DRIFT RIVER OIL TERMINAL

Tanks at the Drift River Oil Terminal

Storage tanks for oil

Introduction

The Drift River Oil Terminal is a short-term oil storage facility on Cook Inlet that is controversial due to its vulnerability to volcanic mudflows from Redoubt Volcano. The terminal is located directly under Mt. Redoubt in the Drift River valley, on the western shore of Cook Inlet. It receives oil via underwater pipleines from oil extraction platforms in western Cook Inlet, stores the oil temporarily in a tank farm, and then loads into oil tankers.

Also known as the "Drift River Terminal Facility" or "Drift River Marine Terminal", the terminal is operated by the Cook Inlet Pipe Line company, which is owned by Chevron and Pacific Energy Resources.

Sited in the Drift River's 100-year floodplain, the tank farm and buried pipeline are exposed to lahars and floods from Mt. Redoubt, which is one of Alaska's most

active volcanoes. The facility has been partly inundated at least twice, during Mt. Redoubt's 2009 eruption and its 1989-1990 eruption. If the facility was destroyed without adequate warning, it could potentially cause an oil spill of up to 18.5 million gallons – comparable in size to the Exxon Valdez spill .

Structure and Function

Cook Inlet's oil platforms have little or no on-board oil storage. The rate of oil pumping is too slow to have empty tankers stationed directly at the platforms, both economically and because of the severe storms which could endanger the vessels. To resolve this, the oil platforms deliver their crude oil via underwater pipelines to the Drift River terminal. There, the oil is stored until enough accumulates to fill a tanker. The whole on-shore complex consists of two tank farms (the Granite Point tank farm and the Drift River tank farm), a 42-mile long, buried pipeline, and an offshore loading platform which loads oil into tankers in deep water (the Christy Lee platform).

"Oil Under Fire"

...So the facility was sited near the mouth of the Drift River to take advantage of the steep delta left by thousands of years of volcanic mud flows (lahars) from nearby Redoubt Volcano. Unfortunately, this placed the facility right where it was vulnerable to these same lahars, and to other volcanic hazards.....

The siting of the terminal in a lahar floodplain is not coincidence. The Drift River delta is a steep-fronted delta, constructed by lahars and volcanic floods. It provides a place where large oil tankers can get close to shore while remaining in deep water -- rare in the shallow waters of Cook Inlet. The terminal is now threatened by the same geological processes that built its favorable situation.

The total oil storage capability of the facility is more than 1 million barrels, or 420 million gallons, the majority of which is at the Drift River tank farm. However, current storage at the Drift River tank farm has been severely curtailed, due to volcanic hazard. The pipeline company now proposes to store up to 440,000 barrels (18.5 million gallons) at the Drift River tank farm itself. They indicate that the pipeline itself contains roughly 120,000 barrels (5 million gallons) of oil. Officials have declined to disclose the amount of oil stored at the facility, citing Homeland Security.

Volcanic and Lahar Hazard

Mt. Redoubt has melted large sections of the Drift Glacier in its recent eruptions, sending giant mudflows (known as “lahars”) out through the Drift River valley and into Cook Inlet. Lahars are much more destructive than most floods, because they can carry large quantities of rocks and boulders, and because of their massive size. At their peak, these lahars are the larger than any river on the continent.

The Drift River tank farm is currently protected by reinforced earthen berms, which surround the facility. In both 1989-90 and 2009, Redoubt's lahars overtopped the protective berms. The 1989-1990 lahars flooded buildings and damaged the power generation system, stranding 900,000 barrels of oil at the facility. In both cases, the lahars also left thick layers of sediment on the floodplain, raising its surface level. Each time this happens, the valley floor grows closer to the top of the dikes, reducing their protective value in future lahars.

The 2009 lahars inundated the runway, hangar, and storage areas of the Drift River tank farm. Although the lahars overtopped the berms and flooded some areas of the terminal, they were prevented from entering the tank farm itself by the deep snow atop the berms. Evidence suggests they came within 0.2 meters of the depth necessary to do so. No oil was spilled.

In response to the 2009 lahars, the protective berms have been raised and reinforced in key areas, and a diversion dike has been built upstream of the terminal, which is intended to break the momentum of a large lahar descending on the facility. The effectiveness of the Drift River tank farm's current protections and the safety of the pipeline have been disputed by Cook Inletkeeper, a local conservation organization.

Drift River Oil Terminal

This facility stores oil between extraction and loading onto tankers.

Our research

In 2012, Ground Truth Trekking performed a preliminary geological evaluation of the threat to the facility (report here). Our geologists concluded that Mt. Redoubt is capable of generating larger or more erosive lahars than occurred in 1989-90 and 2009, as well as producing glacial outburst floods. A major eruption of Mt. Redoubt could potentially inundate the facility with lahars or floods, produce ashfall that grounds aircraft and limits surface navigation, and perhaps even generate destructive pyroclastic flows. A very major, caldera-forming eruption would completely destroy the facility, but would presumably come with ominous precursor eruptions, earthquakes, and landscape changes that would allow time to decommission the facility.

Source: http://www.groundtruthtrekking.org/Issues/AlaskaOilandGas/Drift-River-Oil-Terminal.html