



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

850715

Docket No. 50-344

LICENSEE: PORTLAND GENERAL ELECTRIC COMPANY (PGE)

FACILITY: Trojan Nuclear Plant

SUBJECT: SUMMARY OF MEETING HELD ON FEBRUARY 23, 1984 RE: SPIRIT LAKE
BLOCKAGE AND FLOODING POTENTIAL AT TROJAN

On February 23, 1984, the NRC staff and consultant met with representatives of Portland General Electric Co. (PGE) and its consultant to discuss the flood potential at Trojan of a postulated breakout of Spirit Lake on Mount St. Helens. A list of attendees is attached. Highlights of the meeting are summarized below. Copies of viewgraphs shown at the meeting are also attached.

Both PGE's consultant, Simons, Li & Associates (SLA) and USGS have estimated the possible flood elevations in the Columbia River at Trojan due to failure of the debris dam blocking Spirit Lake. The highest level estimated by SLA was el. 39 feet. The Trojan plant grade elevation is 45 feet. The USGS estimates showed flood elevations above grade for high Columbia River flows (50 and 100-yr. peaks). It also showed flooding for modest river flows after a breakout due to the sediment deposit in the Columbia River.

The purpose of the meeting was for each party (SLA and USGS) to present its analysis and methods and to identify differences, conservatisms, realisms, etc. to determine if further analysis is needed.

A major difference between the two analyses was the amount of sediment deposited in the Columbia at the mouth of the Cowlitz. SLA assumed an initial sediment volume of 65%, dropping to 45%, with 50% wash load. USGS used 65% all the way to the Columbia. Maximum deposit in the Columbia was .28 billion cubic yards (SLA) versus .5 billion cubic yards (USGS).

USGS is currently developing a more refined sediment transport routing model to study the impacts of a Spirit Lake breakout on the Columbia River. This study is being conducted for FEMA. It is expected to provide initial results by about May 1, 1984. The results should be more realistic than the current flood estimates, and therefore will probably show lower flood elevations.

Charles M. Trammell

Charles M. Trammell, Project Manager
Operating Reactors Branch #3
Division of Licensing

Attachments

1. Attendance List
2. Viewgraphs

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PDR FOIA
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On February 23, 1984, the NRC staff and consultant met with representatives of Portland General Electric Co. (PGE) and its consultant to discuss the flood potential at Trojan of a postulated breakout of Spirit Lake on Mount St. Helens. A list of attendees is attached. Highlights of the meeting are summarized below. Copies of viewgraphs shown at the meeting are also attached.

Both PGE's consultant, Simons, Li & Associates (SLA) and USGS have estimated the possible flood elevations in the Columbia River at Trojan due to failure of the debris dam blocking Spirit Lake. The highest level estimated by SLA was el. 39 feet. The Trojan plant grade elevation is 45 feet. The USGS estimates showed flood elevations above grade for high Columbia River flows (50 and 100-yr. peaks). The USGS also estimated that if Spirit Lake was to breakout during a period of low Columbia River flows such that a massive amount of sediment deposited in the Columbia River, a subsequent ~~flow~~ modest river flow (2-yr peak) could cause flooding at the Trojan Plant.

The purpose of the meeting was for each party (SLA and USGS) to present its analysis and methods and to identify differences, conservatism, realism, etc. to determine if further analysis is needed.

The ~~major differences~~ ^{are assumed} between the two analyses ~~are~~ the ~~amounts~~ ^{assumed} of sediment deposited in the Columbia at the mouth of the Cowlitz and the peak inflows of the mudflows. SLA assumed that 0.28 billion cubic yards would be deposited in the Columbia River and a peak inflow of 386 thousand cubic feet per second. The USGS assumed a Columbia River deposit of 0.50 billion cubic yards and a peak inflow of 1.1 million cubic feet per second.

Preliminary results are
USGS is currently developing a more refined sediment transport routing model to study the impacts of a Spirit Lake breakout on the Columbia River. This study is being conducted for FEMA. ~~It is expected to provide initial results by about May 1, 1984. The results should be more realistic than the current flood estimates, and therefore will probably show lower flood elevations.~~

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The NRC staff will review the results of this study to determine if and how a mudflow could affect the operation of the Trojan Plant.

DATE: 11/11/11

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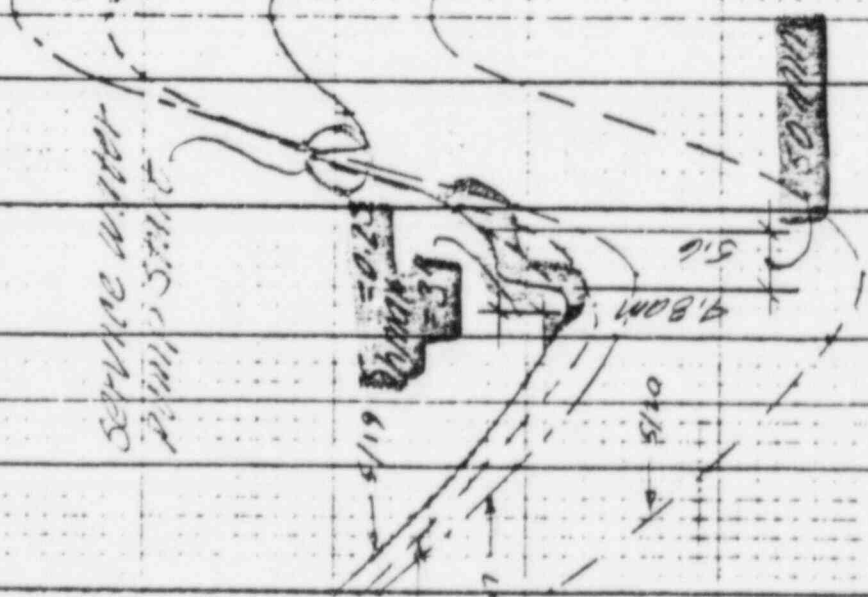




PLATE 1.-- Mudflow inundation map for N.F. Toutle River from river mile 6.1 to 17.7
in the vicinity of Kid Valley and Camp Baker.

c/41

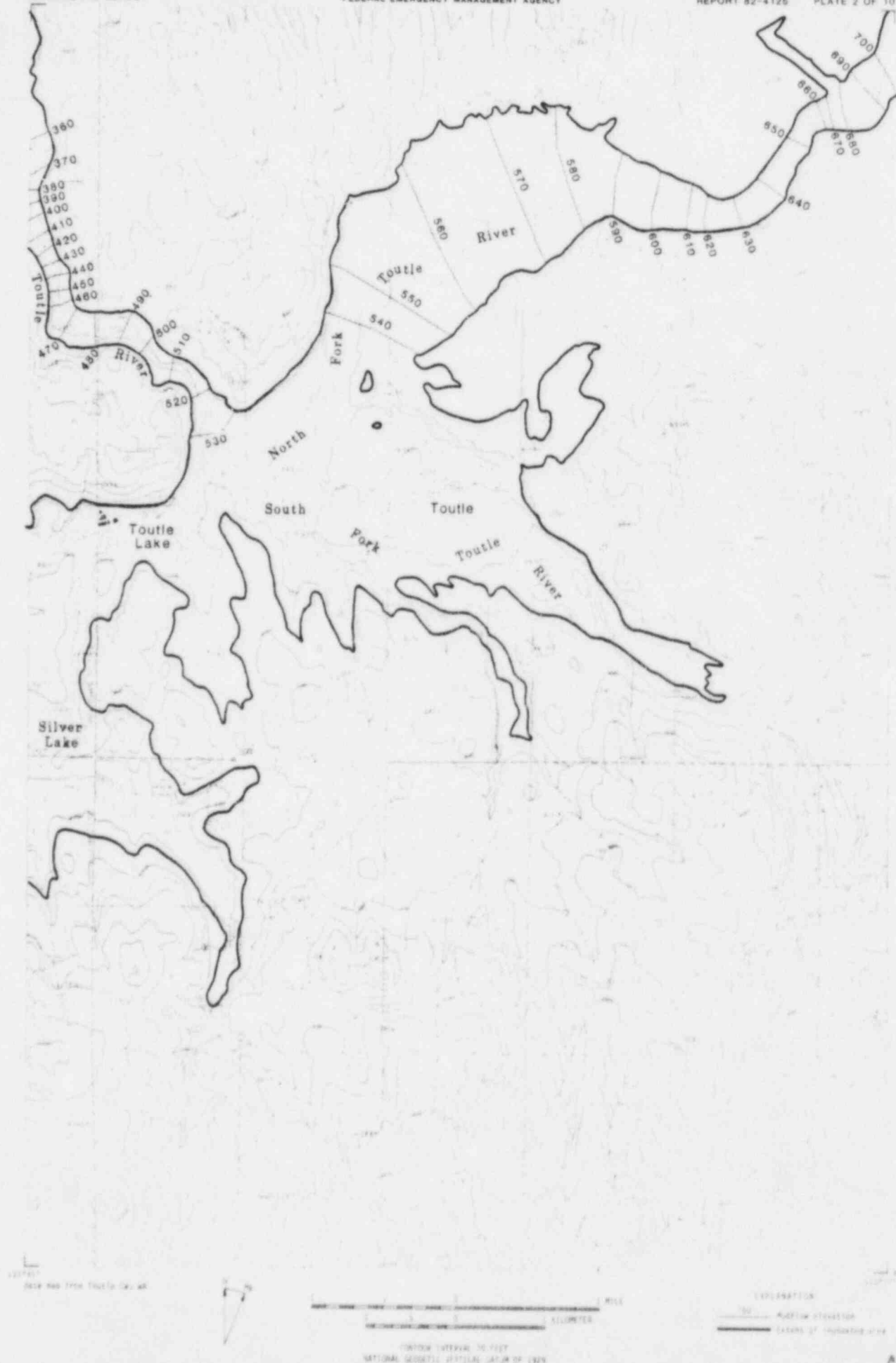


PLATE 2.-- Mudflow inundation map for Toutle River from river mile 13.4 to 17.2 and
N.F. Toutle River from river mile 0.0 to 6.1 in the vicinity of Toutle Lake.

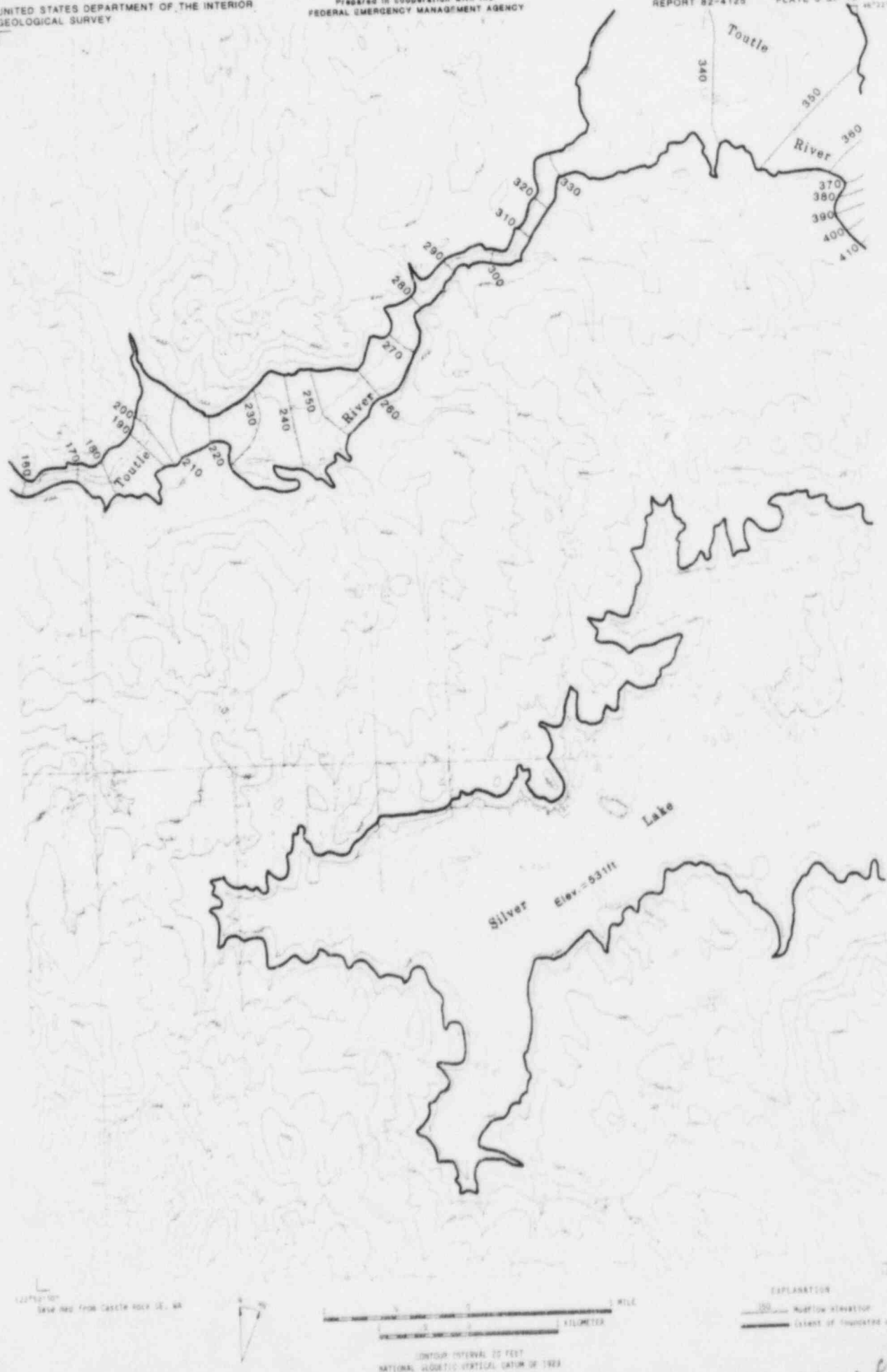


PLATE 3.-- Mudflow inundation map for Toutle River from river mile 4.3 to 13.4 and Silver Lake in the vicinity of Toutle Lake.

c/43

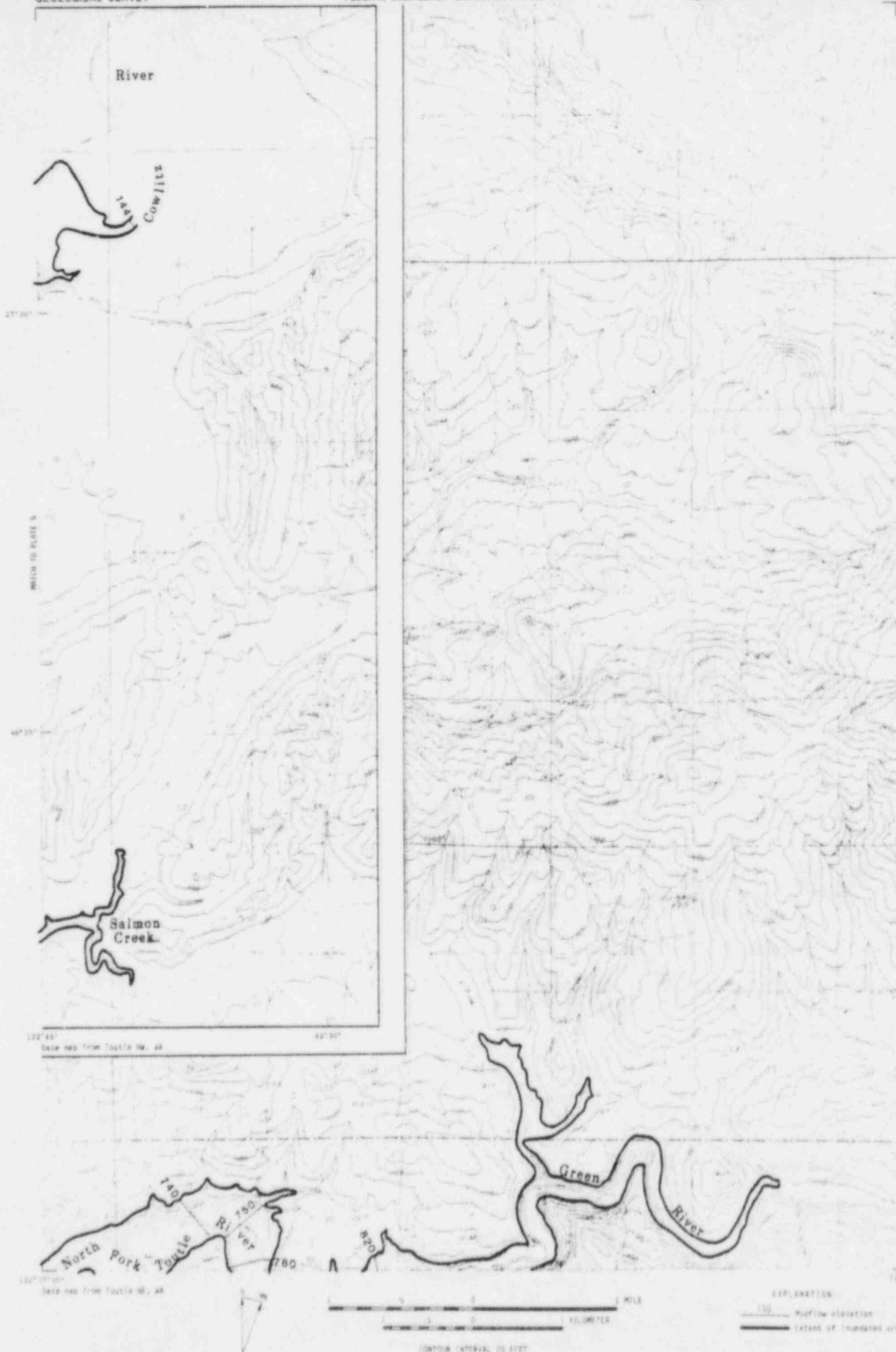


PLATE 4.-- Mudflow inundation map for N.F. Toutle River from river mile 6.1 to 10.5 in the vicinity of Kid Valley, and Cowlitz River from river mile 39.2 to 40.1 in vicinity of Toledo.

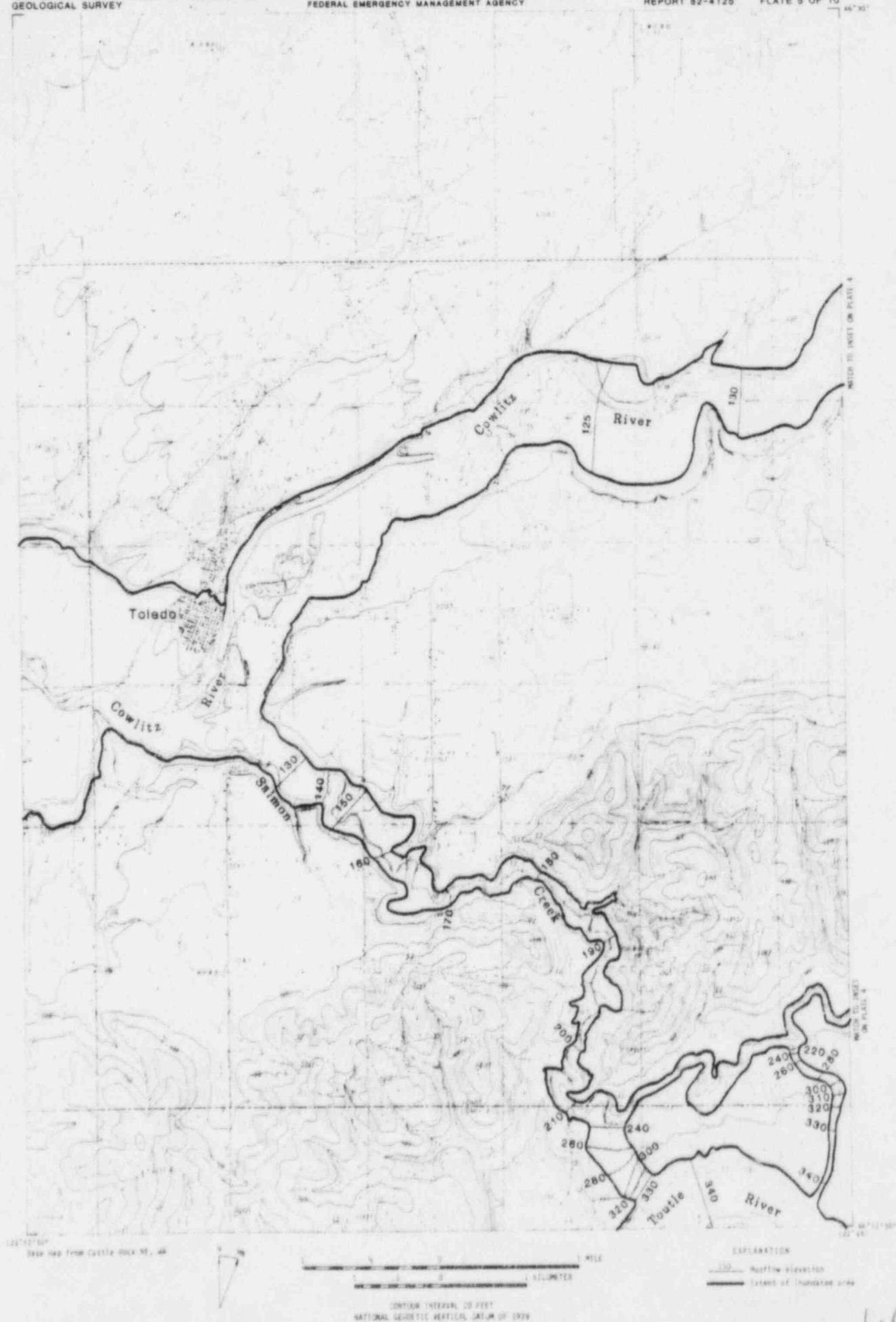


PLATE 5.-- Mudflow inundation map for Cowlitz River from river mile 32.0 to 39.2 and Salmon Creek from river mile 0.0 to 3.0 in vicinity of Toledo.

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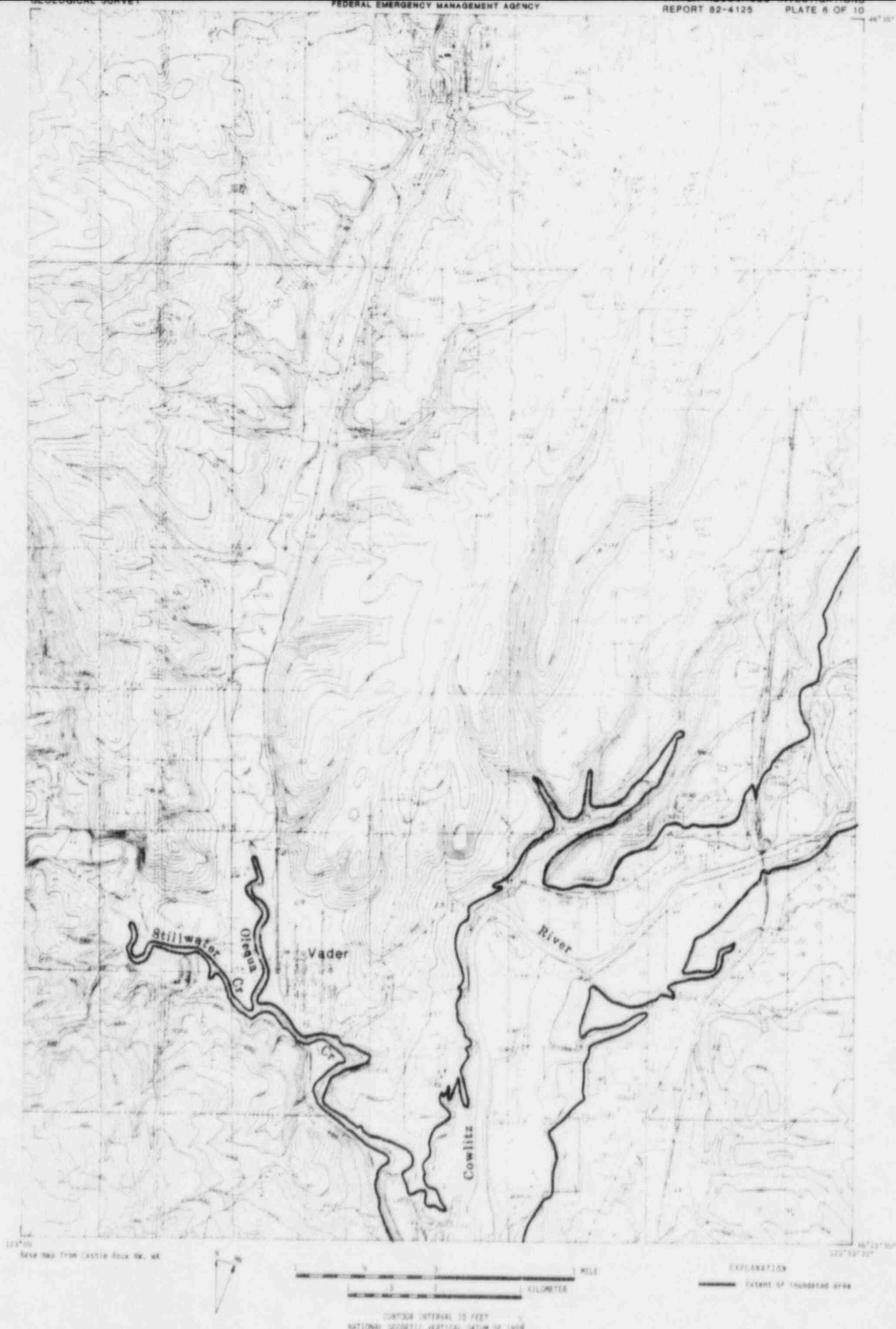


PLATE 6.-- Mudflow inundation map for Cowlitz River from river mile 25.0 to 32.0 in the vicinity of Vader.

C/46

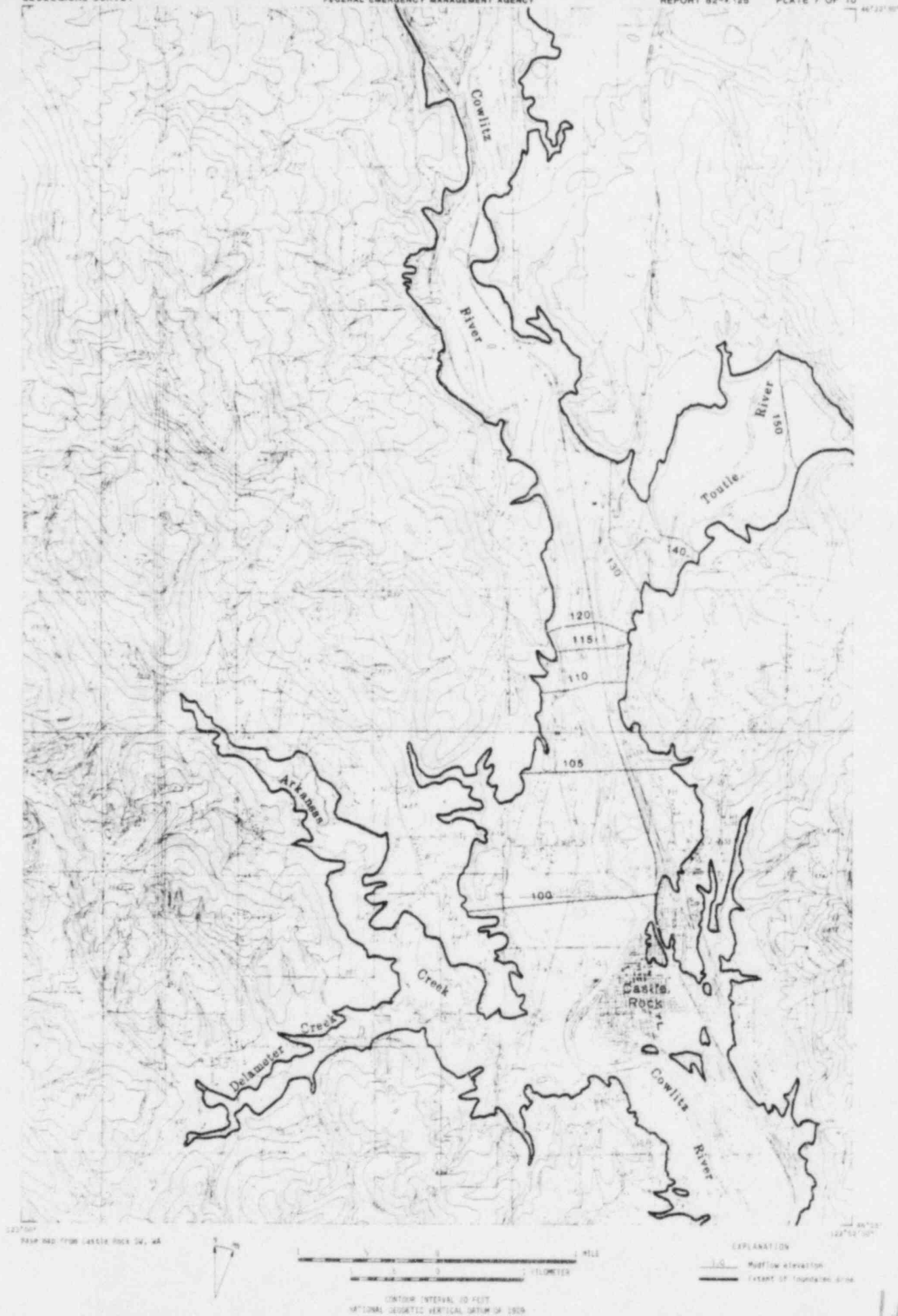


PLATE 7.-- Mudflow inundation map for Cowlitz River from river mile 14.9 to 25.0 and
Toutle River from river mile 0.0 to 2.7 in the vicinity of Castle Rock.

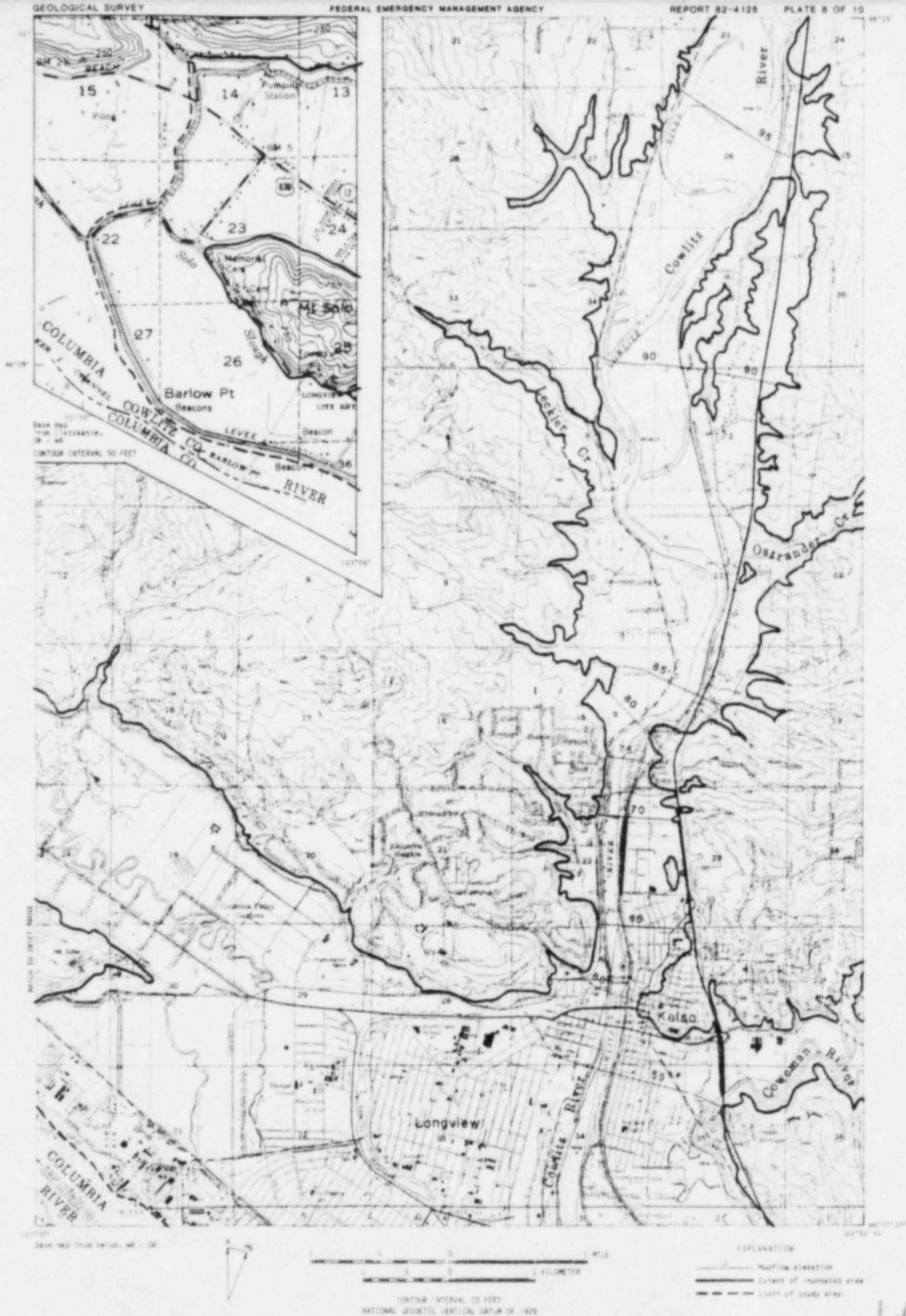


PLATE 8.-- Mudflow inundation map for Cowlitz River from river mile 0.0 to 14.9 in the vicinity of Lexington, Kelso, and Longview.

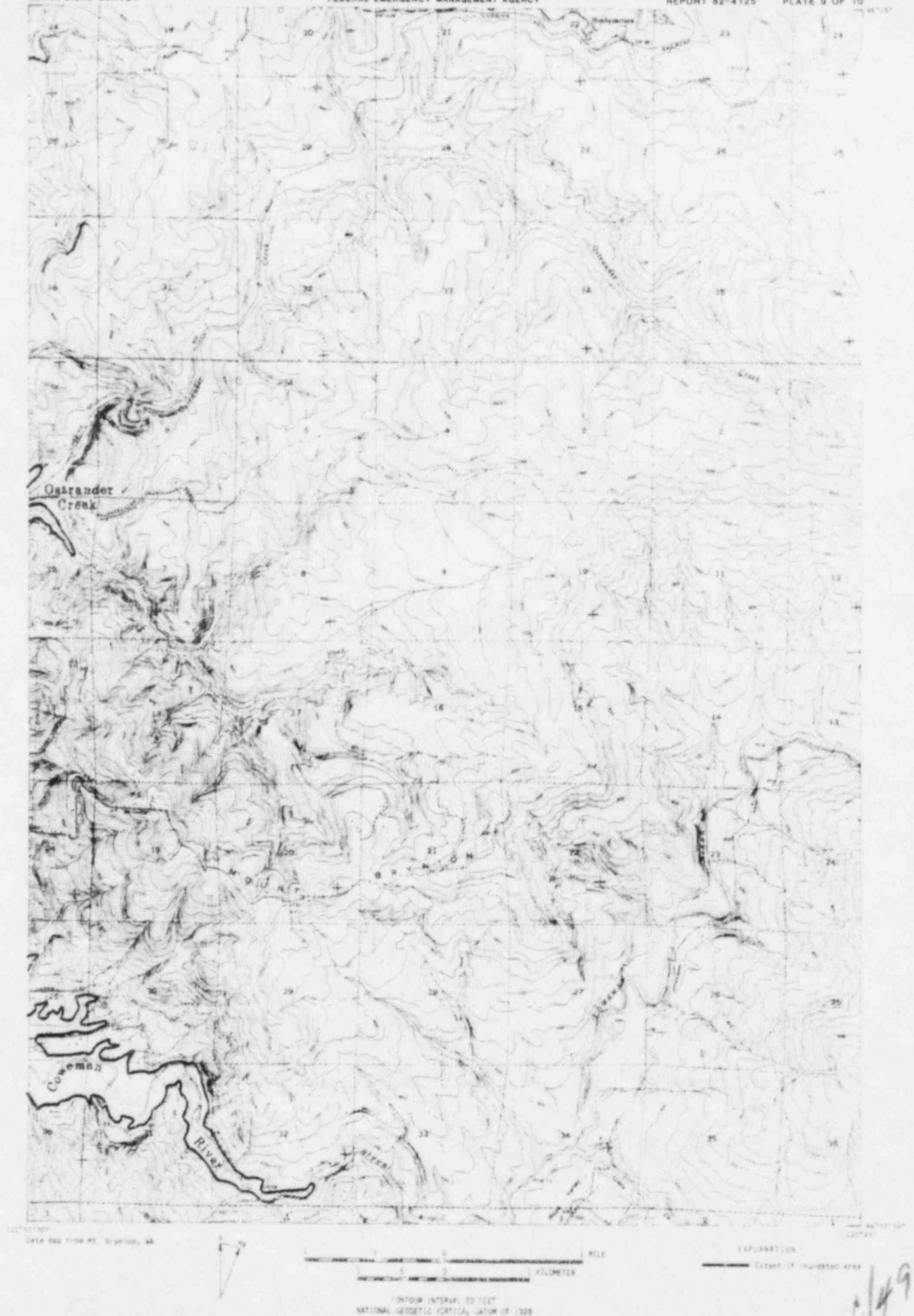
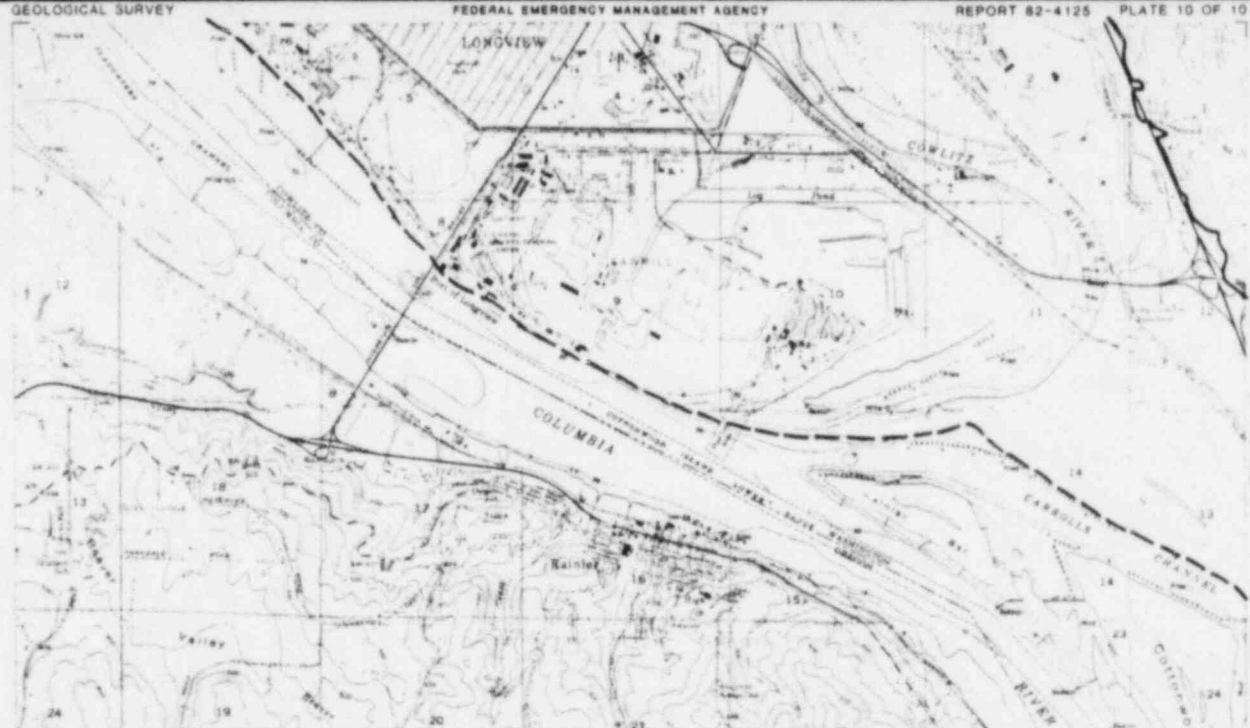


PLATE 9.-- Mudflow inundation map for Coweman River and Ostrander Creek
in the vicinity of Kelso.



121° 00' 00" W
Base map from Reinter, OR - 44

46° 07' 30" N



122° 52' 30" W
Base map from Kelso, OR - OR



CONTOUR INTERVAL: 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

EXPLANATION

— Extent of inundated area
--- Limit of study area

PLATE 10.-- Mudflow inundation map for Cowlitz River from river mile 0.0 to 3.4
in vicinity of Kelso and Longview.

1/50