U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-312/81-18

Docket No. 50-312 License No. DPR-54 Safeguards Group

Licensee: Sacramento Municipal Utility District
1708 59th Street
Box 15830
Sacramento, California 95813

Facility Name: Rancho Seco

Inspection at: In Office

Inspection conducted: June 30, 1981

Inspectors: G. Hamada — July 14, 1981
G. Hamada, Radiation Laboratory Specialist — Date Signed

Date Signed

Date Signed

Approved by: R. F. Fish for — July 14, 1981
F. Wenslawski, Chief, Reactor Radiation Protection Section — Date Signed

Approved by: H. E. Book — July 14, 1981
H. E. Book, Chief, Radiological Safety Branch — Date Signed

Summary:

Inspection of June 30, 1981 (Report No. 50-312/81-18)

This report is a followup to Report No. 50-312/81-11 in which an open item was identified. Elements relating to the open item are discussed here, and on the basis of the results obtained, the open item is closed.

RV Form 219 (2)

DETAILS

1. Background

During the inspection of March 16-20, 1981 (Inspection Report No. 50-206/81-11) for independent measurements verification, a liquid effluent sample was obtained for split analyses between Rancho Seco and the NRC Contractor Laboratory (Radiological and Environmental Sciences Laboratory (RESL) of the Department of Energy). The intercomparison measurements included analysis for Tritium (H^3), Gross Beta, SR-89 and SR-90. The analyses have been completed and the results are discussed below.

2. Discussion of Results

The table below indicates agreement for tritium and possible agreement for the other analyses.

ANALYSIS	RANCHO μCi/ml	RESL μCi/ml	RATIO RANCHO/RESL	AGREEMENT RANGE	POSSIBLE AGREEMENT
H-3	(1.81 ± 0.01) E-1	(1.56 ± 0.01) E-1	1.16	0.80-1.25	0.75-1.33
SR-89	(3.80 ± 0.50) E-5	(7.7 ± 0.5) E-5	0.49	0.6 -1.66	.4 -2.5
SR-90	(1.52 ± 0.33) E-5	(0.9 ± 0.1) E-5	1.7	0.6 -1.66	.4 -2.5
Gross B	(2.96 ± 0.01) E-2*	(1.80 ±0.07) E-2**	1.64	0.75-1.33	.5 -2.0

* Analyzed on 4/9/81, 0900
** Analyzed on 4/9/81, 1606

Rancho Seco uses Co-60 (average beta energy - 96 Kev) to calibrate for gross beta, whereas, RESL uses Cs-137 (average beta energy - 187 Kev). Because of the significant difference in their average beta energies, the efficiencies would also be different. Measurements using Co-60 calibration would tend to be high as compared to the same measurements performed with Cs-137 calibration. In the above table, the gross beta results are in the direction expected. Rancho Seco personnel was informed of this potential discrepancy during the inspection of March 16-20, 1981. They agreed that this situation should be corrected, and more recent communication with Rancho indicated that a Cs-137 standard has been ordered and a new calibration for gross beta with Cs-137 should be completed in the near future.

While total agreement was not achieved, none of the intercomparison results was rejected because of "no agreement". They all fell at least within the category of "possible agreement". On the basis of this qualified agreement, the open item (item no. 81-11-01) identified in report no. 50-312/81-11 is closed. It is expected, however, that necessary steps will be taken to further improve the analytical procedures such that better agreement may be achieved in the future.