Midwest Oil Refinery & Laramie Yttrium Plant cleanup project in Laramie, WY

Tony Hoch, Director
The property

- 5.6 acres
- Abandoned/neglected for over 20 yrs
- Unfenced
- Crime-ridden
- Eyesore
- Attractive nuisance
History:
• 1921-1932 Midwest/Standard Oil refinery
  (originally a 236 acre site)
• 1955-1957 US Yttrium processing plant – green three story building built on top of refinery works.
• 1972 private individual purchased Yttrium/Refinery main industrial site
• 70s-80s Various uses: Logging yard, auto paint shop, trash disposal shop
• 1989 EPA removes 44 drums of low-level radioactive ore from metals plant
• 2011 Property had been vacant since EPA cleanup = Attractive Nuisance!

• 2011: LRCD purchased option to buy.
• 2011: LRCD Received $54,500 EPA “Targeted Brownfield Assessment” grant
• 2012 Purchase completed on January 18
• February 2012: Enrolled in WyDEQ – Volunteer Remediation Program DEQ spent over $150K in further characterization.
• 2014: $330,000 CDBG grant to clean up the surface Grant handled by CITY
• 2015 – LRCD awarded EPA Brownfield Cleanup Grant ($200,000) to deal with soils – LRCD spent an additional $200,000 “out of pocket”
• 2016 LRCD hires contractor who excavated contaminated soils, backfilled
• 2017 Contractor caps clean fill with bentonite and compacts, topsoil, reseeding
• Dec 30, 2017 LRCD receives letter from DEQ saying soils cleanup is complete.
Issues:
• Barrels of oil
• Metals/hydrocarbons in groundwater
• Hydrocarbons/metal in surface soils
• Lots and lots of concrete and rebar
• Guano and squalor
• General safety – sharp rebar, crumbling buildings, catacombs/manholes

Good news:
• It could have been a lot worse!
• Asbestos was not a major problem
• Lead based paint not a problem
• EPA, DEQ, City, Public strongly support this project;
Environmental Evaluation
EPA Targeted Brownfield Assistance Program

Literature Search
Metals in soils/groundwater
SVOCs/PAH’s in soils/groundwater
DRO, GRO in Groundwater
Asbestos in structures & soils
Geophysics for tunnels
Lead based paint leaching tests
Groundwater issues

12 monitoring wells
Water table aquifer of river sediments
Depth to bedrock = 10’ to 12’
About 6’ to water table
Depth to Casper aquifer <1000’

Metals to be monitored continually
Iron, Magnesium, Manganese
Boron, Arsenic, Cobalt, Thallium
PAH Plume

Byproducts of coal burning getting into shallow groundwater

This is the main problem our cleanup addressed by removing the source and stopping groundwater infiltration
TPH-DRO Plume
(petroleum/diesel)

Plume appears to be flowing through the property with no obvious source; this will be monitored for natural attenuation (degradation)
Metals in Soils

Cr, Fe, Mn exceed MTGW for all samples

B exceeds MTGW in 6 subsurface samples

Cd exceeds MTGW in 3 samples

Pb exceeds MTGW in 4 samples

Hg exceeds MTGW and RSS in samples at LYMW 10

Se exceeds MTGW in 4 samples

Th exceeds MTGW in 3 samples

Areas of LYWM 9, 10, 11, 13, 14 are where most exceedances are found
Structure Cleanup - HUD-CDBG Grant

March 2011

July 9, 2014
Final cleanup – Soils - EPA Brownfield Cleanup Grant:

- Excavate soil to 1’ or 6’ to meet Industrial Site Standards as required
- Backfill with “clean soil”
- Disc in bentonite clay and compact to create a very low permeability “cap”
- Haul in topsoil and seed with a native grass mix
WYDOT and the modified scope of our project

- WYDOT purchased the southern ~ half of the property in 2015
- The Viaduct effectively serves as a cap
- At the edges of the Viaduct, an additional 1’ of soil will be hauled in and reseeded
- WYDOT ownership ensures the soil will not be disturbed or developed
Final Product – moving forward

Monitor these wells annually for 5 years

New Snowy Range Road Bridge (Hwy 130)
Interesting statistics on final cleanup

- 119 truckloads of soil and debris removed (3096 cubic yards or 2580 tons) to the landfill
- 123 truck loads of clean fill was hauled in to replace and bring up to original grade.
- Additionally 177 tons of bentonite was disked in to the top 8” of fill and compacted to create a very low permeability cap from infiltrating water.
- 189 tons of topsoil was then brought in, spread evenly and reseeded.
What must still be done under WY Volunteer Remediation Program or VRP

- Monitor 4 wells annually for natural attenuation of pollutants in ground water (MNA)
- Follow UCA (Use Control Area) attached to deed, tells what uses are prohibited for the property
- Follow RA (Remedy Agreement) – Our Agreement with DEQ that says what must be done to call the project completed
Punch line – overall costs

Expenses –
- Purchase/Survey/Legal: $132,983
- Studies/characterization: $375,089
- Actual cleanup $817,205
- Total ~$1.3M

Income + In kind contributions
- DEQ Study for Remediation alternatives: $225,000
- EPA Targeted Brownfield assessment: $150,000
- City/County/local grants: $37,000
- CDBG “Urban blight” cleanup grant $330,000
- EPA Brownfield cleanup grant: $200,00
- WYDOT Purchased 40% of property $90,000
- Total ~ $1M

LRCD out of pocket: ~300,000 over 6 years (not counting any staff time)

Hope to recoup ~$200K with sale of cleaned up property
Thanks for your time!

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