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Alkali Lake Chemical Waste Disposal Site

The Alkali Lake Chemical Waste Disposal Site is in Lake County, Oregon, about 60 miles north of Lakeview. The main disposal area occupies about 10 acres just west of Alkali Lake. Alkali Lake is dry most of the year, as are most surface water bodies in this area.

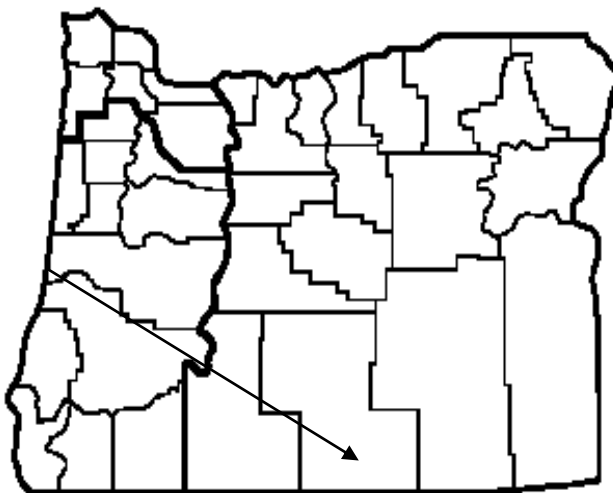
About 25,000 drums of pesticide manufacturing waste were disposed of here in the late 1960s and early 1970s. Despite the large quantity of toxic materials, it does not present a significant risk to the public or the environment because the waste has been buried and fenced, and the site's location is about 35 miles from the nearest town. A small group of people live and work at an ODOT maintenance facility on Highway 395, about three miles from the site.

Background

In 1969, the Oregon Department of Agriculture issued a temporary permit to Chemical Waste Storage and Disposition, Inc. to store herbicide manufacturing wastes at the site. Approximately 25,000 55-gallon drums of these wastes, generated by Rhodia Inc., Portland, Oregon, were disposed of at the site.

The waste products were primarily distillation residues from the production of the herbicides 2,4-D, 2,4-dichlorophenol, and MCPA. These wastes also include dioxins.

In 1971, the Departments of Agriculture and Environmental Quality (DEQ) issued directives prohibiting additional shipments of waste to the site. These directives were in response to improper waste handling practices. Between 1972 and 1974, the State took legal action in an attempt to force Chemical Waste Storage to comply with newly developed hazardous waste regulations. The Circuit Court and then the Court of Appeals sided with the company, however, noting that the company was financially unable to address the new requirements, and that the state had to some extent supported the previous activities. As a result, DEQ has been maintaining the site ever since.



In July 1976, the Oregon Legislature allocated funds for remedial action at the site. In October 1976, the State condemned and took possession of the 10-acre disposal area. By this time, many of the drums, which contained highly corrosive, acidic wastes, had rusted and were leaking. In November 1976, the drums were crushed and buried in 12 shallow unlined trenches in an area referred to as the chemical waste disposal area (CWDA). Each trench was 2 to 2.5 feet deep (the water table in the area is typically only 3 to 6 feet below the ground surface). The trenches were approximately 400 feet long and 60 feet apart. Each mound of crushed drums was covered with two feet of soil, with an additional six inches of crushed rock to prevent wind erosion of the soil cover. The trenches were surrounded with a four-foot barbed wire fence.

Some of the waste has leached through the soils to shallow groundwater. As a result, a groundwater contaminant plume extends about 2,000 feet west-northwest of the CWDA. The edge of the plume is near another primarily dry lake known as West Alkali Lake. Annual groundwater monitoring indicates that the plume has not expanded in the past 15 years.

In the early 1970s, the Oregon State University Environmental Health Sciences Center conducted land application research at the site to determine whether the chemicals could be treated by exposure to sunlight and the natural alkaline conditions. These experiments were done in four soil test plot areas covering about 25 acres south and east of the CWDA. Testing in 2001 did not show phenols and herbicides at these test sites. However, elevated levels of the

more persistent dioxin compounds were found in about a quarter of the samples.

Dioxin levels in soil are in the range of 50 to 100 parts per trillion at the CWDA and the nearby soil incorporation areas and soil test plots. Dioxin concentrations in groundwater just downgradient of the CWDA were measured at about 0.4 parts per trillion. In October 2001, DEQ measured dioxin at several locations a quarter mile and half mile from the site to determine whether wind-blown dioxin might present risk to offsite receptors. No elevated levels of dioxin were found. Dioxin was also measured in rats and mice at the site in 1996, primarily to evaluate potential effects on their predators. No elevated levels were found in these samples either.

Risk to people and animals

A risk assessment completed in 2005 concludes that risk to offsite residents and workers is well below safe levels. Risk to trespassers on the site is also at or below safe levels. Nonetheless, DEQ has placed barbed wire fence around the CWDA and drum mound, and posted warning signs to minimize unnecessary exposure.

Areas surrounding the site are occasionally used for cattle grazing. To prevent cattle from grazing in the most affected areas, DEQ installed an additional 3.9 miles of barbed-wire fence, which encloses the CWDA, the groundwater contamination plume and West Alkali Lake.

The site is about 1.5 miles south of Hutton Springs, which is the sole habitat of the Hutton tui chub. The Hutton tui chub is classified as a threatened subspecies by the U.S. Fish and Wildlife Service. DEQ has therefore sampled water in this spring several times, and concluded that the site contamination does not affect this spring.

Several species of migratory birds, including the snowy plover, also inhabit springs and lakes in the vicinity on a seasonal basis. The risk assessment evaluated risk to migratory birds as well as wildlife living at that the site. The study concluded that these animals are not exposed to unsafe levels.

Current Activities

In April 2007, DEQ prepared a Record of Decision that summarizes site history and site conditions, and specifies future monitoring and maintenance activities. Fencing, signs, soil cover on the CWDA, and gravel roads to the site continue to be maintained as needed. The site is inspected annually. The Record of Decision

specified that up to 15 groundwater monitoring wells were to be sampled six times over a 20 year period. Results through September 2013 continue to show that the extent of groundwater contamination is neither expanding nor shrinking. The next sampling event is scheduled for spring of 2016.

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