



State of Idaho

DEPARTMENT OF WATER RESOURCES

1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000
Phone: (208) 327-7900 FAX: (208) 327-7866

July 30, 1996

Richard Krettin
Watermaster, Water District 67-A
1000 W Indian Valley
Cambridge, ID 83610

RECEIVED

JUL 31 1996

WATER RESOURCES
WESTERN REGION

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

Re: Field Measurements of 7/23/96, & Reservoir Storage Curve

Dear Mr. Krettin:

Thanks for the opportunity to visit with you last week. Enclosed are the original discharge measurement notes from our two measurements made on July 23. I have made photocopies of these notes for my files, and sent a copy to Steve Lester for his reference as well. The discharge measured at the Little Weiser River below Mill Creek (former USGS station, upper location), was calculated at 36.4 cfs. The measured discharge for the Indian Valley Gray's Creek diversion was computed as 30.3 cfs.

Also enclosed is a stage-storage curve for the C. Ben Ross Reservoir. I obtained this copy from the Department's dam safety files. This rating curve should be easier to use than the table you showed me since you can pick off gage heights and their corresponding storage volumes from the curve, thus avoiding some of the cumbersome interpolation associated with use of the table. It is my understanding that the curve was derived from a reservoir capacity table made in 1935. Please be aware that the stage-storage relation may have lost some accuracy over time due to siltation etc. Also be aware that changes in storage will include some evaporation component, and may also include losses or gains due to seepage, bank storage etc.

Daily or frequent observations of reservoir level changes and use of the curve are probably useful to get a reasonable estimate of the amount of water discharged from the reservoir. However, due to ditch diversions between the reservoir and the river, ditch losses, and the accuracy of the curve itself, I would not recommend relying solely on this method for determining the amount of storage water which is actually injected to the river. I would instead encourage you to make some periodic measurements of the reservoir canals at some convenient location near the river (i.e.; as close as possible to the river), or request reservoir owners or water district to install measuring devices at such locations. Weirs or flumes can be placed in the reservoir canals for a reasonable cost.

Please do not hesitate to call me if I you have questions or need any assistance. I encourage you to keep up the good work

and continue with your periodic measurements of the ditch diversions. I think it would be helpful to make another measurement of the river this season (assuming that the gage height changes). Call Steve Lester or I if you need help with this additional measurement.

Sincerely,

Tim Luke

cc: Steve Lester, Western Region

**State of Idaho
Department of Water Resources
Water District 67-A**

Meas. No.
Comp. by.

Sta. No. DISCHARGE MEASUREMENT NOTES Checked by

LITTLE WOOD R. Below Mill CR - OLD USGS site

Date 7-23-96 1996 Party T. LUKE, R. KITTEN

Width Area Vel. G. H. Disch. 36.44

Method No. secs. G. H. change. in hrs. Susp.

Method coef. Hor. angle coef. Susp. coef. Meter No.

Type of meter Date rated Tag checked

Meter ft. above bottom of wt. Spin before meas. OK after

Meas. plots. % diff. from. rating. Levels obtained

GAGE READINGS					WATER QUALITY MEASUREMENTS	
Time	Inside	HM	Chart	Outside	No	Yes
<u>11:05</u>				<u>2.05</u>		
<u>12:10</u>				<u>2.05</u>		
					<u>Samples Collected</u>	
					No	Yes
					<u>Method Used</u>	
					EDI	EWI
					<u>SEDIMENT SAMPLES</u>	
					No	Yes
					<u>Method Used</u>	
					EDI	EWI
					<u>BIOLOGICAL SAMPLES</u>	
					Yes	Time
					No	Type

Check bar. chain found changed to at

Wading, cable, ice, boat, upstr., downstr., side bridge. feet, mile, above, below gage.

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%); based on the following cond:

Flow. LAMINAR

Cross section FIRM, COBBLE BOTTOM, some large rocks

Control

Gage operating Weather

Intake/Orifice cleaned Air °C@ Water °C@

Record removed Extreme Indicator: Max. Min.

Manometer N₂ Pressure Tank Feed Bbl rate per min.

CSG checked Stick reading

Observer

HWM outside, in well

Remarks MEAS. 12 ft. below outside staff gage

GPS LAT\LONG

G.H. of zero flow ft. Sheet No. of sheets

**State of Idaho
Department of Water Resources
Water District _____**

Meas. No.
Comp. by.

Sta. No. DISCHARGE MEASUREMENT NOTES Checked by
INDIAN VALLEY GRAYS CK Ditch
 Date 7-23, 1996 Party T. LUKE, R. K...
 Width Area Vel. G. H. NA Disch. 30.3
 Method No. secs. G. H. change. in hrs. Susp.
 Method coef. Hor. angle coef. Susp. coef. Meter No.
 Type of meter Scudder 2100 Date rated Tag checked
 Meter ft. above bottom of wt. Spin before meas. OK after OK
 Meas. plots. % diff. from. rating. Levels obtained.

GAGE READINGS					WATER QUALITY MEASUREMENTS	
Time	Inside	HM	Chart	Outside	No	Yes
				NA	Time	
				NA	Samples Collected	
					No	Yes
					Time	
					Method Used	
					EDI	EWI
					Other	
					SEDIMENT SAMPLES	
					No	Yes
					Time	
					Method Used	
					EDI	EWI
					Other	
					BIOLOGICAL SAMPLES	
Weighted M.G.H.					Yes	Time
G. H. correction					No	Type
Correct M.G.H.						

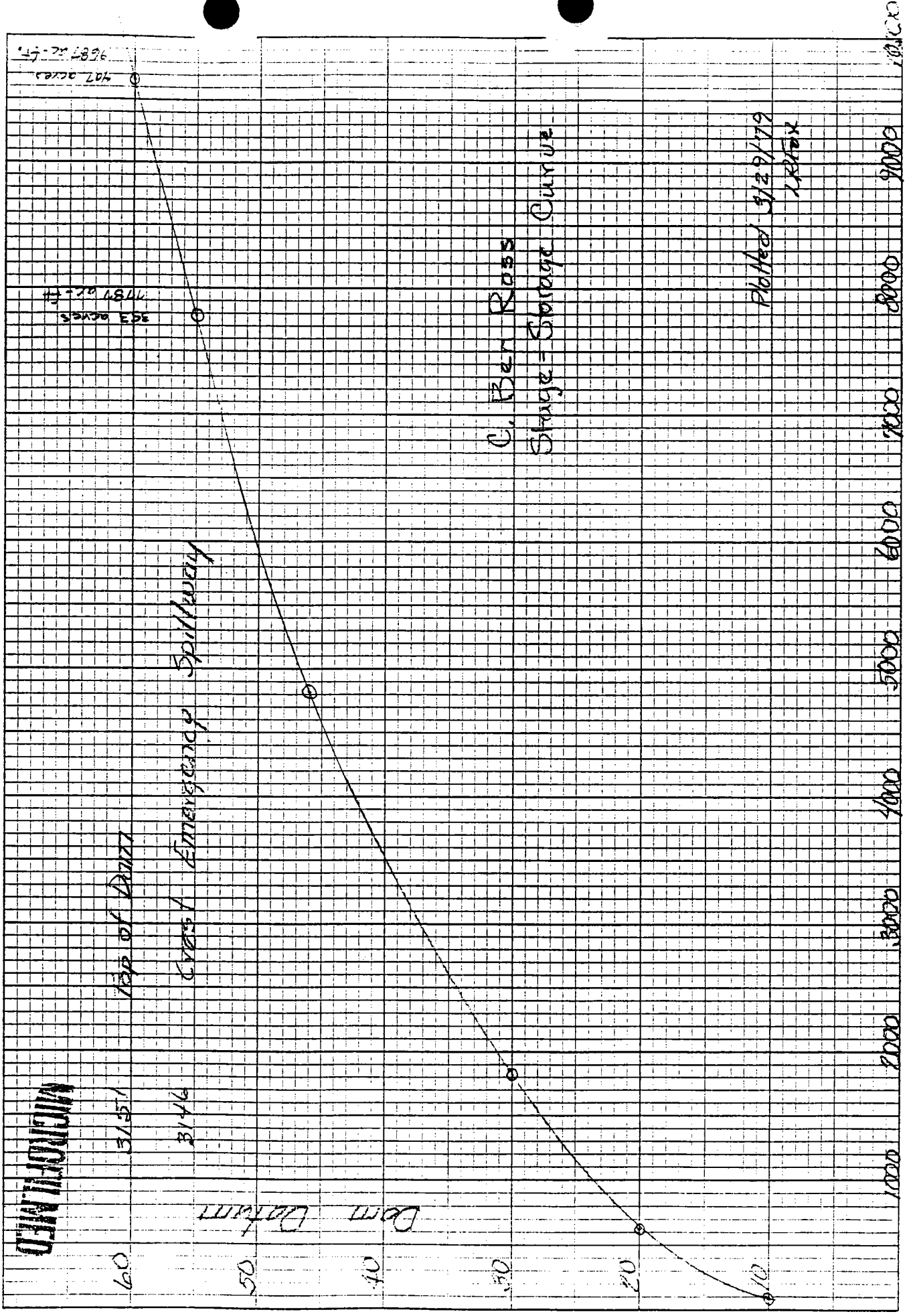
Check bar. chain found changed to at
 Wading cable, ice, boat, upstr., downstr., side bridge. feet, mile, above, below gage.
 Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%); based on the following cond:
 Flow
 Cross section
 Control
 Gage operating Weather
 Intake/Orifice cleaned Air °C@ Water °C@
 Record removed Extreme Indicator: Max. Min.
 Manometer N₂ Pressure Tank Feed Bbl rate per min.
 CSG checked Stick reading
 Observer
 HWM outside, in well
 Remarks
 GPS LAT\LONG
 G.H. of zero flow ft. Sheet No. of sheets

.0 .10 .20 .30 .40 .50 .60 .70 .75
River at—

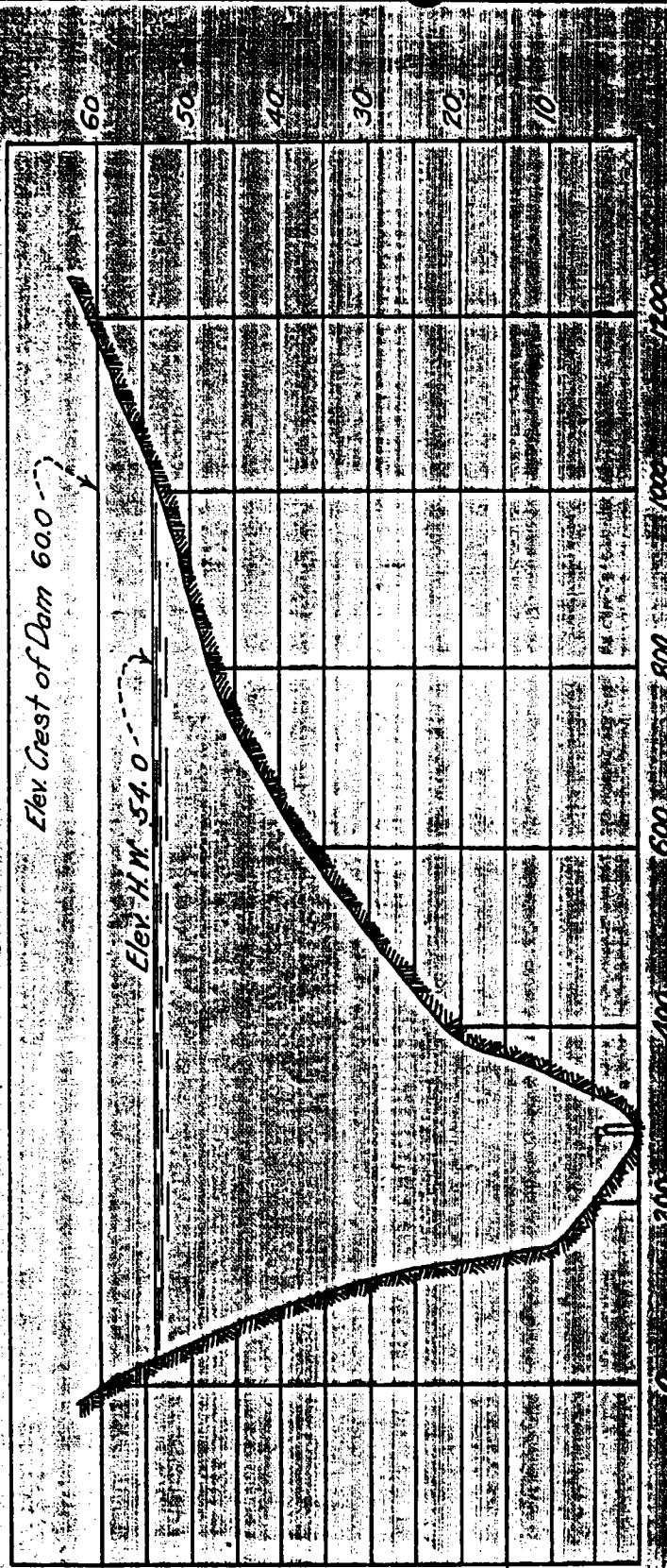
Angle coef. ficient	Dist. from initial point	Width	Depth	Observa- tion depth	Revolu- tions	Time in sec- onds	VELOCITY		Adjusted for hor. angle or -----	Area	Discharge	.80
							At point	Mean in ver- tical				
REW	2.20											
	2.60	0.40	1.95									
	3.00	0.90	2.00				.11			0.78	0.09	.85
	3.50	1.50	2.10				.13			1.80	0.22	
	4.00	2.50	2.00				.34			1.05	0.36	
	4.50	3.50	2.00				.75			1.00	0.75	.90
	5.00	4.50	2.00				1.91			1.00	1.91	.92
	5.50	5.50	2.00				2.06			1.00	2.06	.94
	6.20	7.50	2.00				2.08			1.20	2.50	
	7.00	9.80	2.00				2.14			1.50	3.21	.96
	7.80	12.80	1.80				2.27			1.60	3.63	.97
	8.60	16.70	1.75				2.83			1.74	4.08	.98
	9.20	21.60	1.60				2.61			1.23	3.20	.99
	9.80	27.60	1.60				2.46			0.96	2.36	
o	10.40	34.60	1.65				2.34			0.96	2.25	
	11.00	42.60	1.60				2.00			0.99	1.98	1.00
	11.60	51.50	1.60				1.29			0.96	1.24	
	12.00	61.40	1.60				.42			0.80	0.34	
REW	12.40						.14			0.64	0.09	.99
												.98
												.97
												.96
												.94
												.92
												.90
												.88
												.85
												.80

30.78

1.80







PROFILE ON AXIS OF DAM

Scale: 1" = 200' Horizontal, 2" = Vertical

RESERVOIR CAPACITY TABLE			
CONTOUR ELEVATION	AREA	ACRE FEET	TOTAL CAPACITIES
10	19.20	96.0	96.0
20	83.20	512.0	608.0
30	156.80	1200.0	1808.0
45	243.20	3000.0	4808.0
55	352.62	2979.1	7787.1
60	407.93	1899.85	9686.95

Height of Dam: 60 feet
 Height at Top: 1270

SPILLWAY

