FREQUENTLY ASKED QUESTIONS

Where is the landslide?
It is in the Rattlesnake Hills, 3 miles south of Yakima, WA. The area of concern is located above and north of a quarry managed by Columbia Asphalt. The quarry is bounded by Thorp Rd. to the south and west.

Has the landslide already happened?
The landslide is currently moving south toward the quarry. There are large cracks in the ground above the quarry that were first noticed in early October 2017, suggesting potential for a landslide. Mining operations have stopped and monitoring instruments have been installed.

Event Summary

Approximately 20 acres in the Rattlesnake Hills near Union Gap, WA is currently moving at a rate of ~1.6 ft/week in a southward direction. The movement is ongoing and a failure event is projected to occur in early March 2018, based on current estimates from geologists and engineers monitoring the landslide. The type of movement expected is a translational landslide composed of blocks of basalt sliding on a weaker sedimentary layer. The geologists and engineers monitoring the landslide suggest that the most probable scenario is that the landslide will move south and accumulate into the quarry. In this scenario, rockfall is expected to the west and south that may impact Thorp Rd., which has been closed since late December by Yakima County as a precaution. There are other low-probability scenarios where the landslide could reach I-82 and impact homes south of the quarry, or potentially reach the Yakima River. These scenarios are less likely. Precautions and plans are in place to take action if monitoring data suggests that this may happen.

Contact Information

Yakima County Office of Emergency Management:
Rattlesnake Ridge Joint Information Center
509-574-1904  eocPIO@co.yakima.wa.us

Washington State Department of Transportation:
Meagan Lott, Region Public Information Officer
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Washington State Department of Natural Resources:
Joe Smillie, Public Information Officer
360-902-1169  joe.smillie@dnr.wa.gov
Geology
The landslide consists of Columbia River Basalt flows sliding over a weaker sedimentary interbed on a limb of the Rattlesnake Hills anticline (fold). The interbed is dipping (sloping) toward the quarry at about 15 degrees. Water does not appear to be a factor in this landslide.

WHAT DO WE KNOW?

Rate of Movement
Based on monitoring, we know that the landslide mass above the quarry is moving downhill toward the south (~190-degree azimuth), at an average rate of 1.6 ft/week, or ~2.5 inches/day based on the most recent measurements (1/10/2018). When monitoring began, the landslide mass was moving at a rate of approximately 1.0 ft/week. This implies that the landslide mass is gaining momentum.

Cracks
There are large ground cracks that trend north-northwest that are visible in the quarry and farther uphill. These cracks have been widening and new cracks have developed since October.

Size
It is estimated that the landslide volume is ~4 million cubic yards and covers an area of about 20 acres.

Direction and magnitude of landslide movement.
WHAT DO WE THINK WILL HAPPEN AND WHEN?

**What**
The honest answer is no one knows for certain. There are a number of possibilities. The most likely scenario is that the landslide will continue to slowly move to the south, where the landslide mass will fall into the quarry pit and accumulate. Monitoring data suggests most of the mass will remain in the pit and on the hillside. Some rocks are expected to fall around the pit and to the west in this scenario, likely reaching Thorp Rd. In this scenario the landslide is not expected to reach I-82 or the Yakima River.

In less likely scenarios, the landslide may move beyond the quarry and potentially damage the houses to the south of the quarry and Thorp Rd. and possibly reach I-82. A very unlikely scenario is that the landslide will run out beyond I-82 and reach the Yakima River. Based on the measured movement direction of the landslide, the slope of the sedimentary interbed, a landslide that moves west and blocks I-82 and the Yakima River is extremely unlikely. Plans are in place to deal with this unlikely scenario.

**When**
Based on monitoring data, geologists and engineers who are studying the landslide estimate an event will occur sometime in early March, 2018. This estimate is approximate and is continually updated as more information is gathered.

WHAT ARE WE DOING ABOUT IT?

**Monitoring**
Multiple agencies have collaborated to deploy GPS monitoring stations, seismometers, total station receivers, aerial imagery, and terrestrial lidar. The site is also under 24-hour observation. Members of participating organizations conduct a daily conference call and Yakima County distributes a daily situation report, which may be found on their website.

**Blocking**
Large shipping containers filled with concrete (Conex boxes) have been placed on the southwest corner of the landslide mass along Thorp Rd. to block rockfall from I-82. Yakima County has closed Thorp Rd.

**Evacuating**
A Level-3 evacuation has been issued for residents south of the landslide. To date, most residents have evacuated and have been provided with hotel rooms and emergency services.

**Preparing for the worst**
Local, state, and federal agencies, the Yakama Nation, and mine operators are working together to monitor the landslide and adjust plans as more information is gathered. Detour routes have been planned for I-82, and the interstate will be closed if the landslide’s acceleration rate increases. Plans have been implemented for possible scenarios where the landslide could impact or dam the river to the south or west.
WHO IS INVOLVED IN MONITORING THE SITUATION?

Columbia Asphalt (quarry operators)
Cornforth Consultants
Yakima Valley Office of Emergency Management
Washington Geological Survey (Washington State Department of Natural Resources)
Washington State Department of Transportation
Yakama Nation
Yakima County and several local city officials
Washington State Patrol
Mine Safety and Health Administration
U.S. Bureau of Reclamation
Washington State Department of Ecology
Washington State Department of Fish and Wildlife
Pacific Northwest Seismic Network