

WET WEATHER SHUTDOWN CRITERIA

BCTS-Seaward-tlasta Business Area

Environmental Management System

Discontinuing logging and road building activities during particularly intense storms can reduce landslide risk. If the total amount of rainfall over a specific time period (the intensity), exceeds the limits described below, at any time during the storm, then there is a high probability of failure based on empirical evidence.

To evaluate the potential for a landslide at a given site, it is essential to know the water balance (inputs minus outputs). The data below are required to obtain a water balance:

- A starting water balance, if known.
- The rainfall measurement taken once every 24 hours at the worksite, or from a reasonable location representing the worksite. Snowmelt is also to be added to the rain gauge measurement. Snowmelt is estimated at 2 mm of water equivalent per hour. If conditions dictate that snow is not melting, then reduce the time and associated snowmelt from the 24 hour period. During rain-on-snow conditions, the snow has a water equivalent approximately equal to 50% of the snow depth. Therefore, measuring the reduction in snow depth can give an estimate of snowmelt.
- The regional daily soil drainage rate for the worksite; 50 mm for the Seaward-tlasta Business Area.¹

The shutdown limit for the Seaward-tlasta Business Area is a water balance of 80 mm.²

The following table demonstrates how the daily inputs and outputs would work.

Day 1: snowfall only (no melt)

Day 2: 40 mm of rainfall + a depth of 100mm of snow melted (use 50% as water)

Day 3: 80 mm of rainfall + a depth of 50mm of snow melted (use 50% as water)

Day 4: 130 mm of rainfall

Day 5: 40 mm of rainfall

Day 6: 10 mm of rainfall

Day 7: 0 mm of rainfall

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Previous Day's Water Balance	0 mm	0 mm	40 mm	95 mm	175 mm	165 mm	125 mm
Add Precipitation (rain plus snowmelt)	0 mm	90 mm	105 mm	130 mm	40 mm	10 mm	0 mm
Minus Regional Soil Drainage Rate	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Equals Current Water Balance	-50 mm = 0 mm	40 mm	95 mm = shutdown	175 mm = shutdown	165 mm = shutdown	125 mm = shutdown	75 mm = start-up

Should a landslide incident occur, complete and submit to BCTS an Incident Report Form (EMS-CHK-009), this record is a valuable component for due diligence.

¹ The Seaward-Tlasta Business Area has decided that all of its operating areas fall into the Wetter Hydrological Region referenced in the report "Precipitation Shutdown Guidelines for Worker Safety by Clayton Gillies, April 16, 2009"

² The 80mm shutdown limit referenced is taken from "Operational Shutdown Guidelines for Vancouver Island and the Lower Mainland", March 31, 1994.