

Docket - 04000036

**COMBUSTION ENGINEERING**

May 20, 1988

George Bidinger,  
Uranium Fuel Section  
Division of Fuel Cycle, Medical  
Academic, and Commercial Use Safety  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Bidinger:

As we discussed during your recent visit to the Hematite plant, this is a status report to furnish additional data for the evaporation pond decommissioning and the spent limestone monitoring projects.

After removing over 2600 cubic feet of contaminated material from the primary retention pond, core samples were obtained in October 1987 from the bottom and sides of the pond. A sample was taken from each core at six (6) inch intervals and analyzed for alpha activity. Results of these analyses are shown in the attached table.

Soil from areas of the primary pond that had contamination levels above 250 picocuries per gram remaining after the previous years' decontamination effort was removed to reduce residual contamination to below this level. A solubility test was conducted on a composite sample of the removed material. The test showed the uranium present in the sample to have approximately the same solubility as calcium diuranate, which is considered insoluble.

Water present in the primary pond, sampled after removing the cover that was present during your visit, has now decreased to 33% of MPC for alpha activity (U-234) and 4% of MPC for beta activity (Tc-99). This is a significant decrease from the levels present in previous years, indicating that the decontamination effort was largely effective.

About 1200 cubic feet of soil and rock was also removed from the secondary retention pond during 1987. As shown in the attached table, some areas are still above the target contamination level and require removal of additional material.

Also attached is a summary of continuous high-volume air sampling conducted above the spent limestone piles. The results, shown in the attached table, include natural background from ambient dust loading and any contribution from normal operating stack emissions.

MAY 25 1988 R-6

George Bidinger  
U.S.N.R.C.

May 20, 1988  
Page 2

Now that the air sampling has been completed, we will sample the spent limestone piles in accordance with the sampling plan required by Condition 18 to License SNM-33, which was previously submitted and approved. The results of this sampling will be sent to you when analyses are completed.

We also plan to take additional samples of the primary pond this year and will send an updated contamination level mapping when this is completed.

Cordially,

COMBUSTION ENGINEERING, INC.



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

HEE/sly

NIS/88/6018

Attachments

## PRIMARY RETENTION POND CORE SAMPLES

No (North), So (South), Ea (East), We (West), Avg. (Average)

Depth Inches	PCi Uranium/Gm Soil									
	Bottom					Side				
	No	So	Ea	We	Avg.	No	So	Ea	We	Avg.
6	87	86	123	101	99	81	62	54	674	218
12	71	87	37	89	71	76	55	21	106	65
18	60	77	30	76	61	73	35	24	66	50
24	43	68	31	87	57	85	35	35	72	57
30	25	98	24	87	59	64	37	32	38	43
36	35	102	14	79	58	57	37	35	72	50
42	26	42	18	70	39	16	34	38	56	36
48	22	20	14	74	33	29	38	38	65	43
54	24	9	6	86	31	--	38	26	46	37
60	9	2	3	95	27	--	29	38	53	40

54

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Assume West 6" and 12"  
samples were contaminated  
and use avg. of No, So, &  
Ea for We value.

6" = 66 PCi/gm

12" = 51 PCi/gm Overall  
Avg. is then 47 PCi/gm.

1/2 gm samples of bottom cores  
composited, mixed & 1/2 gm sample  
taken and counted - 70 PCi/gm

Composite - 48 PCi/gm

**SECONDARY RETENTION POND  
SURFACE SOIL SAMPLES**

PCi/Gm

205	81	249	217	251	13
262	55	57	338	220	133
229	78	72	468	361	277
304	56	307	370	251	356
103	213	339	173	316	292
291	164	354	84	208	432
357	209	344	136	93	448
181	188	121	378	745	198
321	121	369	233	329	229
114	229	200	41	39	676
74	58	277	88	154	90
35	46	184	181	34	46
198	34	50	72	51	102
173	47	19	191	146	49
311	100	51	81	61	77
188	218	69	211	189	109
153	118	131	176	139	146
393	302	294	264	63	35
145	138	71	124	76	382
145	208	86	131	56	180
133	58	116	129	30	21
142	38	105	108	27	190
98	41	179	35	61	39
129	32	111	34	291	38
97	75	54	176	250	605

↑  
Inlet

Samples taken 09-11-87 on a 3 foot grid after 1170 ft<sup>3</sup> (13 tote boxes) of soil and rock were removed.

## QUARTERLY COMPOSITE AIR SAMPLING ABOVE LIMESTONE PILES

		Concentration ( $\times 10^{-15}$ $\mu\text{Ci/ml}$ )		
		<u>Inside Fence</u>	<u>East</u>	<u>West</u>
1985	July - September	4.7	2.6	8.3
	October - December	7.8	3.9	2.7
1986	January - March	1.6	1.8	2.0
	April - June	*	1.2	1.0
	July - September	9.5	6.0	5.6
	October - December	8.8	7.6	5.8
1987	January - March	6.5	3.3	4.4
	April - June	5.8	4.0	2.0
	July - September	3.1	2.8	2.4
	October - December	6.6	4.4	3.8

\*Sampler Down

Continuous air sampling was conducted at the center of, and approximately 1 meter above, the uncovered spent limestone piles. The weekly samples were composited and analyzed for Uranium activity on a quarterly basis. The lower limit of detection was less than  $10^{-16}$   $\mu\text{Ci/ml}$ .