

I-GANE-68
ORISE

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

April 21, 1995

Mr. Craig Basset
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 2900
Atlanta, GA 30323

WHEN NRC SENT ME
MY COPY, I ONLY
GOT ATTACHMENT 2!!

SUBJECT: RADIOLOGICAL ANALYSES OF SAMPLES COLLECTED FROM THE
CLAYTON WATER TREATMENT PLANT, ATLANTA, GEORGIA
(RFTA NO. 95-18)

Dear Mr. Basset:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) performed a site visit and collected four sludge samples from the Clayton Water Treatment Plant located in Atlanta, Georgia on March 13, 1995. Per the request of the U. S. Nuclear Regulatory Commission, the two liquid sludge samples (raw sludge and digested sludge) were filtered and the dissolved and suspended solids samples were analyzed separately. Two solid samples (feed cake and ash) were also collected. ESSAP performed the requested gamma spectrometry and Sr-90 analyses on all the samples and performed gross alpha and gross beta analyses on the liquid portions of the sludge samples. The results of the radiological analyses of the samples are presented in Table 1.

If you have any questions or comments, please contact me at (615) 576-0065 or William L. (Jack) Beck at (615) 576-5031.

Sincerely,

Wade C. Adams

Wade C. Adams
Health Physicist/Project Leader
Environmental Survey and
Site Assessment Program

WCA:daa

Attachments

cc: R. Uleck, NRC/NMSS/TWFFN/7F27
D. Tiktinsky, NRC/NMSS/TWFFN/8A23
PMDA, NRC/NMSS/TWFFN/8A33
W. Beck, ORISE/ESSAP
E. Abelquist, ORISE/ESSAP
File/288

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NUCLEAR REGULATORY COMMISSION

Docket No. 50-160-KEN EXHIBIT NO. 68
in the matter of Go Jack
☐ Staff ☐ Applicant ☒ Intervenor ☐ Other
☐ Identified ☐ Received ☒ Rejected Reporter WLCW
Date 6/26/96 Witness James B

9608080212 960626
PDR ADOCK 05000160
G PDR

**RADIONUCLIDE CONCENTRATIONS IN SLUDGE SAMPLES
FROM CLAYTON WATER TREATMENT PLANT
ATLANTA, GEORGIA**

Radionuclide/ Analyses	Radionuclide Concentrations					
	Raw Sludge (pCi/L)		Digested Sludge (pCi/L)		Feed Cake (pCi/g)	Ash (pCi/g)
	Dissolved	Suspended ^a	Dissolved	Suspended ^a	Solid	Solid
Gross Alpha	5.32 ± 1.33^b	---	12.69 ± 2.93	---	---	---
Gross Beta	13.36 ± 1.57	---	70.31 ± 3.77	---	---	---
Be-7	<55.3	<16.2	<96.9	125.0 ± 23.9	5.9 ± 0.6	10.9 ± 1.1
Ga-67	<44.9	<10.8	<99.1	<22.6	2.4 ± 0.2	5.9 ± 0.6
Sr-90	<3.7	<2.0	<3.4	11.0 ± 2.8	0.5 ± 0.1	1.1 ± 0.2
I-131	8.6 ± 6.0	<1.8	94.2 ± 12.8	<3.7	4.6 ± 0.1	0.1 ± 0.1
Cs-137	<7.1	<2.3	<11.6	<4.2	0.1 ± 0.1	<0.1
Eu-155	<15.7	<3.8	<23.5	12.8 ± 7.1	0.1 ± 0.1	<0.3
Tl-201	53.2 ± 8.9	<2.9	<25.7	37.8 ± 4.1	8.0 ± 0.2	18.1 ± 0.4
Bi-214	61.5 ± 19.2	7.8 ± 11.9	<30.3	141.8 ± 15.5	<0.2	0.6 ± 0.2
Th-228	5.4 ± 9.6	-2.3 ± 5.7	11.0 ± 16.0	148.1 ± 8.4	0.7 ± 0.1	1.2 ± 0.2
Th-232	<32.1	2.8 ± 14.5	<51.2	143.6 ± 20.6	1.1 ± 0.3	2.0 ± 0.4
U-235	<9.6	* 5.5 ± 2.6	<13.2	* 22.7 ± 5.2	<0.1	<0.3
U-238	<152	<50	<209	214.5 ± 83.6	0.5 ± 1.2	<3.9

Except where noted by an asterisk (), the activity of the filter was subtracted from the sample. The activity of the filter was not subtracted for the U-235 concentration due to the minute quantity.

^bUncertainties represent the 95% confidence level, based only on counting statistics.

^aA dash indicates that analysis was not performed.

NO
Q-60
OR H-3
TESTS
I HAD
ASKED !!!
FOR !!!

I ONLY
BOT THIS

ATTACHMENT 2

RADIONUCLIDE CONCENTRATIONS IN SLUDGE SAMPLES FROM THE CLAYTON WATER TREATMENT PLANT ATLANTA, GEORGIA

Radionuclide/ Analyses	Radionuclide Concentrations					
	Raw Sludge (pCi/L)		Digested Sludge (pCi/L)		Feed Cake (pCi/g)	Ash (pCi/g)
	Dissolved	Suspended*	Dissolved	Suspended*	Solid	Solid
Gross Alpha	5.32 ± 1.33 ^b	--*	12.69 ± 2.93	--	--	--
Gross Beta	13.36 ± 1.57	--	70.31 ± 3.77	--	--	--
Be-7	<LLD ^d	<LLD	<LLD	125.0 ± 23.9	5.9 ± 0.6	10.9 ± 1.1
Ga-67	<LLD	<LLD	<LLD	<LLD	2.4 ± 0.2	5.9 ± 0.6
Sr-90	<LLD	<LLD	<LLD	11.0 ± 2.8	0.5 ± 0.1	1.1 ± 0.2
I-131	8.6 ± 6.0	<LLD	94.2 ± 12.8	<LLD	4.6 ± 0.1	0.1 ± 0.1
Cs-137	<LLD	<LLD	<LLD	<LLD	0.1 ± 0.1	<LLD
Eu-155	<LLD	<LLD	<LLD	12.8 ± 7.1	0.1 ± 0.1	<LLD
Tl-201	53.2 ± 8.9	<LLD	<LLD	37.8 ± 4.1	8.0 ± 0.2	18.1 ± 0.4
Bi-214	61.5 ± 19.2	7.8 ± 11.9	<LLD	141.8 ± 15.5	<LLD	0.6 ± 0.2
Th-228	5.4 ± 9.6	<LLD	11.0 ± 16.0	148.1 ± 8.4	0.7 ± 0.1	1.2 ± 0.2
Th-232	<LLD	2.8 ± 14.5	<LLD	143.6 ± 20.6	1.1 ± 0.3	2.0 ± 0.4
U-235	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
U-238	<LLD	<LLD	<LLD	214.5 ± 83.6	0.5 ± 1.2	<LLD

NO 60-60
IA H-3
TESTS

*The background activity of the filter was subtracted from the sample.

^bUncertainties represent the 95% confidence level, based only on counting statistics.

^cA dash indicates that analysis was not performed.

^dLess than the lower limit of detection (LLD).