Redeveloping a Superfund Landfill

Case Study – Mosley Road Landfill/East Oak Landfill

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WASTE MANAGEMENT

Sometimes When You Travel Down a Well Beaten Path You Can Make New Discovery's

Brownfield MOA Statement

EPA and ODEQ

Region 6 and the DEQ believe the revitalization of contaminated properties, or properties perceived to be contaminated (often called “Brownfields”), will provide a significant benefit to the environment and economies of the local communities of the State of Oklahoma. Region 6 and the DEQ seek to simplify the revitalization of industrial and commercial properties by addressing the existing regulatory impediments to the financing, transfer and appropriate use of these properties. Both agencies will work in a cooperative, coordinated effort to implement this program and pledge to employ their authorities and resources in mutually complementary, non-duplicative methods.

Superfund doesn't quite fit the Brownfield definition

According to Wikipedia

Land that is more severely contaminated and has high concentrations of hazardous pollution, such as a Superfund site, does not fall under the Brownfield classification.

Maybe Not!? But we can apply the process to achieve similar goals.

Question

So.. Why can't we clean up a landfill to be a landfill?

Couldn't we use a similar process as is described in Brownfield Revitalization?

Why Couldn't We Continue To Use A Landfill As A Landfill?

- It's already permitted (sometimes)
- It's already there
- Landfill technology has improved
- Landfills have been placed in locations that are convenient for local communities

Challenges with a Superfund Site

- Site has been environmentally impacted
- Impacts can cross many media's (groundwater, soil, air)
- Surrounding property use may have changed
- Regulations
- Financial constraints
- Engineering control technologies are possibly limited

Mosley Road Landfill History

- Originally permitted by the Oklahoma State Department of Health in 1973
- In 1976 the OSDH authorized the landfill to accept industrial waste from the Royal Hardage Landfill in Criner, OK.
- Testing later indicated contamination within the upper alluvial groundwater
- In 1988 the EPA proposed the site for inclusion on the NPL
- In 1992 the EPA selected the remedial action for the site
- In 2014 site was removed from the NPL
- Awarded the EPA Greenovations Award

EPA Required Remedial Action

Engineering Controls

- Conduct sampling of the groundwater, air and soil to ensure that migration of the contamination did not affect the surrounding community (on-going).
- Install a gas collection system to prevent air contamination to the area.
- Install a cap to prevent infiltration of rainwater through the waste to minimize groundwater contamination
- Implementation of Institutional Controls

But what really set this project apart from any other Superfund project?

Continued Use as a Landfill

Different Plan, Same Result

Mosley Road Landfill was the first Superfund landfill that continued operation as a landfill. Typically a Superfund site is closed and even more typically never developed upon once clean.

Typical closure plans include trails and/or wildlife habitats.

Capping Waste

How creative can you be?

- Capping was engineered to prevent rainfall from infiltrating waste mass and adding to groundwater issue.
- To promote faster runoff it made sense to increase the slope.
- Why couldn't you keep adding waste to area to achieve this?
- Why couldn't you piggyback waste with Subititle D Liner to eliminate water infiltration?

Groundwater, Soil and Air Monitoring

Continual sampling to ensure contamination stayed on site

- Sampled both the Alluvial Aquifer and the deeper Garber-Wellington Groundwater
- Sampled nearby creek and river soils to check for contamination
- Conducted perimeter air sampling

Landfill Gas Collection System

What else can we do other than destroy Greenhouse Gas?

- Initially engineered to destroy Greenhouse Gas
- Ended up being the solution to groundwater contamination
- With new technologies made the site a renewable energy resource

Sustainable Products From A Superfund Site

You've got to be kidding!

- Using a WWII technology, landfill gas was used to create No-Sulfur Diesel and Wax
- WM constructed a demonstration unit and got approval from the EPA to use diesel in engines
- Waste Management has joined a Joint Venture Group to construct and operate a full scale unit

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Lessons That Were Learned

- Re-use of Superfund sites can be more than wildlife areas and parks
- Sometimes continued use of a site makes sense
- Landfill technology has advanced
- Landfill gas can be Sustainable

Key Factor in Success!

Communication between EPA, ODEQ, City of Oklahoma City and Local Citizens!

Conclusion

- This project used the spirit of the Brownfield initiatives to turn a Superfund site into a Renewable/Sustainable facility
- Although the primary purpose of the Superfund program is to identify and ultimately clean up hazardous waste sites, with a little creativity, these sites can become more than wildlife habitats or parks
- Believe it or not, Landfill technology has advanced and allows us to better protect the environment and create useful spaces