

Completed Pollution Prevention Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

Reduction of RCRA Solvent Usage

Los Alamos National Laboratory

Original Problem

NIS Division creates parts and circuit boards for satellites and other equipment to be used in space. These parts must be very clean to meet NASA specifications and function correctly for a long time in space. Originally 1,1,1-TCE was used for cleaning, but a substitute was needed because 1,1,1-TCE is a carcinogen, it contributes to the breakdown of the ozone layer, and it is no longer produced in the U.S. The cost of handling, buying, and disposing of 1,1,1-TCE was constantly rising.

The Project Solution

Aqueous cleaners could not be considered for replacing 1,1,1-TCE since they tend to corrode soldered joints and leave residue on circuit boards. EnSolv was chosen because it worked as well as 1,1,1-TCE for cleaning circuit boards, and now EnSolv is used in the NIS-4 degreaser unit to clean machine parts as well.

Value of Improvement

Unlike 1,1,1-TCE, spent EnSolv can be treated as a non-hazardous waste. The switch eliminated about 350 kg/year of hazardous waste, over 95% of the waste generated by NIS-4 and 10% of the total waste generated by NIS Division. EnSolv is less toxic than 1,1,1-TCE, and it does not deplete the stratospheric ozone layer.

Lifecycle Waste Reduction	
Lifecycle Waste Reduction	3-4 cu. ft./year
Commencement Date	1999
Project Useful Life (Years)	Indefinite



DOE Monetary Benefits	
Total Project Cost	NA
Lifecycle Savings	\$2000 / year
Return on Investment	NA

Benefits At-A-Glance

- Spent EnSolv is non-hazardous waste, and it can be treated less expensively than 1,1,1-TCE.
- EnSolv does not deplete the stratospheric ozone layer.
- EnSolv is much less toxic than 1,1,1-TCE.

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	Summary Data
Priority Area:	Waste Minimization Projects
Project Type:	Source Reduction
Total Project Cost:	NA
Lifecycle Savings:	\$2000 per year (estimated)
Implementing Group:	NIS-4
Benefiting Group:	NIS-4
Useful Life Years:	Indefinite
Return on Investment:	NA
Lifecycle Waste Reduction:	350 kg hazardous waste / year
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