

Deployment Report

ASTD Return-On-Investment Project



United States Department of Energy
Office of Environmental Management
Fact Sheet

Deployment of Nochar® PetroBond® Technology to Solidify TRU Oil at Rocky Flats



Solidified TRU Oil in Sample Jar during Initial Glove Box Testing

Summary

With help from an ASTD ROI project to deploy Nochar polymer technology, Rocky Flats has completed solidification / stabilization of 40 drums of TRU oil wastes for shipment to WIPP. This success resolved a significant problem waste that had threatened to impact site closure.

Description of Situation

Rocky Flats' original treatment technology, Oil and Solvent Immobilization System (OASIS), had not met the criteria for shipment and disposal at WIPP. A second technology of filtration and separation was identified and budgeted as the new approach, although it had not been designed, built or tested prior to introduction of Nochar PetroBond at the site. Capital equipment cost for the oil portion of the filtration system was estimated to be at least \$ 1M and the estimate to operate the process was about \$865,000. In contrast the Nochar PetroBond process cost about \$30,000 of site labor to implement, plus about \$100,000 in materials and about \$20,000 for testing, for a total of about \$150,000.

Monetary Benefits

Investment to Verify Nochar	\$ 60,000
Site Cost to Implement Nochar	\$150,000
Baseline Costs	\$1,865,000
Life-Cycle Savings*	\$1,602,000
Return on Investment	2,670 %

* using Net Present Values

Benefits At-A-Glance

- **MET WASTE ACCEPTANCE CRITERIA:** Nochar technology produced an acceptable waste form for WIPP and 50% less volume, compared with previously tried technology.
- **LESS COST AND TECHNICAL RISK:** Nochar process was simpler to apply: pouring the TRU oil directly into the polymer crystals inside a tent, instead of a more complicated system in a glove box.

Primary Value of Improvement

Nochar solidification saved the site \$ 1.6 M and at least 2 years in this waste stream's disposal schedule.

Lifecycle Waste Reduction

Life Cycle Waste Reduction	7 m ³
Project Useful Life (Years)	1

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Summary Data

DOE Focus Area:	TRU Mixed Waste Focus Area
ASTD ROI Project ID No:	ASTD (01) (P2-01) (TTP No. OH21MW21)
ROI Project Benefits:	Acceptable waste form; reduced volume; quicker & simpler process
Implementing Group:	EM
Benefiting Group:	EM
Useful Life in Years:	1
Investment Funds Used:	\$20,000 ASTD; \$40,000 site funds
Total Nochar Project Cost:	\$210,000
Baseline Costs:	\$1,865,000 (in three years)
Life-Cycle Savings: (Using Net Present Values)	\$1,602,000
Return On Investment:	2,670 % (using Net Present Values)
Lifecycle Waste Reduction:	7 m ³ of TRU waste
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