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WEST VIRGINIA POWER AND TRANSMISSION COMPANY

14 Wood Street
Pittsburgh 22, Pa.
June 1, 1950

Mr. F. M. Veatch
District Engineer
U. S. Geological Survey
207 Federal Bldg.
Tacoma, Washington

Dear Mr. Veatch:

In April and May 1946 we had some correspondence regarding the possibility of slope measurements below "The Dalles" on Skagit River near Concrete. I am enclosing copies for your convenience in reviewing.

As indicated by the correspondence, the proposed slope measurements would be made to check (using the gaging station rating) the accuracy of the value of "N" used in my 1923 computations for previous large floods at "The Dalles."

In March 1923, to get flood work started with the West Penn Power Company, I had to leave Tacoma before I had completed the Skagit River Preliminary Flood Report (which contains all of the material previously promised to Skagit County). The most important work not accomplished at that time, due to lack of a gaging station at "The Dalles," was checking the value of "N" used for the slope sections. Probably that work has not yet been done, for I expect in 1948, when there must have been a high summer flood on the Skagit, you probably were swamped with straight stream gaging work all over Washington.

From U.S.G.S. and U.S.W.B. bulletins I would expect for this year a high summer flood on the Skagit, occurring somewhere between June 10th and 20th. Also, I believe the flow will be sufficiently large then for checking the "N" applicable to the large winter floods. Anyway, I believe the coming flood will be about as high as we can expect for a summer flood outside of 1948. Accordingly, I hope it can be used for the advisable work in checking "N."

Noted
F.M.V.

Noted
E.E.B.

NOTED
F.M.V.

In the above connection, I telephoned yesterday to Mr. C. G. Paulsen to see what he thought about the problem. He said that the survey was still very much interested in getting out a final Skagit Flood Report and suggested that I write to you and find out what could be done now about checking the "N" used in the 1923 Skagit Report.

After talking with Mr. Paulsen, I came to the conclusion that due to the short time before this summer's flood peak I probably should talk to you over the telephone before writing. However, your Tacoma office advised that you were not expected back until Monday, June 5. I am still trying to get you at Pullman, Washington, but am sending this letter through so it will be on your desk not later than Monday morning.

He reached me there. JMS

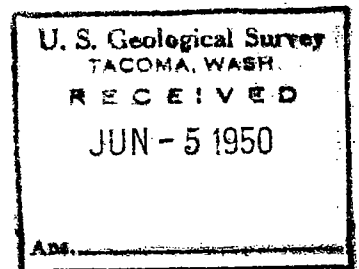
I am enclosing a memorandum which contains my ideas as to what slope section data should be obtained at this time.

I am also enclosing a copy of Exhibit "B" of my unpublished report. However, it is my only complete copy and I would appreciate it if you would kindly return it at once; i.e., if you have a copy, or as soon as convenient if you do not have a copy.

Cordially yours,

James E. Stewart
James E. Stewart
Vice President

Encl.
CC to Messrs: C. G. Paulsen
Wm. S. Eisenlohr, Jr.



SLOPE SECTIONS "THE DALLES" ON
SKAGIT RIVER NEAR CONCRETE

In choosing a slope section, the most important feature is the selection of one where the stream is neither gaining or losing velocity; i.e., selecting a section where the average velocity at the upper end of it (and throughout) is the same as for the lower end. If this is not done, there is a gain or loss in velocity head which cannot be taken care of in the regular formula. In practice, the ideal cannot be attained, but it should be approached as closely as possible. This can be done only by studying the stream in flood.

To counteract the uncertainties involved in velocity head gain or loss, it is advisable to take several sections and average the results obtained from them. In 1922-1923 cross-sections were taken at 618 -- 2,749 and 4,655 feet downstream from the mouth of "The Dalles." If not too difficult, it is suggested that for this important checkwork five cross-sections be taken, say about 700--1,700--2,700--3,700 and 4,700 feet downstream from the mouth of "The Dalles." These five cross-sections will make four stream sections available. It is important that the first one of these below "The Dalles" be far enough below so that all of the velocity head gained in "The Dalles" is lost; i.e., that the water has at least reached its maximum level resulting from the loss in velocity head.

Another feature of some importance, although how much is uncertain, is the amount of surging in the stream at the ends of the sections during the crest of the flood. Manifestly the only elevations available, when the flood crest is based on high water marks, is the crest of the surges, whereas what is needed is the mean level of the water at the time of the flood crest. Information as to this feature can be obtained by determining the amount of surging at the cross-sections for a lower flood, and then by means of the relation of the surging at the water stage records for both floods, determine the surging for the higher flood at the cross-sections.


James E. Stewart

JES:jmk