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Envirocare Mixed Waste Facility Description

Heart of America Northwest

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The Public's Voice for Hanford Cleanup

A Citizen's Guide to Envirocare 2006

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Backgrou nd

The Envirocare of Utah, Inc. site is a commercial radioactive waste disposal facility located near Clive, UT which is about 70 miles west of Salt Lake City and just south of Interstate 80. It is situated on an essentially flat topography in a large valley basin within Utah's Basin and Range Province. This is a semi-arid region where the average annual rainfall of 6 to 10 inches is exceeded by the average potential evapotranspiration rate of 60 to 70 inches. With this high evaporation rate, the groundwater in the basin is saline and it is not hydrologically connected to other basins in the region, meaning that there is no groundwater outlet. This area is very hot in the summer and relatively mild in the winter. The dominant hydrologic feature in the region is the Great Salt Lake.

Waste Disposal Facilities

The Envirocare facility includes embankment landfill cells for disposal of commercial Low Activity Radioactive Waste (LARW) 11e.(2), waste from uranium mill tailings and other uranium mining operations, and a mixed radioactive and hazardous waste embankment.

The waste cells are called "embankment fills" because they are essentially above ground fills surrounded and covered by an isolation fill material and a cover system.

The Envirocare facility is contained within a one square mile Section. Within that section is the LARW disposal cell, the Resource Conservation and Recovery Act "RCRA" Landfill Area (mixed waste cell), the 11e.(2) disposal cell and the "Vitro Embankment".

Vitro Embankment

The Vitro Embankment is an older Department of Energy "DOE" disposal cell for the Vitro uranium mill tailings that is now closed and is not a part of the commercial facility. The northwest portion of the Section is identified for future LARW.

Envirocare began waste disposal operations in 1988. They accept only Class A waste into their LARW cell. Class A waste includes any commercial waste from hospitals, low-level waste from commercial power plants and laboratory waste from commercial labs. A permit was recently denied

Map Courtesy of www.onlineutah.com

by the Utah State government that would allow Envirocare to accept Class B and C low level waste which are both higher radioactivity waste but still classified as "low level". Low-level waste from DOE facilities and labs is not disposed of at Envirocare.

The state of Utah is a part of the Northwest Compact of states. According to the legislated compact agreement, all commercial low level waste generated by the Northwest Compact states is required to go to the US Ecology, low level waste facility at Hanford, WA. That is, unless approval is granted by the compact. As a result, most of the low level waste disposed of in the LARW cell is from states from other compacts that do not have low level burial grounds in their states or from "non-compact" states that are not a part of the compact agreement.

The 11e (2) Uranium Waste Disposal Facility

The 11 e(2) waste disposal cell is for the clean-up and

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disposal of uranium mill tailings and uranium mining operations. This is for either private party material or smaller scale government clean-up operations, both of which pay a disposal fee for disposing of their materials in the cell.

RCRA Landfill

The RCRA landfill area is the mixed waste embankment fill for both low-level radioactive and hazardous waste. Northwest compact waste acceptance restrictions and requirements also come into play with the mixed waste embankment although mixed wastes are not accepted at the US Ecology facility.

Envirocare also has other capabilities at the facility to enhance disposal options and to meet certain disposal requirements such as the waste emplacement requirements and compaction requirements. These facilities include a waste encapsulation facility (both micro and macro encapsulation), a waste compaction facility, a liquid segregation facility and some specialized industrial hygiene and cleaning capabilities such as a rail car washing system and various monitoring and equipment cleaning systems. The Envirocare facility is in a remote location and they have attempted to provide all services that would be needed for an economically viable facility.

Time Table of Envirocare Operations

	NRC and State Regulations	Envirocare
Overall Timetable	200 years	1000-10,000 years
Ground water Protection	500 years	10,000 years
Radionuclide Protection	500 years	10,000 years
Heavy Metals Protection	200 years	10,000 years
LARW Model	200-500 years	10,000 years
Allowable daily dose standard of exposure to Radionuclides	25 mrem/year	4 mrem/year*

*Assumes ingestion of water with salt concentration 15.7% greater than that of sea water

This table compares Envirocare's own standards of protectiveness to those required by the State of Utah and NRC. In every category, Envirocare strives for 10,000-year goal of keeping contaminants out of the environment, even when the government standards are as small as 200 years. Envirocare's acceptable groundwater contamination level is 6 times more stringent than the government standard, despite the fact that its groundwater is not viable due to its high saline content.

Envirocare Key Findings

- The commercial Mixed Waste facility operated by Envirocare is sited in a location which provides strong environmental protection and low risk for long-term human exposures compared to Hanford.
- The groundwater at Envirocare is relatively shallow compared to NTS and Hanford, but not located over usable groundwater.
- The groundwater at Envirocare is 15.7% more saline than seawater. Even if a major failure occurred in the engineering systems at Envirocare, contamination would release into an unusable water source and would be relatively easy to clean up compared to NTS and Hanford. The advanced monitoring systems at Envirocare would allow for early detection before reaching groundwater.
- Envirocare has a negative net recharge to groundwater in a closed hydrologic regime.
- Envirocare has, by far, the best monitoring system and strictest waste acceptance criteria for any of the USDOE's options for MW disposal. (The same was found for LLW disposal, including in comparison to US Ecology).
- Closure plans – required for licensing – are more detailed than USDOE sites or US Ecology, and based on actual data. Operational standards (e.g., waste acceptance criteria) are based on consideration of closure plans and realistic assessments of the failures of engineered and institutional controls. Closure plans are based on protecting groundwater and human health for 10,000 years.

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LARW Waste Embankment Cell