

*File  
Decontamination*



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*50-324*

September 14, 1979

Mr. Jim Renshaw  
Director of Decontamination  
General Public Utilities  
P.O. Box 480  
Middletown, PA 17051

Dear Jim:

As we discussed today by phone, we now have completed the autoradiography and optical examination of the "Elevator" and "DHV" core samples. I have attached Figures 1 thru 7 which I hope you will find useful in understanding your floor and wall contamination problems. Each sample was prepared by sawing the core samples in half, and then mounting and polishing one half of each core sample with the paint layer still attached and the other half with the paint layer removed. The paint layer on each half was removed by soaking the core sample in Sherwood and Williams paint remover - "Wash Away With Water" - which is a commercial paint remover. Listed below are my comments concerning each of the seven figures provided.

Figure 1 An autoradiographic exposure and optical photograph of the same area of the "Elevator" core sample at 2.2x. The painted surface of the core sample read 10,000 cpm before mounting and was reduced to 2,000 cpm after sectioning and mounting. Exposure time for all autoradiographic exposures was 124 hrs.

Figure 2 The same autoradiograph used in Figure 1 was enlarged to match a 12x magnification optical photograph of the same area. At this magnification it is easy to identify the mounting material, paint layers, and cement. The holes in the paint layer are the result of the paint filler "pulling out".

Figure 3 Two 12x optical photographs, each showing a different area of the "elevator" core sample after the paint layer was removed. The autoradiographic exposure did not reveal any contaminated areas.

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Figure 4 An autoradiographic exposure and optical photograph of the same area of the "DHV" core sample enlarged to 2.2x. The painted surface of the core sample read 600 cpm before mounting and was reduced to 300 cpm after sectioning, mounting, and polishing. Notice that this sample seems to have hot spots connected by very low levels of contamination in the general paint layer.

Figure 5 The same autoradiographic exposure used in Figure 4 enlarged to match a 12x magnification optical photograph. It is difficult to see where the radioactive material is retained in the paint layer, but the autographic exposure clearly reveals that it is there.

Figure 6 An autoradiographic exposure and optical photograph of the same area of the "DHV" core sample, taken at 12x after paint removal. Notice the small depressions which still retained some paint and contamination.

Figure 7 The 50x optical photograph reveals the structure of paint. Notice that there appears to be a top layer without filler, a middle layer with long narrow filler, and a bottom layer next to the cement which has larger particles. I believe that the holes are paint filler that has been "pulled out" during preparation.

If you have any questions, please call me.

Yours truly,

*Bud Arrowsmith*

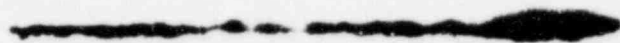
H.W. (Bud) Arrowsmith  
Engineer  
Applications & Project Technology

HWA:smp

Enc.

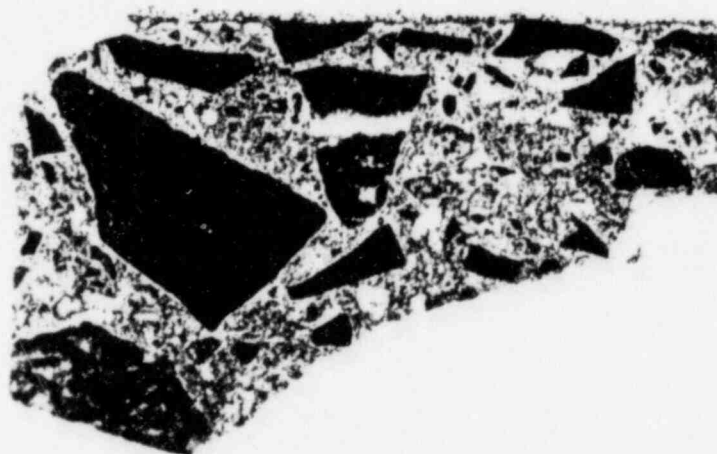
cc: John Remark - Babcox & Wilcox  
Jim Testa - General Public Utilities

Elevator Core Sample (281') With Paint



Autoradiography

2.2x



Optical

2.2x

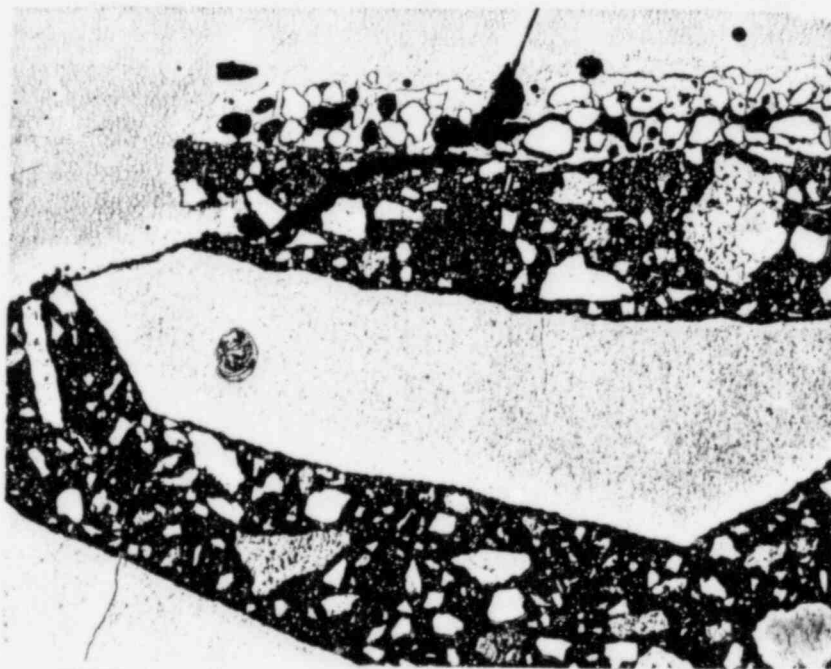
(Figure 1)

"Elevator" Core Sample (281') With Paint



Autoradiography

12x



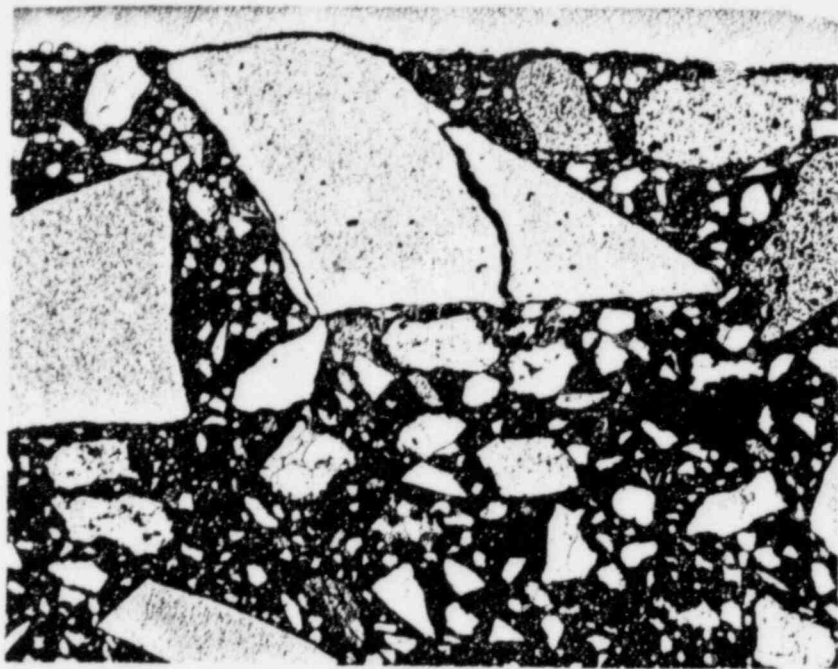
- ↖ Mounting Material
- ↖ Paint Layer
- ↖ Cement

Optical

12x

(Figure 2)

"Elevator" Core Sample (281') After Paint Removal



No Contamination  
in this Area After  
Paint Strip

Optical

12x



No Contamination  
in this Area After  
Paint Strip

Optical

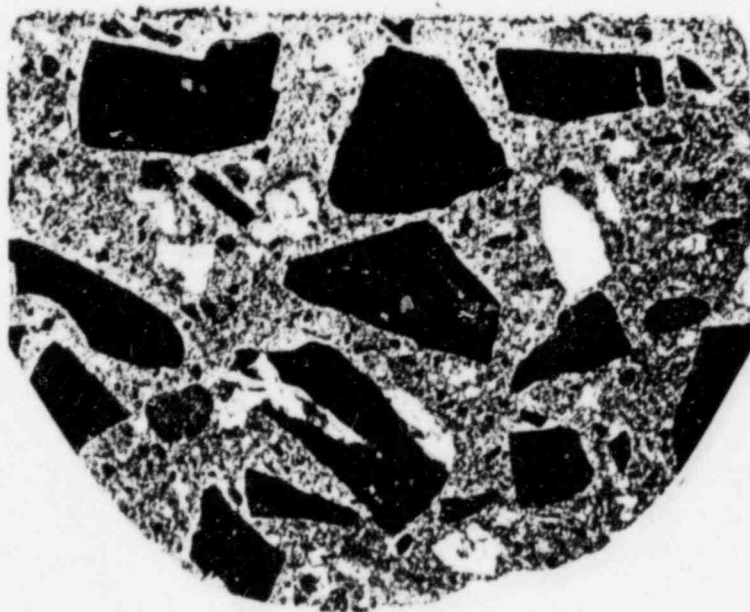
12x

(Figure 3)

"DHV" Core Sample (281') As Ground

Autoradiography

2.2x



Optical

2.2x

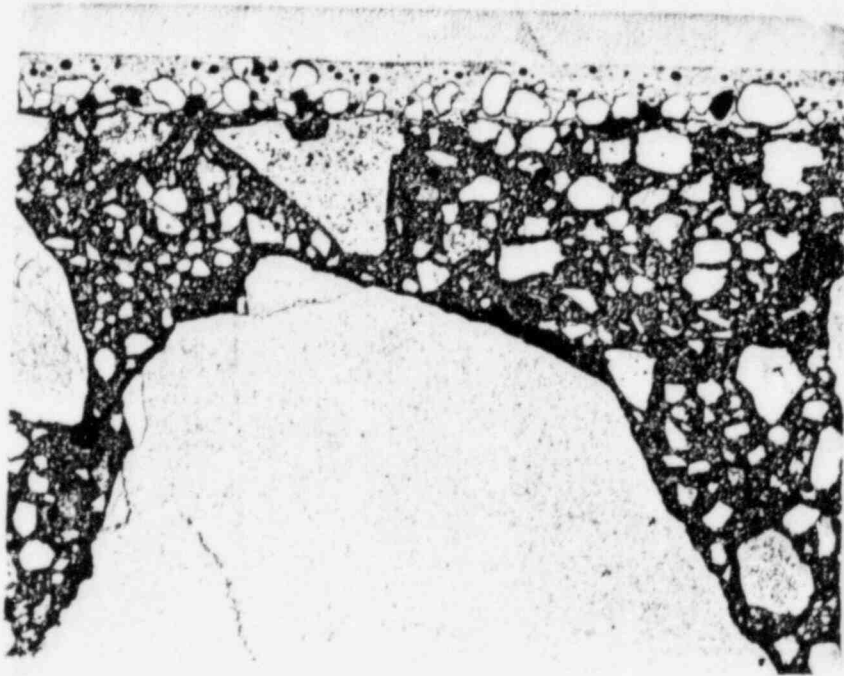
(Figure 4)

"DHV" Core Sample (281') As Ground



Autoradiography

12x



Optical

12x

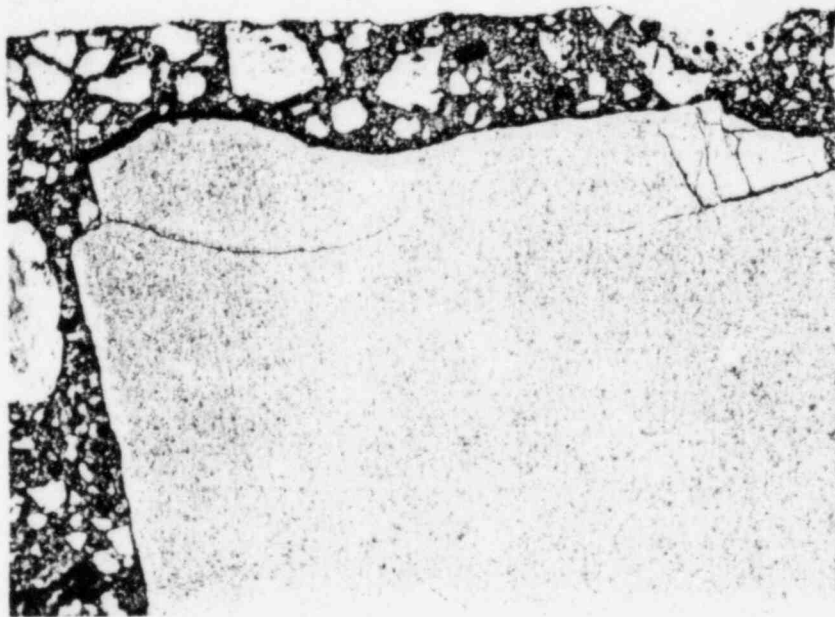
(Figure 5)

"DHV" Core Sample (281') After Paint Removal

Contamination in  
Pocket Area

Autoradiography

12x



Paint Layer in  
Pocket

Optical

12x

(Figure 6)



"Elevator" Core Sample (281') With Paint

Paint Filler



← Mounting Material

← Sealer

← Paint Layer 1

← Paint Layer 2

← Cement

Voids caused  
by paint filler  
"pulling out"  
during polishing

50x

(Figure 7)