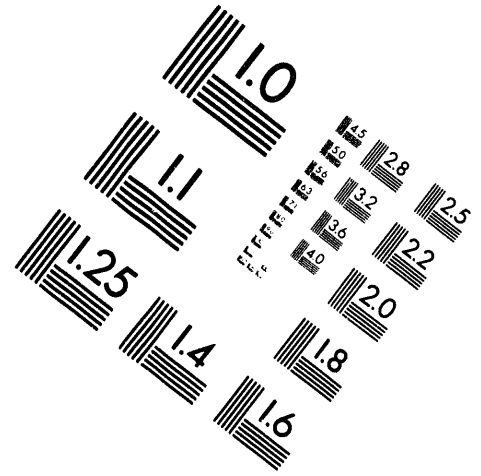
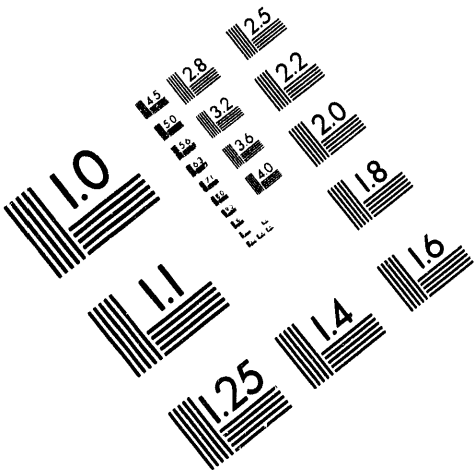




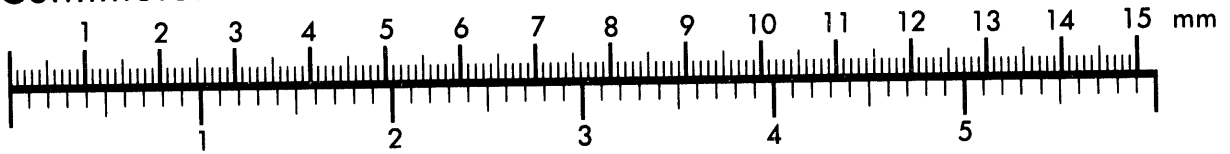
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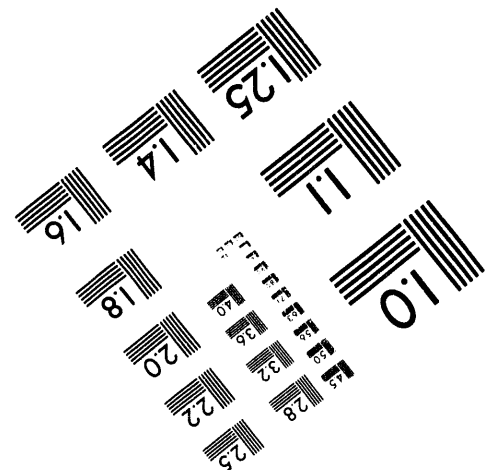
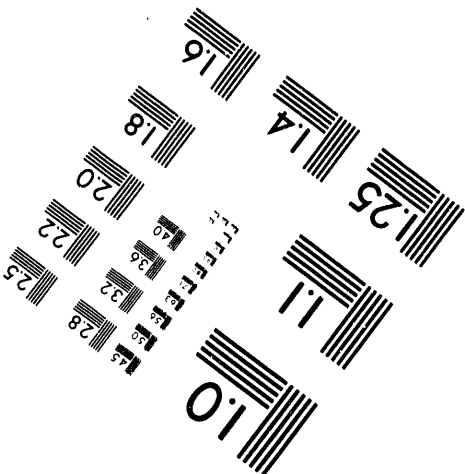
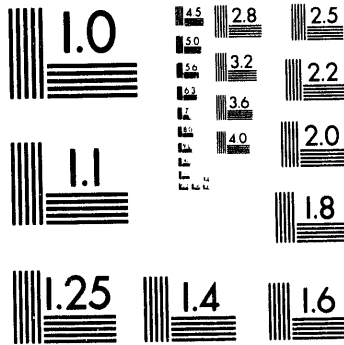
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HANFORD ATOMIC PRODUCTS OPERATION - RICHLAND, WASHINGTON

DOCUMENT NO.
HW-60442 RD

COPY NO.
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TITLE

HISTORICAL RECORD OF DATA ON FLOOD CONTROL

DATE
May 19, 1959

ISSUING FILE

REC'D 300

JUL 31 1959

AUTHOR

H. A. Kramer

ROUTE TO	PAYROLL NO.	LOCATION	FILES ROUTE DATE	SIGNATURE AND DATE
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MEMO

May 19, 1959

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HISTORICAL RECORD OF DATA ON FLOOD CONTROL

In order to provide historical information regarding a study made in 1948-49 of the potential, and a proposal for use, of Grand Coulee for flood control, we are attaching a copy of this study. This is being done so that in the future, an evaluation of control potential will be easily available to management if the need should arise.

Harry A Kramer

H. A. Kramer

HAK:cbg

Attachment

cc: Original report
George Prout - G.E.

C.3 - 300 File
C.4 - Record Center

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REPORT OF VISIT TO
GRAND COULEE DAM

March 16, 1949

Harry A. Kramer

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PURPOSE OF VISIT TO GRAND COULEE

1. To determine if the variations in the flow could be controlled within narrower limits than last year (1948).
2. To determine if the dam could be used for flood control.
3. To improve contacts made during the 1948 flood.
4. To inform Grand Coulee officials of the importance of proper control at critical times.

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SUMMARY

1. Last year (1948) during the flood period the flow at Grand Coulee fluctuated widely.

2 PM	June 8	543000 c.f.s.
4 AM	June 9	568000 c.f.s.
2 PM	June 9	543000 c.f.s.
2 AM	June 10	573000 c.f.s.

A total instantaneous fluctuation of 37,500 c.f.s. was reported.

Now there is installed a new control. This control can keep downstream variation within 500 c.f.s.

2. By lowering the lake level prior to the crest period, the drum gates could be used as a flood control (see pages 4,5,6) (1948 high water basis) the drum gate control plus the water turbine discharge (if the lake level had been reduced) could have dropped the crest at Richland three feet.

- a. Drop in crest at Richland one foot
Electrical loss nominal

- b. Drop in crest at Richland two feet
Electrical loss 1 megawatt/foot for six generators
Loss Max possible 13,310 KW each generator
79,860 KW total (7 days)

Capacity 1,170,000 KW
Max Loss 6.8% for 7 days to 10 days

- c. Drop in crest at Richland three feet
Electrical loss 1 megawatt/foot for 6 generators
Max possible 30,100 KW each generator
180,600 KW total 8 days

Capacity 1,170,000 KW
Maximum loss 15.4% for 8 to 12 days

Actual loss, we believe is much less:

For an eleven foot drop actual capacity dropped from 1,170,000 KW to 1,137,000 KW during the present winter.

3. Contacts were re-established with Grand Coulee Control Engineers with whom we had dealt in the 1948 flood.
4. We indicated to Grand Coulee Management, Mr. Bates, Mr. Newberry, etc., that careless control and lack of cooperation between Coulee and Hanford could be harmful and at times disastrous.

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3

DATA:

COULEE DAM CONTROL

11 drum gates
28 ft. high
135 ft. long
100,000 c.f.s. capacity in flow each
Actual capacity all gates
900,000 c.f.s.

60 tube outlets
8 1/2 ft. dia. 3 levels
Entire river flow passed through these tubes during
construction. These tubes are still available for use.

INSTALLED CAPACITY

	Capacity
9 generators	3 137,000 KVA
	6 130,000 KVA
Reported operating rating	108,000 KVA
Water flow/unit	4500 c.f.s.

1 new generator due April 15

Actual operation reported 9 foot drop in lake elevation showed
a loss of 4000 KW/unit.

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4

GRAND COULEE AS A FLOOD PREVENTIVE

Proposed Dam Control Based on 1948

CONDITION #1

Flood crest reduced one foot in Richland (1.1)

<u>M.S.L. FEET ELEVATION AT DAM</u>	<u>DATE</u>	<u>M.S.L. FEET ELEVATION AT RICHLAND LEE BLVD.</u>
1285.51	6-1-49	356.0
1285.51	6-2-49	356.0
1285.51	6-3-49	356.0
1285.51	6-4-49	356.0
1285.51	6-5-49	356.0
1285.51	6-6-49	356.0
1285.51	6-7-49	356.0
1285.51	6-8-49	356.0
1285.51	6-9-49	356.0
1285.92	6-10-49	356.0
1286.33	6-11-49	356.0
1286.74	6-12-49	356.0
1287.15	6-13-49	356.0
1287.56	6-14-49	356.0
1287.97	6-15-49	356.0
1288.00	6-16-49	356.0

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CONDITION #2

Flood crest reduced two feet in Richland (2.1')

M.S.L. FEET
ELEVATION AT
DAM

DATE

M.S.L. FEET
ELEVATION AT
RICHLAND LEE BLVD.

1274.69	5-24-49	355.0
1274.69	5-25-49	355.0
1274.69	5-26-49	355.0
1274.69	5-27-49	355.0
1274.69	5-28-49	355.0
1274.69	5-29-49	355.0
1274.69	5-30-49	355.0
1275.47	5-31-49	355.0
1276.27	6- 1-49	355.0
1277.03	6- 2-49	355.0
1277.81	6- 3-49	355.0
1278.59	6- 4-49	355.0
1279.37	6- 5-49	355.0
1280.15	6- 6-49	355.0
1280.93	6- 7-49	355.0
1281.71	6- 8-49	355.0
1282.49	6- 9-49	355.0
1283.27	6-10-49	355.0
1284.05	6-11-49	355.0
1284.83	6-12-49	355.0
1285.61	6-13-49	355.0
1286.39	6-14-49	355.0
1287.17	6-15-49	355.0
1287.95	6-16-49	355.0
1288.00	6-17-49	355.0

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CONDITION #3

Flood crest reduced three feet in Richland

M.S.L. FEET
ELEVATION AT
DAM

DATE

M.S.L. FEET
ELEVATION AT
RICHLAND LEE BLVD.

1257.90	5-23-49	354.0
1257.90	5-24-49	354.0
1257.90	5-25-49	354.0
1257.90	5-26-49	354.0
1257.90	5-27-49	354.0
1257.90	5-28-49	354.0
1257.90	5-29-49	354.0
1257.90	5-30-49	354.0
1259.33	5-31-49	354.0
1260.78	6- 1-49	354.0
1262.19	6- 2-49	354.0
1263.62	6- 3-49	354.0
1265.05	6- 4-49	354.0
1266.48	6- 5-49	354.0
1267.91	6- 6-49	354.0
1269.34	6- 7-49	354.0
1270.77	6- 8-49	354.0
1272.20	6- 9-49	354.0
1273.63	6-10-49	354.0
1275.06	6-11-49	354.0
1276.49	6-12-49	354.0
1277.92	6-13-49	354.0
1279.35	6-14-49	354.0
1280.18	6-15-49	354.0
1282.21	6-16-49	354.0
1283.64	6-17-49	354.0
1285.07	6-18-49	354.0
1286.50	6-19-49	354.0
1287.93	6-20-49	354.0
1288.00	6-21-49	354.0

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