



Janzen Brothers Farms



Before project

Size:

Zero

Operated at 5,200 finishing and feeder pigs in previous production

Challenge:

This project was located near Henderson, Nebraska, in York County. The site was a decommissioned confinement swine operation. Royce and Gary Janzen, owners and operators, purchased the property in April of 2004 from a local producer. They wanted to decommission the facility, tear down the existing hog buildings, and remove the two lagoons. The facility was approximately 20 to 30 years old. Royce and Gary need assistance to properly close the two lagoons and properly utilize the nutrients in the manure. They had no need of the confinement building and also wanted to minimize their risk from lagoon failure because of close neighbors and a nearby camp site.

Demonstrated Practices:

- ◆ Lagoon Abandonment
- ◆ Sludge/Manure Land Application

ETF Contribution	Producer Contribution	Total Project Cost
\$29,420	\$17,290	\$46,710
Demonstrated Practices: Lagoon Abandonment, Sludge/Manure Land Application		

Design Objectives:

The liquid and solid portion of the lagoon was pumped and applied to adjacent crop land at agronomy rates. Any excess solid sludge was excavated and land applied to crop land owned by the Janzen's. Land application was on 1,000 acres of cropland that the Janzen's farm. The lagoon was filled in with clean dirt from the existing lagoon berms and graded to prevent any pooling of water. Drainage from the building site was diverted around the lagoon site to prevent erosion. The filled in area was converted to cropland once construction was complete.

Design:

The sludge in the lagoon and crop field soils was sampled and the sludge application rate was calculated to apply a five-year supply of P_2O_5 for irrigated corn. The liquid and slurry portion of the lagoon was agitated, pumped, and applied to a nearby corn field. After the liquid portion was applied, the remaining solid sludge in the bottom of the lagoon was excavated out of the lagoon using an excavator. There was no compacted clay liner in the lagoon. The lagoon was over-excavated several feet below the constructed base to remove the contaminated soil, and contact clean soil. The solids were stock piled at a safe location on a field edge to be applied to the crop field at a more appropriate time. A storage terrace was constructed around the stock pile to exclude any runoff from contacting the stock pile. The lagoon held about 7,000 cubic yards of solid sludge. [what did they do with the contaminated soil?]

After the sludge was removed and stock piled, the lagoon was ready to be filled in. The embankments of the lagoon were pushed in and the land area graded back to original slope. There was some over-fill to allow for settlement and for the area to drain. The land area was converted back to a crop field.



During construction



Stock pile

Environmental Benefits:

With the nutrients removed and the lagoon sloped to prevent infiltration of rainwater, any remaining nutrients were isolated and the risk of groundwater contamination minimized. The nutrients in the liquid and solid portions of the sludge were land applied at agronomic rates, and the nutrients in the sludge will be an excellent fertilizer for the crops.

[how does the slope prevent infiltration of rainwater? is it the sides of the lagoon in relation to the rest of the field? I think this could be clearer.]



UNL Extension

