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May 7, 1945

By Authority of 10-7-60

HF Canell DBORE

To: P. W. Crane

By PM Eick 6-8-94

From: W. E. Jordan

Verified By 1-11-1996 6-9-94

THIS DOCUMENT CONSISTS OF 3 PAGES NO.

OF 9 COPIES, SERIES

RIVER WATER TEMPERATURE SURVEY

A temperature survey of the river down stream of the discharge point of 100-F was made on April 2, 1945. At this time the unit was operating at rated capacity. The following tabulation summarizes the results obtained.

River Water Temperature 6.3°C
Discharge Water Temperature 34°C

Water Level - Elevation 364'
Conditions - Unit Operating at Rated Capacity

DISTANCE DOWNSTREAM	DIST. OFF SHORE	RIVER DEPTH	SURFACE TEMP (°C)	5 FEET CONC.	10 FEET TEMP (°C)	15 FEET CONC.	20 FEET TEMP (°C)	25 FEET CONC.
80 feet	125 ft.	16 ft.	6.4-10.1	.35-15.85	---	---	7.4-9.3	4.05-12.15
101	158	18	7.3-8.0	2.70-6.53	6.3-8.0	0-6.53	7.1-7.6	2.95-4.8
145	146	--	---	---	---	---	6.8-7.7	1.85-5.43
191	125	15	7.3 7.4	2.70-4.05	7.0-7.9	2.60-6.05	7.5	4.37
508	30	8	---	---	6.1	.35	---	---
	60	13	6.9	2.2	---	---	---	---
	90	14	6.5	.73	---	---	---	---
	100	--	---	---	6.7	1.45	---	---
	110	15	7.8	5.62	---	---	---	---
	140	--	7.5	4.37	---	---	---	---
	155	15	7.9	6.05	---	---	---	---
	180	--	6.3	0	7.1	2.95	---	---
	220	15	---	---	6.6	1.10	---	---
	255	15	6.3	0	---	---	---	---
900	45	6	7.0	2.60	---	---	---	---
	75	--	---	---	---	---	6.6	1.10
	85	8	---	---	6.9	2.20	---	---
	130	10	---	---	---	---	7.3	3.70
	180	--	---	---	---	---	7.3	3.70
	225	--	---	---	7.7	5.43	---	---
	250	11	---	---	---	---	6.7	1.45
	325	--	---	---	6.7	1.45	6.4	1.35
	380	12	---	---	---	---	6.7	1.45
	500	--	---	---	---	---	6.5	1.10
	580	12	---	---	6.6	1.10	---	---

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May 7, 1945

% Concentration is parts discharge water per 100 parts river water. At an estimated distance of $3/4$ mile a fairly well defined channel of warmer water, maximum temperature 7.1°C , was still detectable.

In those cases where a range of temperatures is indicated for a single point the extreme values of a series of approximately five successive readings is given. The large dispersion in the temperatures of these random individual samples results from the presence of eddies of warm water near the discharge point. The depths of the river were obtained from Topographic map 2891 - 100-F Sheet 5, and several check measurements. The temperature traverses are shown on ~~NEW~~ Dwg. H-1-331, copy of which is attached.

The temperature survey was scheduled to coincide with a filter basin clean out. The colored water resulting from this purge defined the channel in which the discharge water flowed. Near the discharge point the color of the water was spotty because of eddies. Beyond about 100 feet a fairly definite channel approximately 100 feet wide had formed. This had increased about 25% in width at 500 feet.

The samples were taken by means of a special 100 c.c. sampling can made with hinged lid and insulated side walls and mounted on a 20 foot long pole. Temperatures were measured with a mercury thermometer, range -10 to 110°C . The boat was located by means of range poles at the downstream distances shown in the table. Distances from the water line were determined by a transit used at the 500 and 900 foot points.

H. E. Jordan
H. E. Jordan, LCO Technical

WET:11j

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FLOW OF COLUMBIA RIVER AT HANFORD, ENGINEER WORKS CUBIC FEET PER SECOND

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**DATE
FILMED**

9/16/94

END

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