ATTACHMENT 7.1 **INSPECTION CHECKLIST**

Sheet 1 of 3

Piping / Tank IP2 Service Water 24-inch Line 408 (WO # 279576-02) **INSPECTION DATE:** 11/22/2011

ELEVATION: pipe c-line @ EL. 8'-6"; grade @ El. 15' (approx.) **LOCATION DWG:** 9321-2700 (Zone B-3) **INSPECTOR:** M. Terpening

				NOTE
1.	ANY BLISTERING (COATING)?	YES ☒	NO ☐	at elbow intrados
2.	ANY PEELING (COATING)?	YES ☒	NO ☐	at elbow intrados
3.	ANY FLAKING (COATING)?	YES ☒	NO ☐	at elbow intrados
4.	ANY DELAMINATION (COATING)?	YES ☒	NO ☐	at elbow intrados
5.	ANY EMBRITTLEMENT (COATING)?	YES ☒	NO ☐	at elbow intrados
6.	ANY EMBEDDED ROCKS (COATING AND/OR METAL)?	YES ☐	NO ☒	
7.	ANY CRACKING (COATING AND/OR METAL)?	YES ☒	NO ☐	at elbow intrados
8.	ANY RUST (METAL)?	YES ☐	NO ☐	n/a
9.	ANY CORROSION (METAL)?	YES ☐	NO ☐	n/a
10.	ANY FLAKING OR SCALING (METAL)?	YES ☐	NO ☐	n/a
11.	ANY MECHANICAL DAMAGE (METAL)?	YES ☐	NO ☐	n/a
12.	ANY NICKS, GOUGES OR ARC STRIKES (METAL)?	YES ☐	NO ☐	n/a
13.	ANY TUBERCLES (METAL – IF INTERNAL INSPECTION)?	YES ☐	NO ☐	n/a

GENERAL APPEARANCE (Inspector):

Approx. 12 linear feet of piping was inspected, including horizontal and vertical sections and including 90 degree elbow. In general, the coating on the straight horizontal & vertical sections of piping was uniformly applied and was in good condition. The coating at the access point branch connect also looked acceptable. The coating at the elbows, however, looked to have been applied non-uniformly, and in some spots, excessively. Perhaps resulting in poor cure, air gaps, etc. Recommend that coatings engineer (currently not available) inspect the coating.
The full circumference of the horizontal sections of the 24-inch piping was generally in good condition. The edges of the overlapping layers of outer wrap were sealed with coating material.
There were no obvious sign of missing or degraded coating, except for the following: (see attached photo documentation)

- Line 408 (river side) had one area (approx. 4 sq. in) on the underside of the straight section of pipe that separated from the pipe and came off with the application of moderate finger pressure.
- Line 408 90 deg elbow, at the intrados, had an area of coating that had separated from the pipe and came apart upon application of finger pressure. When probed the area of coating that had come off was estimated to be approx. a one ft. square.
- The coating at the access point branch connections appeared to be carefully and methodically applied, although there was incomplete tape adhesion at the tape edges, and tape was not adhered to the pipe at the elbow to horizontal pipe transition.

ATTACHMENT 7.1 **INSPECTION CHECKLIST**

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DEGRADATION FOUND? YES ☒ NO ☐ CR-IP2-2011-06248

FURTHER EVALUATION REQUIRED? YES ☐ NO ☐

COMMENTS (Inspector): Opportunistic/focused visual inspection of the coating As-Found condition on 24-in. SW Line 408, excavated under mod EC 25313. The initial inspection was performed on 11/23/11, with a subsequent inspection by the coatings engineer performed on 12/1/11. See attached e-mails for additional inspection comments by the Underground Piping & Tank program engineer and the Coatings engineer.
It should be noted that the piping was excavated for mod EC 25313 (2R20 mod) which installs a concrete vault around the piping, and removes the existing 14-inch blind flanged access point, and installs larger 20-inch blind flanged access point in SW Line 409. A similar mod will modify SW Line 408 in the future. However, following concrete vault installation, the exposed piping will in the future, not subject to future soil/pipe corrosion mechanisms.

INSPECTOR(S) PRINT/SIGN/DATE: M. Terpening 12/15/11

EVALUATION: ACCEPTABLE ☐ ACCEPTABLE WITH DEFICIENCIES ☒ UNACCEPTABLE ☐

RECOMMENDED ACTION (Program Owner):

Following inspection by the site coatings engineer and his recommendation that the elbow is to be stripped of its coating and re-coated / wrapped. The results of this inspection will be captured in the Underground Piping & Tank Program database for trending and evaluation. As this piping, following installation of mod EC 25313 will no longer be buried (i.e., in contact with soil), but categorized as "underground". Results of this inspection are to be evaluated in conjunction with direct UT and guided wave inspection results.

The piping excavated for this inspection will be contained within a concrete vault and cover. The horizontal and vertical piping sections at the edges of the excavated area will need to be recoated prior to the installation of the concrete vault. This is to be done under WO # 279576-12.

FUTURE MONITORING: ☐

None required for this specific location, as it will not longer be subject to soil/pipe corrosion effects. Additional piping Inspection(s) of the Service Water system will be performed, as required to meet UPT program requirements.

PREVENTIVE MAINTENANCE: ☐

None. Pipe coating defiencies to be address under modification prior to turnover to Operations.

ATTACHMENT 7.1 **INSPECTION CHECKLIST**

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CORRECTIVE ACTIONS: ☐

None

PHOTOGRAPHIC OR VIDEO RECORDS ATTACHED? YES ☒ NO ☐

PROGRAM OWNER PRINT/SIGN/DATE: Robert C. Lee Robert C Lee 12/15/2011

INSPECTION NOTES BY PROGRAM OWNER

Lee, Robert C

From: Lee, Robert C
Sent: Wednesday, November 23, 2011 3:33 PM
To: Azevedo, Nelson F; Guarnaccia, Stephen; Tesoriero, Michael V
Cc: Beasley, Thomas J; DeChristopher, Mike; Tesoriero, Michael V; Peterson, Joseph F; Vasely, Michael J; Terpening, Michael; Kempski, Michael
Subject: SW Line 408 & 409 Visual Inspection - As-Found Coating Condition - In a nutshell

Attachments: IMG_0623.jpg; IMG_0585.jpg; IMG_0621.jpg; IMG_0628.jpg; IMG_0609.jpg; IMG_0606.jpg; IMG_0604.jpg; IMG_0613.jpg; IMG_0614.jpg; IMG_0624.jpg; IMG_0625.jpg; IMG_0626.jpg

Mike Terpening conducted the visual as-found inspection of the coating of SW Lines 408 & 409 at the access point mod excavation on Wed afternoon.
I'd like Steve Guarnaccia to examine the areas of the piping that exhibited degraded coating condition, as detailed below, next week. A CR should be will be written after the follow-up coating inspection.

In general, it looked like the coating on the straight section was uniformly applied and is holding up. The Coating at the access point branch connect also looked OK. The coating at the elbows, however, looked to have been applied non-uniformly, and in some spots, excessively. Perhaps resulting in poor cure, air gaps, etc. Need Steve G. to inspect and weigh in.

Mike Kempski - see bottom for 26 CWP discharge pipng photos.

The following is a summary of the inspection, additional photos are available:

The horizontal sections (tops and bottoms) of the two 24-inch headers were generally in good condition. The layers of overwrap could be seen with a layer of coating to seal the edges of the edges of the overwrap.


IMG_0623.jpg (680 KB)


IMG_0585.jpg (733 KB)


IMG_0621.jpg (405 KB)

There were no obvious sign of missing or degraded coating, except for:

- On Line 408 (river side) have one area (approx. 4 sq. in) on the underside of the straight section of pipe that separated from the pipe and came off with the application of moderate finger pressure.


IMG_0628.jpg (639 KB)

- Line 408 90 deg elbow, at the inner radius, had an area of coating that had separated from the pipe and came apart upon application of finger pressure. When probed the area of coating that had come off was estimated to be approx. a one ft. square.


IMG_0609.jpg (527 KB)

The coating at the access point branch connections appeared to be carefully and methodically applied, although there was incomplete tape adhesion at the edges on Line 408.

IMG_0606.jpg (748 KB)

The quality of the Line 409 coating and wrap at the access point branch connection was slightly, but noticeably better.

IMG_0604.jpg (754 KB)

The bolting hardware at the access point blind flanges for Line 408 was corroded. Picture of 409 acces pt also provided.

IMG_0613.jpg (671 KB)

IMG_0614.jpg (723 KB)

Also exposed was the adjacent 26 Circ Water Discharge pipe (84-in. dia.) Although formal inspection was not conducted (I want to have it performed next week, while the excavation remains open) the exposed coating looked good

IMG_0624.jpg (699 KB)

IMG_0625.jpg (944 KB)

IMG_0626.jpg (595 KB)

Bob

Lee, Robert C COATINGS ENGINEER

From: Guarnaccia, Stephen

Sent: Thursday, December 01, 2011 11:11 AM

To: Culeton, Thomas

Cc: Beasley, Thomas J; Lee, Robert C; Pineda, Juan J; Drake, Richard S; Skonieczny, John F; Arcate, John

Subject: Service Water Piping Coating

Tom,

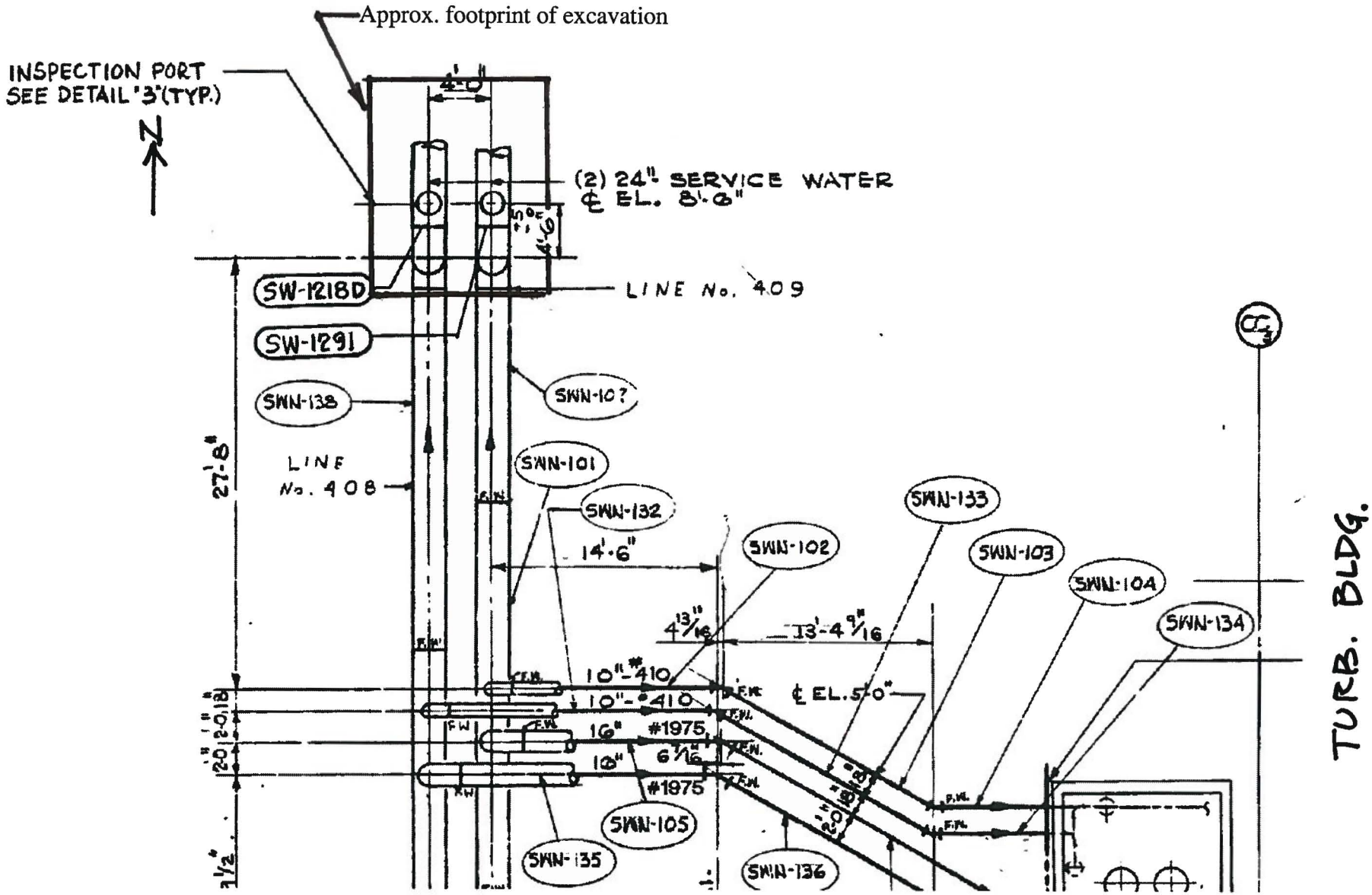
I inspected the coatings on service water lines 408 & 409 in the excavation on the riverfront. For the most part the coatings are in fairly good shape. My main concern is for the condition of the elbow on Line 408, riverside pipe, for the proper application of a coating repair. Thus this elbow needs to be stripped of the existing coating and wrap down to the pipe. The condition of the surface shall be roughened for the application of the new coating repair system. The inspection sites and the adjacent several inches of coatings shall also be roughened for the acceptance of the new coating.

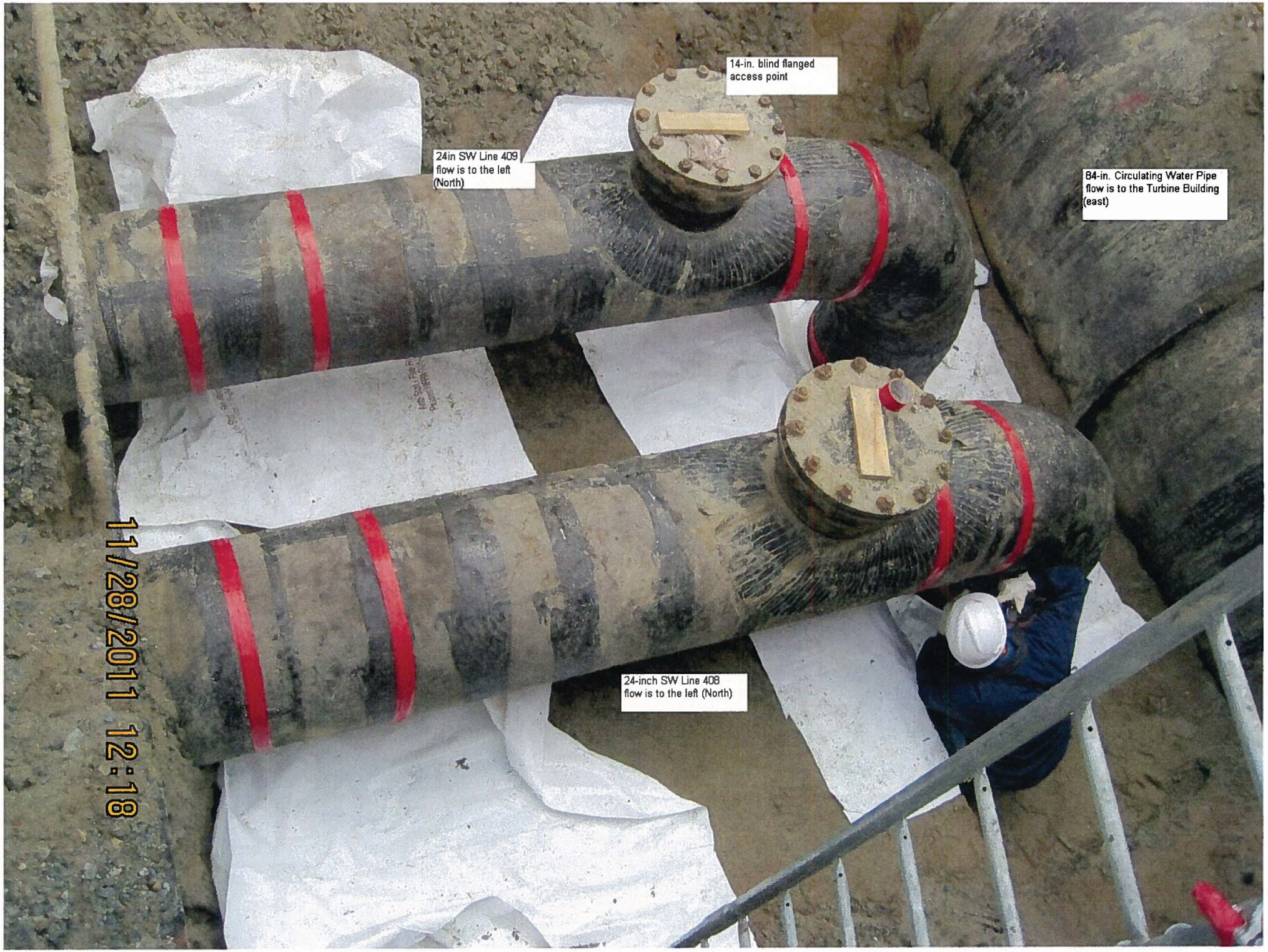
Since the temperatures are trending down below 50 deg. F the standard system of coating can not be used. I'm referring to the Carboline 300M product which will not cure at these lower temperatures. Carboline has suggested the use of Carbomastic 615 which has not been previously used here on site. The VOC content is acceptable but the coating will need to be approved for use by Chemistry. I will generate the paperwork to add the 615 to the ACL today.

Thanks for your support,
Steve x6609

IP2 Service Water Lines 408 & 409 Inspections (Nov. 2011)

Ref: drawing 9321-2700




14-in. blind flanged access point
24in SW Line 409 flow is to the left (North)
84-in. Circulating Water Pipe flow is to the Turbine Building (east)
24-inch SW Line 408 flow is to the left (North)
11/28/2011 12:18

↑ NORTH END, LOOKING EAST & DOWN

↓ SECTION IMMEDIATELY D/S ACCESS PT. LKG EAST

24"- SW LINE 408

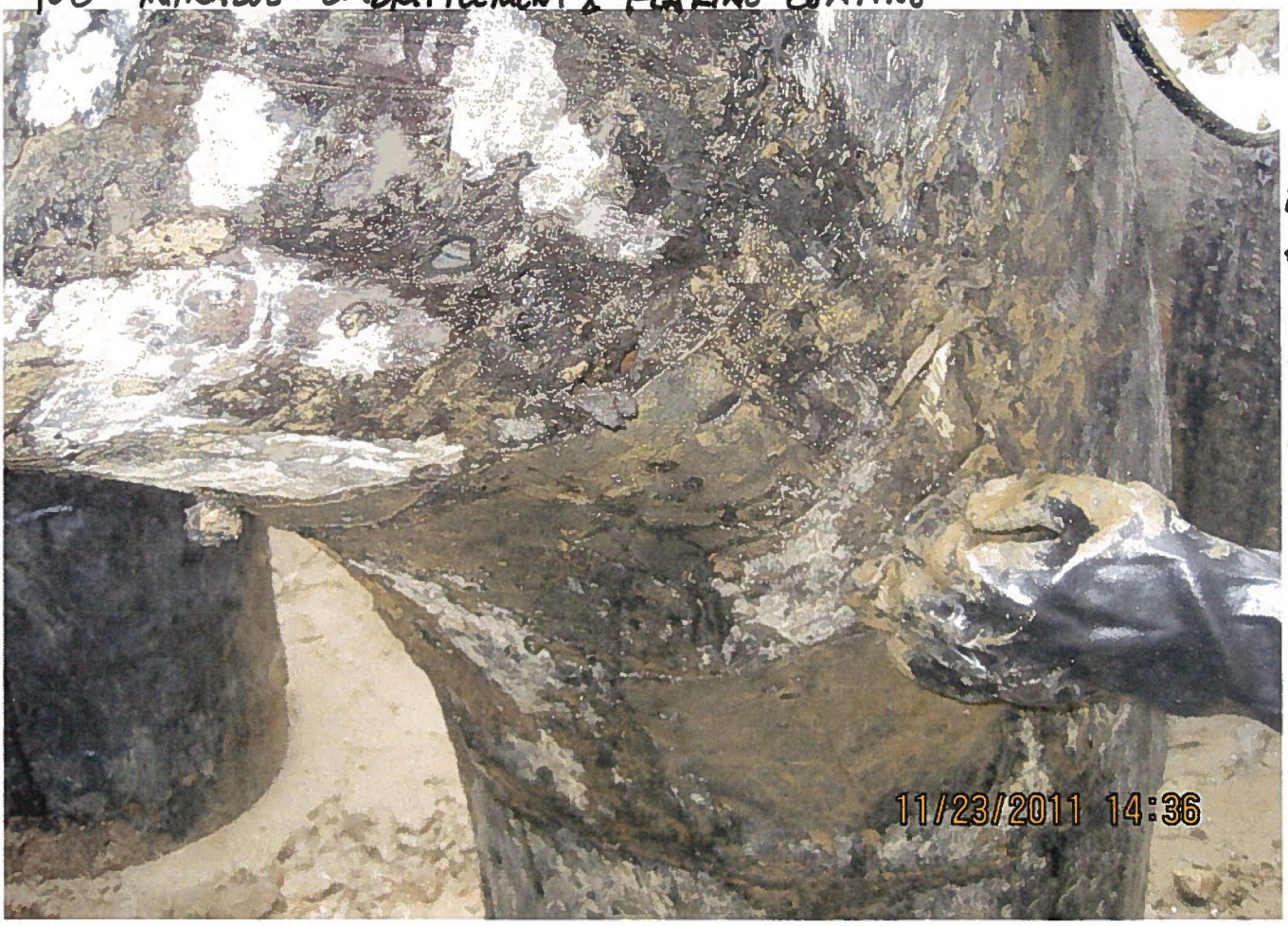

11/23/2011 14:33


11/23/2011 14:34


11/23/2011 14:35


11/23/2011 14:36

408 - INTRADOS - EMBRITTLEMENT & FLAKING COATING



LINE 408 INTRADOS COATING EMBRITTLEMENT


11/23/2011 14:37


11/23/2011 14:38

LINE 408 INTRADOS

R/S OF LINE 408 ELBOW

HORIZ TO ELBOW (T/B SIDE)


11/23/2011 14:48


11/23/2011 14:48


11/23/2011 14:50


11/23/2011 14:52


11/23/2011 14:52


11/23/2011 14:54

UNDERSIDE OF HORIZ. SECTION
QUARTER SIZE COATING DEFECT/DAMAGE