



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 07 1984

✓ M. Fliegel
L. Heller
R. Ballard
G. Lear

MEMORANDUM FOR: Robert E. Jackson, Chief
Geosciences Branch, DE

THRU: *Ray* Stephan Brocoum, Leader
Geology Section, GSB, DE

FROM: Harold E. Lefevre, Geologist
Geology Section, GSB, DE

SUBJECT: MOUNT ST. HELENS VOLCANO-ERUPTION ALERT

Early Sunday evening (Pacific Standard Time), the U. S. Geological Survey and the University of Washington issued a Volcano Alert indicating that an eruption of Mount St. Helens is likely to begin within 48 hours. This prediction is based upon a marked increase in the level of background seismicity (the largest earthquake reported in the current series has been a magnitude 2.8 event) coupled with a rather rapid dome growth. The eruption, if it were to occur, would most likely consist of an explosion caused by lava dome pressurization and subsequent failure followed by an essentially vertical ash column and perhaps a mud flow on the north flank of the volcano. According to Mount St. Helens Media Center personnel neither the ash cloud nor the possible mudflow is expected to present a hazard to the nearby communities. The ash would be ejected to high altitudes and then dispersed thinly over a wide area, while the north slope mud flow, lacking little natural lubricant (melted snow) because of the minimal snow pack, would be rather small. The mudflow is not expected to reach Spirit Lake. Based upon the above-described eruption effects (widely dispersed minimal ash fall and possible mudflow on the north flank of the volcano) neither the Trojan plant, some 35 air miles west of the volcano nor the more distant WPPSS facilities at Satsop and at the Hanford Reservation, would be affected.

for Harold E. Lefevre, Geologist
Geology Section
Geosciences Branch, DE

cc: H. Denton
P. Vollmer
D. Eisenhut
J. Miller
GSB Staff

G. Lainas
J. Knight
T. Novak
C. Trammell, III

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A/B6

RECORD OF TELEPHONE CONVERSATION

DATE: Feb 7 and 8, 1984

PROJECT: Trojan

RECORDED BY: Raymond Gonzales

TALKED WITH: Carl Kroll OF the USGS in Portland Ore.
FTS 8-429-2257

MAIN SUBJECT OF CALL: To obtain river flow information for the Columbia River near the Trojan Plant

Feb 7. Mr. Kroll was not in but the person that answered the phone informed me that the USGS recently installed a river gage on the Columbia River at Longview which is about 5-6 miles downstream of Trojan. However this gage and others on the Columbia River are looked at only every other month when the graphic plot is removed. I asked her if any of the gages have telemetry equipment. She was not sure so she said that Mr. Kroll would call me back.

Feb 8. Mr. Kroll called back. I told Mr. Kroll that yesterday Mr. Gregg Delwitz (phonetic) of the CLE's River Control Center had informed us that the flow in the Columbia River was 217,000 cfs yesterday. I asked Mr. Kroll if USGS supplied this information to the Corps and he said no. He was puzzled because the river gages only measure river stage and it is difficult to relate stage to discharge where the Columbia River flows are influenced by tide. Mr. Kroll suggested I call Mr. Jim Mathison (8-423-2914) at the National Weather Forecasting Center to find out if he knew where Delwitz got the discharge figure he provided us. (I had spoken to Gregg Delwitz on 2-7-84 and he had told me that the number he gave me had been obtained from the National Weather Forecasting Center.)

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RECORD OF TELEPHONE CONVERSATION

DATE: 2/7/84

PROJECT: Trojan

RECORDED BY: Raymond Gonzales

FTS 8-423-3742

TALKED WITH: Gregg Delwitz OF the Reservoir Control Center of the Portland Corps of Engineers

MAIN SUBJECT OF CALL: to obtain river flow information for the Columbia River

The Trojan P.M., Charles Trammell, had spoken to Delwitz yesterday and had received a value of 216,000 CFS for the Columbia River. I called Delwitz to find out how this value had been determined. Delwitz told me that he had obtained the value from the National Weather Service. (see tele-con record dated 2/6/84 to Mr. Jim Mathison)

2/7/84

RECORD OF TELEPHONE CONVERSATION

DATE: 2/5/84

PROJECT: Trojan

RECORDED BY: Raymond Gonzales 8-423-2914

TALKED WITH: Called Mr. Jim Mathison of the National Weather Service River Forecast Center. He wasn't in so I spoke with Mr. Chuck Orwig.

MAIN SUBJECT OF CALL: _____

→ To obtain information on river flows for the Columbia River at the Trojan Plant.

Feb 8

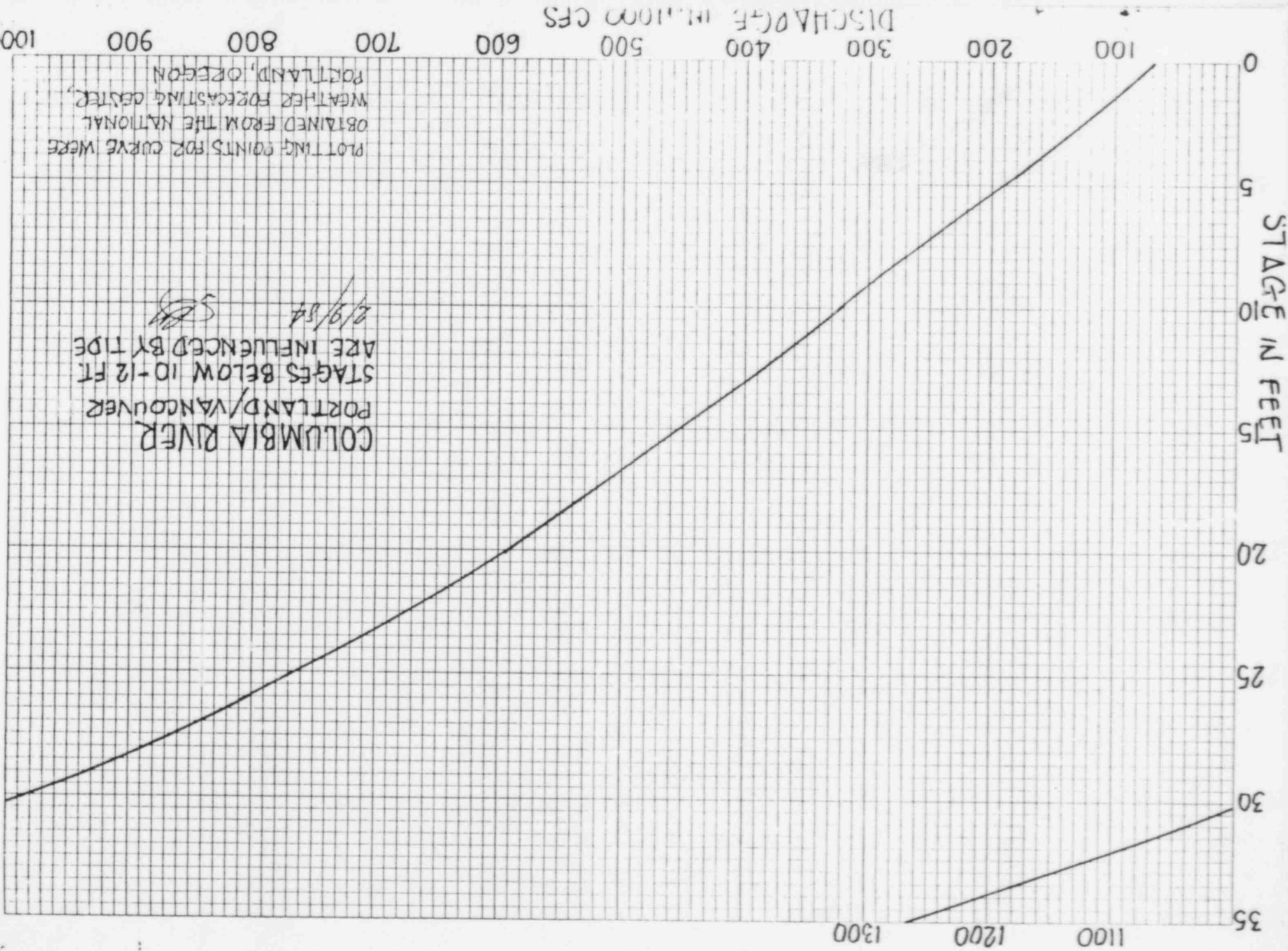
Mr. Orwig explained to me that although the tide influences the magnitude of the discharge, there is some correlation between stage and river discharge. Using the Columbia River gage at Vancouver, Wash and the Willamette River gage at Portland, they have developed a stage-discharge curve. He offered to send me a copy of the plotted curve but I asked him to read values off the curve and I would plot my own curve. (These data are attached) Mr. Orwig told me that they have a dynamic flow model that can be used to model the Columbia River if we ever have the need. Mr. Orwig pointed out that tide influences discharge values for stages under about 12 feet. Therefore the data which he provided should only be used to obtain a ball-park figure. He also told me that I can get river forecast information by dialing the following commercial number 9 (503) 249-0666.

2/9/84

Trojan - Columbia River
stage-discharge data for the Vancouver/Portland
harbor.

<u>stage (ft)</u>	<u>Discharge (cfs)</u>
0	56 K
2	108 K
4	161
6	214
8	268
10	322
12	376
14	429
16	483
18	537
20	594
22	656
24	726
26	805
28	893
30	989
32	1,093
34	1,205
35	1,264 K

Data provided by Chuck Orwig of the National
Weather Service River Forecast Center in
Portland, Oregon FTS 8-423-2914



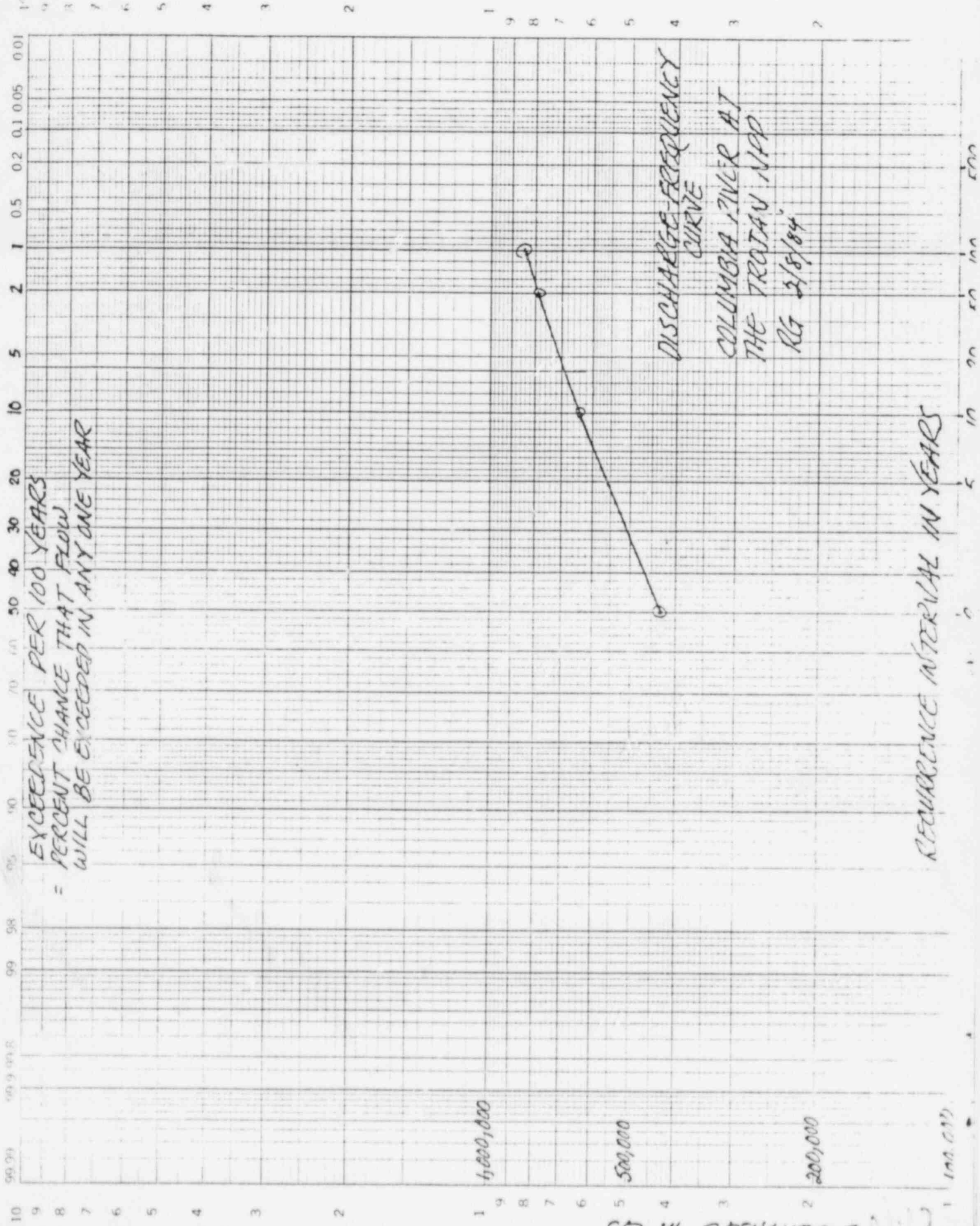
COLUMBIA RIVER
PORTLAND/VANCOUVER
STAGES BELOW 10-12 FT
ARE INFLUENCED BY TIDE
2/9/54
SS

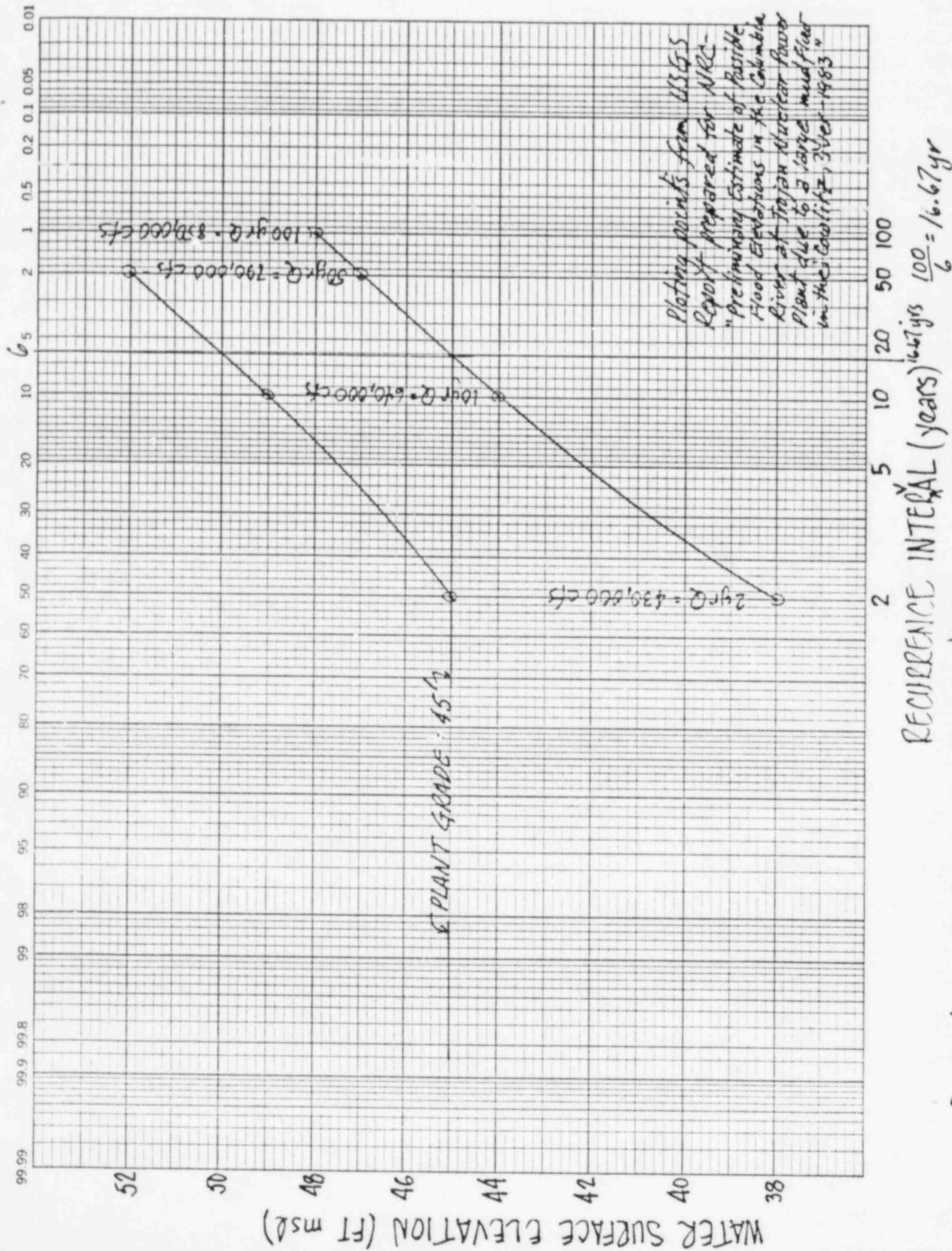
PLOTTING POINTS FOR CURVE WERE
OBTAINED FROM THE NATIONAL
WEATHER FORECASTING CENTER,
PORTLAND, OREGON

46 8040

PROBABILITY X 2 LOG CYCLES
 100% 99% 98% 97% 96% 95% 94% 93% 92% 91% 90% 80% 70% 60% 50% 40% 30% 20% 10% 1% 0.1% 0.05% 0.01%

EXCEEDENCE PER 100 YEARS
 = PERCENT CHANCE THAT FLOW
 WILL BE EXCEEDED IN ANY ONE YEAR





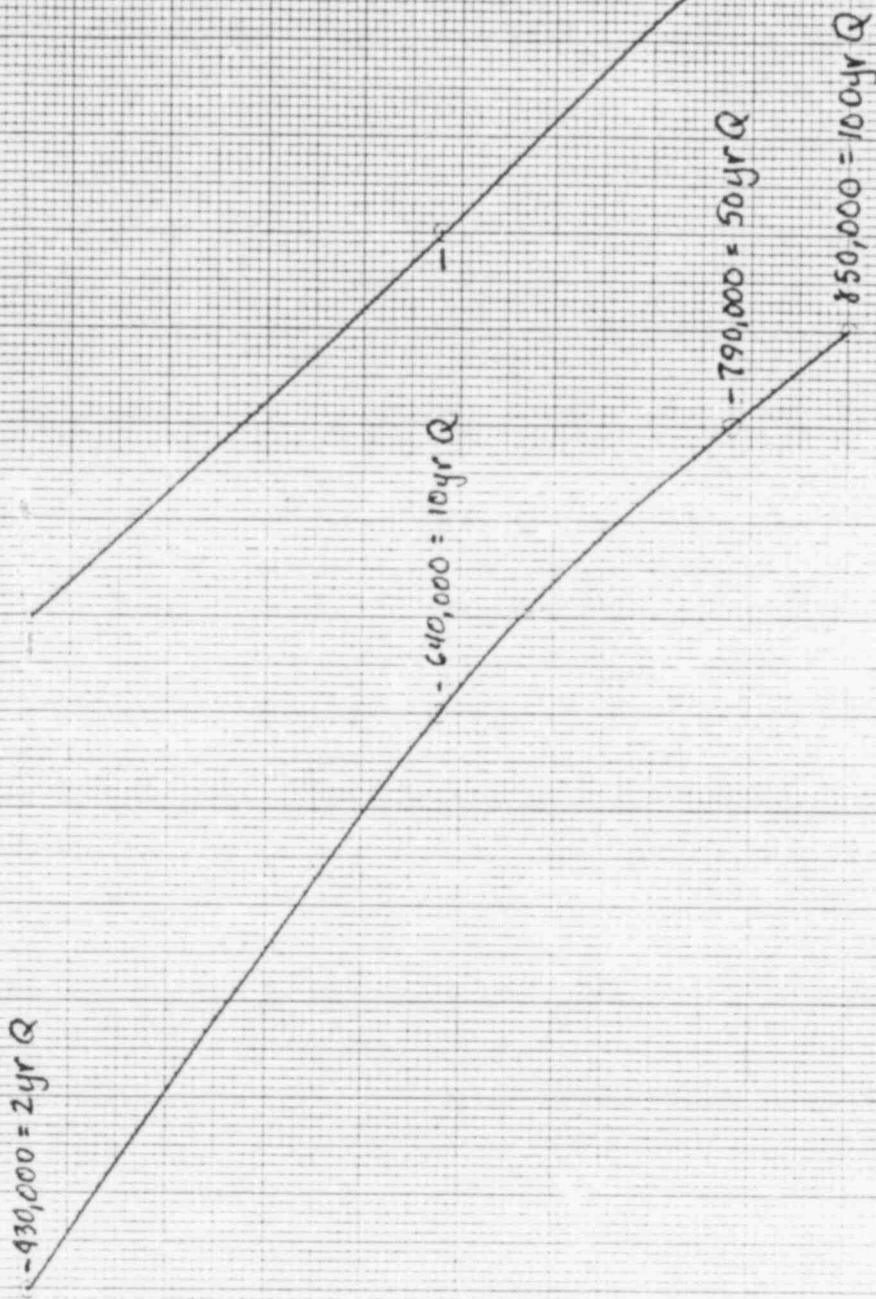
46 1322

DATE: 10-20-67 BY: J. L. H. 10000

RIVER WATER SURFACE ELEVATIONS (ft msl)

52
51
50
49
48
47
46
45
44
43
42
41
40
39
38

400 500 600 700 800 900
Q - COLUMBIA RIVER DISCHARGE (CFS)



2/10/84 - Note to files

I spoke to Chuck Swift of USGS (8-390-6510) today to verify that February 23, 1984 is an acceptable date for USGS to be here for a meeting with NRC, PG&E and consultant Dr Li. Swift said that the 23rd sounds fine but he wanted me to know that Mr Les Laird's dad just passed away so Swift had not spoken to Laird since yesterday. Swift said that he and Laird will be the only ones here from USGS. I passed the information on to Trammell at 2:15 pm today.

[Signature]

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February 14, 1984

Preliminary Agenda for Meeting
Trojan - Spirit Lake - Mount St. Helens

February 23, 1984

- I. USGS Presentation
 1. USGS Report 82-4125 "Mudflow Hazards Along the Toutle and Cowlitz Rivers from a Hypothetical Failure of Spirit Lake Blockage", as it relates to study done for NRC
 2. Study done for NRC
 - a) Bases for assumptions
 - 1) which assumptions are reasonable
 - 2) which assumptions are conservative
 - b) Conclusions regarding potential impacts on Trojan
 3. Status of USGS's long term FEMA study for the Columbia River.
- II. PG&E Presentation
 1. Simons, Li Report
- III. Group Discussion
 1. USGS views on Simon, Li Report & NRC's comments on the Simons, Li Report
 2. Discussion between NRC, PG&E and consultant, and USGS on differences between PG&E's Simons, Li Report and USGS's NRC report
 3. Need for further analyses and evaluations

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