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UNIVERSITY OF CALIFORNIA
LOS ALAMOS SCIENTIFIC LABORATORY
(CONTRACT W-7405-ENG-36)
P.O. BOX 1663
LOS ALAMOS, NEW MEXICO 87545

IN REPLY REFER TO: H8-79-277
MAIL STOP: 490

August 2, 1979

Dr. Ray Cooperstein
New Facilities Section
Uranium Recovery Licensing Branch
Division of Waste Management
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Report of Se Analysis - Samples from Canon City, CO

Dear Dr. Cooperstein:

This is the final analytical report concerning samples collected in the Lincoln Park - Canon City area in June 1979. Sampling site numbers are again keyed to Mr. Dreesen's trip report to Mr. Scarano (H12-79-263) dated 25 June 1979. Sampling and preparation procedures were included in my preceeding report to you (H8-79-221) dated 27 June 1979.

Selenium determinations in the water samples (Table I) were done using the atomic absorption procedure described by R. D. Ediger: "Atomic Absorption Analysis with the Graphite Furnace Using Matrix Modification," Atomic Absorption Newsletter 14, 127 (1975). All water samples were refluxed with 20% HNO_3 prior to analysis to destroy any organo-Se complexes present. Soils and vegetation (Table I) were analyzed by a radiochemical neutron activation analysis method involving separation of ^{75}Se on Al_2O_3 and Ge(Li) gamma ray spectroscopy. The details of this procedure are being prepared for publication.

Quality assurance analyses of NBS, USGS, and EPA reference samples have again provided to demonstrate the accuracy of our analyses.

Sincerely,

Ernest S. Gladney

Ernest S. Gladney, Ph.D.
Section Leader
Analytical Chemistry
Group H-8, MS 490
Environmental Surveillance

ESG:vh

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xc: Mr. Ross Scarano, NRL
Mr. Kenneth Weaver, Colorado Dept. Health
Mr. Miles Fixman, Cotter Corp.

Attachment: Table I

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TABLE I: SELENIUM CONCENTRATIONS IN WATER, SOIL AND VEGETATION FROM CANON CITY, CO.

Sample #	Se(ppb)
W-1	113 ± 7
W-2	4 ± 3
W-3	<3
W-4	<3
W-5	<3
W-6	<3
W-7	<3
W-8	<3
W-9	115 ± 8
W-10	<3
W-11	<3
W-12	<3
EPA Quality Control Samples for Trace Element Analyses #2 (Recommended value = 44 ppb)	42 ± 5 41 ± 3
S-1	76 ± 28
S-2	220 ± 20
S-3	17 ± 30
S-4	22 ± 20
S-5	300 ± 30
S-6	320 ± 40
S-7	280 ± 30
S-8	250 ± 30
S-9	380 ± 30
S-10	540 ± 50
S-11	520 ± 40
S-12	430 ± 20
S-13	240 ± 30
S-14	540 ± 50
S-15	320 ± 30
S-16	260 ± 20
S-17	230 ± 30
USGS GXR-5 (Recommended Value = 1100 ± 100 ppb)	1250 ± 40 1030 ± 150 990 ± 130
V-1	370 ± 50
V-2	290 ± 30
V-3	180 ± 30
V-4	88 ± 32
V-5	190 ± 30
V-6	110 ± 30
V-7	180 ± 50
V-8	190 ± 40
V-9	70 ± 30
V-10	40 ± 30
NBS Orchard Leaves (Certified Value = 80 ± 10 ppb)	64 ± 24 96 ± 28

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