

JULE M. SUGARMAN  
Secretary

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STATE OF WASHINGTON  
DEPARTMENT OF SOCIAL AND HEALTH SERVICES  
Olympia, Washington 98504-0095

DEPARTMENT OF ECOLOGY  
MAY 24 1988

May 19, 1988

Mr. Mark Fuchs  
Washington Department of Ecology  
Mail Stop PV-11  
Olympia, Washington 98504

Dear Mr. Fuchs:

Attached are the analytical results from the ground water samples split with Battelle and your agency last October from around the 100-H Basin on the Hanford Reservation.

All real numbers, where available, have been reported. Isotopes listed as "NA" were not analyzed because they fell below an agreed trigger point for gross alpha and gross beta. Please note that all gamma emitting radionuclides were less than the detection limit (LLD). The gamma analysis included (LLD in pCi/l): Cr-57 (35), Mn-54 (2.1), Fe-59 (5.6), Co-58 (2.3), Co-60 (3.0), Zn-65 (4.4), Zr-95 (4.8), Ru-106 (19), Sb-125 (5.7), I-131 (26), Cs-134 (2.1), Cs-137 (2.1), Ba-140 (2.7), Ce-144 (18), Eu-152 (15), Eu-154 (15), and Eu-155 (20). These are the gamma emitting radionuclides that could be expected with any significance in Hanford liquid effluents and ground water.

Several samples yielded elevated gross beta results, which were not supported by specific analysis. A possible explanation is the presence of pure beta emitters other than strontium, including technicium 99 and carbon 14. Our laboratory is currently evaluating analytical procedures for these isotopes.

If you have any questions, please call Al Conklin at 586-0254 or Doug Hildebrand at (509) 545-2313.

Sincerely,

*Bruce Pickett FOR*

Robert R. Mooney, Head  
Environmental Protection Section  
Office of Radiation Protection

RRM/AC/db

Enclosure



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**THE DEPARTMENT OF SOCIAL AND HEALTH SERVICES**  
**OFFICE OF RADIATION PROTECTION**

RADIONUCLIDE ANALYSIS FROM GROUNDWATER SAMPLES  
 SPLIT WITH THE DEPARTMENT OF ECOLOGY AND USDOE (PNL)  
 FROM AROUND 100-H BASIN AT HANFORD  
 (COLLECTED OCTOBER 6-7, 1987)

Well #	RADIONUCLIDE CONCENTRATION (pCi/L)											Nitrate (mg/L)
	TOTAL ALPHA	TOTAL BETA	H-3	ALL GAMMA	Sr-89	Sr-90	Th-232	Th-230	TOTAL U	Pu-239/240	Pu-238	
199-H4-3	195 ± 20	400 ± 5	1600 ± 230	<DL	-1 ± 40	0.4 ± 0.49	0.02 ± 0.03	-0.01 ± 0.12	123 ± 3	-0.00 ± 0.01	0.1 ± 0.2	350 ± 80
199-H3-2A	2 ± 2	6 ± 1	2400 ± 250	<DL	NA	NA	NA	NA	NA	NA	NA	3.6 ± 0.7
199-H4-9	17 ± 6	95 ± 3	2030 ± 250	<DL	<DL	0.53 ± 0.46	-0.01 ± 0.08	-0.04 ± 0.12	10 ± 0.5	-0.02 ± 0.05	0.06 ± 0.2	23.5 ± 4.7
199-H4-12B	11 ± 2	45 ± 2	725 ± 215	<DL	NA	NA	-0.00 ± 0.02	0.02 ± 0.12	7.4 ± 0.5	-0.03 ± 0.06	0.04 ± 0.23	15.8 ± 3.1
199-H4-14	4 ± 3	6 ± 1	730 ± 220	<DL	NA	NA	NA	NA	NA	NA	NA	4.1 ± 0.8
LLD	4	0.5	350		0.7	0.7	0.15	0.1	0.2	0.04	0.2	

NA = NOT ANALYZED