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**Pacific Northwest Laboratory
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IRRADIATION HISTORY OF THE STRUCTURAL STEEL
SPECIMENS FOR THE NRL

P. J. Zimmerman

January 8, 1969

Classification Cancelled and Changed To

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RLO-CG-5, 9-29-94

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1720-K Building, 100-K Area

Ext. 2-4570

January 8, 1969

National Reactor Testing Station
Idaho Nuclear Corporation
P.O. Box 1845
Idaho Falls, Idaho 83401

Attention: Mr. C. H. Hogg, Group Leader
Radiation Measurements

Gentlemen:

IRRADIATION HISTORY OF THE STRUCTURAL STEEL
SPECIMENS FOR THE NRL

The purpose of this letter is to transmit the irradiation history of the structural steel specimens for the Naval Research Laboratory. Charles Serpan asked that we transmit this information to you for use in calculating the total neutron fluence received by the specimens. As you know, the operating history information is classified as "Secret" with a C-65 access category, but the calculated fluences can be treated as unclassified.

The overall program calls for three irradiation times to produce total fast neutron fluences of about 0.5×10^{19} nvt (Charge A), 1.0×10^{19} nvt (Charge B), and 3.0×10^{19} nvt (Charge C). All irradiations have been completed and ten of the eighteen capsules shipped to you. Table I (attached) identifies the capsules and which charge they were a part of. Table II (attached) gives the reactor operating experience for each Charge. The times stated are for when the reactor reached one-half of normal operating level. Table III provides additional information concerning integrated operation. The daily production is given relative to the normal reactor power limit.

Very truly yours,

DOUGLAS UNITED NUCLEAR, INC.

P. J. Zimmerman, Engineer
Irradiation Services Engineering
Process and Programs Section

PJZ:bdz

Attachment

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TABLE I

<u>Thermal to Fast</u>	<u>ASTM#</u>	<u>Capsule #</u>	<u>Charge #</u>	<u>Shipping Date</u>
20:1	212	1	A	9/5/68
20:1	302	1	A	9/5/68
10:1	212	1	A	1/1/69
10:1	302	3	A	9/5/68
1:1	212	1	A	9/5/68
1:1	302	3	A	1/1/69
20:1	212	2	B	9/5/68
20:1	302	2	B	9/5/68
10:1	212	2	B	9/5/68
10:1	302	2	B	9/5/68
1:1	212	3	B	9/5/68
1:1	302	1	B	9/5/68
20:1	212	3	C	Will Ship In
20:1	302	3	C	January
10:1	212	3	C	"
10:1	302	1	C	"
1:1	212	2	C	"
1:1	302	2	C	"

TABLE II

<u>Charge #</u>	<u>Reactor 1/2 Up</u>		<u>Reactor 1/2 Down</u>		<u>Operating Time</u>
	<u>Date</u>	<u>Time</u>	<u>Date</u>	<u>Time</u>	
A	6/4/68	2045	7/17/68	2000	42.96 days
B	7/23/68	2034	7/23/68	2106	20.38 days
	7/23/68	2340	8/4/68	2240	
	8/7/68	0102	8/9/68	1251	
	8/12/68	0946	8/18/68	0745	
C	8/24/68	2324	8/25/68	0659	93.80 days
	8/25/68	0830	8/30/68	1547	
	9/1/68	2200	9/4/68	0418	
	9/6/68	0250	9/18/68	1244	
	9/21/68	1516	9/21/68	1742	
	9/21/68	1811	11/3/68	2345	
	11/8/68	1535	12/8/68	2200	

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TABLE III

<u>Date</u>	<u>Relative Production</u>	<u>Date</u>	<u>Relative Production</u>
6/4/68	.105	7/17/68	.804
6/5/68	.946	7/18/68	0
6/6/68	.998	7/19/68	0
6/7/68	1.0	7/20/68	0
6/8/68	1.0	7/21/68	0
6/9/68	1.0	7/22/68	0
6/10/68	1.0	7/23/68	.032
6/11/68	1.0	7/24/68	.840
6/12/68	1.0	7/25/68	.950
6/13/68	1.0	7/26/68	.949
6/14/68	1.0	7/27/68	.945
6/15/68	1.0	7/28/68	.937
6/16/68	1.0	7/29/68	.932
6/17/68	1.0	7/30/68	.932
6/18/68	1.0	7/31/68	.932
6/19/68	1.0	8/1/68	.932
6/20/68	1.0	8/2/68	.932
6/21/68	1.0	8/3/68	.932
6/22/68	1.0	8/4/68	.879
6/23/68	.997	8/5/68	0
6/24/68	.991	8/6/68	.0002
6/25/68	.988	8/7/68	.748
6/26/68	.986	8/8/68	.924
6/27/68	.986	8/9/68	.498
6/28/68	.987	8/10/68	0
6/29/68	.992	8/11/68	0
6/30/68	.992	8/12/68	.461
7/1/68	.99	8/13/68	.917
7/2/68	.987	8/14/68	.932
7/3/68	.985	8/15/68	.932
7/4/68	.979	8/16/68	.932
7/5/68	.972	8/17/68	.932
7/6/68	.967	8/18/68	.301
7/7/68	.964	8/19/68	0
7/8/68	.959	8/20/68	0
7/9/68	.957	8/21/68	0
7/10/68	.957	8/22/68	0
7/11/68	.957	8/23/68	0
7/12/68	.958	8/24/68	.026
7/13/68	.961	8/25/68	.716
7/14/68	.961	8/26/68	.926
7/15/68	.961	8/27/68	.920
7/16/68	.963	8/28/68	.920

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TABLE III (continued)

<u>Date</u>	<u>Relative Production</u>	<u>Date</u>	<u>Relative Production</u>
8/29/68	.920	10/16/68	.920
8/30/68	.605	10/17/68	.920
8/31/68	0	10/18/68	.920
9/1/68	.189	10/19/68	.922
9/2/68	.803	10/20/68	.922
9/3/68	.831	10/21/68	.922
9/4/68	.150	10/22/68	.925
9/5/68	0	10/23/68	.925
9/6/68	.625	10/24/68	.925
9/7/68	.796	10/25/68	.925
9/8/68	.832	10/26/68	.925
9/9/68	.847	10/27/68	.963
9/10/68	.860	10/28/68	.925
9/11/68	.864	10/29/68	.928
9/12/68	.869	10/30/68	.929
9/13/68	.874	10/31/68	.929
9/14/68	.874	11/1/68	.929
9/15/68	.874	11/2/68	.928
9/16/68	.874	11/3/68	.917
9/17/68	.878	11/4/68	0
9/18/68	.462	11/5/68	0
9/19/68	0	11/6/68	0
9/20/68	0	11/7/68	0
9/21/68	.141	11/8/68	.235
9/22/68	.832	11/9/68	.819
9/23/68	.871	11/10/68	.900
9/24/68	.88	11/11/68	.900
9/25/68	.892	11/12/68	.900
9/26/68	.90	11/13/68	.900
9/27/68	.90	11/14/68	.905
9/28/68	.90	11/15/78 - 11/22/68	.909
9/29/68	.90	11/23/68 - 11/30/68	.916
9/30/68	.90	12/1/68 - 12/5/68	.916
10/1/68	.90	12/6/68	.920
10/2/68	.90	12/7/68	.920
10/3/68	.90	12/8/68	.833
10/4/68	.90	12/9/68 - 12/14/68	0
10/5/68	.90	12/15/68	.55
10/6/68	.90	12/16/68	.881
10/7/68	.907	12/17/68	.892
10/8/68	.910	12/18/68	.892
10/9/68	.910		
10/10/68	.910		
10/11/68	.912		
10/12/68	.912		
10/13/68	.912		
10/14/68	.916		
10/15/68	.916		

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