

PDR 5/19/82
CT-1441

George A. Thompson
421 Adobe Place
Palo Alto, California 94306

April 17, 1982



To: ACRS via Michael Griesmeyer
From: George A. Thompson, Consultant
Subj.: Lineaments studied during geologic field trips, vicinity of WPPSS site, Richland, Wn.

On April 12 and 13 I inspected several suspect lineaments in company with WPPSS and NRC personnel, consultants and others. Geologic maps, aerial photographs and geophysical data were also presented. My conclusions can be summarized briefly.

1. The Rattlesnake Mountain lineaments, three of which have been trenched to a depth of about 20 feet, have nothing to do with faulting. They are shoreline features of an ancient lake, with ice-rafted boulders along the strand line. The trenches demonstrate no offset at the top boundary of a deeply buried alluvial fan.

2. The Wenas Valley fault, about 5 mi. long, is the headwall scarp of a very large landslide, the toe of which is easily recognized over the same linear distance as the headwall scarp. Further evidence that this fault is merely part of a landslide: a typical headwall graben in the pull-apart zone, the tectonic setting, the stratigraphic, topographic and hydrologic environment, all of which are consistent with landsliding. The Wenas Valley landslide would pose a hazard only to structures built on or below it.

3. The Cold Creek-Kennewick lineament is a composite alignment that appears to represent little, if any, faulting. Lack of displacement of the Ice Harbor basalt (resolution 100 feet), lack of significant gradients or offsets in geophysical anomalies, and broad folding shown in drill holes and outcrops suggest strongly that this feature is not a fault. I was not able to stay for the third-day visit to the Kennewick part of the lineament.

4. Moxee Valley fault. I did not have time to visit this fault, which is about 40 mi. west of the site. Geologic mapping shows a fault length (east branch) of 8 miles, normal displacement of the Pomona flow of 60 m down to the east, and possibly a component of right lateral slip. The evidence presented for lateral slip seems inconclusive. The fault strikes traverse to the Wallula lineament and could not link directly to other structures trending toward the site.

In conclusion the Moxee Valley fault deserves serious study. Is it capable? If so, could it produce hazardous shaking at the site? Probably not, but no evaluation was presented.

82052700260

Certified By

BGR

George A. Thompson
Geophysicist