

## Appendix E Camp Rilea

### Baseline Inventory

A baseline inventory is necessary for two reasons. The quantities of waste generation or toxic material use are assessed to target specific waste streams, materials being used, or activities for pollution prevention. annual reports on waste generation and toxic material use will be compared with the baseline inventories to evaluate the effectiveness of pollution prevention projects and to monitor progress in achieving Camp Rilea's pollution prevention goals.

Some categories overlap (e.g., solvent wastes, waste acids and bases, and EPA Toxic 17 wastes also will appear as hazardous waste; some of the EPA Toxic 17 wastes can be solvents). The use of the baseline inventory will assist in developing projects for meeting the pollution prevention goals of Camp Rilea's.

<b>BASELINE INVENTORY FOR CAMP RILEA 1994</b>				
<b>Waste Type</b>	<b>RCRA Waste Code(s)</b>	<b>Waste (lbs)</b>	<b>% of Total Waste</b>	<b>Process or Operation Generating Waste</b>
Petroleum Naphtha	D001	1643	16	Parts Cleaning
Waste Paint	D001, D008	417	4	Painting Operations
Potassium Hydroxide-Mercury	D009	9	2	Battery Changeout
Chromium Filters	D007	592	50	NBC Training
Lithium Batteries	D001, D003	282	24	Battery Changeout
Gasoline	D001	417	4	Vehicle Maintenance

<b>CAMP RILEA POLLUTION PREVENTION GOALS</b>				
<b>Waste Type</b>	<b>Subtype</b>	<b>Reduction Goal (%)</b>	<b>Baseline Year</b>	<b>Target Year</b>
Hazardous Waste	Petroleum Naphtha		1994	
Hazardous Waste	Waste Paint		1994	
Hazardous Waste	Potassium Hydroxide-Mercury		1994	
Hazardous Waste	Chromium Filters		1994	
Hazardous Waste	Lithium Batteries		1994	
Hazardous Waste	Gasoline		1994	
Solid Waste Ozone Depleting Chemical Use	Class I ODS	100	1994	2003
TRI Reportable Releases		50%	1994	1999

## Pollution Prevention Opportunity Assessment

The PPOA enables Camp Rilea to examine the alternatives available for pollution prevention. The modules identify the waste stream and the operation from which the stream may be generated, describe the process, and present several pollution prevention alternatives. Each alternative is described along with its advantages and disadvantages.

Assessment modules that apply to Camp Rilea are:

- Battery Acids/Lead-Acid Batteries from Vehicle Maintenance
- Cleanup Solvents from Painting
- Electronic Equipment Battery Changeout
- Halon Use in Fire Extinguishers
- Manual Surface Preparation Using Rags
- Radiator-Cleaning Waste
- Refrigerants (CFCs) from Refrigeration, Cooling-Equipment Maintenance
- Sandblasting
- Solid Waste
- Used Antifreeze from Vehicle Maintenance
- Used Oil Filters from Vehicle Maintenance
- Used Oil from Vehicle Maintenance
- VOC Emissions from Painting
- Waste Solvents from Parts Cleaning

### ➤ Past Pollution Prevention Projects

The status of past pollution prevention projects are discussed. Each project is described to include location implemented, implementation date, targeted waste type (e.g., hazardous waste, EPA Toxic 17 Wastes, ozone-depleting chemical), actual waste, actual implementation costs, actual savings, and funding sources.

**Project Title:** ZEP Parts Washer

**Description:** Replace Safety Kleen parts washer with the ZEP washer that uses an aqueous based solution. OR23000001.

**Location:** UTES

**Implementation Date:** 1993

**Targeted Waste Type(s):** Hazardous Wastes, EPA Toxic 17

**Waste Reduction:**

**Implementation Costs:**

**Savings:** Elimination of the waste stream has saved the installation \_\_\_\_\_ per year in reduced waste disposal cost.

**Funding Source:** Year end funds.

**Project Title:** Battery Acid/Lead Acid Batteries from Vehicle Maintenance

**Description:** Lead Acid Batteries are being exchanged on a one-for-one basis with a commercial vendor.

**Location:**

**Implementation Date:** 1995

**Targeted Waste Type(s):** Hazardous Wastes, EPA Toxic 17

**Waste Reduction:**

**Implementation Costs:**

**Savings:** Elimination of the waste stream has saved the installation \_\_\_\_\_ per year in reduced waste disposal cost.

**Funding Source:**

**Project Title:** Parts Cleaning and Washing

**Description:** Installation of a Better Engineering aqueous parts washer to reduce reliance on solvents. The UTES plans to use the aqueous parts washer for cleaning large engine and drive train components. Use of the aqueous parts washer will reduce the volume of solvent requiring disposal as hazardous waste, reduce the associated disposal costs, and reduce worker exposure to solvent emissions.

**Location:** UTES

**Implementation Date:** 1995-1996

**Targeted Waste Type(s):** Hazardous Waste/EPA Toxic 17/Solvent Wastes

**Waste Reduction:**

**Implementation Costs:**

**Savings:** Elimination of the waste stream has saved the installation \_\_\_\_\_ per year in reduced waste disposal cost.

**Funding Source:**

**Project Title:** Antifreeze Recyclers

**Description:** The Techguard Coolant Recycler 88550 Antifreeze Recycler is connected to the vehicle being serviced by using the assortment of connectors provided with the 88550. The vehicle's coolant is circulated through the 88550 that removes scale, suspended material and dissolved toxic metals from the coolant. In essence the coolant never leaves the vehicle. The coolant is restored to ASTM standard 3306 and is warranted for 2 years. EPR number OR00099001.

**Location:** UTES

**Implementation Date:** 1998

**Targeted Waste Type(s):** Hazardous Chemicals listed on EPA's 17 Toxics List

**Waste Reduction:** Ethylene Glycol

**Implementation Costs:** \$3,332.16

**Savings:** \$2,536.00

**Funding Source:** 1998 Year end funds

**Project Title:** Weapons Cleaning/Parts Washer System IT48WC

**Description:** The Inland Technology IT-48WC Weapons Cleaning System NSN 6850-01-397-2539 is a high volume usage system that recycles the Breakthrough solvent continuously through a high efficiency filtration system. EPR number OR00099002.

**Location:** UTES (3 systems)

**Implementation Date:** 1999

**Targeted Waste Type(s):** Other Hazardous Materials

**Waste Reduction:** 1,1,1-Trichloroethane

**Implementation Costs:** \$11,052.45

**Savings:** \$6,093.00

**Funding Source:** AGI-EPR

**Project Title:** Paint Gun Cleaner

**Description:** A self-contained Inland Technology IT-100 paint gun washer. NSN 4250-01-465-3191 using EP-921 Solvent. The IT-100's features include stainless steel construction, filtration technology and standard 6.5 GPM free flow delivery air-operated diaphragm pump unit that uses solvent to clean paint guns. EPR number OR00099008.

**Location:** UTES

**Implementation Date:** 1999

**Targeted Waste Type(s):** Petroleum Napthas (Safety Kleen)

**Waste Reduction:** Solvents

**Implementation Costs:** \$2,680.55

**Savings:** \$3,810.00

**Funding Source:** AGI-EPR

**Project Title:** ODS Elimination Water Coolers

**Description:** Eliminate all appliances and equipment that use ozone depleting substances. These include fire extinguishers using Halon and refrigeration systems containing CFCS. EPR number OR00099006.

**Location:** Camp Rilea (All Facilities to include UTES and the Maintenance areas)

**Implementation Date:** 1999

**Targeted Waste Type(s):** Refrigerants-R11, R12, R22 etc.

**Waste Reduction:** Ozone Depleting Substances

**Implementation Costs:** \$4,619.52

**Savings:**

**Funding Source:** AGI EPR

**Project Title:** Oil Filter Crusher

**Description:** The Oberg Model P-300 filter crusher is used to eliminate the amount of oil left in the filter after it is removed from service. The P-300 deposits the crushed filters directly into a transport drum for disposal. EPR number OR00099003.

**Location:** Camp Rilea UTES

**Implementation Date:** 1999

**Targeted Waste Type(s):** Hazardous Chemicals listed on EPA's 17 Toxics List

**Waste Reduction:** Recovery of metal by eliminating the oil from the element allowing the metal to be recycled, and keeping the oil saturated filters out of the landfill.

**Implementation Costs:** 1 unit @ \$3,988.80 ea.

**Savings:** \$1,935.50 annually per unit.

**Funding Source:** AGI-EPR

**Project Title:** Aerosol Can Depressurizer

**Description:** A Lab Safety Aerosol Can Depressurizer that relieves the pressure in aerosol cans and allows the residual contents to be collected for disposal. With the contents thoroughly depleted the can may be recycled as scrap metal. EPR number OR 00099004.

**Location:** Camp Rilea UTES

**Implementation Date:** 2000

**Targeted Waste Type(s):** Solid Waste (metal), Reactive Hazardous Waste generic

**Waste Reduction:** Metal, Reactive HW

**Implementation Costs:** \$577.00

**Savings:** \$1,350.00

**Funding Source:** 2000 year end funds

**Project Title:** Propane Cylinder Recycling System

**Description:** The New Pig ProSolve system safely removes the valve stem so canister can be recycled as scrap steel. Activated carbon filters help remove Volatile Organic Compounds from propellant. EPR number OR00000001.

**Location:** UTES

**Implementation Date:** 2000

**Targeted Waste Type(s):** Reactive hazardous waste - generic compressed gas, Volatile Organic compounds.

**Waste Reduction:** Metal, Reactive HW

**Implementation Costs:** \$697.44 ea

**Savings:** \$5,112.00

**Funding Source:** 2000 year end funds.

**Project Title:** Secondary Containment Structures

**Description:** As required by the SPCCP for this facility and 40 CFR 112.3 and OAR 340-047-0160. A secondary containment structure is needed to be built to house the fuel hauling vehicles that are located at this facility. EPR OR23000001.

**Location:** UTES

**Implementation Date:** 2002

**Targeted Waste Type(s):** Petroleum's, Oils and Lubricants

**Waste Reduction:** Soil contamination.

**Implementation Costs:** \$167,775

**Savings:**

**Funding Source:** NGB

## ➤ Current Pollution Prevention Projects

The status of currently funded pollution prevention projects are discussed next. Each project will be described to include location to be implemented, anticipated implementation date,

targeted waste type (e.g., hazardous waste, EPA Toxic 17 Wastes, ozone-depleting chemicals), expected waste reduction, estimated implementation costs, estimated savings, and funding sources.

**Project Title:** Containment Structures

**Description:** Implement camp-wide SPCCP as required in 40 CFR 112 and OAR 340-047-0160. This project will fund the purchase of hazardous materials storage cabinets and two secondary containment units that will be used to store drums or containers which contain hazardous materials. Funds will purchase three 45(fortyfive) gallon self-closing hazardous materials storage cabinets and two walk-in storage buildings. EPR OR230.

**Location:** UTES

**Implementation Date:**

**Targeted Waste Type(s):** Petroleum's, Oils and Lubricants

**Waste Reduction:** Soil contamination.

**Implementation Costs:** \$20,000

**Savings:**

**Funding Source:**

➤ **Future Pollution Prevention Projects**

The status of proposed pollution prevention projects is discussed next. Each project will be described to include location to be implemented, anticipated implementation date, targeted waste type (e.g., hazardous waste, EPA Toxic 17 Wastes, ozone-depleting chemicals), expected waste reduction, estimated implementation costs, estimated saving, and funding sources.

ECONOMIC ANALYSIS SUMMARY FOR FUTURE POLLUTION PREVENTION PROJECTS					
Polluting Process	P2 Opportunity	Investment Cost (\$)	Net Annual Savings (\$)	Payback Period (Years)	Net Present Value of Operation (\$)
Safety Kleen	Solvent Waste Station Purchase and Modification	198,500	(5,841)	No Payback	(243,603)
Safety Kleen	Aqueous Cleaner with Jetwasher	701,050	44,639	15.7	(356,345)

<b>POLLUTION PREVENTION IMPLEMENTATION PLAN FOR FUTURE PROJECTS</b>							
<b>Project Title</b>	<b>Location</b>	<b>Waste Type</b>	<b>Reduction Expected (lbs/year)</b>	<b>Estimated Cost(\$)</b>	<b>Estimated Savings (\$/yr)</b>	<b>Expected Implement Date</b>	<b>EPR Status</b>
Cardboard Baler	Recycling Center	Solid Waste	400,000	99,000	30,000	CY95	Entered

<b>CAMP RILEA'S POLLUTION PREVENTION ACHIEVEMENT REPORT FOR 1997</b>					
<b>Waste Type</b>	<b>Subtype</b>	<b>Reduction Goal (%)</b>	<b>Baseline 1994 (lbs./year)</b>	<b>Current (lbs./year)</b>	<b>Achieved to Date (%)</b>
Hazardous Waste	Petroleum Naphtha		1643	68	413
Hazardous Waste	Waste Paint		417	585	(140)
Hazardous Waste	Potassium Hydroxide- Mercury		9	24	(266)
Hazardous Waste	Chromium Filters			39	
Hazardous Waste	Lithium Batteries		282		
Solid Waste	Cardboard and recyclable paper				
Hazardous Waste	Gasoline		417	130	31
Ozone Depleting Chemical Use	CFCs ( <i>R-12</i> , <i>R-22</i> ) Fire Suppressants ( <i>Halons</i> )	100			

<b>CAMP RILEA'S POLLUTION PREVENTION ACHIEVEMENT REPORT FOR 1998</b>					
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<b>Waste Type</b>	<b>Subtype</b>	<b>Reduction Goal (%)</b>	<b>Baseline 1994 (lbs./year)</b>	<b>Current (lbs./year)</b>	<b>Achieved to Date (%)</b>
Hazardous Waste	Petroleum Naphtha		1643	50	304
Hazardous Waste	Waste Paint		417	149	35.73
Hazardous Waste	Potassium Hydroxide-Mercury		9		
Hazardous Waste	Chromium Filters		592	293	
Hazardous Waste	Lithium Batteries		282		
Solid Waste	Cardboard and recyclable paper				
Hazardous Waste	Gasoline		417		
Ozone Depleting Chemical Use	CFCs (R-12, R-22) Fire Suppressants (Halons)	100			

<b>CAMP RILEA'S POLLUTION PREVENTION ACHIEVEMENT REPORT FOR 1999</b>					
<b>Waste Type</b>	<b>Subtype</b>	<b>Reduction Goal (%)</b>	<b>Baseline 1994</b>	<b>Current (lbs./year)</b>	<b>Achieved to Date (%)</b>

			(lbs./year)		
Hazardous Waste	Petroleum Naphtha		1643	147	
Hazardous Waste	Waste Paint		417	240	
Hazardous Waste	Potassium Hydroxide-Mercury		9		
Hazardous Waste	Chromium Filters			202	
Hazardous Waste	Lithium Batteries		282		
Solid Waste	Cardboard and recyclable paper				
Hazardous Waste	Gasoline		417		
Ozone Depleting Chemical Use	CFCs (R-12, R-22) Fire Suppressants (Halons)	100			

CAMP RILEA'S POLLUTION PREVENTION ACHIEVEMENT REPORT FOR 2000					
Waste Type	Subtype	Reduction Goal (%)	Baseline 1994 (lbs./year)	Current (lbs./year)	Achieved to Date (%)
Hazardous	Petroleum		1643		

Waste	Naphtha				
Hazardous Waste	Waste Paint		417		
Hazardous Waste	Potassium Hydroxide-Mercury		9		
Hazardous Waste	Chromium Filters				
Hazardous Waste	Lithium Batteries		282		
Solid Waste	Cardboard and recyclable paper				
Hazardous Waste	Gasoline		417		
Ozone Depleting Chemical Use	CFCs (R-12, R-22) Fire Suppressants (Halons)	100			

CAMP RILEA'S POLLUTION PREVENTION ACHIEVEMENT REPORT FOR 2001					
Waste Type	Subtype	Reduction Goal (%)	Baseline 1994 (lbs./year)	Current (lbs./year)	Achieved to Date (%)
Hazardous Waste	Petroleum Naphtha		1643		
Hazardous			417		

Waste	Waste Paint				
Hazardous Waste	Potassium Hydroxide-Mercury		9		
Hazardous Waste	Chromium Filters				
Hazardous Waste	Lithium Batteries		282		
Solid Waste	Cardboard and recyclable paper				
Hazardous Waste	Gasoline		417		
Ozone Depleting Chemical Use	CFCs ( <i>R-12</i> , <i>R-22</i> ) Fire Suppressants ( <i>Halons</i> )	100			