOR APPURTENANCES

Anchor bolts: N/A

Exterior overflow pipe:

Coating condition: **Good**
Metal condition: **Good**
Inside diameter: **12 inches**

Sidewall manway:

Number: **4**
Size: **3 – 30 inches; 1 – 24 x 18 inches**
Gasket leaking: **No**
Hinged: **Yes**
Sealed with: **Bolted cover**
Coating condition: **Fair**
Metal condition: **Good**
Sidewall manway comments: **No leaks**

Sidewall ladder:

Toe clearance: **11 inches**
Width of rungs: **16 inches**
Thickness of rungs: **¾ inch**
Shape of rungs: **Diamond**
Fall prevention device: **Yes**
Type: **Rail**
Condition: **Good**
Cage: **No**

Step-off platform:

Dimensions: **5 x 11 feet**

EXTERIOR APPURTENANCES

Railing height: **54 inches**

Toe plate height: **4 inches**

Coating condition: **Poor**

Metal condition: **Good**

Step-off platform comments: **Application of unknown topcoat; poor condition**

Roof ladder:

Style: **Steps**

Coating condition: **All aluminum**

Metal condition: **Good**

Fall prevention device: **No**

Cage: **No**

Roof ladder comments: **10 in. x 30 in. stairs; non-slip design**

Roof ladder handrail:

Coating condition: **Good**

Metal condition: **Good**

Fall prevention device: **No**

Railing height: **37 inches**

Ladder handrail comments: **18 in. mid-rail; 2 in. all aluminum**

Center handrail: N/A

Roof hatches:

Wet interior: **All aluminum**

Dry interior: **N/A**

Bolted ventilation hatch:

Coating condition: **Good**

Neck diameter: **24 inches**

Roof vent:

Number: **2**

Type: **Standard**

Neck diameter: **28 inches**

Vent comments: **All aluminum**

EXTERIOR APPURTENANCES

Aviation lights: N/A

Removable cathodic caps: N/A

Rigging points:

Rigging clips: **Yes**

Number: **1**

Coating condition: **Aluminum**

Metal condition: **Good**

Rigging comments: **Center roof rigging point**

Antennas: N/A

Wet interior coating

Roof: All aluminum geodesic dome

Sidewall:

Topcoat condition: **Fair**

Describe coating: **Delamination – Blisters – Some intercoat delamination – questionable coating discoloration**

Mineral deposits: **Moderate**

Metal condition: **Good**

Active pitting: **No**

Sidewall comments: **Spot rusting random; weld seams**

Tank bottom:

Topcoat condition: **Poor**

Primer coating condition: **Fair**

Describe coating: **Delamination -Spot coating breaks to underlying coat - Blisters – Intercoat delamination – Blistering on 75% of floor**

Mineral deposits: **Light**

Metal condition: **Good**

Active pitting: **No**

Previous pitting: **Yes**

Previous pit filling: **Unknown**

Depth of sediment: **¼ inch**

Bottom comments: **75% floor blisters**

RECOMMENDATIONS:

Foundation: Recaulk foundation baseplate

Coating: Exterior: Recoat

Interior: Recoat

Field Inspection Report is prepared from the contractor's viewpoint. It contains information the contractor needs to prepare his bid for any repair or recoating. The engineer uses it to prepare the engineering report. Cost estimates are more accurate if the contractor's problems can be anticipated. While prepared from the contractor's viewpoint, the only intended beneficiary is the owner. These reports are completed with diligence, but the accuracy is not guaranteed. The contractor is still advised to visit the site.



(1) College Hill 10,500,000 Gallon Reservoir.



(2) As reported, the fill lines are overflow from adjacent tanks.



(3) Manways with davit arms.



(4) Some discoloration on sidewalls.



(5) Sidewall panel with some buckle at the weld seam.



(6) Red clay on lower sidewall - some abrasions.



(7) Exterior tank wall has fair aesthetic appearance.



(8) Manways are not leak-free.



(9) Pump house adjacent to tank with high service pumps.



(10) Tank's interior contains a floating cathodic system by Corrpro.



(11) Rectifier was reported as operational.



(12) Exterior abrasion.



(13) SST saddle installed on piping—discoloration of spot repairs.



(14) Tank sidewall contains a non-functional level indicator. Discoloration of spot repairs.



(15) Discoloration of upper sidewall panels may be an indication of improperly catalyzed material.



(16) Hairline cracks and some spalled concrete on side of foundation.



(17) Deteriorated grout.



(18) Discoloration on east sidewall.



(19) Vandal guard on sidewall ladder is padlocked.



(20) Geodesic dome contains stairs and hand rail that are intact.



(21) Hand rail supports extend to the dome framing and are intact.



(22) At the step ending are strips of anti-slip material adhered to the dome panels.



(23) Bolted painter's ventilation hatch.



(24) Roof transition to sidewall stairs.



(25) Center roof tie-off point.



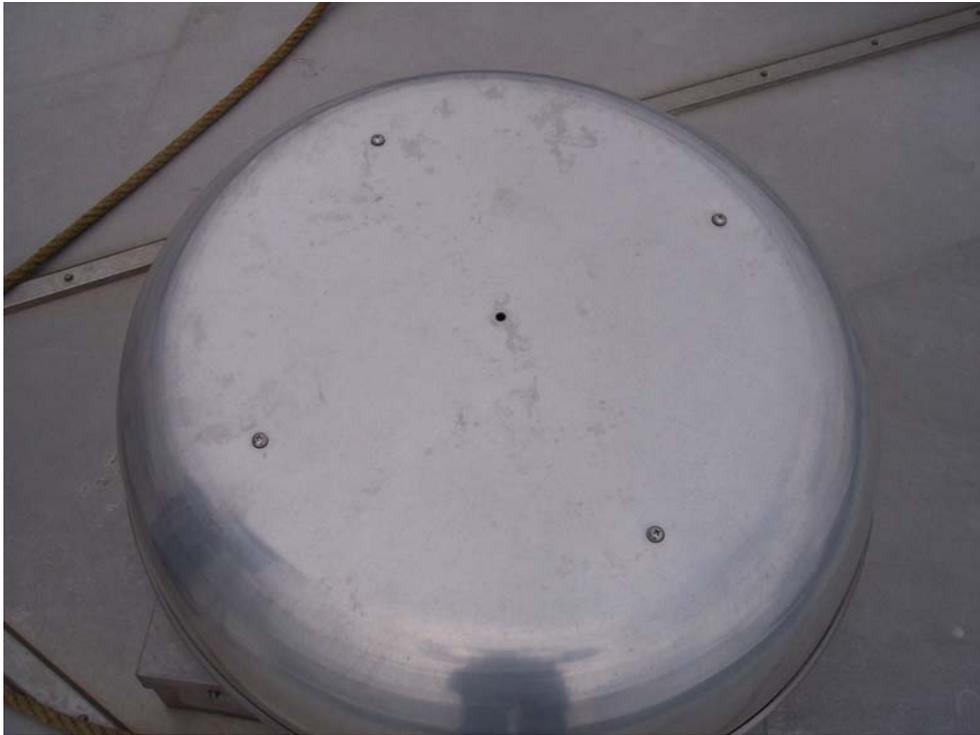
(26) Screened roof vent.



(27) Wind girder - indication of ponding water.



(28) Dual screened roof vent.



(29) Hole in center of roof vent - caulked by inspector at time of inspection.



(30) Wind girder screen is intact.



(31) Screen is secured to tank's sidewall and dome.



(32) Connection to dome.



(33) Wind girder angle support indicates some stress breaking coating.



(34) No indication of leaking dome caps.



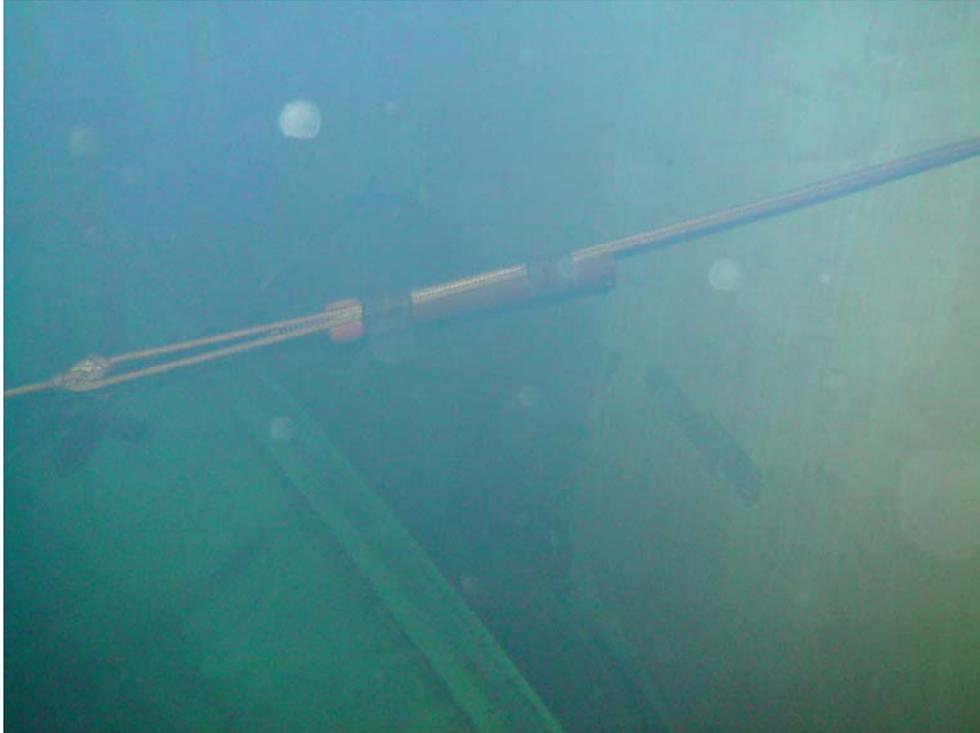
(35) Interior was inspected utilizing a diver.



(36) Wet interior sidewall above water level - coating intact.



(37) Discoloration and primer bleed-through below water level.



(38) Tank has an intact floating-type anode.



(39) Discoloration of topcoat, primer bleed-through, and stripe coat on wet interior.



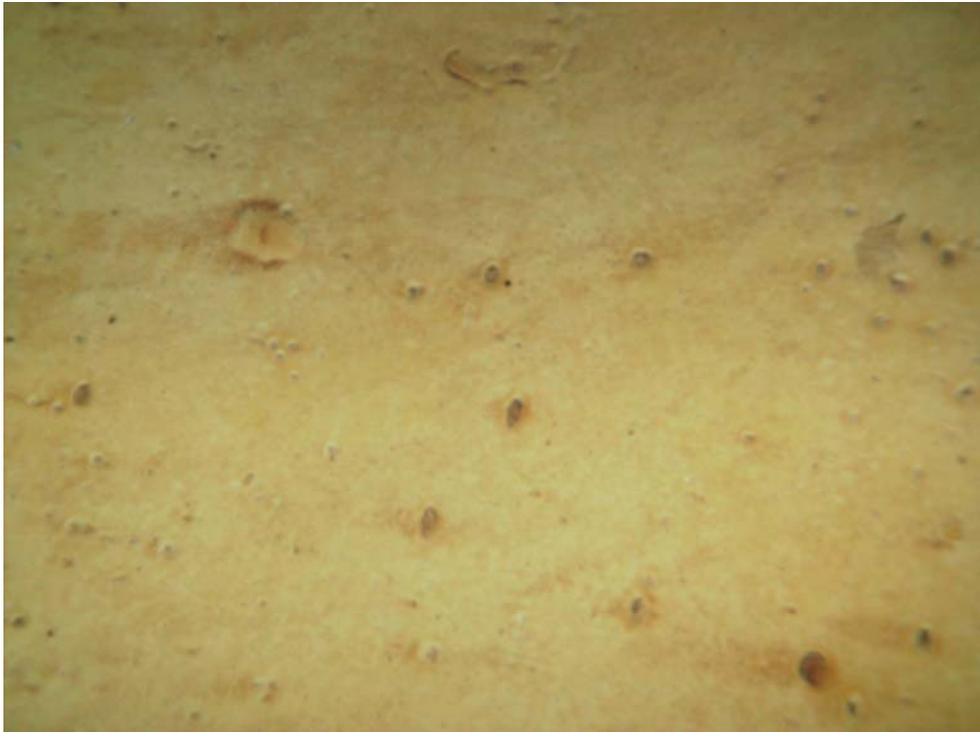
(40) Primer bleed-through.



(41) Sidewall stiffener.



(42) Coating repairs were evident.



(43) Blisters.



(44) Sediment.



(45) Sediment.



(46) Corrosion byproduct indicating cathodic system is operational.



(47) Heavily blistered floor.



(48) Spot failures on weld seam.



(49) Heavily blistered floor.



(50) Blisters.



(51) Difficult to see - delamination of coating @12:00.



(52) Sediment.



(53) Silt sediment.



(54) Discoloration of topcoat.



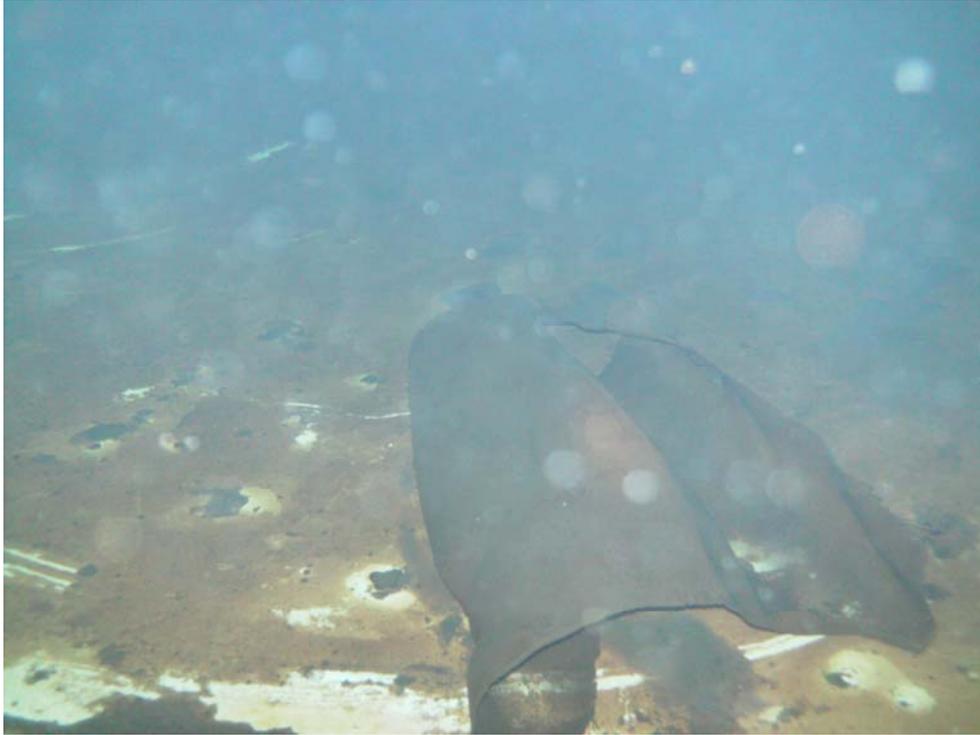
(55) Effluent piping.



(56) Spot rusting near high water line.



(57) Spot failures on overflow pipe.



(58) Two pieces of screen were removed during dive.



(59) Sidewall rust blooms.