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HANFORD ATOMIC PRODUCTS OPERATION - RICHLAND, WASHINGTON

DATE
December 21, 1962

TITLE

H PROCESS TUBES FOR EX-REACTOR EXAMINATION

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3 pages,

IRRADIATION PROCESSING DEPARTMENT

December 21, 1962

B. R. Cremer
Process Engineering Unit

H PROCESS TUBES FOR EX-REACTOR EXAMINATION

As per your request, we have selected several H reactor process tubes as candidates for removal and examination. The list of tube numbers are attached together with fuel loading and operating history taken from RFD reports. Tubes marked with an asterisk are considered average tubes (based upon accumulated corrosion index) and should be given first priority. Those remaining are alternate tubes having high and low extremes of corrosion index for a given installation date and can be removed if desired.

If possible, the sector probolog and conventional probolog should be used prior to removal. In addition, we would like to know whether the ribs are properly oriented as viewed from the rear and as far into the tube as you can reasonably arrange it. Perhaps this could be determined by optical means from the rear elevator.

To date, nine tubes installed in 1961 and 1962 have been removed for examination at H reactor. Three of the nine tubes were leakers. Twelve non-leaking tubes per year were authorized under Production Test IP-521-I (HW-74445).

C. G. Hough

Process Analysis Unit
Research and Engineering

CG Hough:mf

Classification Category Changed To

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By Authority of *C.G. PR-2,*
DS Lewis, 3-17-94.
By *Jessi Mally, 3-30-94.*
Verified By *DK Hanson, 4-5-94*

<u>Tube No.</u>	<u>Date Installed</u>	<u>11/1/62 Corrosion Index</u>	<u>Charge Date</u>	<u>Discharge Date</u>	<u>Fuel Type</u>	<u>Mixer Location</u>	<u>Average Tube Power</u>	<u>Average Outlet Temperature</u>	<u>Average Inlet Temperature</u>
1669	5/61	6.8	5/3/61	9/24/61	EN	(1)	995	101	16.5
			9/24/61	1/27/62	EN	(2)	1058	105	12.0
			1/27/62	5/12/62	03N	None	1081	98	7.2
			5/12/62	9/19/62	03N	None	1001	99	17.2
			9/19/62	---	03N	None	944	93	16.0
1972*	5/61	8.1	5/21/61	9/10/61	EN	(1)	983	106	18.1
			9/10/61	1/21/62	EN	(2)	1057	107	14.7
			1/21/62	5/12/62	03N	9R	1075	99	6.4
			5/12/62	9/19/62	03N	None	1017	104	17.2
			9/19/62	---	03N	None	1072	106	15.8
1880	5/61	9.8	5/3/61	9/10/61	EN	(1)	1032	108	17.1
			9/10/61	1/27/62	EN	(2)	1047	105	12.5
			1/27/62	5/12/62	03N	None	1080	101	7.2
			5/12/62	9/19/62	03N	None	1024	105	17.2
			9/19/62	---	03N	None	1075	107	16.0
2871	9/16	4.9	9/10/61	1/27/62	EN	(2)	1018	100	12.5
			1/27/62	6/7/62	03N	None	1091	100	7.5
			6/7/62	9/19/62	03N	None	950	97	17.7
			9/19/62	---	03N	None	1040	102	16.0
2166*	9/61	5.9	9/10/61	1/27/62	EN	(2)	1036	102	12.5
			1/27/62	6/7/62	03N	None	1096	99	7.5
			6/7/62	9/19/62	03N	None	1056	105	17.6
			9/19/62	---	03N	None	1025	99	16.0

- (1) Mixer position approximately seven feet from rear of charge or about tenth from rear for a column containing natural metal.
- (2) Mixer position approximately 8.5 feet from rear of charge or about twelfth from rear for a column containing natural metal.

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<u>Tube No.</u>	<u>Date Installed</u>	<u>11/1/62 Corrosion Index</u>	<u>Charge Date</u>	<u>Discharge Date</u>	<u>Fuel Type</u>	<u>Mixer Location</u>	<u>Average Tube Power</u>	<u>Average Outlet Temperature</u>	<u>Average Inlet Temperature</u>
1984	9/61	7.2	9/10/61	1/11/62	EN	(2)	1054	106	14.7
			1/11/62	5/12/62	03N	None	1075	99	6.4
			5/12/62	9/19/62	03N	None	1074	109	17.2
			9/19/62	---	03N	None	1075	107	16.0
1073*	1/62	3.5	1/27/62	6/24/62	03N	None	1018	98	8.8
			6/24/62	9/19/62	03N	None	1031	106	18.7
			9/19/62	---	03N	None	1013	101	16.0

Power and temperature data, from RFD program, are based upon average of temperature maps (about 11-14 per metal cycle) and ROL flow information (about 6-10 per metal cycle).

It should be noted that outlet temperatures are known to be biased low on many H reactor tubes.

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