
Mosier Oil Train Derailment

Mosier, Oregon

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Mosier Oil Train Derailment Incident

Incident Location – Mosier,
Oregon

Lies in the Columbia River Gorge,
along Interstate-84

70 miles east of Portland between
Hood River and The Dalles, OR.

Mosier town population approx.
435 residents

Response by 500 personnel from
many agencies and contractors
during the incident

During cherry harvest, salmon run



The Columbian

Resources at Risk – Columbia River



Resources at Risk – Columbia River

Major transportation route for barge, rail, trucking to Oregon and Washington Ports, and then to international destinations

- Two main east/west railroad lines next to river – BNSF and Union Pacific RR

Grain, petroleum, autos, lumber, other commodities

Major east/west highway routes: I-84, WA Hwy 14

Columbia River Gorge is a designated National Scenic Area

4 Treaty Tribes with ceded lands, cultural/historical sites, U&A fishing rights and sites

Resources at Risk – Columbia River

Threatened and Endangered species, migratory pathway

Major fishery for salmon, steelhead trout, smallmouth bass, others

Significant tourism, recreation, parks, world class windsurfing

Hydroelectric dams, water management, generation of electricity for the northwest and California

Major Ag – Wheat, Fruit growers, wineries, etc.

Mosier Oil Train Derailment Incident

Friday, June 3, 12:30 pm, a west-bound Union Pacific 96-car unit train carrying Bakken crude oil derailed in Mosier, Oregon. 16 cars came off the tracks.

The tracks were ~600 feet from the Columbia River.

Three of the rail cars caught fire. 28 fire and hazmat departments responded from OR and WA.

After cooling the rail fire overnight with water, the fire was extinguished at 2:05 a.m. Saturday, June 4.







Mosier Oil Train Derailment Incident

Wasco County Sheriff evacuated ~100 residents within ¼ mile around the incident.

I-84 was closed for 10 hours.

Approx. 1 acre of wildland burned in an adjacent wooded area; wildland fire controlled within 24 hours after derailment.



Mosier Oil Train Derailment Incident



Joint Unified Command and Responders

Initial responders included 28 local and regional fire departments and hazmat teams from both sides of the river (Washington and Oregon), Wasco County Sheriff, and Oregon State Police.

Fire departments assisted Union Pacific and contract responders in putting out the fire.

A significant problem was lack of firefighting water, which was relieved by pumping and trucking water from the Columbia River.



Joint Unified Command and Responders

The Fire Chief for the Mosier Fire District was the Incident Commander.

Multiple state and federal agencies also responded, and formed a Unified Command with Mosier Fire.

Since the river is bordered and its resources shared by both Washington and Oregon, both these states respond to, and cooperatively manage incidents on or threatening the river.

Joint Unified Command and Responders

Unified Command included:

U.S. Environmental Protection Agency (FOSC)

Oregon Department of Environmental Quality (SOSC)

Washington Department of Ecology (SOSC)

Yakama Nation (Tribal OSC)

Union Pacific Railroad (Responsible Party)

Mosier Oil Train Derailment Incident

The train derailment occurred adjacent to the town's wastewater treatment plant, ripping off the top of a sewer manhole and allowing Bakken crude oil to flow into the sewer and contaminate the wastewater treatment plant.

The WWTP acted as a containment device for much of the oil, although some of the oil flowed into the effluent outfall pipe.



Mosier Oil Train Derailment Incident

No oil or fire run-off water was observed in either Rock Creek or the Columbia River during the day of the derailment.

Hard and soft booms were placed at multiple locations in the creek and near the mouth of the creek in the Columbia River as a precautionary measure to prevent oil from reaching the river.

However, small oil droplets and a small, light sheen was observed in the Columbia River near the mouth of the creek at first light on Saturday, June 4.

Mosier Oil Train Derailment Incident

Additional booms were placed in the Columbia River and Rock Creek but no new signs of oil sheen were seen on the river or other waterways.

After a few days, the oil droplets and sheen disappeared and no discharge of oil was detected in the river.



Mosier Oil Train Derailment Incident

An estimated 47,000 gallons of crude was released into the environment from four rail cars.

- 13,000 gallons went into the wastewater treatment plant.
- 16,000 gallons burned up and/or were vaporized.
- 18,000 gallons into soil.
- Minimal amounts discharged (< 5 gal?) to the Columbia River.

There were no observed effects of Bakken observed in wildlife - not expected as amount of oil discharged to the river was minimal.

Incident Response

The oil from the derailment rendered the Mosier Wastewater Treatment Plant (WWTP) inoperable.

Portable toilets were brought in during the time that residents couldn't flush. A temporary bypass system was established Sunday afternoon to operate while the city works to rebuild the wastewater treatment plant.

The city's wastewater was collected and trucked to the Hood River wastewater treatment plant. The Mosier WWTP was repaired and was returned to service the week of June 20, 2016.



Incident Response

A precautionary drinking water advisory was issued because one of the city's backup wells used. No drinking water wells were contaminated by the oil spill or fire runoff water.

The boil order was lifted Monday, June 6 after water tests confirmed that the water was safe to drink.

Union Pacific identified a preliminary cause of the crash, saying a special kind of bolt (lag bolt) that fastens the rail to the railroad ties on curves may have been at fault.

Federal Railroad Administration investigation determined inadequate maintenance and that the cause was indeed the failed lag bolts.

Incident Response

Once the damaged rail was repaired, Unified Command and Union Pacific made a joint decision to allow rail traffic at reduced speeds and limited cargo with trains limited to 10 mph.

Derailed cars with Bakken crude still in them were emptied and transloaded to truck, which hauled the oil to a staging area in a UPRR railyard in The Dalles for later transportation via other railcars to the Tacoma refinery.

Emptied rail cars were then washed out and decontaminated, transferred onto flatbed trucks, and hauled away to the UPRR railyard in Portland for final disposition (scrapping).

Community Relations, Liaison, and News Media

Interest from local, regional and national news media was intense. Overwhelmed at beginning.

Joint Information Center handled dozens of calls each day from the press. Many local, regional national news outlets sent crews to the site to cover the story.

Unified Command issued a news release twice daily during the ER phase.

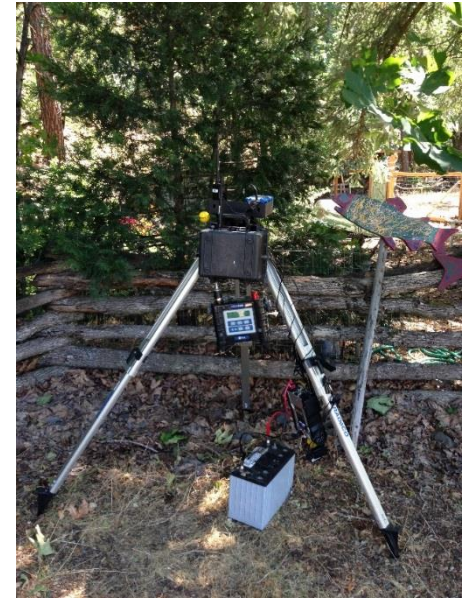
Press conferences and VIP tours given. Not able to safely accommodate getting press down to the operational area for close up pictures of the derailment.

It was difficult to monitor media and correct misinformation due to the volume of news stories that were generated.

Air Monitoring

Air quality was monitored 24x7 and found to be in the healthy range, except at the WWTP, which had high levels of benzene (requiring the use of respirators)

A community air monitoring system was set up adjacent to the residential area once the residents were allowed back in their homes. This continued until all oil had been transloaded, and excavation had begun.



Response & Environmental Cleanup

Crews successfully and safely completed transloading all oil from derailed tank cars off-site overnight Tuesday. A total of 13 cars were offloaded.

The recovered oil was transferred by truck to The Dalles and staged for transport by rail to Tacoma, Wash., its original destination.

By Wed. June 8, all derailed train cars were transported to Portland to be recycled, after the oil was removed, and the cars cleaned.

The removed oil was trucked to The Dalles to await final transport to Tacoma, its original destination, at a date to be determined.

By end of week, empty tanker cars were transported by truck to Portland. Once the rail cars were removed, crews began removing contaminated soil.

Response & Environmental Cleanup



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Response & Environmental Cleanup



Environmental Cleanup

By Thursday June 9, crews in Mosier had transported the last of the derailed cars to a steel recycler in Portland, signaling a transition at the incident from emergency operations to a recovery phase.

By Friday June 10, the Unified Command transitioned from an Emergency Response to Recovery and Cleanup.

Oregon Department of Environmental Quality, the city of Mosier, and Union Pacific Railroad are leading the recovery and longer-term Cleanup phase of the work.

Environmental Cleanup

All damage to the Mosier wastewater treatment plant has been repaired, and it is back online. The damaged sewer line and manhole leading to the WWTP has been removed and replaced.

The effluent outfall pipe leading from the WWTP to the river has been cleaned and oil removed, and oil in the surrounding backfill removed.

The remaining cleanup and environmental monitoring work will be overseen by the Oregon Department of Environmental Quality, with support from the Environmental Protection Agency and other local, state tribal and federal partners

Environmental Cleanup

Two groundwater extraction wells have been installed at the crash site, and 8 groundwater monitoring wells have also been installed at the site to monitor long-term threats.

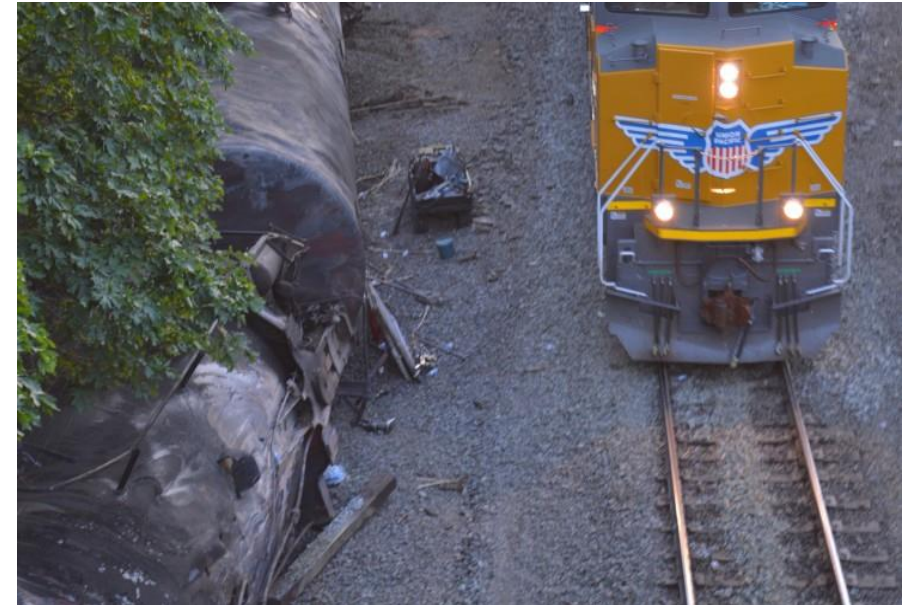
Benzene and other contaminants found in one monitoring well, so groundwater well-sparging system installed at site.

2960 tons of oil-contaminated soil excavated from site and transported off-site to Wasco County landfill

Incident Lessons Learned

Public Information and Community Engagement

- For nationally significant responses, need to immediately deploy a robust public information and community engagement team.
- Many locals needed information in Spanish.
- Need to do more outreach to local officials to become familiar with NCP, NIMS and the overall process of an incident response.
- Reopening the rail line should be better coordinated with the unified command and the JIC.



Incident Lessons Learned

Response Coordination & Tribal Involvement

- Daily coordination calls with response partners, including reps from local tribes and tribal fisheries
- The Yakama Nation served in unified command & provided help in ensuring identification and protection cultural resources
- Additional training is needed for responders on cultural resource type issues
- State and federal agencies should provide more training to tribes and local officials on NIMS ICS/UC



Incident Lessons Learned

Responsible Party Involvement

- RP deployed an IMT immediately (this was a first time for UPRR and for Region 10)
- Integrated very well into unified command

Multi-State Jurisdiction

- Columbia River serves as a natural boundary between Oregon and Washington
- States had different staffing capabilities
- Washington's Dept of Ecology focuses on oil spills, not air monitoring
- Mutual Aid agreements between local and regional fire departments was hugely beneficial

High Profile Area

- Need for public information, stakeholder involvement driven by sensitivity of Columbia River, not actual impact of oil
- Go big to go small

Exercise & Incident Comparison

Much of what had been predicted was true: Bakken behavior and spill from an oil unit train in a sensitive area increased attention and complexity

The development of comprehensive Geographical Response Plans (GRPs) proved to be valuable as river response actions were known to trustees

Area Committee member organizations were involved in daily calls and relied heavily on a coordination call for information. This prevented the need to reach directly into IMT

Extensive planning, previous training, and exercise for an Inland SONS type event made the incident response smooth and understood by peripheral trustees

Effect of Preparedness Activities

- Long list of partner agencies who played a significant role
 - *Understood response organization and timing of input*
- High level of trust from supporting agencies to allow Yakama Nation, EPA, ODEQ and Ecology to handle their concerns
- Previous notification exercises helped to ensure downstream missed notifications were minimized.



Supporting Agencies

US Army Corps of Engineers

US Coast Guard

US Geological Survey

US Forest Service

US Fish and Wildlife

Bureau of Indian Affairs

National Oceanic and Atmospheric
Administration

Federal Rail Administration

Washington State Dept of Ecology

Oregon Dept of Environmental Quality

Oregon Dept of Health

Oregon Fire Marshal's Office

Oregon Dept of Transportation

Yakama Nation

Umatilla Tribe

Warm Springs Tribe

Columbia River Intertribal Fish Commission

What questions do you have?

