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Houston Lighting & Power South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

July 29, 1997
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Mr. Ellis W. Mershoff
Regional Administrator
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499

Dear Mr. Mershoff,

In order to respond more fully on your question regarding liquid waste effluents, the following information is provided. Compiling existing information from our 1996 Annual Radioactive Effluent Release Report and 1996 Annual Environmental Operating Report provides a comprehensive overview of the important parameters and indicators associated with radioactive liquid waste effluents. Correlating this information using capacity factors and other variables gives an accurate comparison of the information over time. The attached graphs and accompanying description demonstrate the progress that we are making in liquid waste reduction.

Continuing efforts at curie and discharge reduction will improve our already good situation. The calculated Main Cooling Reservoir current and projected annual dose from Cobalt-60 for the ground pathway is well below any currently recommended limit. As the South Texas Project reduces the curies discharged in liquid radioactive waste effluents, the isotopic inventory in the Main Cooling Reservoir continues to decrease. In addition, we continue to make progress in reducing the volume of solid waste media generated as a result of processing the liquid waste. Please contact me if you have any additional questions.

Sincerely,

John F. Groth
Vice President,
Nuclear Generation

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JFG/rg
Attachments

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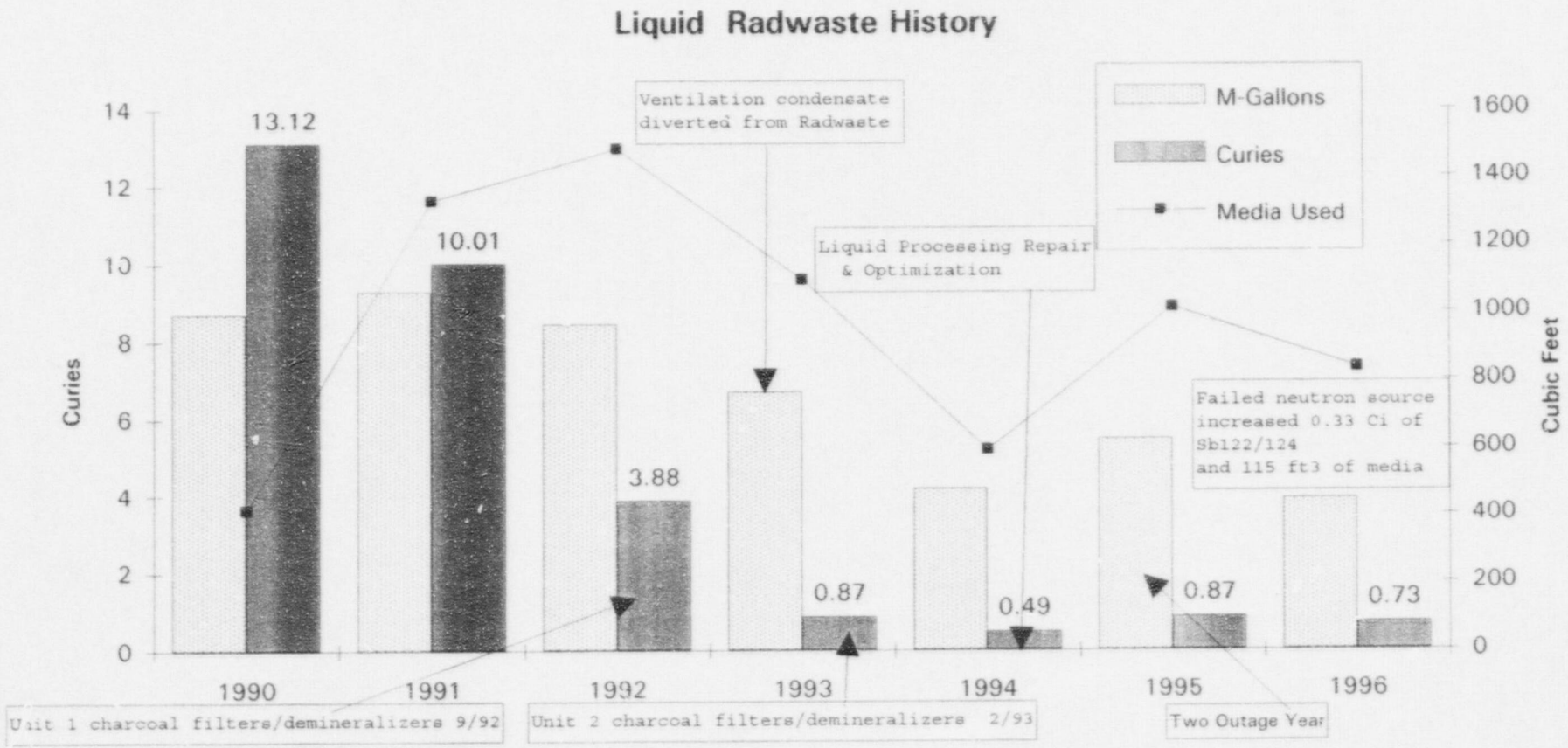
Information about Radioactive Liquid Effluents at the South Texas Project Electric Generating Station

- Figure 1: In 1996, excluding Tritium (H-3) and Antimony (Sb-122, Sb124), 0.73 Curies were discharged to the Main Cooling Reservoir. As compared to 0.87 Curies in 1995 this demonstrates continuing progress and commitment in reducing the radioactivity discharged to the Main Cooling Reservoir.
- Figure 2: Three year averages for Curies discharged from each unit demonstrate the effectiveness in curie reduction over plant life.
- Figure 3: When normalized to plant operational history, dose to the public as a result of liquid radioactive waste effluents has decreased consistent with the overall curie reduction. Table 1 lists the total dose from both Units and the highest percent of the Offsite Dose Calculation Manual limits from a single Unit.
- Figure 4: Tracking the measured curies released in liquid radioactive waste effluents provides a sound basis to project the running inventory of particulate isotopic activity in the reservoir. Based on these projections, the particulate isotopic activity actually continues to decrease due to source reduction and decay.
- Figure 5: Waterborne Tritium levels measured in the Main Cooling Reservoir decreased as expected from 1995 to 1996 and are projected to continue this trend. Lithiated resin which contained Lithium-6 resulted in the tritium increase in 1995.
- Figure 6: The 1996 Annual Environmental Operating Report's conclusion that, "Cobalt 60 is remaining at the same levels or slightly increasing," reflects data from a small, isolated sample population. Data pictured in Figure 4 represents a more comprehensive picture of cumulative reservoir inventory and the associated trends. Data from all sediment samples, including those represented in Figure 6, corroborate the calculated radioactivity displayed in Figure 4.
- Figure 7: If the reservoir was drained and released for unrestricted access in 1997, the projected annual dose from Cobalt-60 for the ground pathway would be eleven millirem using the maximum sediment sample result from 1996. Assuming that the release rate to the reservoir was 0.07 curies per year, the projected annual dose for the ground pathway would be less than one half of a millirem in 2028, well below any currently recommended limit.

Summary: Based on the comprehensive data compiled for this assessment, the South Texas Project Electric Generating Station continues to reduce the curies discharged in liquid radioactive waste effluents. This reduction translates to a continuing reduction in the isotopic inventory in the Main Cooling Reservoir over the past several years. In addition, we continue to make progress in reducing the volume of solid waste media generated as a result of processing the liquid waste.

FIGURE 1



Gallons includes Laundry Waste

Media includes Spent Fuel Pool, CVCS, Radwaste Demineralizers , charcoal and speciality media

FIGURE 2
Liquid Radwaste

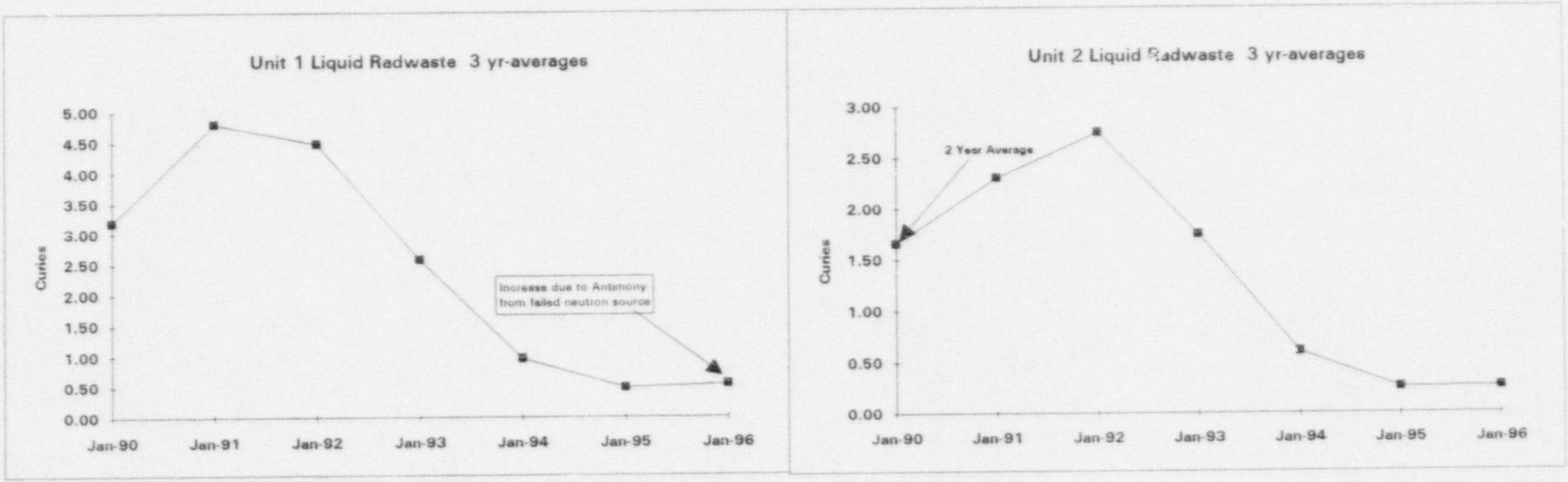


FIGURE 3
Maximum Dose to the Public from Liquid Radioactive Effluents and Units Capacity Factors

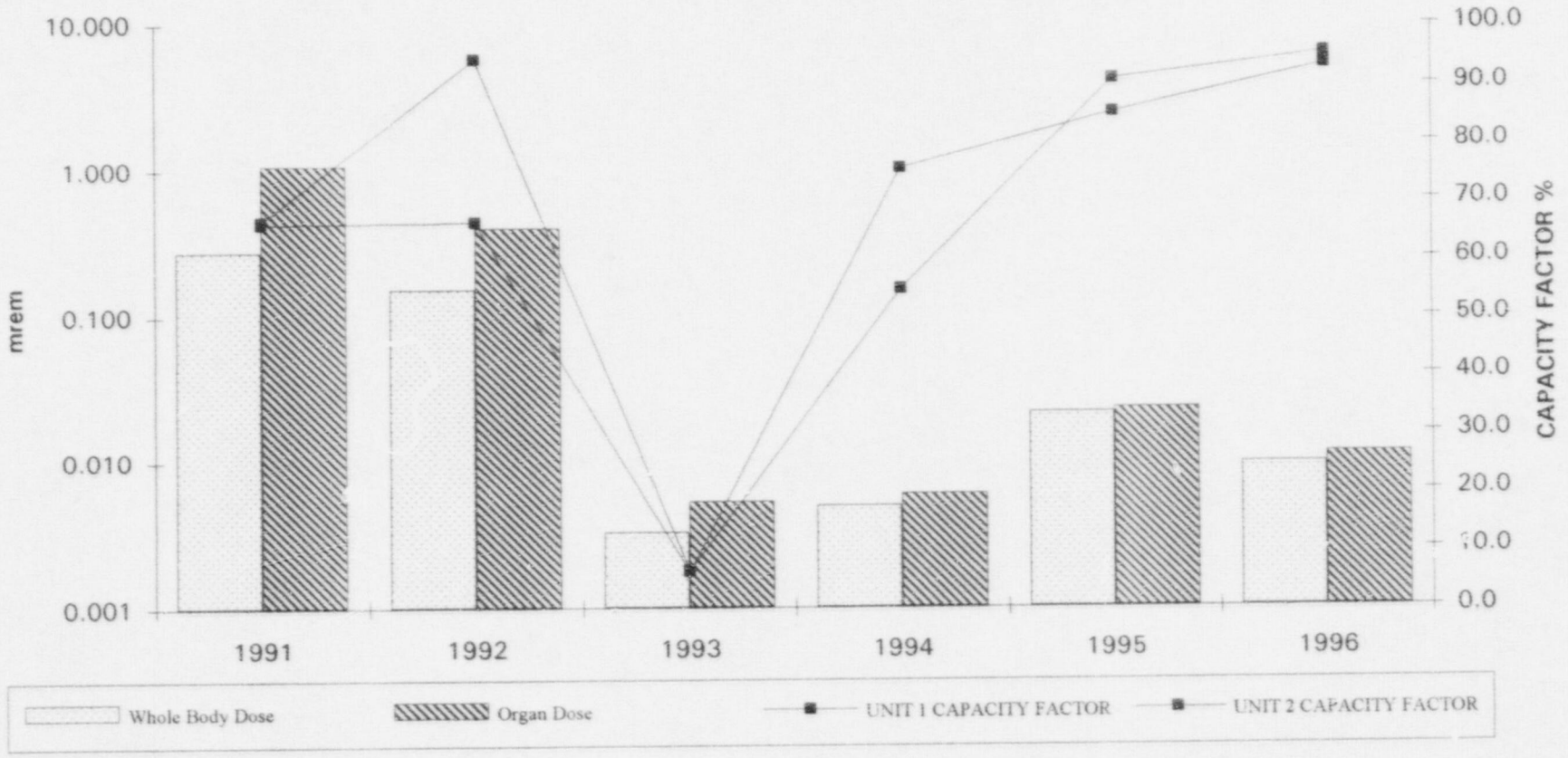


TABLE 1

Maximum Dose To The Public From Liquid Effluent Releases for All Radionuclides

Year	Whole Body Dose (mrem)	Percent of Limit *	Organ Dose (mrem)	Percent of Limit *	UNIT 1 CAPACITY FACTOR %	UNIT 2 CAPACITY FACTOR %
1991	0.2770	4.600	1.0810	5.400	65.8	66.2
1992	0.1540	2.600	0.4010	2.000	66.1	94.1
1993**	0.0033	0.062	0.0053	0.032	6.1	6.3
1994	0.0050	0.130	0.0060	0.050	75.3	54.7
1995	0.0216	0.480	0.0230	0.150	84.9	90.6
1996	0.0097	0.180	0.0114	0.061	93.1	95.2

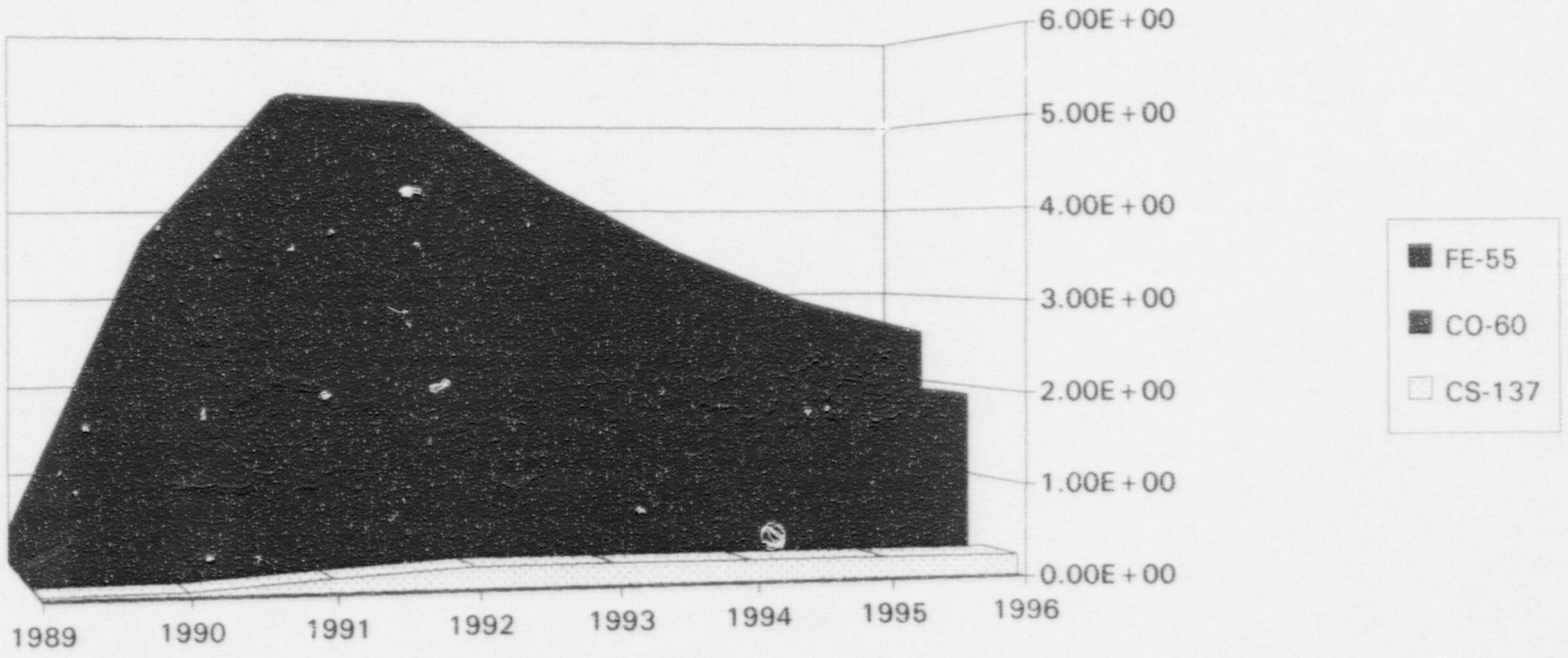
*The percent of limit is the highest from a single Unit.

**The liquid dose model was revised beginning in 1993 adding a factor for the activity portion available in the water. This accounted for the large decrease from 1992 to 1993.

Source: STPEGS Annual Radioactive Effluent Release Reports to the NRC

FIGURE 4

CALCULATED CUMULATIVE CURIES OF Iron-55, Cobalt-60, AND Cesium-137 IN THE MAIN COOLING RESERVOIR



ASSUMPTION:

1. Radioactivie decay is the only mechanism for removal from the Main Cooling Reservoir.
2. The initial time for calculating the remaining radioactivity is July 1 of the year released.

FIGURE 5

Historical Comparison of Tritium Added to and Remaining in the Main Cooling Reservoir 1989 - 1996

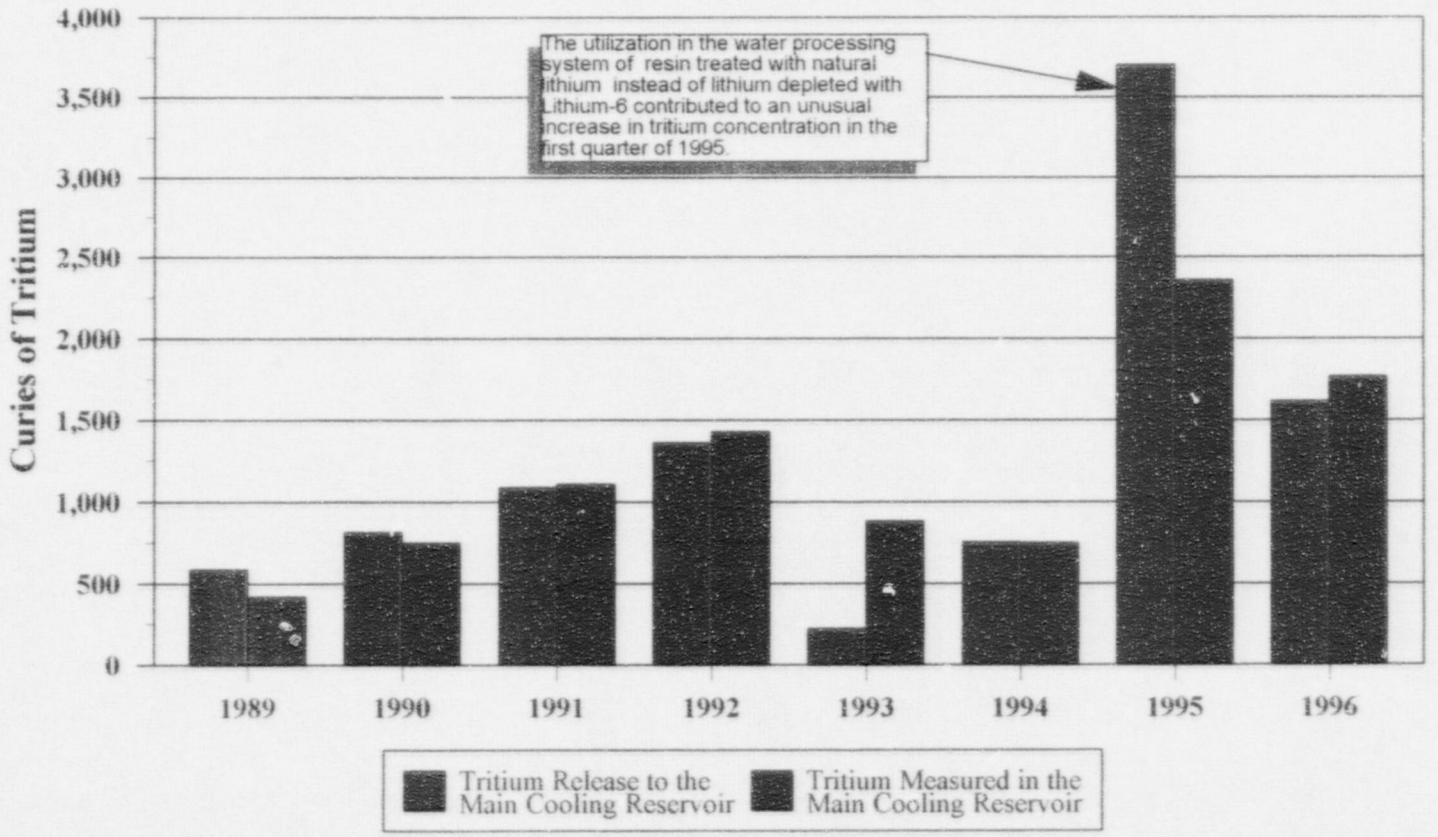


FIGURE 6

Historical Comparison of Cobalt-58 & Cobalt-60 in Main Cooling Reservoir Sediment 1986 - 1996

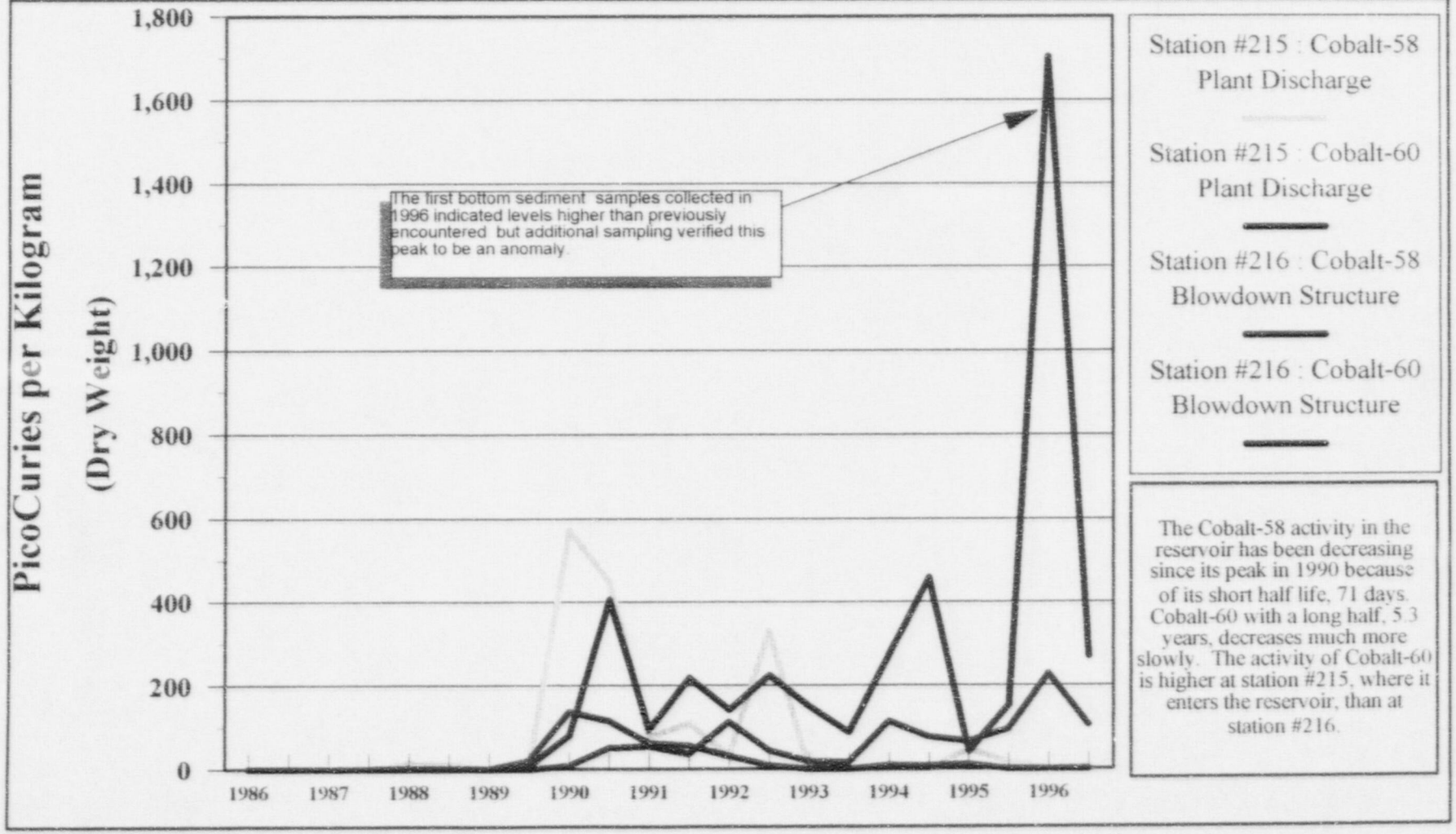
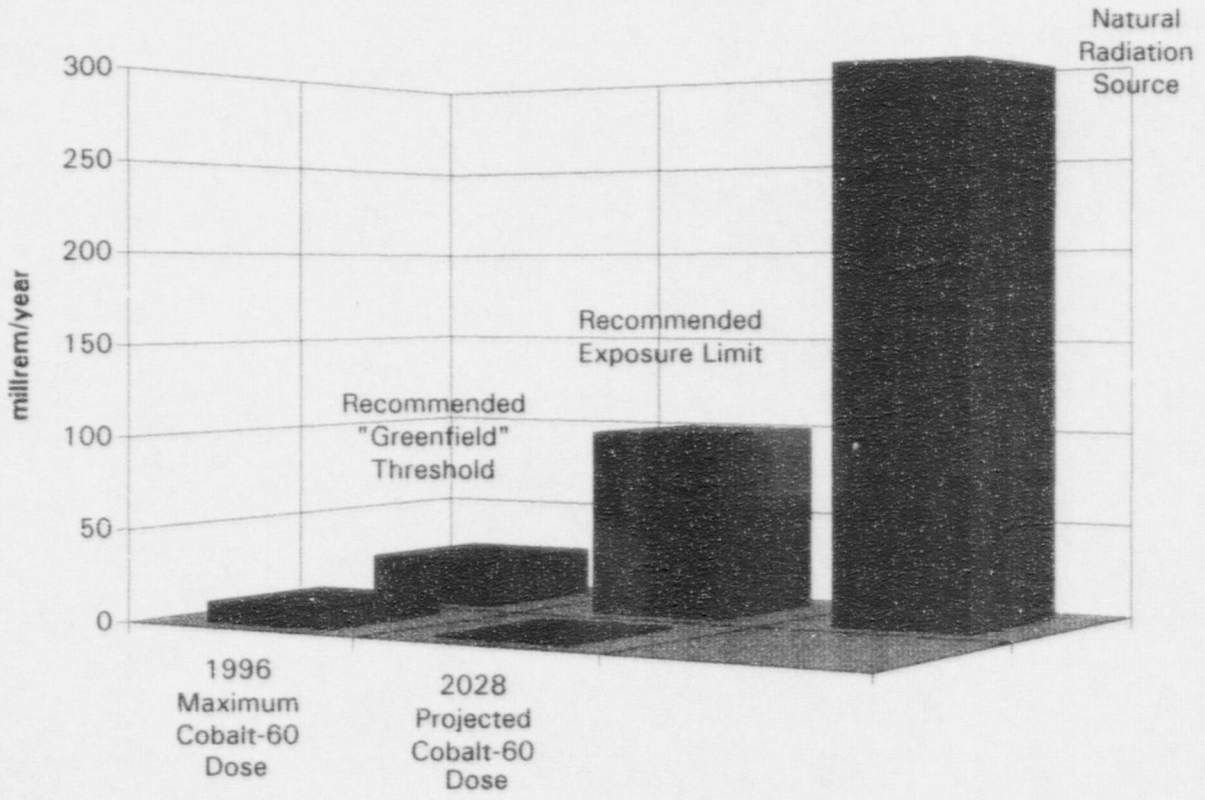


FIGURE 7

Main Cooling Reservoir Residual Radiation from Ground Pathways



Reference: *Nuclear Energy "insight97"*, June 1997, p. 4.