

October 18, 1988

Mr. Bruce Mallett, Chief  
Nuclear Materials Branch  
U. S. Nuclear Regulatory Commission, Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60237

Dear Mr. Mallett:

As we discussed, enclosed is a description of core sampling and counting techniques for the new building construction area. Drawing A shows the sampling locations and Drawing B shows the foundation outlines for the new buildings. Also enclosed is a complete listing of sample counting results.

Sampling locations 1, 3, 6, 7, and 9 are the new foundation sites. These samples are all below the 30 picocuries per gram limit. Locations 4 and 5, which are above the limits, can be cleaned up after pouring the foundations. The central wall foundation, between existing Buildings 250 and 251, will be located in a no-traffic area that was covered with gravel for weed control. A thorough random survey with an Eberline PAC-4G alpha survey meter indicated no detectable contamination on the gravel. The gravel was removed and the underlying soil was surveyed. The soil also showed no detectable contamination.

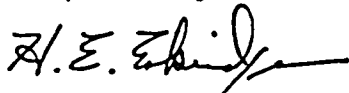
Buildings 250 and 251 were used for storage of bulk chemicals, enriched Uranium in various containers, and shipping/receiving activities. No processing of Uranium was conducted in these buildings. Sampling locations 4 and 5 are in an area where Uranium bearing solutions were processed in open tanks. Since there are cracks in the concrete pad, some soil contamination was expected.

The remainder of the construction area is mostly paved with asphalt. The asphalt area east of Building 250 was paved when this was still a clear area. No contamination under the asphalt would be expected, as evidenced by the location 8 samples. We would like to pour the concrete footings for the structural steel in this area (within the larger foundation outline east of Building 250) at the same time the foundations are poured.

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Please let me know if you require further information.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'H. E. Eskridge', with a stylized flourish at the end.

H. E. Eskridge,  
Supervisor, Nuclear Licensing,  
Safety and Accountability

HEE/ead/6059

Enclosure

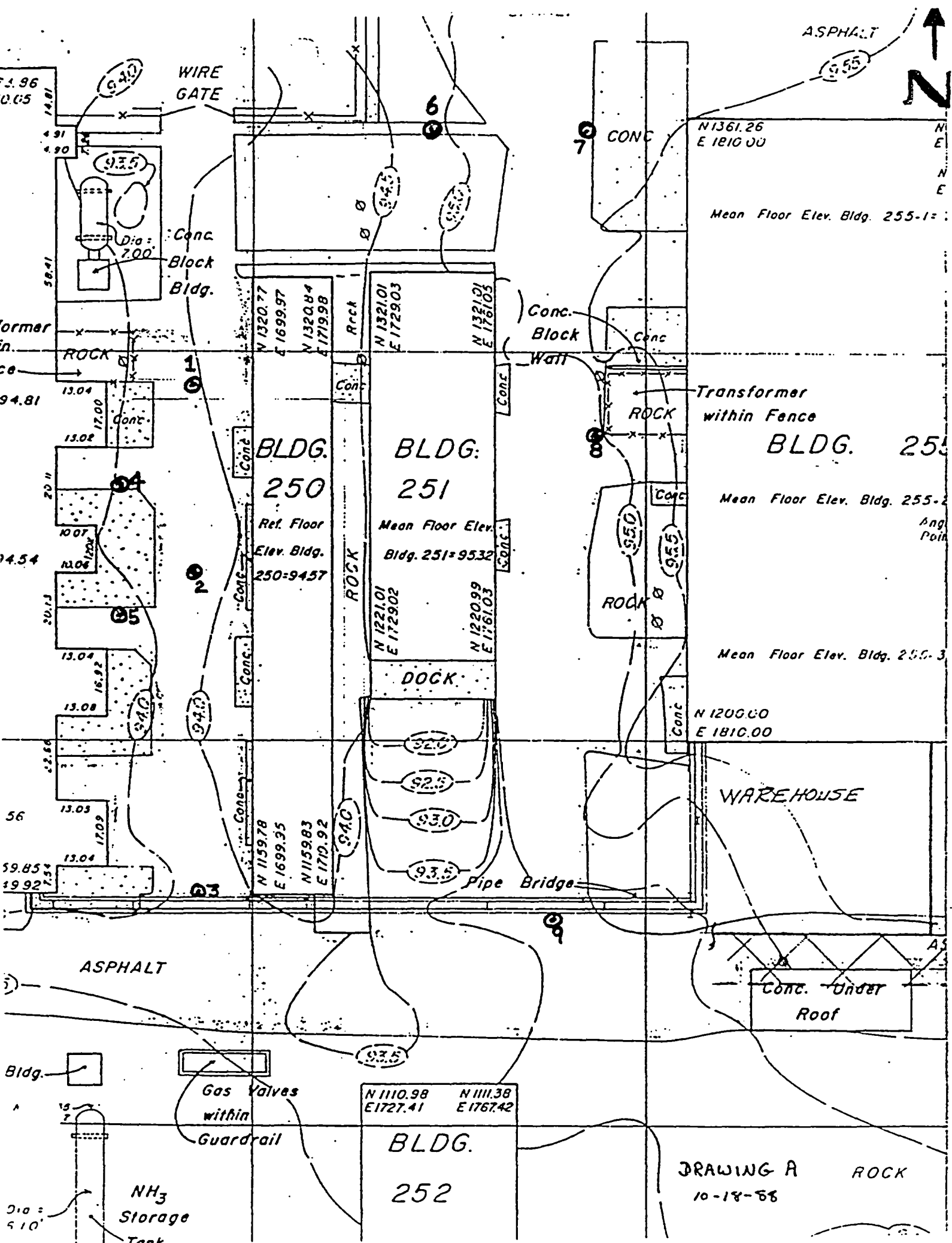
cc: L. C. Rouse, Chief  
Fuel Cycle Safety Branch

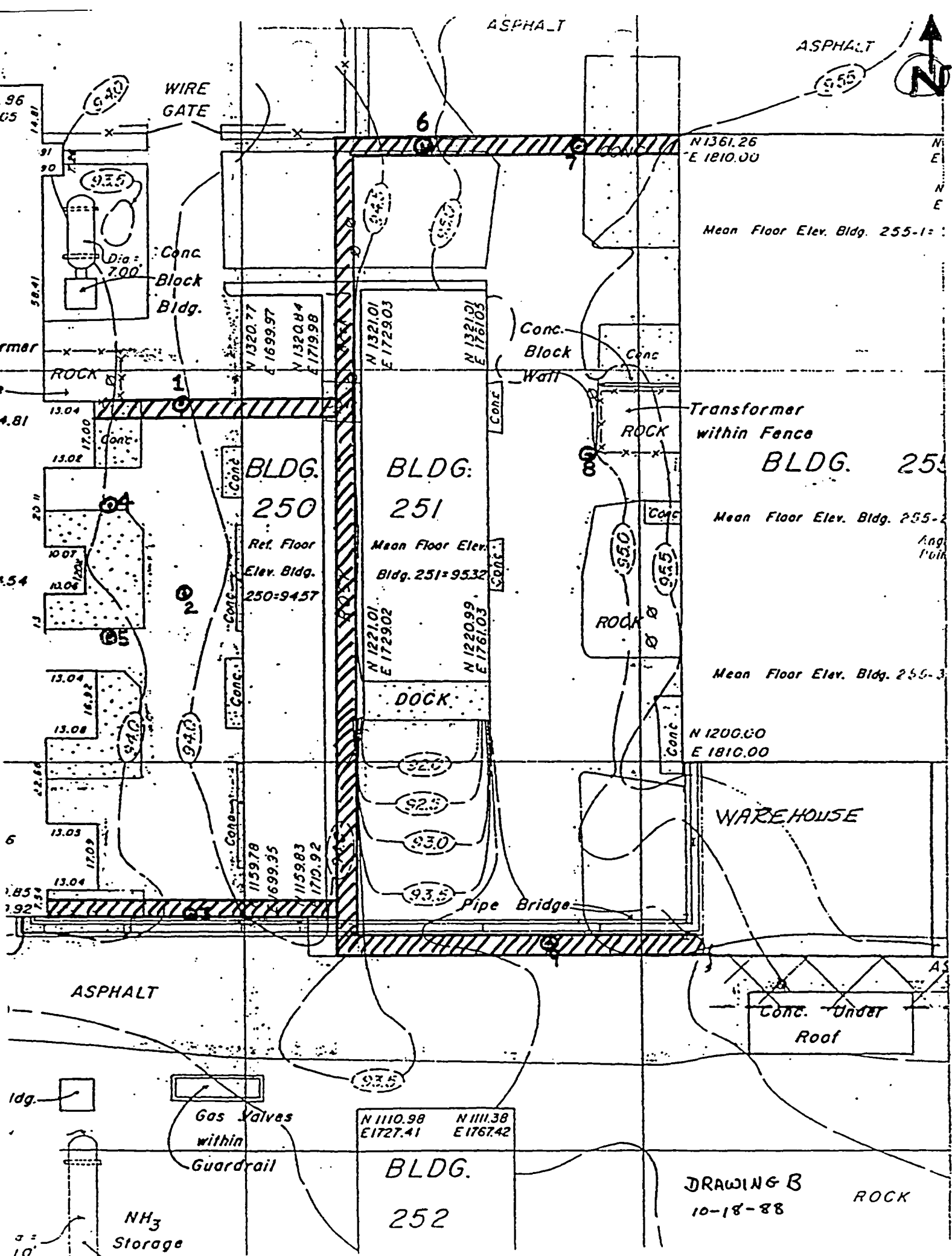
## CORE SAMPLING - HEMATITE CONSTRUCTION AREA

Core samples at one-foot intervals to a depth of six feet were obtained at locations 1 through 9 (Drawing A), using a split spoon core sampler with an I.D. of 1½ inches. A 2.5 to 3 inch section was taken after drilling to the proper depth. The split spoon sampler and all equipment involved was cleaned with a high pressure water spray between samples to prevent cross-contamination. The outer ¼ inch was "peeled" from the sections to eliminate any surface smearing which may have occurred during sampler penetration. The sample size retained was about 100 grams. The consistency of most samples was "packed mud".

Location 6 was the only location of the nine sampled which was not under asphalt. At the other locations, a sample of the roadway bed material was taken directly below the asphalt.

The samples were dried and crushed and a 0.5 gram portion removed for counting. The 0.5 gram sample was spread evenly on the bottom of a metal planchett and counted for 10 minutes for gross alpha activity, using a Tennelec LB5100 low background counting system. Results were multiplied by a factor of 4.47 to correct for alpha absorption in the sample.





## CORE SAMPLES TAKEN 10-08

DEPTH	HOLE NO.	SMP DEPTH	CPM	Pci/gm	
27.4	1	BC	0.53	8	NORTH END OF ROADWAY BETWEEN BLDG 240 & 250 (LOCATION OF FRONT WALL FOOTINGS FOR STORAGE AREA.)
27.4	1	1'	0.53	8	
27.4	1	1'	0.23	3	
27.4	1	2'	0.73	11	
27.4	1	3'	0.73	11	
27.4	1	4'	0.33	5	
27.4	1	5'	1.43	21	
27.4	1	6'	0.33	5	
27.4	2	BC	0.73	11	CENTER OF ROADWAY BETWEEN BLDG 240 & 250 (ADJACENT TO STORM SEWER.)
27.4	2	1'	1.23	18	
27.4	2	2'	0.83	12	
27.4	2	3'	0.73	11	
27.4	2	4'	0.73	11	
27.4	2	5'	0.63	9	
27.4	2	6'	0.33	5	
27.4	3	BC	0.23	3	SOUTH END OF ROADWAY BETWEEN BLDG 240 & 250 (LOCATION OF REAR WALL FOOTINGS FOR STORAGE AREA.)
27.4	3	1'	0.93	14	
27.4	3	2'	0.33	5	
27.4	3	3'	0.93	14	
27.4	3	4'	0.63	9	
27.4	3	5'	0.43	6	
27.4	3	6'	0.33	5	
27.4	4	BC	1.53	22	NORTH SIDE OF CONCRETE PAD OUTSIDE OF RED ROOM (NEAR CRACKED CONCRETE AND PROCESS SEWER.)
27.4	4	1'	9.63	142	
27.4	4	2'	1.33	20	
27.4	4	3'	1.93	28	
27.4	4	4'	0.53	8	
27.4	4	5'	0.83	12	
27.4	4	6'	1.03	15	
27.4	5	BC	2.93	43	SOUTH SIDE OF CONCRETE PAD OUTSIDE OF GREEN ROOM (MOP WATER BOIL DOWN AREA.)
27.4	5	1'	2.93	43	
27.4	5	2'	0.73	11	
27.4	5	3'	1.13	17	
27.4	5	4'	0.23	3	
27.4	5	5'	0.13	2	
27.4	5	6'	0.53	8	
27.4	6	1'	1.43	21	NORTH OF OLD WAREHOUSE (LOCATION OF FRONT WALL FOOTINGS FOR PELLET PLANT.)
27.4	6	2'	0.43	6	
27.4	6	3'	0.63	9	
27.4	6	4'	0.83	12	
27.4	6	5'	0.43	6	
27.4	6	6'	0.63	9	

"BC" SAMPLES WERE TAKEN DIRECTLY UNDER THE CRUST OF ASPHALT.

HOLE #1 @ 1' WAS HALF LIMESTONE AND HALF DIRT SO EACH WAS RUN SEPARATELY.

SAMPLES TAKEN BY: RICH SANDERS

WEIGHED BY: BRENDA PIGG

COUNTED BY: GERALD BOYER/ RICK STOKES

CALCULATED BY: RICH SANDERS

## CORE SAMPLES TAKEN 10-08-68

HOLE NO.	SMP DEPTH	CPM	Pci/gm	
25.3	7	BC	0.37	6
25.3	7	1'	1.17	19
25.3	7	2'	0.67	11
25.3	7	3'	0.87	14
25.3	7	4'	0.17	3
25.3	7	5'	0.37	6
25.3	7	6'	0.87	14
25.3	8	BC	2.57	41
25.3	8	1'	1.07	17
25.3	8	2'	0.77	12
25.3	8	3'	1.07	17
25.3	8	4'	1.37	22
25.3	8	5'	1.07	17
25.3	8	6'	0.37	6
25.3	9	BC	0.47	7
25.3	9	1'	0.37	6
25.3	9	2'	0.67	11
25.3	9	3'	0.37	6
25.3	9	4'	1.17	19
25.3	9	5'	0.87	14
25.3	9	6'	1.07	17

NOTES: "BC" SAMPLES WERE TAKEN DIRECTLY UNDER THE CRUST OF ASPHALT.  
 SAMPLES TAKEN BY: RICH SANDERS/GERALD BOYER  
 WEIGHED BY: RICH SANDERS/NANCY WILPER/RICK STOKES  
 COUNTED BY: NANCY WILPER/RICK STOKES/GERALD BOYER  
 CALCULATED BY: RICH SANDERS