

Waste Control Specialists

Three Lincoln Centre
5430 LBJ Freeway
Suite 1700
Dallas, Texas 75240

Byproduct Material Disposal Facility License Application Overview



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Byproduct Material Disposal Facility Overview

The application

This application requests a license for Waste Control Specialists LLC (WCS) to construct and operate a byproduct material disposal facility on a tract of land located adjacent to the Texas – New Mexico border in western Andrews County, Texas.

Byproduct Material

Byproduct material is the leftover residue from the processing of ore bearing uranium. The uranium is removed and converted into “yellowcake” at the mine which is a form of uranium that can be converted into fuel for nuclear reactors. The residue left behind is called byproduct material. This residue usually consists of sand and sediments, but can also consist of piping, valves, tanks, and other equipment that is removed from processing plants when they are decommissioned. Unlike other types of radioactive waste, byproduct material has low levels of radioactivity, but may be voluminous.

The Site

The byproduct material disposal facility will be located on property owned by WCS that encompasses approximately 14,900 acres in western Andrews County, Texas. The proposed landfill will be located on a 1,338-acre tract of land upon which WCS currently operates a facility to receive low-level and mixed low-level radioactive waste for storage and processing. That facility is licensed by the Texas Department of State Health Services (TDSHS License Number L04971). WCS is also authorized by the TCEQ and EPA for the receipt, storage and treatment of hazardous waste, non-hazardous industrial solid waste and waste containing PCBs. In addition, WCS operates a RCRA/TSCA landfill on the 1,338-acre tract, which is authorized by the TCEQ and EPA for disposal of hazardous waste, industrial non-hazardous waste and waste containing PCBs.

The proposed byproduct material disposal facility will be located just to the north of the existing RCRA/TSCA landfill; will occupy approximately 36 acres of land; and will provide a disposal capacity of approximately one million cubic yards. The nearest property line is over a half mile from the byproduct material disposal facility. The nearest residence is approximately 3.5 miles from the disposal facility. The closest active commercial/industrial operations are over a half mile from the disposal facility.

Landfill Design and Operation

The proposed byproduct disposal facility will be comprised of an approximately 16-acre landfill with an engineered liner, associated support structures on the surface, and a buffer zone. A small portion of the buffer on the west side of the facility is located outside of the 1,338-acre tract of land, but is located entirely on land owned and controlled by WCS. Disposal in the proposed landfill will occur completely below the top of the Triassic Dockum red beds, which is a laterally extensive (tens to hundreds of miles) and very thick (>1000 feet) massive clay and sandstone/siltstone formation. Caprock caliche, sands and gravels of the Ogallala, Antlers and Gatuna formations (the

OAG) extend from the surface to the top of the red beds. The OAG ranges in thickness in the immediate area of the byproduct landfill from about 18 feet to approximately 32 feet.

The landfill containment system will consist of the in-situ red bed clays and siltstone/sandstone materials, three feet of re-compacted select red bed clay, a 60-mil high-density polyethylene (HDPE) geomembrane, a geonet leak detection system, another 60-mil HDPE geomembrane, a geocomposite consisting of a geonet with a geotextile bonded to it, and two feet of protective granular soil. The hydraulic conductivity of the in-situ clay has been demonstrated to range from approximately 10^{-8} cm/sec to 10^{-9} cm/sec, which is approximately the same as concrete. The hydraulic conductivity of the sandstone/siltstone zones range from approximately 10^{-7} cm/sec to 10^{-8} cm/sec. The hydraulic conductivity of the re-compacted select red bed clay has been demonstrated to consistently range from approximately 10^{-8} to 10^{-9} cm/sec.

The minimum cover thickness above the waste is 18 feet. The minimum cover thickness above the waste exceeds the minimum requirement for an effective radon barrier. The cover minimizes surface water infiltration because of the very low hydraulic conductivity of a thick layer of compacted red bed clay. A mounded capillary break (sand drainage layer) is below the upper thick clay layer. The capillary break, which is placed over a geomembrane and another compacted clay layer, is tied into the naturally-occurring OAG sand layer on top of the red bed formation. The sand formation will act to drain moisture away from the landfill area.

Impacts resulting from high winds and other natural meteorological hazards are minimized because the disposal operations are well below the surface of the ground. Design features will prevent surface water run-on from entering the landfill, and the low annual average precipitation combined with the operational methods will minimize the generation of contaminated storm water. Storm water that falls within the open landfill cells where there is exposed waste will be used for dust control within the landfill and to assist in compaction of the waste materials.

The depth of the waste disposal and the low topographic relief of the surface in the area of the landfill combine with the naturally-occurring armor of the caprock, which has been forming for tens of thousands of years and continues to form in the arid west Texas environment, to mitigate erosion at the landfill.

An environmental monitoring program includes routine sampling and analyses of groundwater, air, soil, and flora/fauna and measurements of direct radiation.

Geology

The proposed landfill will be located on what is known as the red bed ridge, a broad gently sloping local topographic high, generally oriented northwest-southeast, which drains to the southwest toward Monument Draw in New Mexico. Surface caliche, known on the Southern High Plains as the Caprock caliche, is thinnest on the red bed ridge, with the top of the red beds becoming more deeply buried to the north and to the south of the WCS facilities area.

The location of the proposed landfill will make maximum use of the natural characteristics of the site. Disposal will occur completely within the massive red bed clays. The landfill will be excavated through the caliche and into the underlying red bed. The placement of waste will occur only within the massive red bed formation from

about 18 feet (minimum) below ground level to approximately 100 feet below ground level.

The first sandstone capable of providing usable amounts of water (which is essentially non-potable) is the Trujillo Formation, the top of which is approximately 600 feet below ground level and is approximately 100 feet thick. Below the Trujillo sandstone, the red beds extend to a depth of approximately 1140 ft below ground level to the top of the Santa Rosa sandstone. At the WCS site, the Santa Rosa sandstone extends to approximately 1400 feet below ground level. This is the base of the Triassic Dockum formation.

The Triassic Dockum red bed formation is composed primarily of hard, virtually impermeable clay interspersed in the upper portion with thin siltstone and sandstone stringers and layers, which are also hard and almost impermeable.

The first water bearing (saturated) zone is approximately 90 feet below the bottom of the landfill; however, due to the impermeability of this zone, water cannot be produced for domestic or industrial uses. Contaminant transport to the first saturated zone was modeled using various scenarios and models.

Safety

The performance assessment for the facility indicates that construction and operation of the byproduct material disposal facility at the WCS site will not pose a threat to human health or the environment. Using the industry standard model, RESRAD, no contaminants reached the saturated zone in one million years. Assuming continuous flow moved through a fracture all the way to the saturated zone, the modeled transport time was in excess of 70,000 years.

WCS will be responsible for the safe and compliant construction, operation and closure of the proposed facility. WCS has a proven track record of safe operations at its existing facilities, and has shown to be financially capable of constructing and operating the proposed byproduct disposal facility in accordance with all applicable laws and regulations. Upon closure of the facility, WCS will deed the land and disposed byproduct material to the State or federal government. WCS will be posting in excess of four and a half million dollars to guarantee closure of the facility and to fund long-term monitoring and maintenance of the facility.

Schedule

The application was filed in June 2004. A series of very detailed reviews by the Texas Department of State Health Services resulted in several questions and answers exchanges, culminating in the submittal of a final response on January 12, 2007. WCS estimates that the draft license will be issued by July 2007. Barring any further licensing actions, such as an administrative hearing on the license, construction should begin by the end of 2007 and the landfill will be operating by early 2008.

Questions and Answers

1. What is Byproduct Material?

Byproduct material is the leftover residue from the processing of ore bearing uranium. The uranium is removed and converted into "yellowcake" at the mine which is a form of uranium that can be converted into fuel for nuclear reactors. The residue left behind is called byproduct material. This residue usually consists of sand and sediments, but can also consist of piping, valves, tanks, and other equipment that is removed from processing plants when they are decommissioned. Unlike other types of radioactive waste, byproduct material has low levels of radioactivity, but may be voluminous.

2. How is it regulated?

The disposal of byproduct material in Texas is regulated by the Texas Department of State Health Services.

3. Why does Texas need a disposal facility for byproduct material?

Texas needs a disposal facility for byproduct material waste because Texas is one of the leading uranium-producing States in the Nation

4. Why is western Andrews County suited for this disposal facility?

- Large areas of the state would be less suitable because of higher annual rainfall, higher population densities, proximity to significant aquifers, proximity to international borders, etc.
- It is preferable to select a site that already has a compatible use. The WCS site is currently licensed to store and process radioactive material, including byproduct material. These activities are compatible with byproduct material disposal. Few other potential sites in Texas would have similarly compatible current uses.
- The local community is very supportive of this proposed licensing activity and welcomes the additional business.

About Waste Control Specialists

Waste Control Specialists LLC is a waste processing and disposal company. WCS operates a fully permitted 1,338-acre treatment, storage, and disposal facility near Andrews, Texas.

WCS offers:

- Broad waste acceptance capabilities for ignitable, corrosive, toxic, (selected) reactive and non-hazardous wastes
- Easy access by rail or major interstate highways
- No time limit for onsite waste storage of low-level radioactive waste
- Large storage capacity
- Only RCRA disposal facility in the U.S. permitted after land disposal regulations were adopted

WCS' core capabilities include:

- Treatment (including incubation of unique treatment technologies, through partnerships or landlord relationships)
- Storage
- Repacking / Consolidation
- Decontamination and Free Release of Materials
- Disposal

WCS offers innovative and cost effective solutions for the proper and safe management of radioactive, hazardous, and mixed materials.

For More Information

Jeff Skov
Director, Licensing and Regulatory Services
Waste Control Specialists LLC
972-448-1483