MEMORANDUM FOR RECORD

SUBJECT: Application of demonstration coating; Sherwin Williams Moisture cure urethane, on Rock Island Arsenal bridge

BACKGROUND

On 8-9 NOV 97 I watched a contractor conduct surface preparation and paint application on the government bridge between Rock Island Arsenal Island and the city of Rock Island. The contract limited the work to blasting and coating the steel above the piers where the road salts had passed through the expansion joints in the roadway. (Rubber expansion joints had apparently been installed a number of years ago.) The specific work areas extended about 4 feet each direction from the expansion joint but EXCLUDED the area between the beams directly under the joint. (This is the area that would have seen the greatest amount of salt and was indeed very corroded. Blasting and painting would have been difficult because of the narrow space.) The contract called for a white metal blast and an E-303/C-200/C-200 paint system. The contractor delayed work so long that the application requirement of 50^0 F minimum temperature could no longer be met. The contractor proposed the substitution of Sherwin Williams Corothane I Zinc Primer followed by 2 coats of Corothane I Coal Tar. Both products are moisture cure urethanes with a minimum application temperature of 20^0 F. The existing coating consisted of a red lead primer and a black oil based topcoat with a total thickness of about 5-6 mils.

OBSERVATIONS

I arrived Saturday at 8 AM. The contractor had containment structures in place on each of the 6 piers as well as on the end abutments of the bridge. The abutment on the East side of the Rock Island end of the bridge had been painted as a job standard. An 850 cfm compressor, IPEC abrasive recovery system and an air handler (bag house) were located on the road deck. Work was about to begin on the first pier area on the Rock Island end of the bridge. Carol Shaffer, CELRL (309-782-1680) construction rep showed the foreman of Brighton Painting (subcontractor) the area to be cleaned and painted. It was estimated that the area above each pier was approximately 450 square feet.

During the setup I asked the contractor if they were required to do air monitoring since the job was right in the middle of the city. He indicated that they did, and that there should be a "bird house" around here somewhere. In about 15 minutes the bird house was unloaded from a pickup and set prominently between the blast unit and the baghouse. A short while later I noticed it had been moved to a more out-of-the-way location on the sidewalk. I noticed that it had not been plugged in so I opened the unit to see the filter. The inside was dusty and there was no filter. The foreman stated that they were "certified for lead removal" but they are not listed as an SSPC certified contractor.

The road was closed to traffic. A sign at each end of the bridge indicated sandblasting and painting was taking place. Lead removal was not mentioned. Joggers and pedestrians who appeared to be simply using the bridge as a matter of routine were unable to use the sidewalk because of the long lengths of blast hoses. Since there was no traffic they walked down the center of the road with the baghouse on one side and the blast equipment on the other.

There was a "Confined Space" sign wired to the top of the ladder leading to the containment. A piece of paper weighted down with a Crescent wrench was on the sidewalk near

the ladder. It had a number of names on it and probably was supposed to be the confined space entry log. I did not see anyone write his name, or even pick up the paper from the time it was placed on the sidewalk until it was loaded into the truck at the end of the day.

Hard hats and respirators appeared to be optional. Blasters coming out of the containment were still wearing half masks that could probably have fit under their blast hoods, but no worker on top of the road used a respirator.

An Eagle brand shower trailer was located under the bridge. I watched as the system was flushed out onto the ground. Paint for the job was stored in the 'dirty' end of the unit.

Temperatures during most of the work on both days was about 44-43 F. Temperature fell to 35F Saturday and Sunday nights. Dew point Saturday at 11:00 was 20F; at 2:30 it was 39F. Moisture was condensing at the time of paint application Sunday night.

The blast began at 10 AM and was not quite completed when they decided to quit work at 8:30 PM. During this time two blasters operated two ½ inch nozzles, each on 100 ft hoses. GL 40 steel abrasive was used. The pressure gauge on the compressor read 82 psi. Late in the afternoon the foreman commented that the blasting was going slow. I questioned the pressure being used. He increased the pressure. The gauge then read 93 psi while blasting was taking place. When air usage stopped the gauge read 130 psi. A needle gauge was not available to check nozzle pressure.

The blasters complained about the difficulty of removing the 'coal tar'. They said it was 60-100 mils thick. The foreman gave me a 2" x 2" piece. It seemed heavy and brittle. Laboratory evaluation confirmed that it was rust scale. Observation of the existing paint indicated it was probably TT-P-86 Type II in most places with occasional Type I in some areas. Topcoat was probably TT-P-61 or CE-506. (Both are black topcoats commonly used by the Corps.) Coating thickness was mostly 4-5 mils. The heavy rust scale was common in the area directly under the expansion joints and on the supports.

Most of the time there were 5 workers topside and 2 workers blasting. There was no way of communicating with the blasters inside the containment. During the vacuum cleanup I observed cigarette butts being pulled up from the containment. Work seemed to be taking a long time so I looked into the containment structure. One worker was using his gloved hand to brush abrasive from the containment floor into the pick-up hose.

There was a job standard area on the Rock Island upstream end. This is an area where Dr. Kumar had demonstrated his vitrification procedure earlier this fall. System thickness in this area was 3.7 to 11 mils with most measurements in the 6 to 7 mil range. (They call this abutment #8; Numbering goes from the Arsenal island to Rock Island city – from 0-8. The pier I observed is #7.)

I observed the application of the Corothane I zinc primer on Sunday, 9 NOV 97. The product consists of a pigmented vehicle and dry zinc dust. There was very stiff settling in the vehicle buckets. Power stirring and boxing appeared to satisfactorily break up the settled material. The zinc had soft chunks most of which were broken up during the mixing. Very little zinc was retained on the strainer. Application began at 4PM. A light mist was in the air (100% relative humidity). The steel had a very light brownish cast of flash rust. Two painters were in the containment area: one handled the gun; one brushed out runs and moved the ladder. Each had a flashlight for illumination of the area in which he was working. Application was by airless spray. A 317 tip was used. Tailing was minimal. Runs occurred in complex areas. Brushing them out resulting in a satisfactory appearance. A wet film thickness of 6+ mils appeared to be quite consistent. I left the area at 5:30 PM at which time about half the area had

been primed. Primer was being applied to all areas that had been damaged by the blast. This means that a fair amount of existing oil based paint was topcoated with the moisture cure system. Application appeared satisfactory. When the inspector arrived on-site the following morning the area had received the first topcoat. The second topcoat was applied after 10 AM.