



Entity	Industry
Project Types:	Waste mgmt.
Stimulus Funds: ...	\$231,381
Savings/yr:	\$7,500

A sweet solution to reduce energy use in an odoriferous business

It's not a glamorous industry, but someone has to haul and process septic tank sewage (septage), municipal sludge, holding tank water, chemical toilet waste and restaurant grease trap waste.

Dick Heard wasn't looking for a career in the waste management industry in the early 90s, but that is where he finds himself today.

"I had a young family to support and was working in the timber industry when government timber sales declined," Heard said. "I needed work that would always be there, was steady and year around, and was recession-proof."

He began to work in contaminated soil remediation, but that business was on the decline, too. Then he learned that Douglas, Coos, Curry, Josephine and Jackson Counties had septage issues they couldn't handle and had to ship waste to Eugene for processing. Larger municipalities could manage their waste from handling to disposal, but smaller communities and rural homeowners could not. Since Heard wanted to stay in Southern Oregon—his family can trace its roots in the Lookingglass area (nine miles south of Roseburg) to 1850— he saw his opportunity.

The waste management industry, while a necessity, is also a NIMBY (Not In My Back Yard) industry. Heard tried to get permits for properties he owned in Garden Valley and Lookingglass to no avail. He purchased 17 acres of bare field along I-5 just north of Roseburg in 1995 and started the permitting process for the third time.

It was a long process, but Heard was successful and purchased more acreage to increase his holdings in 2003 to 210 acres. He also got his wastewater treatment operator license. He began to take septage from several of the small cities in South-

ern Oregon and restaurant grease from Douglas County restaurants. His lagoons were filled with waste that was being processed through aerobic digestion, biological and chemical treatment and composting.

Heard Farms has 130 acres of hay irrigated and fertilized with the treated and disinfected sludge and wastewater. He gets four times the production using the processed waste than he did before.

Complaints

As his business grew, so did another problem—odor. Heard lives with his family on the property by the lagoon, so he knew when it was detectible.

"Most of the year, there is not an odor," Heard said. "In the spring and summer, is when you hear complaints. It's not like it smells like a dairy, but there is no tolerance for any odor."

**"It was a big thing
for a small guy
like me ..."**
- Dick Heard



The City of Sutherlin trucks in its septage to Heard Farms for further processing and composting. From left, Tracy Loomis, consultant for the project, City of Sutherlin employee and a Heard Farm employee watch as the septage is transferred to the lagoon. Approximately 950,000 gallons of material are added to the pond on a monthly basis.





Industrial Environmental Concepts, Inc. of Minnesota workers install the 80 mil polypropylene cover at Heard Farms. The two lagoons—one 100 x 250 feet and one 280 x 540 feet—hold septage, municipal sludge, holding tank water, chemical toilet waste and restaurant grease trap waste. The cover greatly diminishes any odor and collects gases from the lagoons that are flared off. During installation five workers were able to stand on the floating cover with their equipment.

A neighbor then erected a sign on the freeway: “If you smell this lagoon, call _____” and inserted the Oregon Department of Environmental Quality’s phone number.

The complaints increased. DEQ investigated and imposed a \$76,000 fine in 2009. Heard had been researching solutions and hired an engineering firm to conduct a study on how to mitigate the odor.

One solution was to reduce the amount of material being loaded into the lagoons. This was not economically feasible, but Heard did quit taking restaurant grease as food waste is very volatile.

Another solution was to increase the level of dissolved oxygen through increased aeration. In order to increase aeration, Heard would have to increase the number of floating aerators from four using 45 horsepower to 13 using 150 horsepower. The cost to increase the number and horsepower of the aerators to decrease the odor problem would have increased his electric bill from an average \$2,500 per month to \$10,000 per month.

Fortunately, technology was working on other solutions. Heard learned about a gas collection cover for lagoons that is made from high-density polypropylene and has had recognized results. The cover traps the gases released as the waste mate-

rial degrades. The gas is then removed, monitored and burned through a torch flaring system that destroys the odor-causing compounds and greenhouse gases. The proposed energy efficient system would use 12,752 kWh annually compared to 821,728 kWh if he increased the mechanical aeration.

Cover price tag

Heard was ready to proceed, but the price tag for the cover system installation—\$761,918—made him pause. He applied for Oregon’s Business Energy Tax Credit through the Oregon Department of Energy that would provide him with a tax credit of approximately \$143,500 for the next five years when he filed his taxes. His utility, Pacific Power, offered him \$188,445 financial incentive through the Energy Trust of Oregon (ETO). He had nearly \$200,000 of his own funds committed to the project.

He also followed up with an ETO suggestion to hire a grant writer and look for available grants. The grant writer found that the Oregon Department of Energy had an open solicitation for industrial projects in June 2010. The grant was funded from stimulus funds (Recovery Act). Heard applied for the grant and got notice that he was awarded \$231,381.

“It was a big thing for a small guy like me to bite off a project like this,” Heard said. “It would have been very hard to do without the stimulus funds.”

Heard got bids from three firms and selected Industrial Environmental Concepts, Inc. of Minnesota, a specialized firm that works throughout the world installing covers. On January 16, 2010, the firm sent their team of seven to Heard Farms to begin work. They stayed until March 5.

Heard (and his neighbors) are pleased with the results. There have been no calls to DEQ and the neighbor’s sign was taken down. The DEQ reduced his fine to \$4,300. The director of the Roseburg DEQ office now drives to Eugene on a daily basis as the DEQ closed their Roseburg office.

“I get the sniff test every day, twice a day when he drives between home and work on the freeway past my lagoons,” Heard said. “DEQ has been here for their inspection and they have been complimentary. It’s a real relief to me.”

Heard sends an annual report to DEQ that's inches thick. He tests and monitors at every point of the way from the product he is accepting to the product that goes on his hay field. He also tests his soil annually to determine the amount of nitrogen needed.

"Safety is very important to us," Heard said.

Other benefits

In addition to eliminating odor, the project has had a number of other, unexpected benefits. The covers keep the lagoon temperature up so the biological treatment can work more efficiently. The result is a higher quality effluent which needs less disinfectant. He can also accept more volatile material, such as the restaurant grease.

"I estimate that it saves a typical Roseburg restaurant \$200 a month to be able to discard their grease here rather than to truck it to Eugene," Heard said. He also is making plans to expand his market and take food processing waste.

Because the lagoons are covered and exclude rainwater, the lagoons have more room for waste than they did before the covers. (Sump pumps remove the rainwater from the top of the cover to a fresh water lagoon nearby.) Heard estimates that the combination of being able to process more material and stronger material, increases his profitability an estimated 12 to 18 percent.

Stimulating the economy

Other benefits to the project included stimulating the economy. Heard Farms employs nine full-time employees whose jobs were maintained as Heard was able to continue and expand his business.

In addition, the contractor, based in Minnesota, sent seven installers to work for seven weeks in Roseburg. The installers all were paid Davis-Bacon wages as required with Recovery Act funds for their time on the job at Heard Farms. They lived in Roseburg area motels and ate in local restaurants. Two of the men actually purchased used cars in Oregon as they knew the cars had not been exposed to road salt and subject to rusting like used cars in Minnesota. Heard hired a local contractor, Day Or Night Electric of Riddle, for some of the electrical work, too.



From left, Dick Heard, owner of Heard Farms; Shanda Shribbs, Oregon Department of Energy project manager; and Tracy Loomis, Coos Curry Douglas County Business Development Corporation community development coordinator review a portion of the documentation on the Heard Farms energy project that was partially paid for with Recovery Act Funds.

CCD involvement

Oregon Department of Energy hired Tracy Loomis, senior community development coordinator with Coos Curry Douglas (CCD) Business Development Corporation, to assist on the Heard Farms project with the documentation and paperwork required for the federal grant. CCD is the economic development district for southwestern Oregon. Loomis and CCD have experience managing federal and state funds and ensuring sub-recipients with the detailed technical compliance requirements. Heard and Oregon Department of Energy Project Manager Shanda Shribbs appreciate Loomis' work.

"The Recovery Act funds require stringent documentation," said Shribbs. "Private sector sub-recipients may not have had a federal grant before, so it is new to them and quite overwhelming. Tracy is doing a good job working with Heard Farms to ensure we have everything we need."

Next project on Heard's business plan is to try to make use of the captured gases to make electricity rather than flaring it off.

In the meantime, Heard takes pride in knowing that he is the only facility operator in Oregon (out of 200 municipally-owned and two privately-owned facilities) that has covered their processing lagoons.



By installing the cover, Heard Farm owner, Dick Heard, could avoid adding more aerators to his lagoons and avoid greatly increasing his electricity use.



Workers from Industrial Environmental Concepts, Inc. of Minnesota spent several weeks in Roseburg installing the lagoon covers. They helped stimulate the local economy with lodging and food expenditures. Two of the workers also purchased used vehicles from Roseburg dealers during their stay.



The floating cover traps the gases released as the waste degrades. The gas is then removed, monitored and burned through a torch flaring system. The system burns 24/7 and is visible from the I-5 freeway just north of Roseburg in the evening.



Liquid and solids from the waste treatment lagoons are chlorinated and pumped onto adjacent Heard Farms hay fields as a source of crop nutrients. Dick Heard, owner, reports that the material increases the hay yield by 40 percent.

The Oregon Department of Energy (ODOE) awarded this energy project with American Recovery and Reinvestment Act (stimulus) funds through the State Energy Program. These funds are designated for energy efficiency and renewable energy projects. The U.S. Department of Energy administers the funds, approves the projects and reviews the state's progress. The Oregon Department of Energy received \$42.1 million in SEP funding. All projects must be completed by February 15, 2012.

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