

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

JAN. 21 1975

DOCKET NOS: STN 50-508 AND STN 50-509

APPLICANT: WASHINGTON PUBLIC POWER SUPPLY SYSTEM (WPPSS)

FACILITY: WPPSS NUCLEAR PROJECTS NO. 3 AND NO. 5

SUMMARY OF DECEMBER 20, 1974 MEETING WITH WPPSS TO DISCUSS LANDSLIDES  
AND SLOPE STABILITY

On December 20, 1974, representatives of WPPSS, Ebasco, and Woodward-Clyde (formerly Woodward-Lundgren) met with the Regulatory staff in Bethesda, Maryland. This meeting was requested by WPPSS to discuss their studies on landslides and slope stability in the region near the proposed site of WPPSS Nuclear Projects No. 3 and No. 5.

Woodward-Clyde, the applicant's geologic consultant, described a reconnaissance study of landslides in the site area. This study was still in progress on landslide area No. 8 (designation in Section 2.5 of the PSAR).

Woodward-Clyde described landslide area No. 1 as a fluid mass type of landslide. It is located approximately 9000 feet from the plant site with a large portion of its lower surface resting on siltstone. This landslide was described as having failed on a mappable unit of siltstone in the Astoria formation. The techniques for mapping landslide area No. 1 were described. The results of the investigation of landslide area No. 1 indicate that this slide is at least several thousand years old.

In their description of landslide area No. 3, Woodward-Clyde characterized this slide as one that is not a flow slide. Landslide area No. 3 is situated on the same siltstone as landslide area No. 1. The age of slide area No. 3 is approximately the same as the age of area No. 1. The originating mechanism for this landslide was described as being the same as that for area No. 1 (failure of a thick unit of siltstone).



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Both landslide areas No. 4 and No. 6 were described by Woodward-Clyde as fluid mass slides. Landslide area No. 4 was characterized as a complex area - it is actually composed of a number of slides. Landslide area No. 4 is situated on a siltstone unit that is a different unit from the siltstone in landslide areas No. 1 and No. 3.

Woodward-Clyde summarized the studies performed on landslide areas No. 1, No. 3, No. 4, and No. 6. They emphasized that all four landslides failed on prominent, mappable units of siltstone in the Astoria formation. The two mappable siltstone beds associated with these four slides were the only two such siltstone beds found in the region near the site. Woodward-Clyde stated that siltstone had an important role in the formation of these landslides in the site region. They have identified the following as factors in landslide formation: failure on dip slopes, failure on weak units (e.g., siltstone), weathering (in some cases, deep weathering), undercutting, and groundwater.

Woodward-Clyde described landslide area No. 2 (located 9000 feet southwest of the plants) as a rigid slide. There are no exposures of the slide plane itself in this landslide. All observable evidence indicates the same mechanisms of slide formation as were discussed in the cases of landslide area Nos. 1, 3, 4 and 6.

Landslide areas No. 5 and No. 7 were described by Woodward-Clyde as small, earth flow type slides on dip slopes in steep gulleys.

Landslide area No. 8 is located 450 feet south of the plants. Woodward-Clyde stated that this slide area is older (because of the lack of geomorphic evidence) than other slides in the site region. Red clay was observed in core boring D-10, which was recovered from the base at the slide area. The slippage surface is associated with the red clay. Thus the slippage surface was readily traceable. No such clay was found in the core borings obtained from the plant site itself.

From their investigation of these landslides, Woodward-Clyde concluded that the geologic conditions observed in the landslide areas near the site differ from those observed at the site (i.e., absence of deep weathering, steeply dipping slopes, and undercut bedding). As a result, they claim that the conditions for potential landslides do not exist in the plant area itself.

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Woodward-Clyde stated that they are not studying the potential for a landslide to occur offsite and then move into the plant area.

WPPSS agreed to document the results of the study of landslides by mid-January 1975.

*Patrick D. O'Reilly*  
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Light Water Reactors  
Project Branch 1-3  
Division of Reactor Licensing

Enclosure:  
Attendance List

cc w/encl:  
Mr. J. J. Stein  
Joseph B. Knots, Jr., Esq.  
Richard Q. Quigley, Esq.

ENCLOSURE

ATTENDANCE LIST

MEETING WITH

WPPSS

DECEMBER 20, 1974

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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G. C. Sorensen

EBASCO

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NUCLEAR REGULATORY COMMISSION

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