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C.A. = U234 + U235 + U238

R2-B32

- (C) sample -

NOTE TO: JIM HEATH

09/07/94

SUBJECT: NRC INSPECTION 70-1151/94-03

In this NRC inspection conducted by Mr. Robert Carrion an IFI was opened relating to the comparison of an effluent sample previously split and sent to the NRC and CEP, our vendor analysis laboratory. The vendor sample analysis did not favorably compare with the NRC Gross Alpha and Beta analyses.

After reviewing the vendor data, the following was noted:

Isotope	Conc, uCi/ml E-06
U-234	0.395 ^{uCi}
U-235	0.030 0.043
U-238	0.140 0.166

Sum of (CEP) iso U 0.565

← 5 + x % est. 590

Gross Alpha(CEP) 0.544

Ratio iso U /G.A. 1.04

NRC Gross Alpha 1.20

Ratio WG.A./NRC G.A. 0.45

CEP Gross Beta 0.149
(Cal. fr GA ratio) 0.187

NRC Gross Beta 0.550

The NRC analysis of isotopic uranium was in agreement; however, with our waste the sum of the isotopic uranium usually is in close agreement with the gross alpha, since uranium is the only alpha emitter normally present in our waste. This premis is verified with the CEP isotopic analysis sum and their gross alpha result. The NRC result however does not agree with their "agreeing" gross alpha. Also, their result appears to be substantially higher than our normal "average" gross alpha results for the past 12 months.

CEP was contacted by Westinghouse to review their EPA/EMSL-LV Cross check analyses in the second and third quarter of 1993 and 1994 results. All values were within the acceptance range and deemed as "hits" for accuracy. A copy is attached.

After reviewing the data and CEP crosscheck results, it appears that the NRC laboratory may have developed some error in the gross alpha analysis. No explanation is available for the deviation in the Gross Beta, although the vendor results do not appear to deviate from past values and expected ratio (2.9) of gross alpha to gross beta.

A recommended followup would consist of sending a split sample to

two alternate laboratories for a check during the next NRC effluent inspection.

Roger E. Fischer
Senior Engineer



Controls for Environmental Pollution, Inc.

P.O. BOX 5551 • Santa Fe, New Mexico 87502 OUT OF STATE 800/548-2188 • FAX 505-982-9280

Order # 93-11-100
12/07/93 09.48

**Controls For Environmental
TEST RESULTS BY SAMPLE**

Page 2

Sample Description: Special Eff. Monitor Split Lab No: 01A
Test Description: Gross Alpha/Beta Method:
Collected: 10/29/93 Category: WATER

Test Code: AB

Type of Analysis	Detection Limit	RESULT
Gross Alpha	0.002	<u>0.544 +/- 0.028</u>
Gross Beta	0.003	<u>0.149 +/- 0.008</u>

0.544 E-06 uCi/ml
0.149 E-06 uCi/ml

All results report in.

UNITS uCi/ml x10-6
Analyzed 11/23/93
By SI

Sample Description: Special Eff. Monitor Split Lab No: 01A
Test Description: Isotopic Uranium Method:
Collected: 10/29/93 Category: WATER

Test Code: ISOU

Type of Analysis	Detection Limit	RESULT
Uranium-234	_____	<u>0.395 +/- 0.031</u>
Uranium-235	_____	<u>0.030 +/- 0.008</u>
Uranium-238	_____	<u>0.140 +/- 0.043</u>

All results report in:
UNITS uCi/ml x10-6
Analyzed 11/30/93
By CM

8037832173-3-3
CEP, Inc.
15:43
9-2-94
JAN DI. CER. INC.



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P.O. BOX 5351 • Santa Fe, New Mexico 87502

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Controls for Environmental
Pollution, Inc.

P. O. Box 5351
Santa Fe, NM 87502

Phone: (505) 982-9841 / (800) 545-2188

Westinghouse Electric
P. O. Drawer R
Columbia, SC 29230

Attn: Roger Fischer

Purchase Order: FC-81:60-H-GM
Invoice Number:


Order #: 93-11-100
Date: 12/07/93 09:48
Work ID: Water (NR)
Date Received: 11/08/93
Date Completed: 12/07/93

Client Code: WEST_COLUMB

SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Sample Description</u>	<u>Sample Number</u>	<u>Sample Description</u>
01	Special Eff. Monitor Solis		

Remainder of sample(s) for routine analysis will be disposed of three weeks from final report date. Sample(s) for bacteria analysis only, will be disposed of immediately after analysis. This is not applicable if other arrangements have been made.

Certified By 

8007832173.- 2 3
CEP, Inc.-
: 9-2-94 : 15:43 :
SENT BY: CEP, Inc.

Controls for Environmental Pollution, Inc.

EPA/EMSL-LV CROSS CHECK PROGRAM
INTERCOMPARISON STUDY

DATE 1993	PARAMETER MATRIX	EPA KNOWN VALUE pCi/l _s	EPA ACCEPTANCE RANGE (pCi/l)	CEP AVG	H M
07/23	ALPHA/H ₂ O	15.0±5.0	6.3 - 23.7	13.00	H
10/24	ALPHA/H ₂ O	20.0±5.0	11.3 - 28.7	18.67	H

EPA/EMSL-LV CROSS CHECK PROGRAM
INTERCOMPARISON STUDY
PERFORMANCE STUDY A/B

DATE 1993	PARAMETER MATRIX	EPA KNOWN VALUE pCi/l _s	EPA ACCEPTANCE RANGE (pCi/l)	CEP AVG	H M
04/20	ALPHA	95.0±24.0	53.4 - 136.6	92.00	H
10/19	ALPHA	40.0±10.0	22.7 - 57.3	47.67	H

H = HIT
M = MISS

Controls for Environmental Pollution, Inc.

EPA/EMSL-LV CROSS CHECK PROGRAM
PERFORMANCE EVALUTATION STUDY

DATE 1994	PARAMETER MATRIX	EPA KNOWN VALUE pCi/l _s	EPA ACCEPTANCE RANGE (pCi/l)	CEP AVG	H M
01/28	ALPHA/H2O	15.0±5.0	6.3 - 23.7	17.00	II

EPA/EMSL-LV CROSS CHECK PROGRAM
INTERCOMPARISION STUDY
PERFORMANCE STUDY A/B

DATE 1994	PARAMETER MATRIX	EPA KNOWN VALUE pCi/l _s	EPA ACCEPTANCE RANGE (pCi/l)	CEP AVG	H M
04/19	ALPHA	86.0±22.0	47.8 - 124.2	91.33	H

H = HIT
M = MISS

NOTE: These are the only results revealed for 1994 from EPA