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CORRELATION OF CLEANOUT AND ESTIMATED PRODUCT

HOLD-UP DATA -- N-1 NUTSCHES

This is to report on the requested comparison of 1) plutonium recovery figures from leaches of N-1 nutsches in 231 Building and 2) corresponding plutonium hold-up as estimated by assay differences between F-10 and P-1 for the previous runs. Data have been accumulated for all cleanouts subsequent to the routine radioassay of P-1 solutions.

Table I gives a summary of the data for each cell, expressed as $T_o/run \times 10^{13}$. Data on Pu recovered by leaches of filter blocks have not been included (CO. # 175, 176, 178, 180), in order to keep all cleanout figures on a comparable basis. The statistical significance of these data is difficult to assess, due in part to the small number of cleanouts included per cell. Examination shows, however:

- 1) Probability less than .05 that there was no correlation between CO data and corresponding F-10 - P-1 data for Cell #3.
- 2) Prior to CO's #175 and 180, probability less than .15 that no correlation existed in data for Cell #2.
- 3) Denial of correlation for Cell #4.

Chart I illustrates the correlations.

This is evidence that in two out of three cells, recent increases in plutonium recovered by N-1 leaches were accompanied to some extent by increases in estimated plutonium hold-up between F-10 and P-1.

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TABLE I

Co#		Ta/Run $\times 10^{19}$		Remarks
		N-1	F-10 - F-1	
<u>CELL 2</u>				
151		.014	.029 $\pm$.034	25% HNO ₃
153		.012	.018 $\pm$.041	Water wash
153		.073	.093 $\pm$.083	Sum of 10 water washes
158		.081	.038 $\pm$.068	25% HNO ₃
166		.025	.027 $\pm$.038	25% HNO ₃
168		.078	.082 $\pm$.038	60% HNO ₃
Leach	3-23	.038	.007 $\pm$.038	60% HNO ₃
175		.102	-.018 $\pm$.063	60% HNO ₃ not including block leaches
180		.081	.040 $\pm$.053	60% HNO ₃ not including block leaches
<u>CELL 3</u>				
		N-1	F-10 - F-1	
148		.012	.016 $\pm$.040	25% HNO ₃
156		.011	.006 $\pm$.038	25% HNO ₃
162		.021	.048 $\pm$.040	25% HNO ₃
169		.022	.050 $\pm$.026	60% HNO ₃
172		.079	.070 $\pm$.038	60% HNO ₃
Leach	3-29	.045	.045 $\pm$.120	60% HNO ₃
176		.054	.083 $\pm$.051	60% HNO ₃ not including block leaches
<u>CELL 4</u>				
		N-1	F-10 - F-1	
160		.025	.102 $\pm$.043	25% HNO ₃
165		.029	.115 $\pm$.046	25% HNO ₃
170		.056	.057 $\pm$.042	60% HNO ₃
Leach	3-23	.054	.018 $\pm$.056	60% HNO ₃
Leach	3-30	.065	.018 $\pm$.083	60% HNO ₃
178		.056	.068 $\pm$.067	60% HNO ₃ not including block leaches

$\pm$ figures at 99% level of confidence.

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CHART II

DELAWARE

● N-1
○ P-10P minus P-1

Cell #4

Cell #3

Cell #2