

APPENDIX B  
PROJECT SURVEILLANCE

General. General surveillance will be carried out by Project personnel under the direction of Mr. Robert Martin assisted by Mr. Vince Steinkamp and a District survey party. Mr. Steinkamp will be available to the Project to help supervise the surveillance until the pool reaches elevation 1872 - Full Pool. A secondary team composed of a Soils Engineer and a Geologist from the District Foundation & Materials Branch will make regular inspections and be available if any problems develop. In addition, should major problems develop, the above team will be supplemented by District Engineering Staff as required.

Damsite. Instrumentation of the main embankment dam includes 15 Hall type piezometers in the impervious zone at Station 27+00, and 9 open tube, Casagrande type, piezometers in the foundation gravels on the left bank terrace at the downstream toe of the embankment dam. Six additional open tube type piezometers are being installed in the foundation along the downstream toe; one on the right abutment, two on the right abutment slope, one in the valley floor at the toe of the left bank, one in the buried channel on the left bank terrace, and one on the left abutment. In addition the outfall from the downstream drainage system is equipped with a weir.

Twenty (20) surface monuments have been installed along the crest of the dam and will be used to measure settlement and deflection.

Six Strong Motion Accelerographs will be installed by the Seismic Engineering Branch of the U. S. Geological Survey, two

ETL 1110-2-231  
30 Mar 1979

on the crest of the embankment dam, one on the left abutment, one on a rock outcrop about 1,800 feet downstream of the left abutment, and two in the intake tower. The Seismic Engineering Branch of the U. S. Geological Survey will service and collect the data from these instruments.

Visual inspection will be made of the dam and downstream abutment slopes to check for seepage, sloughing, and erosion. Also visual inspection will be made of the interior of the intake structure dry well for cracks and leakage. The regulating outlet conduit will be inspected as soon as possible following the start of power generation.

Reservoir. Major areas of concern around the reservoir are: Needle Rock Slide located on the right bank near the upstream end of the reservoir, Stewart Park boat ramp and dock located on the left bank, and the right bank boat ramp located just upstream of the right abutment.

At Needle Rock Slide a line of survey monuments has been established along the highway to check alignment and settlement. In addition seven slope indicator pipes were installed, four of these are below maximum pool and three above. Oregon State Highway Department is responsible for reading the slope indicators.

Most of the north shore of the reservoir does not have road access, however, this area is not important to the safety of the dam or relocations.

Monitoring Schedule.

Damsite.

- (1) Downstream drainage system weir - read daily.
- (2) Embankment and foundation piezometers - read daily.
- (3) Visual inspection of embankment dam, look for cracks in crest, check guardrail alignment, look for wet spots on downstream slope and at toe, look for erosion or sloughing on upstream slope - daily.
- (4) Visual inspection of right abutment slopes above Jasper Creek, look for seepage, wet spots, sloughing - each ten foot increase in pool level but not less than weekly.
- (5) Visual inspection of left abutment slopes above the terrace downstream to the spillway chute and the unlined chute walls, and the slope below the terrace downstream to the hatchery residence area - same as 4 above.
- (6) Visual inspection of the lower slopes on the right bank from Jasper Creek downstream to the old boat ramp and the left bank terrace slope in the residence area and above downstream to the spillway chute - weekly.
- (7) Visual inspection of the intake structure drywell - daily.
- (8) Visual inspection of regulating outlet conduit - as soon as possible following start of power generation and periodically as required.
- (9) Settlement and alignment monuments on crest of dam - monthly from initial reading unless 3 above indicates need for intermediate readings.

Items 1 through 8 will be taken care of by Project personnel and Item 9 by District survey crew. District team will inspect monthly

ETL 1110-2-231  
30 Mar 1979

and/or when the filling rate exceeds one foot in 8 hours for a period of 24 hours and is expected to continue at a rate higher than one foot per 8 hours for the following 12 hours. Should experience indicate that this schedule does not provide adequate coverage by the District team it will be adjusted.

Reservoir.

- (1) Visual inspection of Needle Rock Slide, Stewart Park boat ramp and dock, right bank boat ramp - daily.
- (2) Settlement and alignment monuments at Needle Rock Slide - monthly unless 1 above indicates need for intermediate reading.
- (3) Slope indicators at Needle Rock Slide - responsibility of State Highway Department.

Item 1 will be taken care of by Project personnel and Item 2 by District survey crew. District team will inspect monthly and/or when the filling rate exceeds one foot in 8 hours for a period of 24 hours and is expected to continue at a rate higher than one foot per 8 hours for the following 12 hours. The entire reservoir perimeter will be inspected by District Foundation & Materials Branch personnel following the first drawdown.

Routine and Alert Conditions. Daily, weekly and monthly readings will be considered routine by Project or District personnel. At anytime the filling rate exceeds one foot in an 8 hour period special alert monitoring activities will commence. Upon observing the special alert conditions the Surveillance Director will notify District Foundation & Materials Branch personnel alerting

the secondary inspection team. In addition the Surveillance Director will mobilize a twenty-four hour observation watch on the Dam, the abutment slopes and the area downstream of the dam. The Project will have on a ready condition portable lighting for night observations.

Increased flow from the downstream weir is expected and will be considered normal. Sudden increase in flow quantities or turbid flows will be reported to District Foundation & Materials Branch immediately.

Seepage will be expected at the dam toe and downstream in minor controlled amounts. The District Foundation & Materials Branch should be notified as soon as each of the minor seepage areas are found. Sudden increase in flow, large flows found or turbid flows will be reported immediately and may in the judgment of the Surveillance Director or the Project Engineer be cause for setting emergency procedures in action.

Reporting.

(1) Routine Instrumentation Readings and Visual Inspection Reports - by telecopier to District Foundation & Materials Branch - daily. District Foundation & Materials Branch will prepare weekly report for NPD and the Task Force. *(Include RCS number.)*

(2) Minor Seepage - by phone to District Foundation & Materials Branch who in turn will phone Task Force members.

(3) Major Seepage, Other Major Problems - by phone to Chief, Construction Division, who will notify the District Engineer and Chief, Engineering Division immediately.