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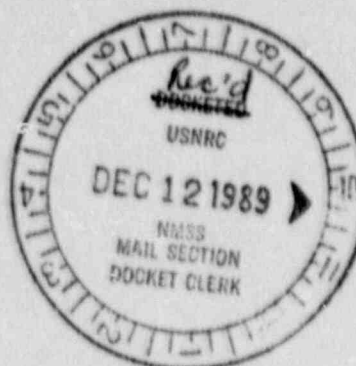
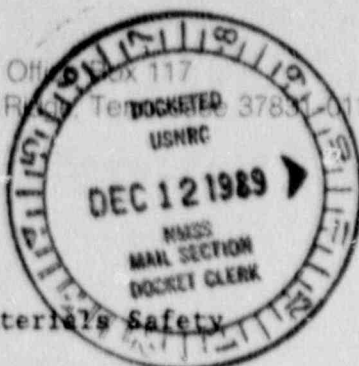


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Energy/
Environment
Systems Division

December 4, 1989



Dr. Germain LaRoche
Office of Nuclear Materials Safety
and Safeguards
Nuclear Regulatory Commission
Mail Stop 6H3
Washington, DC 20555

Subject: ANALYSIS OF CROSS CHECK SOIL SAMPLES - BP CHEMICAL SITE

Dear Dr. LaRoche:

To confirm the accuracy of data being developed by Chem Nuclear Systems, Inc., (CNSI), during activities at BP Chemical in Lima, Ohio, ORAU has analyzed six soil samples, recently submitted by CNSI. The analytical procedures used by CNSI and ORAU are very similar; the analyses for Uranium-238 were performed using gamma spectrometry and a 500 ml Marinelli beaker counting geometry. Photopeaks from the Thorium-234 daughter of Uranium-238 were used to determine the U-238 concentration. The major difference in the techniques was that CNSI used a preset count approach (to attain a predetermined level of confidence in the data), while ORAU counted for a preset time. Results of the analyses, presented in Table 1, demonstrate very good agreement between the two analytical laboratories. ORAU is confident that the CNSI soils data, developed by this method will be accurate.

If you have any questions about these results, I may be reached at FTS 626-3305 or (615) 576-3305.

Sincerely,

James D. Berger, Director
Environmental Survey and
Site Assessment Program

JDB:jls

cc: D. Sreniawski, NRC/Region III
S. Miller, CNSI
D. Tiktinsky, NRC/6A4
L. Rouse, NRC/6H3

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additional
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TABLE 1
RESULTS OF CROSS CHECK ANALYSES
ON SOIL SAMPLES

LOCATION	ANALYZED BY	U-238 CONCENTRATION (pCi/g)
10	CNSI	32.9 ± 3.3^a
	ORAU	36.8 ± 0.5
13	CNSI	28.5 ± 2.9
	ORAU	27.7 ± 0.4
14	CNSI	95.9 ± 9.6
	ORAU	85.7 ± 0.6
15	CNSI	36.0 ± 3.6
	ORAU	37.0 ± 0.5
35	CNSI	1.5 ± 0.8
	ORAU	1.4 ± 0.3
39	CNSI	17.2 ± 2.1
	ORAU	19.0 ± 0.3

^aUncertainties reported by CNSI represent the 90% confidence levels in the concentration data. ORAU uncertainties represent the 95% confidence levels. Both CNSI and ORAU uncertainties are based only on counting statistics and do not include other potential sources of uncertainty associated with sampling and laboratory activities.