

More than

man-hours

worked at the

site over a

9-month

period with

no recordable

orillnesses

An Adaptive Approach to Integrating RCRA Corrective Action with Facility Demolition

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BACKGROUND/OBJECTIVES

The former Agrium Advanced Technologies Facility in Fairbury, Nebraska, produced dry micronutrient fertilizer products until production ceased in 2014, when current owner Loveland Products/Crop Production Services (CPS) acquired the property. The facility has been under regulatory oversight since the 1980s due to metals contamination. RCRA Corrective Action (RCA) moved slowly as solid waste management units (SWMUs) outside the buildings were effectively remediated. Progress stalled as SWMUs within the buildings had not been investigated or remediated. In the spring of 2016, CPS's goals for of risk; reduction of regulatory oversight; and minimization of long-term environmental management needs. CPS, with Burns & McDonnell, developed an adaptive site management approach to integrate soil remediation under the RCA process simultaneous with facility demolition. The proposed timeline for completion of all demolition and remediation activities was the end of 2016.







APPROACH/ACTIVITIES

Meeting with the regulatory agencies to conceptualize how soil at the site could be rapidly remediated within the framework of the RCA was crucial to project success. CPS and Burns & McDonnell, with regulator input, prepared a Work Plan that included decision trees and detailed directions on potential field iterations. Pre-characterization of the materials and soil present at the site allowed for effective planning of excavation, handling and disposal. A Waste Management Plan, including a pilot study for treatment of the waste, was developed and approved by the regulatory agencies prior to the start of the remediation phase.

and the regulators, which allowed the project team to address concerns as they arose. A construction manager with remediation experience was on-site throughout the project and directed excavation in accordance with the pre-characterization results. Approximately 9,000 tons of soil were excavated, treated and of the concrete allowed reuse of the concrete as fill with no additional import of soil needed for backfilling excavations.

PROJECT TIMELINE

Typical RCRA Corrective Action 17+ years

Adaptive RCRA Corrective Action 9 months

Remedy Construction

Remedy Construction

Remedy Complete

9-Month Time Span

December 2016

Planning

April 2016

- Agile Work Plans Allowed decisions to be made on the fly
- Single Responsible Party Burns & McDonnell responsible for management, planning, demolition and remediation
- Pre-Remediation Investigation and Pilot Study allowed for remediation during demolition

Demolition

- Removed and disposed of **580 tons** of fertilizer solids as hazardous waste
- Removed and recycled 320 tons of metal
- Rubblized 11,450 tons of concrete for on-site reuse
- Removed and disposed of 760 tons of demolition debris and 94 loads of concrete as nonhazardous waste

Soil Remediation

- Stabilized in-situ, excavated and disposed of 6,850 tons of soil as nonhazardous waste
- After stabilization, soil was disposed as nonhazardous waste, resulting in **\$1.3 million in cost savings**

Site Restoration

- Site restored by backfilling with gravel cover
- Removal of impacted soil significantly reduced Loveland's financial liability and risk
- Site immediately available for development and reuse



RCRA Corrective Action (Years) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



corrective takes

174 years

EPA estimates the average

RESULTS/LESSONS LEARNED

- soil was remediated to established cleanup levels on schedule and within budget. Lessons learned from this project included:
- accepted by all stakeholders. Authorize the project team to execute those decisions accordingly.
- and the regulatory agencies. Be responsive to each other, and be willing to address concerns in a timely manner.
- Have an on-site construction manager with environmental experience who can recognize unexpected conditions that will likely be encountered when demolishing a contaminated facility.



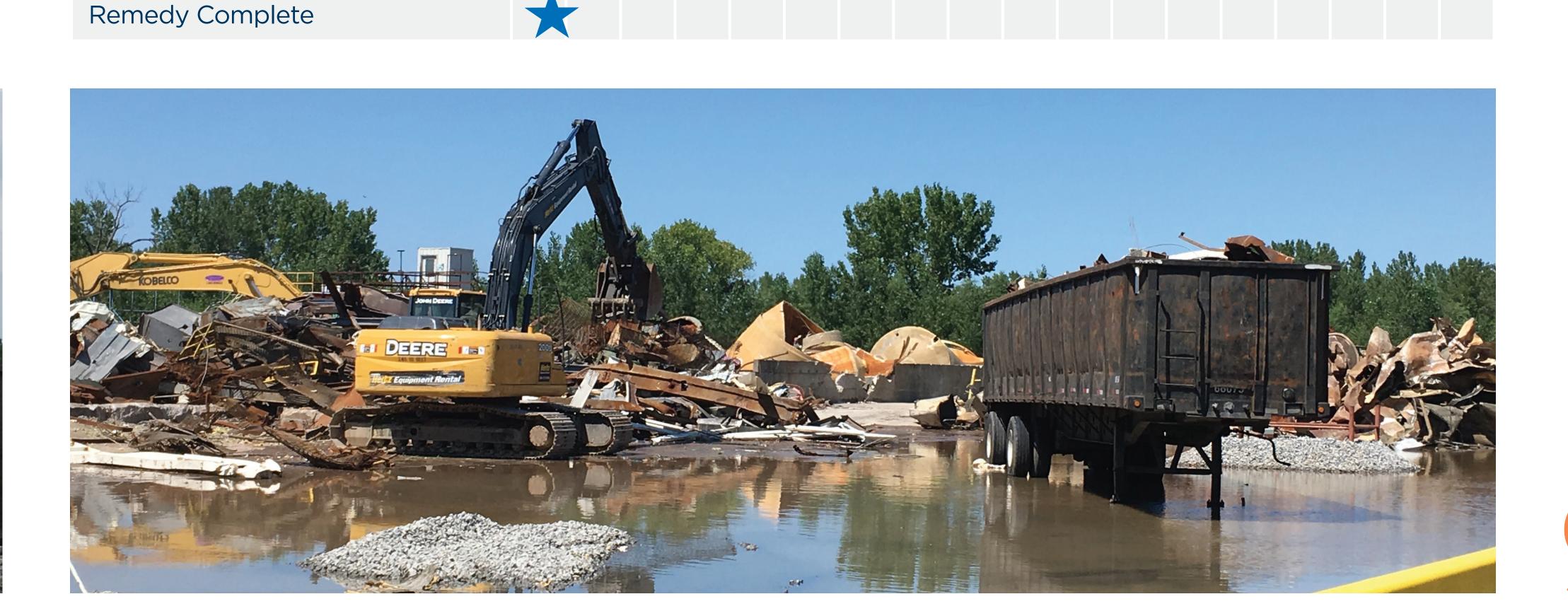
The facility was successfully decommissioned, and vadose zone

- Keep open lines of communication between the project team









Loveland Products