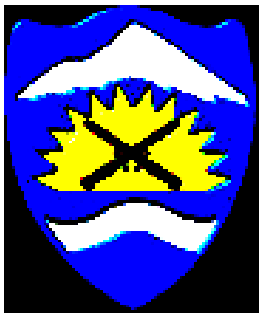
OREGON ARMY NATIONAL GUARD



ORARNGR 210-4
POLLUTION PREVENTION PLAN

April 23, 2007

OREGON MILITARY DEPARTMENT
Headquarters Oregon National Guard
1776 Militia Way
P.O. Box 14350
Salem, Oregon 97309-5047

OREGON ARMY NATIONAL GUARD REGULATION NUMBER 200-4 **1 July 2001**

Facilities Engineering
POLLUTION PREVENTION PLAN

SUMMARY. This regulation provides responsibilities and guidance for pollution prevention within the Oregon Army National Guard (ORARNG). Required by Army Regulation 200-1, Environmental Protection and Enhancement, this regulation is written to ensure ORARNG compliance with applicable federal, state and local laws and regulations. This regulation updates requirements to conform to federal and state regulatory rules, requiring additional action by ORARNG units and support activities.

SUGGESTED IMPROVEMENTS. The proponent of this regulation is the Environmental Branch of the Installations Office (AGI-ENV). Users are invited to send comments to the Oregon Military Department. ATTN: AGI-ENV, 1776 Militia Way, P.O. Box 14350, Salem, OR 97309-5047.

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Summary of Pollution Prevention Goals

Media	Goal	Source of Goal	Baseline Year	Target Year
Hazardous Waste	Continuous annual reduction in disposal	Proposed DoD MoM	NA	NA
Solid Waste	40% diversion	DoD MoM	NA	Dec 2005
Air Emissions	Prevent creation of any major emission sources	DoD MoM	NA	NA
Water Use	Continuous annual reduction in potable water use	---	NA	NA
Wastewater Generation	Continuous annual reduction in wastewater generation	---	NA	NA
TRI Releases	Prevent creation of any TRI releases	EO 13148	2001	Dec 2006
EPA Priority Chemicals	Remain at current level of use	EO 13148	2002	Dec 2006
ODSs	Eliminate Class I ODSs from inventory	Memorandum ASA IL&E	NA	Dec 2003
Vehicle Fuel	Increase fleet fuel efficiency by 3 miles per gallon	EO 13149	1999	Dec 2005
	Reduce vehicle petroleum consumption by 20%	EO 13149	1999	Dec 2005
	Ensure that alternative fuels account for 50% of fuels used in dual-fuel vehicles	EO 13149	NA	2005
	Ensure that 75% of vehicles procured in the target year and beyond are alternative fuel vehicles	EO 13149	NA	1999
Energy	Reduce facility energy consumption by 30%	EO 13123	1985	2005
	Reduce facility energy consumption by 35%	EO 13123	1985	2010
Affirmative Procurement	Train procurement officers and integrate AP into developing plans, work statements, and specifications	EO 13148	NA	NA

PROJECT SUMMARY TABLE
CAMP WITHYCOMBE

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 1998/99	EPR OR00099004	Y	5.4.1
Antifreeze Recyclers	Used Antifreeze	Implemented 1996/98	EPR OR00099001		5.4.3
Aqueous Washer Better Engineered	Solvents	Implemented 95-96	EPR	Y	5.4.4
Aqueous Washer Jet	Solvents	Implemented 1999	EPR OR00099011	Y	5.4.5
Battery Acid/Lead Acid Exchange	Used Batteries	Implemented 1995	BMP		5.4.6
Hot Pressure Washer	HW/Hydrocarbons	Implemented 1999	EPR OR00099007	Y	5.4.9
Oil Filter Crusher	POL's	Implemented 1996	EPR OR00099003		5.4.11
Oil Filter Crusher	POL's	Implemented 1998	EPR OR00099003		5.4.11
Oil Filter Crusher	POL's	Implemented 2001	EPR OR00099003		5.4.11
Paint Gun Cleaner	Solvents	Implemented 1999	EPR OR00099008	Y	5.4.12
Paint Gun Cleaner	Solvents	Implemented 2000	EPR OR00099008	Y	5.4.12
Propane Cylinder System	Reactive Waste	Implemented 2000	EPR OR00000001	Y	5.4.14
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structures	POL's	Implemented 2002	EPR OR03500021	Y	5.4.15
Surface preparation using rags	Contaminated Rags	Implemented 1995	BMP		5.4.16
Vehicle and Aircraft Washing	HW/Hydrocarbons	Implemented 1997	EPR OR	Y	5.4.17
VOC Emissions	VOC	Implemented 1997	EPR	Y	5.4.18
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099006	Y	5.4.19
Weapons Cleaning System	Solvents	Implemented 1999	EPR OR00099002	Y	5.4.20
Weapons Cleaning System	Solvents	Implemented 2001	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1993	EPR OR00093006	Y	5.4.21
Aerosol Can Puncturer	Reactive Waste	Pursuing Funding	EPR OR00099004		5.5.1
Antifreeze Recyclers	Used Antifreeze	Pursuing Funding	EPR OR00099001		5.5.2
Containment Structure for Storage	POL's	Pursuing Funding			5.5.3
Propane Cylinder System	Reactive Waste	Pursuing Funding	EPR OR00000001		5.5.5
Ultrasonic Dip Tank	Potassium Hydroxide	Requires Further Investigation	EPR OR00099010		5.5.7

CAMP RILEA

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 2000	EPR OR00099004	Y	5.4.1
Antifreeze Recyclers	Used Antifreeze	Implemented 1998	EPR OR00099001		5.4.3
Aqueous Washer Jet	Solvents	Implemented 95-96	EPR	Y	5.4.5
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1995	BMP		5.4.6
Containment Structures	POL's	Pursuing Funding	EPR OR		5.5.3
Oil Filter Crusher	POL's	Implemented 1999	EPR OR00099003		5.4.11
Paint Gun Cleaner	Solvents	Implemented 1999	EPR OR00099008	Y	5.4.12
Propane Cylinder System	Reactive Waste	Implemented 2000	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Implemented 2002	EPR OR23000001	Y	5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099006	Y	5.4.19
Weapons Cleaning System	Solvents	Implemented 1999	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1993	EPR OR23000001	Y	5.4.21

1/186 INFANTRY OMS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 2000	EPR OR00099004	Y	5.4.1
Aerosol Can Puncturer	Reactive Waste	Implemented 2001	EPR OR00099004	Y	5.4.1
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1996	BMP		5.4.6
Oil Filter Crusher	POL's	Implemented 1998	EPR OR00099003		5.4.11
Propane Cylinder System	Reactive Waste	Pursuing Funding	EPR OR00000001		5.5.5
Secondary Containment Structure	POL's	Implemented 2002	EPR OR12000001	Y	5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 2000	EPR OR00000001	Y	5.4.19
ZEP Parts Washer	Solvents	Implemented 1993	EPR	Y	5.4.21

2/162 INFANTRY OMS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 1995	OTHER	Y	5.4.1
Aerosol Can Puncturer	Reactive Waste	Implemented 2001	EPR OR00099004	Y	5.4.1
Antifreeze Recycling	Used Antifreeze	Implemented 1996	EPR		5.4.3
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1996	BMP		5.4.6
Cardboard Recycling Sub Site	Solid Waste	Implemented 1995	BMP		5.4.7
Containment Structures	POL's	Pursuing Funding	EPR		5.5.3
Oil Filter Crusher	POL's	Implemented 1998	EPR OR00099003	Y	5.4.11
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Pursuing Funding	EPR OR11200001		5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099005	Y	5.4.19
Weapons Cleaning System	Solvents	Implemented 1998	EPR OR00099002	Y	5.4.20
Weapons Cleaning System	Solvents	Implemented 1999	EPR OR00099002	Y	5.4.20
Weapons Cleaning System	Solvents	Implemented 2001	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1994	EPR OR00094AAH	Y	5.4.21

ARMY AVIATION SUPPORT FACILITY #2

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 2000	EPR OR00099004	Y	5.4.1
Propane Cylinder System	Reactive Waste	Pursuing Funding	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Implemented 2002	EPR OR15200001	Y	5.4.15
Weapons Cleaning System	Solvents	Implemented 2000	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1993	EPR OR00094AAH	Y	5.4.21

CENTRAL OREGON UNIT TRAINING EQUIPMENT SITE

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Antifreeze Recycler	Used Antifreeze	Implemented 1999	EPR OR00099001		5.4.3
Aqueous Washer Better Engineered	Solvents	Implemented 95-96	EPR	Y	5.4.4
Aqueous Washer Landa	Solvents	Implemented 1999	EPR OR00099011	Y	5.4.5
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1996	BMP		5.4.6
Cardboard Recycling	Solid Waste	Implemented 1996	BMP		5.4.7
Hot Pressure Washer	HW/Hydrocarbons	Pursuing Funding	EPR OR00099007		5.5.4
Oil Filter Crusher	POL's	Implemented 1999	EPR OR00099003		5.4.11
Paint Gun Cleaner IT-100	Solvents	Implemented 2000	EPR OR00099008	Y	5.4.12
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Implemented 2002	EPR OR17500001	Y	5.4.15
Ultrasonic Radiator Dip Tank	Potassium Hydroxide	Further Investigation Required	EPR OR00099010		5.5.8
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099005	Y	5.4.19
Weapons Cleaning System	Solvents	Implemented 2000	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1994	EPR OR00094AAH	Y	5.4.21

3/116 CAVALRY OMS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 1999	EPR OR00099004	Y	5.4.1
Antifreeze Recycler	Used Antifreeze	Implemented 2000	EPR OR00099001		5.4.3
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1992	BMP		5.4.6
Hot Pressure Washer	HW/Hydrocarbons	Pursuing Funding	EPR OR00099007		5.4.9
Laundry of Shop Rags	Contaminated Rags	Implemented 1994	BMP		5.4.10
Oil Filter Crusher	POL's	Implemented 2001	EPR OR00099003		5.4.11
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Implemented 2002	EPR OR10000001	Y	5.4.15
Weapons Cleaning System	Solvents	Implemented 2001	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1994	EPR OR00094AAH	Y	5.4.21

ARMY AVIATION SUPPORT FACILITY #1

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 1998	EPR OR00099004	Y	5.4.1
Air Conditioner Replacement	Refrigerants	Implemented 1997	OTHER	Y	5.4.2
Cardboard Recycling	Solid Waste	Implemented 1995	BMP		5.4.7
Oil Filter Crusher Oberg	POL's	Pursuing Funding	EPR OR00099003		5.5.5
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Replace of NiCad Batteries	Used Batteries	Further Investigation Required			5.5.7
Secondary Containment Structure	POL's	Implemented 2002	EPR OR20500001	Y	5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 1996	OTHER	Y	5.4.19
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099006	Y	5.4.19
Weapons Cleaning System IT-48WC	Solvents	Implemented 2000	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1995	EPR	Y	5.4.21

141 SPT BN OMSS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Antifreeze Recycling	Used Antifreeze	Implemented 1997	BMP		5.4.3
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1996	BMP		5.4.6
Cardboard Recycling	Solid Waste	Implemented 1996	BMP		5.4.7
Oil Filter Crusher	POL's	Implemented 2000	EPR OR00099003		5.4.11
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Implemented 2002	EPR OR16000001	Y	5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099006	Y	5.4.19
ZEP Parts Washer	Solvents	Implemented 1994	EPR	Y	5.4.21

141 SPT BN OMS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Antifreeze Recycler	Used Antifreeze	Implemented 1998	EPR OR00099001		5.4.3
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1996	BMP		5.4.6
Cardboard Recycling	Solid Waste	Implemented 1996	BMP		5.4.7
Oil Filter Crusher	POL's	Implemented 2000	EPR OR00099003		5.4.11
Propane Cylinder System		Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structure		Implemented 2002	EPR OR16500001	Y	5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099006	Y	5.4.19
ZEP Parts Washer	Solvents	Implemented 1994	EPR OR00094AAH	Y	5.4.21

HQ STARC (-) OMS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Antifreeze Recycler	Used Antifreeze	Implemented 1998	EPR OR00099001		5.4.3
Aqueous Washer Landa	Solvents	Implemented 1999	EPR OR00099011	Y	5.4.5
Oil Filter Crusher	POL's	Implemented 1998	EPR OR00099003		5.4.11
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structure	POL's	Implemented 2002	EPR OR21000002	Y	5.4.15
Water Coolers Non-ODS	Refrigerants	Implemented 1999	EPR OR00099006	Y	5.4.19
Water Coolers Non-ODS	Refrigerants	Implemented 2000	EPR OR00099006	Y	5.4.19
Weapons Cleaning System	Solvents	Implemented 2000	EPR OR00099002	Y	5.4.20
ZEP Parts Washer	Solvents	Implemented 1994	EPR OR00094AAH	Y	5.4.21

3/116 CAV OMS

Project Name	Targeted Pollution Source	Implementation Status and Date	Funding Source	Compliance Thru P2?	P2 Plan Section
Aerosol Can Puncturer	Reactive Waste	Implemented 1998	EPR OR00099004	Y	5.4.1
Antifreeze Recycler	Used Antifreeze	Implemented 2001	EPR OR00099001		5.4.3
Battery Acid/Lead Acid Batteries	Used Batteries	Implemented 1992	BMP		5.4.6
Containment Structures	POL's	Pursuing Funding	EPR OR		5.5.3
Laundry of Shop Rags	Contaminated Rags	Implemented 1994	OTHER		5.4.10
Oil Filter Crusher	POL's	Implemented 2001	EPR OR00099003		5.4.11
Propane Cylinder System	Reactive Waste	Implemented 2001	EPR OR00000001	Y	5.4.14
Secondary Containment Structures	POL's	Implemented 2002	EPR OR	Y	5.4.15
ZEP Parts Washer	Solvents	Implemented 1994	EPR OR00094AAH	Y	5.4.21

Chapter 1
Introduction

1.1 Statement of Purpose

This Plan establishes this installation's commitment to environmental leadership in pollution prevention (P2) by outlining the concepts and practices necessary to reduce the use of hazardous materials and the release of pollutants. This Plan is also meant to be used as a tool for the installation to document, track, and manage its pollution prevention efforts in pursuit of achieving pollution prevention goals.

1.2 Background and Mission

On August 3, 1993, President Clinton signed Executive Order 12856, entitled *Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements.* This order requires each Federal Agency to:

- Develop an Agency-wide pollution prevention strategy, which commits the agency to source reduction and emphasizing pollution prevention as the primary means of achieving and maintaining compliance with Federal, State, and local environmental requirements.
- Establish a voluntary goal to reduce total releases and off-site transfers of toxic chemicals or toxic pollutants by 50 percent.
- Develop facility-level pollution prevention plans.
- Apply Life Cycle Analysis and Total Cost Accounting principles, to the greatest extent practicable, when evaluation pollution prevention opportunities.

By signing this Executive Order (EO) and emphasizing the importance of pollution prevention in environmental management, President Clinton has challenged the Federal government to publicly lead by example by applying pollution prevention in the management of its facilities and in its acquisition practices. By preventing pollution, the Federal government not only protects the environmental and the public's health, but also saves the taxpayers' money by reducing pollution control costs and long-term liability for expensive cleanups.

The ORARNG has both federal and state missions. The federal mission is to train and maintain combat ready units available to mobilize, deploy, and execute assigned wartime missions in support of the National Military Strategy. The state mission is to function efficiently for the protection of life and property and to preserve peace, order, and public safety under competent orders of the Governor of the State of Oregon.

> *"The Oregon National Guard will sustain a quality force of trained and ready patriots. Through effective use of resources, we will be fully capable of performing our Federal, State, and community missions. We are committed to providing the citizens of Oregon and the nation a well-equipped, highly motivated militia."*

The State Headquarters located in Salem, Oregon and includes the Environmental Management Office. This office strives to ensure that installation and facility operations and activities are in compliance

with environmental regulations and policy and that the natural resources of the environmental re preserved and not adversely impacted by ORARNG activities.

1.3 Definition of Pollution Prevention

Pollution prevention encompasses those activities, which reduce the quantity of hazardous, toxic, or industrial pollutants at the source by changing the production, industrial, or other waste generating process. In addition, pollution prevention is not limited to hazardous pollutants released to air, water, and land, but also includes activities to reduce the amounts of non-hazardous commercial and household wastes.

Pollution prevention is any mechanism that successfully and cost-effectively avoids, prevents, or reduces the sources of pollutant discharges or emissions other than the traditional method of treating pollution at the discharge end of a pipe or stack. A pollution prevention project is one which applies source reduction, recycling, or waste minimization in order to reduce pollution from an installation's current business practices, industrial processes, base operations, or other routine activities.

1.4 Benefits of Pollution Prevention

As concern for the environment has risen in our society, increased environmental regulation and public awareness have raised the standards, costs, and potential liabilities of waste management practices. Waste and resource management programs that adopt P2 principles can realize benefits on many different fronts:

- Reduced costs associated with the procurement and storage of hazardous materials and subsequent disposal of hazardous waste
- Reduced costs associated with the management, treatment, and disposal of hazardous wastes
- Decreased use of energy and water resources
- Enhanced relations with the public, neighboring communities, and regulators
- Reduced costs of complying with environmental and hazardous materials regulations, and diminished risk of non-compliance
- Reduced future compliance liability
- Improved long-term environmental quality and prevention of environmental degradation

Chapter 2
Pollution Prevention Regulatory Background

The Army's pollution prevention policies originate in legislation enacted by the U.S. Congress. Executive Orders direct federal agencies, including the Department of Defense, to conform to Federal legislation and may impose non-legislated requirements as well. The Department of Defense issues directives and instructions in response to the Executive Orders. These DOD policy statements are interpreted and promulgated in Army regulations, pamphlets, and other policy documents. In addition, Major Army Commands (MACOMs), Major Subordinate Commands, and individual installations may adopt supplemental policies. This section provides summaries of the major laws, executive orders, and DOD policy statements pertaining to pollution prevention. Due to the wide-reaching nature of P2 issues and frequent changes to laws and regulations, the list is not intended to be all-inclusive.

2.1 Federal Legislation

2.1.1 Resource Conservation and Recovery Act (RCRA) of 1976.

An early legal impetus for P2 practices. "...It shall be a condition of any permit issued under this section for the treatment, storage, or disposal of hazardous waste on the premises where such waste was generated that the permitee certify, no less often than annually, that the generator of the hazardous waste has a program in place to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable."

2.1.2 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

This act required that generators of hazardous wastes must evaluate and document their procedures for controlling the environmental impacts of their operations.

2.1.3 Hazardous and Solid Waste Amendments (HSWA) of 1984.

This act required all RCRA-regulated generators of hazardous waste to develop waste minimization programs.

2.1.4 Pollution Prevention Act of 1990.

Facilities required to report releases for the Toxic Release Inventory (TRI) under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 must provide documentation of their procedures for preventing the release of or for reusing these materials. However, this act goes beyond wastes designated as hazardous. The intent is to force industries to reduce or prevent pollution at the source. In addition to source reduction, it also emphasizes reuse and closed loop recycling whenever possible. The emphasis is fundamentally different from off-site recycling, treatment, and disposal as primary ways to handle waste. The Pollution Prevention Act first established as comprehensive national policy the pollution protection hierarchy described in Chapter 1.

2.2 State Pollution Prevention Legislation

2.2.1 Toxic Use Reduction and Hazardous Waste Reduction Act

Oregon's Toxics Use Reduction and Hazardous Waste Reduction Act requires businesses to develop formal plans and is intended to reduce, avoid, or eliminate the use of toxic substances and the generation of hazardous wastes. It became law when the governor signed it on July 24, 1989.

2.3 Presidential Executive Orders

2.3.1 Executive Order 13101, "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition," September 1998.

This Executive Order (EO) requires federal agencies to implement acquisition programs aimed at procuring products that are environmentally preferable, energy efficient, and/or contain post-consumer recovered materials. This order supersedes EO 12873.

2.3.2 Executive Order 13123, "Greening the Government through Efficient Energy Management," June 1999.

This Executive order establishes requirements intended to encourage efficient energy management in the Federal Government. Specific goals of this executive order include:

- Reduce greenhouse gas emissions from facility energy use 30% by 2010 from a 1990 baseline
- Reduce facility energy consumption 30% per square foot by 2005 and 35% by 2010 from a 1985 baseline
- For industrial and laboratory activities, reduce energy consumption 20% by 2005 and 25% by 2010 from a 1990 baseline.

2.3.3 Executive Order 13148, "Greening the Government Through Leadership in Environmental Management," April 2000.

By including many of the pollution prevention elements of several previously existing executive orders, this executive order revokes the following: Executive Order 12843 of April 1993, Executive Order 12856 of August 1993, Executive Order 12969 of August 1995, and section 1-4 "Pollution Control Plan" of Executive Order 12088 of October 1978. Executive Order 13148 establishes goals that involve establishing environmental management programs as well as goals that involve reaching measurable pollution prevention milestones. The goals that pertain directly to pollution prevention are:

- Reduce Toxic Release Inventory (TRI) Form R releases 10% annually or 40% by 31 December 2006 from a baseline year of 2001. In addition to this reduction goal, note that this EO requires federal facilities to fully comply with the requirements of the Emergency Planning and Community Right to Know Act (EPCRA).

- Reduce the use of Environmental Protection Agency (EPA) priority chemicals 50% by 31 December 2006. Note that the EPA Interagency Workgroup has not yet established the list of

priority chemicals. The executive order allows the workgroup until February 2001 to complete the list. The baseline year for the 50% reduction will be the calendar year immediately following the year in which the workgroup establishes the priority chemical list.

- Develop a plan to phase-out the procurement of Class I Ozone Depleting Substances (ODS) by 31 December 2010. The facility must develop this plan by 31 April 2001. Note that the Army established a goal to eliminate all ODS from each Army installation by 31 December 2003 and to develop the phase-out plan by 30 September 2000 (discussed further below).

- Develop a plan that addresses the facility's contribution toward achieving the goals in this executive order. This plan must be developed by March 2002. Note that this P2 plan satisfies this requirement.

- Determine the feasibility of implementing a hazardous material pharmacy system at the facility. The facility must make this determination by April 2002.

- Institute environmentally and economically beneficial practices pertaining to landscaping activities. These practices must be based upon the Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds (60 Fed. Reg. 40837). Landscaping activities must conform to this guidance by October 2001.

2.3.4 Executive Order 13149, "Greening the Government Through Federal Fleet and Transportation Efficiency," April 2000.

This EO establishes goals to improve the average fuel economy to increase the use of alternative fuels for fleet vehicles. Note that this order exempts tactical military vehicles, law enforcement vehicles, and emergency vehicles from its requirements. This executive order supersedes EO 13031 of December 1996. This order established the following specific goals:

- Reduce vehicle petroleum consumption 20% by the end of FY 2005 from a FY 1999 baseline.

- Increase the average EPA fuel economy rating of cars and light trucks by at least 1 mile per gallon (mpg) by the end of FY 2002 and by 3 mpg by the end of 2005 from an FY 1999 baseline.

- Ensure that alternative fuels account for at least 50% of the fuels used in dual-fuel, alternative fuel vehicles.

- Ensure that at least 75% of car and light truck procurements are alternatively fueled vehicles.

2.4 Department of Defense (DOD) Directives and Instructions

2.4.1 DOD Instruction 4715.4, "Pollution Prevention," June 1996.

This document provides explicit guidance on P2 activities. It reiterates the P2 Hierarchy principle, and establishes the DOD P2 measures-of-merit for TRI releases reduction, hazardous waste reduction, non-hazardous solid waste diversion, and alternatively-fueled vehicles. Note that the TRI and hazardous waste reduction goals became obsolete on 31 December 1999. As a result, the DOD is currently developing new measures of merit that will be incorporated into this plan as soon as they become available.

2.4.2 DOD Memorandum, "New DOD P2 Measure of Merit," May 1998.

This memorandum establishes a new solid waste measure of merit to replace those in DOD Instruction 4715.4 (above). The new measure of merit is to "ensure that the diversion rate for non-hazardous solid waste is greater than 40% while ensuring integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using land filling and incineration alone." This goal is to be attained by the end of fiscal year (FY) 2005.

2.4.3 Memorandum, Assistant Secretary for Installations, Logistics, and Environment, "Ozone-Depleting Chemicals (ODC) Elimination at Army Installations," 13 February 1996.

With this memorandum, the Assistant Secretary of the Army for Installations, Logistics, and Environment established an Army-wide goal to completely eliminate Class I ODS from all Army installations by 31 December 2003.

Chapter 3
Installation Pollution Prevention Program

3.1 Policy

This installation is committed to an active policy of protecting the environment through the following efforts:

- Providing a clean and safe environment in our community
- Ensuring a safe and healthy workplace for our staff
- Complying with all applicable laws and regulations
- Reducing the use of hazardous substances
- Reducing releases of pollutants to the environment
- Conserving energy and natural resources
- Maximizing recycling efforts
- Promoting pollution prevention through education, training, and awareness

To accomplish these objectives, this installation continuously identifies opportunities to reduce or eliminate pollution through source reduction and other prevention methods. This policy extends to all environmental media including hazardous waste, solid waste, air, water, and wastewater.

This installation is committed to reducing the amount and toxicity of pollution that it generates. As part of this commitment, the installation gives priority to source reduction. Where source reduction is not feasible, this installation will investigate and implement other prevention measures such as recycling, treatment, and controlled disposal.

Pollution prevention is the responsibility of everyone at this installation.

3.2 Pollution Prevention Management Structure

This installation manages its overall environmental program through a series of defined responsibilities. As an aspect of the environmental program, the installation also manages its pollution prevention program in this manner. The various levels of responsibility for environmental management are as follows:

3.2.1 Command Level

With regards to the environmental program, installation command personnel are responsible for establishing overall policies, instituting regulations, and setting goals. In addition, they are responsible for establishing budgets and authorizing funding for the overall program and for specific projects. Command and Directorate level personnel stay involved in environmental activities primarily through regular meetings of the installation Environmental Quality Control Committee (EQCC) that meets once per quarter.

3.2.2 Primary Level

The installation Environmental Office maintains the principal responsibility for environmental oversight and management. The environmental office consists of personnel who are each responsible for managing various environmental programs such as pollution prevention, hazardous waste, solid waste, air emissions, above and underground storage tanks, etc.

3.2.3 Support Level

Organizations and personnel at this level have the responsibility of furnishing the environmental office with the resources and/or data required to manage various environmental programs. Participants at this level include the installation Command Staff and it's Directorates. Some specific examples of support level activities include: the Command Judge Advocate providing legal advice for permit registration; the Logistics Division overseeing hazardous material supply operations; The Directorate of Contracting providing policy and oversight for credit card hazardous material purchases, and the Safety Office maintaining environmental training records for installation personnel.

3.2.4 Task Level

This level consists mostly of contracted organizations that provide the installation with a specific work product. Some examples may include the various contractors that: help develop the installation master plan, operate the hazardous substance management system, manage the hazardous waste storage yard, and generate annual Toxic Release Inventory reports.

3.2.5 Resource Level

Resources are typically regarded as various personnel on post who have environmental training, experience, or knowledge and can contribute to specific aspects of environmental program management. Resources include those with extensive environmental knowledge such as environmental office personnel who are not directly responsible for a specific program but who may lend advice and assistance to that program's manager. Resources may also include personnel who serve in a limited environmental capacity such as those responsible for managing hazardous waste at industrial activities

3.2.6 Operator Level

This level of personnel has the responsibility of providing technical information about the existing processes and potential process changes to operations and waste generation activities to the primary level personnel. Some specific examples of this level include the Motor Pool personnel and DPW shop personnel.

3.3 Baseline Development

The baselines for the installation’s P2 objectives are primarily derived from the pollution reduction goals established by “greening of the Government” executive orders and the Department of Defense Measures of Merit. These baselines are the based on the following metrics and are quantitatively identified in chapters 5-14 of this plan.

- Hazardous Waste: Total disposed (pounds)
- Solid Waste: Percent of total generated diverted to recycling (percent)
- Air Emissions: Amount emitted (tons)
- Water: Amount Consumed (gallons)
- Wastewater: Amount generated (gallons)
- TRI Form R Chemical Releases: Releases and off-site transfers (pounds)
- EPA Priority Chemicals: Purchases of individual target chemicals (pounds)
- Ozone Depleting Substances: Total inventory (pounds)
- Vehicle Fuel use: Amount of petroleum consumed (gallons)
  Amount of alternative fuel consumed (gallons)
- Energy: Electricity used (kWh) per total square feet of installation facilities
- Alternatively-Fueled Vehicles: number of vehicles leased/procured

3.4 Opportunity Assessments

When reduction requirements are determined, options for meeting the requirements must be identified. These options are identified through pollution prevention opportunity assessments (P2OAs). P2OAs examine current processes and identify and evaluate alternatives for pollution prevention. Projects identified by P2OAs must have complete data to show the cost benefit of the project.

Opportunity Assessments are the method of identifying process improvements or options. Conducting an opportunity assessment involves examining all input sources, material usage, and waste generation by type and weight, and determining practical and economical options for reduction. This generally involves examining each process involving a targeted substance to determine ways to avoid use or minimize generation of that substance. Detailed baseline information characterizing material use and waste streams for each process may be gathered concurrently with the assessment process. Opportunity assessments may be performed by trained post level or MACOM personnel, or contractors and, to be effective, must have the involvement of process-level personnel. Section 2, Chapters 1-11 of this document represent the results of the most recent P2OA for each chapter's respective media.

3.5 Pollution Prevention Goals

Chapters 5-14 of this plan describe the installation's pollution prevention goals with respect to each environmental media area. The installation developed these goals based on environmental laws, executive orders, and Department of Defense policies.

3.6 Implementation and Evaluation

This section describes some of the methods and tools the installation uses to track and document its environmental efforts such as pollution prevention projects and initiatives.

3.6.1 Environmental Quality Report.

This report is part of an automated system used to collect a wide variety of installation environmental information, including compliance, conservation, program management, and pollution prevention programs. The primary goal of EQR is to provide DOD with the information it requires as well as

providing HQDA, MACOM, major subordinate commands (MSC), and installations with critical management information while minimizing short suspense tasking to installation personnel. The EQR program is a result of the 1996 Defense Environmental Quality Program Annual Report to Congress, RCS DD-A&T (A) 1997. All data elements in the EQR are based on the DOD RCS-A&T (A) 1997 reporting protocol, and other law(s) and regulation(s) reporting requirements. All of which provide users and policy makers with periodic updates on critical data within the Army's environmental program. The EQR serves as the source of data for: annual environmental quality (EQ) reports to Congress; semi-annual EQ reports to the DoD; quarterly reports for the Quarterly Army Performance Review; MACOM EQ IPRs; Installation Management Steering Committee meetings; and semi-annual EO reports to MACOMs.

3.6.2 Army Environmental Program Requirements.

Installation personnel use the EPR database to plan, program, budget and forecast costs to manage the environment; to practice good environmental stewardship; and to attain and maintain compliance with existing and pending Federal, State, local environmental laws and regulations. It is used to show past expenditures; to track project execution and performance; to refine and validate requirements for the budget year; and to plan and program requirements and resources in the out-years.

3.6.3 Environmental Compliance Assessment System.

This system, known as the ECAS, is an Army-wide program that documents an installation's compliance status on a 3-year cycle. As a component of the ECAS, assessors evaluate the installation's pollution prevention program in terms of its compliance with many of the directives and executive orders described in Chapter 2. This evaluation is included as part of a document called the Environmental Compliance Assessment Report (ECAR). After each time the installation undergoes an environmental compliance assessment, the assessors write an ECAR and provide copies to the installation and its MACOM. The installation then works with the MACOM to develop an Installation Corrective Action Plan (ICAP). Developing the ICAP serves as an opportunity to consider and plan for P2 projects that can help achieve and maintain compliance.

3.7 Reporting Requirements

The installation has the following P2 reporting requirements:

- Hazardous waste generator biennial or annual report, from RCRA
- Environmental Quality Report (EQR) hazardous waste disposal and recycling roll-ups, from AR 200-1
- Environmental Program Requirements (EPR) of programming, budgeting, and execution for all environmental projects, including P2, from AR 200-1
- Installation Status Report Part II (Environment)
- EPRCA Tier I/II Reports

3.8 Pollution Prevention Project Funding

Pollution prevention projects are funded from the account of the proponent's operating budget.

Chapter 4
Compliance Through Pollution Prevention

4.1 Description of Compliance Through P2

Pollution Prevention can be a strong tool that an installation can use to reduce its compliance burden. Since the concept of pollution prevention was first introduced, it has been accepted that P2 can improve an installation's compliance status. However, this benefit was taken as a matter of course but was not widely explored. This section represents the installation's efforts to categorize and document its compliance benefit. The following example illustrates the concept of compliance through prevention.

4.1.1 Camp Withycombe

Camp Withycombe is located in Clackamas Oregon, the installation occupies 153 acres. The four primary facilities on Camp Withycombe are: 3670th Organizational Maintenance Shop (OMS), Combined Support Maintenance Shop (CSMS), the United States Property and Fiscal Office – Supply Distribution Center (USPFO-SDC) and State Maintenance Shop (SMS). Secondary facilities include a Military History Museum, Armory, and various offices and warehouses. There is one above ground fueling station, two wash racks and one active paint booth in the CSMS. The facility is designated as a Large Quantity Generator under 40 CFR and as a 10-day transfer facility under 40 CFR 263.

4.1.2 Camp Rilea

Camp Rilea is located in Warrenton Oregon; the installation occupies approximately 2200 acres on the Clatsop Plains between Columbia Beach and Sunset Beach. The primary facilities on Camp Rilea are: the Unit Training Equipment Site (UTES), Post Maintenance (PM), and an Armory. Camp Rilea has one tenant: the Air National Guard 116 Air Control Squadron (ACS). Secondary facilities include enlisted and officer quarters, small arms and weapon training ranges, ammunition storage bunkers, waste water treatment plant, ropes course, Military Operations in Urban Terrain (MOUT) training facility, maneuver training areas, rappelling tower, two above ground fueling stations, and two wash racks. The facility is designated as a Small Quantity Generator under 40 CFR.

4.1.3 2/162 IN OMS

2/162 IN Organization Maintenance Shop (OMS) is located in Lebanon Oregon, the facility occupies 0.9 acres. The OMS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.4 HQ STARC OMS

HQ STARC(-) Organizational Maintenance Shop (OMS) is located in Salem Oregon, the facility occupies 7.5 acres. The OMS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room,

flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.5 COUTES

The Central Oregon Unit Training and Equipment Site (COUTES) is located in Redmond Oregon, the facility occupies approximately 20 acres. The COUTES is used primarily to train reserve mechanics, although full time employees are assigned to this facility. Primary facilities include a maintenance building, warehouse and trailer house. The ancillary shop areas include shop office, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility and one above ground fueling point. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.6 1/186 IN OMS

1/186 IN Organization Maintenance Shop (OMS) is located in Medford Oregon, the facility occupies 1.1 acres. The OMS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.7 3/116 CAV OMS

3/116 CAV Organization Maintenance Shop (OMS) is located in LaGrande Oregon. The OMS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.8 3/116 CAV OMSS

3/116 CAV Organization Maintenance Sub-Shop (OMSS) is located in Hermiston Oregon on the Umatilla Chemical Depot. The OMSS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.9 141 SPT BN OMS

141 SPT BN Organization Maintenance Shop (OMS) is located in Portland Oregon, the facility occupies 13.76 acres. The OMS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.10 141 SPT BN OMSS

141 SPT BN Organization Maintenance Sub-Shop (OMSS) is located in Tigard Oregon, the facility occupies 2.5 acres. The OMSS is used primarily to train reserve mechanics, although full time employees are assigned to this facility. The ancillary shop areas include shop offices, tool room, flammable storage, battery room, mechanical room, custodial area and work bays. There is one wash rack at this facility. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.11 ARMY AVIATION SUPPORT FACILITY #1

The Army Aviation Support Facility #1 is located in Salem Oregon, the facility occupies 20 acres. The AASF is used to provide aviation safety, aviators and crewmembers flight training, controls utilization and operation of assigned aircraft, and performs inspection, maintenance, repair, and modifications on fixed and rotary winged aircraft. The facility is used to maintain aircraft in a readiness state to be used for training exercises, natural disaster relief, or combat. The facility has one aircraft wash rack and two above ground storage tanks. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.1.12 ARMY AVIATION SUPPORT FACILITY #2

The Army Aviation Support Facility #2 is located in Pendleton Oregon. The AASF is used to provide aviation safety, aviators and crewmembers flight training, controls utilization and operation of assigned aircraft, and performs inspection, maintenance, repair, and modifications on fixed and rotary winged aircraft. The facility is used to maintain aircraft in a readiness state to be used for training exercises, natural disaster relief, or combat. The facility has one aircraft wash rack and two above ground storage tanks. The facility is designated as a Conditionally Exempt Generator under 40 CFR.

4.2 Compliance Sites

4.2.1 Hazardous Waste Storage Facilities

Quantity of Hazardous Waste Storage Areas. This table is provided to track the progress that this Installation has made in reducing its number of hazardous waste compliance sites.

Facility Type	Quantity				
	1999	2000	2001	2002	2003
90-Day	0	1	1	1	
SQG	2	2	1	1	
CEG	8	7	8	8	

Initiatives to Reduce the Number of Areas.

No initiatives are currently being considered to reduce the number of sites currently in use. The hazardous waste collection and storage process currently in use is streamlined and efficient. To reduce the number of 90-day or satellite sites would hamper the effectiveness of the system currently in use.

Sample text has not been provided for the following sections since they will closely follow section 4.2.1

4.2.2 Permitted Air Emission Sources

No air emission sources are currently required to be permitted.

4.2.3 Permitted Solid Waste Disposal Facilities

The Oregon Guard currently does not operate any solid waste disposal facilities.

4.3 Compliance Thresholds

4.3.1 Hazardous Waste Thresholds

Threshold Status. Camp Withycombe is currently the largest generator in the state, generating more than 2,200 pounds of hazardous waste per month. As such, it is considered a large quantity hazardous waste generator. Reducing this amount to less than the 2,200 pounds per month threshold would allow the installation to be considered a small quantity generator. However reduction of the amount of hazardous waste being generated is not feasible due to the increased tempo of equipment rebuild being conducted at the CSMS.

Camp Rilea is currently the second largest generator in the state generating more than 220 pounds but less than 2,200 pounds of hazardous waste per month. As such it is considered a small quantity hazardous waste generator. Reducing this amount to less than the 220 pounds per month threshold would allow the installation to be considered a conditionally exempt generator of hazardous waste. Reduction of the current level of hazardous waste generation is not feasible in order to maintain operational tempo for this facility.

All other facilities in the state are conditionally exempt generators of hazardous waste. Reduction of the amount of hazardous waste being generated is not operationally feasible.

Initiatives to Reduce Generation to Below the Threshold.

Aerosol Can Puncturer. By puncturing empty aerosol cans they can be disposed of as a recyclable metal rather than a reactive hazardous waste. This initiative was implemented in 1995, 1998, 1999, 2000, 2001 and scheduled to be implemented in the future. Refer to section 5.4.1 for more information.

Air Conditioner Replacement. By replacing the current obsolete air conditioner with newer more efficient non-ODS conditioners the amount of Class I ODS refrigerants in use is reduced. This initiative was implemented in 1997. Refer to section 5.4.2 for more information.

Antifreeze Recycler. Recycling antifreeze onsite has reduced the cost of purchasing virgin ethylene glycol. This initiative was implemented in 1998, 1999 and 2001 and scheduled to be implemented in the future. For more information, refer to section 5.4.3.

Aqueous Washer Better Engineered. Switching from petroleum-based to aqueous-based parts washing has reduced annual hazardous waste generation by 6,936 lbs per year. This initiative was implemented in 1995-1996. For more information, refer to section 5.4.4.

Aqueous Washer Jet. Switching from petroleum-based to aqueous-based parts washing has reduced annual hazardous waste generation. This initiative was implemented in 1995 and 1999. For more information, refer to section 5.4.5.

Battery Acid/Lead Acid Batteries Exchange. Lead acid batteries are being exchanged on a one-for-one basis with a commercial vendor. This has reduced the total generation of lead acid batteries by 99% and reduced the need for stocking sulfuric acid. The only batteries not exchanged are those that have been damaged. This initiative was implemented in 1995. For more information, refer to section 5.4.6.

Cardboard Recycling. By instituting a cardboard recycling system the amount of solid waste has been reduced. This initiative was implemented in 1995. For more information, refer to section 5.4.7.

Centralized Hazardous Substance Management. Centrally procuring some hazardous materials for activities post-wide allows such materials to be purchased in bulk. This reduces the overall cost of hazardous procurement. In addition, reducing the amount of shelf life expired wastes will reduce the installation's overall hazardous waste disposal fees. This initiative was implemented in 1999. For more information, refer to section 5.4.8.

Hot Pressure Washer. Implementation of this initiative allowed vehicles to be pressured washed at the vehicle wash rack prior to being moved to the maintenance bays and eliminating the trailing of POLs. This initiative was implemented in 1999 and scheduled to be implemented in the future. Refer to Section 5.4.9 for more information.

Laundry of Shop Rags. Commercial laundering of shop rags/coveralls was implemented as an Occupational Safety and Health Administrative measure to prevent contaminants from spreading outside of the work place. In addition the laundering of rags/coveralls by a commercial vendor has increased the longevity of the rags/coveralls. This initiative has also reduced the amount of rags/coveralls that were being disposed of and has decreased the amount of rags/coveralls that have to be purchased. This initiative was implemented in 1994. For more information, refer to section 5.4.10.

Oil Filter Crusher. Crushing used oil filters has reduced the volume of the filters and allows metal recycling and recovery of used oil. This initiative was implemented in 1998, 19999, 2000, 2001 and scheduled to be implemented in the future. Refer to section 5.4.11 for more information.

Paint Gun Cleaners. This initiative involves using automatic washing units to clean paint spray guns. It is estimated that this initiative will reduce hazardous waste generation by a total of 167 pounds per year. This initiative was implemented in 1999 and 2000. Refer to section 5.4.12 for more information.

Paper/Cardboard Recycling. By instituting a cardboard recycling system the amount of solid waste has been reduced. This initiative was implemented in 1995. For more information, refer to section 5.4.13.

Propane Cylinder Recycling System. This initiative allows the removal of the fill stem from a propane cylinder enabling the cylinder to be recycled as scrap metal. This resulted in a savings of $150 per cylinder. This initiative was implemented in 2000, 2001 and scheduled to be implemented in the future. Refer to Section 5.4.14 for more information.

Secondary Containment Structures. As required by the Spill Prevention Control and Countermeasure Plan for facilities with fuel hauling equipment and 40 CFR 112.3 and OAR 340-047-0160 a secondary containment system was built to house fuel hauling assets. The implementation of this initiative has reduced the probability of a serious petroleum product release to the environment. This initiative was implemented in 2002. Refer to section 5.4.15 for more information.

Surface Preparation using Rags. Utilizing a rag laundering service reduced the volume of solid waste generated by the CSMS, and also reduces the potential for contaminates contained in soiled rags to leach into the soil and groundwater. This initiative was implemented in 1995. Refer to section 5.4.16 for more information.

Vehicle and Aircraft Washing. The aircraft aviation support facility has installed a Landa Alpha 3100D Water Maze coalescing filter system with an ozone generator to the wash rack. Wash water will discharge to the oil/water separator, then pass through the coalescing filter prior to discharge to the sanitary sewer system. The Landa is an in-line filtration system. This initiative was implemented in 1997. Refer to section 5.4.17 for more information.

VOC Emissions. The paint booth is a fully enclosed Binks system equipped with dry filters and a manometer. The manometer measures differential pressure across the filters and indicates when filters require replacement. The facility is also equipped with a multi-media blasting system to remove oil paint from equipment surfaces. The new system is capable of using garnet, glass, and plastic blast medial. An attached cyclone unit will separate dry paint chips from blast media, allowing for reuse of the blast media. This initiative was implemented in 1997. Refer to section 5.4.18 for more information.

Water Coolers non-ODS. Implementation of this initiative has reduced the amount of Class I Ozone Depleting Chemicals currently in use in the state. This initiative was implemented in 1999 and 2000. Refer to Section 5.4.19 for more information.

Weapons Cleaning Systems. Switching from petroleum-based to non-petroleum based weapon cleaning systems has reduced the annual hazardous waste generation. This initiative was implemented in 1998, 1999, 2000 and 2001. Refer to section 5.4.20 for more information.

ZEP Parts Washer. The implementation of this initiative has replaced a HW solvent-based parts washer with a less hazardous petroleum based solution. This initiative was implemented in 1994. Refer to section 5.4.21 for more information.

4.3.2 TRI Release Thresholds

Currently no facility is required to report under EPCRA 313 reporting requirements.

4.3.3 EPA Priority Chemical Thresholds

Currently no facility is above the EPA priority Chemical Thresholds.

Chapter 5
Hazardous and Industrial Waste

5.1 Prevention Goal

The installation's hazardous and industrial waste reduction goal is to show a continuous effort in the management of the current levels of wastes being generated. For the purposes of this plan, hazardous wastes include all wastes that fall under an EPA hazardous waste code and that require a hazardous waste manifest for disposal. Industrial wastes represent wastes that are not always considered hazardous under RCRA but must be managed separately from municipal solid wastes. Examples might include used antifreeze, used batteries, used oil, PCBs, asbestos etc.

5.2 Baseline And Progress

Baseline	Hazardous Waste (pounds disposed per calendar year)						Target: Continuous Reduction
1999	2000	2001	2002	2003	2004	2005	2006
28,048	47,716	63,328	63,651				

Baseline	Non-Hazardous Industrial Waste (pounds disposed per calendar year)						Target: Continuous Reduction
1999	2000	2001	2002	2003	2004	2005	2006
6462	8568						

5.3 Description of Major Waste generating Activities

5.3.1 Camp Withycombe

Waste generating activities of Camp Withycombe include the following:

Organizational Maintenance Shop Building 6415. This building houses the 3670th OMS and has about a dozen full-time employees. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous material use includes paint, petroleum products, glue, engine coolant, batteries and JP-8.

Combined Support Maintenance Shop Building 6481. This facility is the primary generator of hazardous waste on Camp Withycombe. It employs approximately 200-250 personnel in the following trades: electronics, welding, maintenance, and woodworking. The significant waste streams from this

location are bead blast, waste paint related materials, waste gasoline, wash rack sludge, used oil and universal waste batteries. Hazardous materials used include: batteries, various spray solvents, lubricants, aerosol paints and CARC paints.

State Maintenance Facility Building 6515. This building houses the facility maintenance functions for Camp Withycombe. They perform all the building and post maintenance to include plumbing, electrical, road repairs, building painting and other facility maintenance type repairs for the building on post. They perform both the state and federal maintenance functions. They also support the outlying armories in the Portland area. They consist of carpentry, painting, maintenance motor pool for the state vehicles, and storage for plumbing and electrical. They generate the following types of hazardous waste: waste bulbs, waste paint related materials, and some expired paints. They typically store all the facility janitorial cleaning supplies, a large supply of paints, aerosol products for POL's, large quantities of oils, smaller quantities of fuel for yard maintenance type equipment, and light bulbs for all the facility buildings.

USPFO Logistics - Building 6500. This building houses the warehouse for the Logistics section of the USPFO. This facility provides logistical planning and support to various units in the state. Its function is purely logistical and this facility normally doesn't generate any waste. This facility also is a DOT 10 day transfer facility for the state.

5.3.2 Camp Rilea

Waste generating activities of Camp Rilea include the following:

Unit Training Equipment Site Building 6415. The UTES includes a maintenance shop, fueling station, lube rack, wash rack, warehousing facilities, and a controlled humidity parking building. The UTES provides maintenance for the vehicles and equipment used by the military units. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

116 Air Control Squadron of the Air National Guard (ACS). The 116 ACS occupies two buildings. Building 7116 houses two maintenance bays and one paint bay. The Aerospace/Ground Equipment maintenance is also located in Building 7116. The AGE occupies three maintenance bays. The bays are used to maintain equipment and vehicles. The Mobility Storage Area is used to store emergency response equipment.

State Maintenance Facility Building 6515. This building houses the facility maintenance functions for Camp Rilea. They perform all the building and post maintenance to include plumbing, electrical, road repairs, building painting and other facility maintenance type repairs for the building on post as well as the wastewater treatment plant. They perform both the state and federal maintenance functions. They consist of carpentry, painting, maintenance motor pool for the state vehicles, and storage for plumbing and electrical. They generate the following types of hazardous waste: waste bulbs, waste paint related materials, and some expired paints. They typically store all the facility janitorial cleaning supplies, a large supply of paints, aerosol products for POL's, large quantities of

oils, smaller quantities of fuel for yard maintenance type equipment, and light bulbs for all the facility buildings.

5.3.3 1/186 Infantry Organizational Maintenance Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.4 2/162 Infantry Organizational Maintenance Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.5 Central Oregon Unit Training Equipment Site

The COUTES performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.6 3/116 Cavalry Organizational Maintenance Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.7 Army Aviation Support Facility #1

The AASF performs inspection, maintenance, repair, and modifications on fixed and rotary winged aircraft. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.8 141st Support Battalion Organizational Maintenance Sub-Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.9 141st Support Battalion Organizational Maintenance Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.10 Headquarter State Area Command Organizational Maintenance Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.11 3/116 Cavalry Organizational Maintenance Sub-Shop

The OMS performs organizational maintenance on unit mobile equipment. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.3.12 Army Aviation Support Facility #2

The AASF performs inspection, maintenance, repair, and modifications on fixed and rotary winged aircraft. The most significant waste streams from this location are JP-8, MOGAS, used oil, petroleum and lubricants, and universal waste. Hazardous materials used include: paint, petroleum products, glue, engine coolant, batteries and JP-8.

5.4 Current Pollution Prevention Initiatives

5.4.1 Aerosol Can Puncturer

Description. Aerosol can puncturing and crushing is a cost effective alternative to disposal of aerosol cans as hazardous waste. The devices puncture and empty cans in compliance with EPA requirements and also collect or filter propellants to meet state air emission standards. Aerosol can residues are mainly divided into paints and lubricants, with dedicated drums for each. Propellant filters must be changed periodically depending on the unit. Savings in disposal costs are significant as empty steel cans can be sold for scrap.

Environmental Benefit. With the contents thoroughly depleted the can may be recycled as scrap metal instead of as a hazardous waste. The Department of Environmental Quality considers an aerosol can a reactive hazardous waste until the can has been punctured. This has reduced waste generation by about 1800 lbs of empty aerosol cans.

Economic Benefit.

Implementation Costs: $16,149.10
11 aerosol can puncturers at $1,468.10
Recurring Costs: $203.65
Recurring Cost Savings: $1,350.00
Payback Period: 0.3793 years

5.4.2 Air Conditioner Replacement

Description: CFCs and HCFCs have been used as refrigerants since the 1930s. Because of their ozone depleting effect and the eventual phase out of the production of these chemicals, old Class I

ozone containing air conditioners have been replaced with more efficient non-ODS air conditioners.

Environmental Benefit. The replacement of ozone containing air conditioners will eliminate the use of an ozone-depleting substance, and save money on overall costs through the retrofit of existing equipment. Reduce ODS release into the atmosphere.

Economic Benefit. Recycle refrigerants for reuse at facility. Reduce hazardous waste disposal and handling costs. Reduce the purchase of new refrigerants.

Implementation Costs: $
Recurring Costs: $
Recurring Cost Savings: $
Payback Period:

5.4.3 Antifreeze Recycling

Description. Utilization of contracted on-site antifreeze recycling services. Filtering and refortification of antifreeze prior to reintroduction in vehicles has reduced the volume of antifreeze requiring disposal. Recycling antifreeze has also significantly reduced the quantity of new antifreeze procured.

Environmental Benefit. Recycling of spent antifreeze solutions is a viable alternative to disposing of these products, which may be considered hazardous due to the toxicity of the ethylene glycol component, the toxicity of the products of degradation/oxidation of ethylene glycol, and/or the heavy metals content. s of equipment/vehicles.

Economic Benefit. Minimize the quantity of spent antifreeze (glycol) that must be disposed of and the potential for spills to the environment. Reduce requirement for procurement of new antifreeze.

Implementation Costs: $3,332.16
Recurring Costs: $300.16
Recurring Cost Savings: $2,536.00
Pay Back Period: 1.4903 years

5.4.4 Aqueous Washer Better Engineered

Description: The Better Engineering Impulse II Parts Washer is a portable, caster-mounted, top loading cleaning cabinet with spray nozzles along the interior walls and ceiling that blast an environmentally safe detergent in an aqueous solution onto noncritical soiled parts that would ordinarily require hand detailing. The parts to be cleaned are placed on a rotating turntable in the unit. The system is entirely closed-loop, and no water is discharged. The combination of high temperature and strong blast pressure enables the washer to remove contaminants from the parts.

Environmental Benefit. Aqueous parts washers use biodegradable detergent solutions to remove dirt, grime, oil and grease from a variety of parts. This eliminates the costly purchase and disposal of

solvents. The purifying/recycling closed-loop washers with oil skimmers and filters can reuse the same detergent solution over and over, further minimizing operating costs.

Economic Benefit. Reduce labor time to clean parts. Replace the use of a hazardous solvent with a biodegradable solvent. Realize cost savings in labor, materials, handling and disposal of hazardous waste. Reduce quantity and toxicity of waste stream.

Implementation Costs: $
Recurring Costs: $
Recurring Cost Savings: $
Pay Back Period: years

5.4.5 Aqueous Washer Jet

Description. Until 1999, many activities at the installation used solvent-based parts-washing units to remove dirt, oil, and grease from various types of small parts. The solvent was a petroleum-based, PD680 type II solvent that periodically became laden with contaminants and had to be changed. The new washers use a less-hazardous aqueous solution to remove oils, dirt, and grease from parts. In addition, microbes are suspended in the aqueous solution of the new washer systems. Although the microbes do not play a role in helping remove dirt and grease from parts, they serve to greatly extend the life of the solvent by producing enzymes that biodegrade the oil and grease that gets washed off of the parts. The microbes feed off of the oil and grease, thereby removing it from the solution. In addition, these units are also equipped with filters to remove particulate (which is not consumed by the microbes) from the solution. By keeping the solution free of these contaminants (oil, grease, dirt), its life is greatly extended, allowing it to be used for much longer periods than petroleum-based solvent. The need to remove and replace the cleaning fluid is then reduced which, in turn, decreases the amount of waste fluid generated.

Environmental Benefit. Because the solvent in this type of parts washing unit is an aqueous solution, it contains neither Volatile Organic Compounds (VOCs) nor Hazardous Air Pollutants (HAPs). Therefore, this solution does not introduce such compounds into the environment as it evaporates. In addition, because the solvent solution is continuously cleaned through microbial digestion and filtration, it does not have to be changed as often. This has reduced waste generation by about 220 lbs of used oil and grease per year per parts washing unit. Replacing 6 washing units has reduced annual waste generation by 1320 lbs per year.

Economic Benefit.
Implementation Costs: $18,921.00
6 aqueous washers at $3,153.50 each
Recurring Costs: $1,082 per year per unit
Recurring Cost Savings: $2,512 per year per unit
Payback Period: 1.958 years

5.4.6 Battery Acid/Lead Acid Batteries from Vehicle Maintenance

Description: Lead-acid batteries have a lead anode, a lead dioxide cathode, and an aqueous sulfuric

acid electrolyte. The battery cell contains 60 to 75 percent lead and lead oxide, by weight, and the electrolyte contains between 28 and 51 percent sulfuric acid, by weight. Lead Acid Batteries are being exchanged on a one-for-one basis with a commercial vendor.

Environmental Benefit. Lead acid batteries that are going to be recycled do not have to be included in a facilities monthly totals of hazardous waste generated (40 CFR 261.5). Therefore recycling may help facilities reduce their generator status and lessen the amount of regulations (i.e., record keeping, reporting, inspections, transportation, accumulation time, emergency prevention and preparedness, emergency response) they are required to comply with under RCRA, 40 CFR 262.

Economic Benefit. Potential monetary compensation from purchase of lead-acid batteries by recycler and meeting state requirements regarding the ban of disposing lead-acid batteries in landfills.

Implementation Costs: $0.00
Recurring Costs: $720 labor per year
Recurring Cost Savings: $~18,000.00
Payback Period: N/A

5.4.7 Cardboard Recycling

Description. Cardboard is reportedly the largest single source of recovered paper, comprising 51% of all paper recovered for recycling in the U.S. (*American Forest and Paper Association,* 1999). Corrugated cardboard is made from strong, good quality wood fiber and includes un-waxed cardboard boxes and brown paper bags. Cardboard usage is widespread and contributes significantly to the waste stream disposed in landfills, even though cardboard is universally marketable, profitable, and easily recycled.

Environmental Benefit. Recycling corrugated cardboard or reducing the use of cardboard will help facilities meet the requirements under Executive Order 13101 requiring executive agencies (e.g., DOD) to incorporate waste prevention and recycling in their daily operations. Reduces the volume of waste disposed in landfills by an average of 12.7% (U.S. EPA, 1994), reduces landfill disposal fees and may generate revenue from the sale of the cardboard.

Economic Benefit.
Implementation Costs: $
Recurring Costs: $
Recurring Cost Savings: $
Payback Period:

5.4.8 Centralized Hazardous Substance Management

Description. Through the individual installations a Hazardous Substance Management System (HSMS) has been established to serve as a centralized point for hazardous material procurement, tracking, and management.

Note that the HSMS has only recently been implemented and currently includes only a few units and activities. Because of the geographical location of the various units and camps within Oregon one centralized HSMS is not practical.

Environmental Benefit. The reduction of less quantities of excess, expired and unserviceable hazardous materials means less hazardous waste. This benefit helps facilities meet the requirements of waste reduction under RCRA, 40 CFR 262, Appendix, and may also help facilities reduce their generator status and lessen the amount of regulations (i.e., record keeping, reporting, inspections, transportation, accumulation time, emergency prevention and preparedness, emergency response) they are required to comply with under RCRA, 40 CFR 262. In addition, a centralized hazardous materials program will decrease the amount of hazardous materials purchased and stored on site (since the facility will know inventory is on hand) therefore decrease the possibility that the facility would meet any of the reporting thresholds of SARA Title III (40 CFR 300, 355, 370, and 372; and EO 12856). A centralized hazardous materials program may also decrease the amount of oil stored on site below threshold amounts for the requirement to develop and implement a Spill, Prevention, Control and Countermeasure Plan under 40 CFR 112.

Economic Benefit: Centrally procuring some hazardous materials for activities post-wide allows such materials to be purchased in bulk. This reduces the overall cost of hazardous material procurement. In addition, reducing the amount of shelf life expired wastes will reduce the installation's overall hazardous waste disposal fees. Because of funding issues other hazardous materials are procured by the individual activities.

Implementation Costs: $0.00
Recurring Costs: $
Recurring Cost Savings: $
Payback Period: N/A

5.4.9 Hot Pressure Washer

Description. Purchase of a hot pressure washer replaced the current method of removing large automotive components from vehicles and transporting them to the wash rack.

Environmental Benefit. Use of a hot pressure washer prevents oil and other automotive fluids from dripping onto the bay floors and leaving a trail of contaminated soil from the bay to the wash rack. Replacing the current method of large parts cleaning has reduced the amount of contaminated soil and media generated per year.

Economic Benefit.
Implementation Costs: $3,867.00
Recurring Costs: $120.00
Recurring Cost Savings: $2,525.00
Payback Period: 2.2869

5.4.10 Laundry of Shop Rags and Coveralls

Description: Towels are routinely used for shop maintenance to replace typical baled rags. A contractor delivers new towels when ordered, and replaces HAZMAT-soaked towels with clean towels within EPA guidelines. By using these contracts, activities reduce the procurement cost and eliminate disposal costs associated with performing maintenance using baled rags. A contractor delivers new towels when ordered, replaces dirty towels with clean towels, and launders the dirty towels within EPA guidelines.

Environmental Benefit. By using the rental program activities eliminate procurement and disposal costs associated with baled rags.

Economic Benefit. This program will eliminate the need for disposal of contaminated shop rags as hazardous waste.

Implementation Costs: $
Recurring Costs: $
Recurring Cost Savings: $
Payback Period:

5.4.11 Oil Filter Crusher

Description. Crushed oil filters can be sold as scrap metal if the following criteria are met: the filters are not terne lined, have not been mixed with HW and have been gravity hot drained. Hot draining required puncturing the dome end of the filter and allowing it to drain before crushing. Gravity draining may include dismantling the filter or any other method that drains free-flowing oil from the filter. Oil filter crushers hydraulically puncture and crush filters to reduce waste volume and collect free-flowing oil in a drum for disposal or recycling.

Environmental Benefit. Oil filter crushing and emptying helps eliminate the cost and liability associated with hazardous waste disposal, minimizes the volume of waste disposed and creates useful steel products through recycling.

Economic Benefit. Oil filter crushers eliminate the disposal cost of used oil filters.

Implementation Costs: $47,865.60 (12 oil filter crusher at $3,988.80)
Recurring Costs: $48.00 per unit per year
Recurring Cost Savings: $1,935.50 per unit per year
Payback Period: 2.035 years

5.4.12 Paint Gun Cleaners

Description. Automatic paint gun washing units can replace the usual method of disassembling paint guns, manually cleaning them with solvent, and reassembling them. Automatic gun washers are equipped with a solvent reservoir, an enclosed washing sink, and a pump to recirculate the solvent. With these units, painters attach the assembled spray guns to washing nozzles located inside the sink. They then close the lid and start the automatic washing process. The washing unit continuously flushes solvent through the inside of the spray gun as well as over the outside surface, cleaning the

entire gun in one step. The entire process takes about 5 minutes, while manual cleaning requires at least 20 minutes. The solvent within the cleaning unit is repeatedly reused until it becomes too dirty to be effective. Then it is removed and replaced with new solvent.

Environmental Benefit. The self-contained Inland Technology IT-100 paint gun washer allows the recovery of spent paint so it can be reused. The purchase of four paint gun cleaners has reduced solvent waste generation by 1198 lbs per year.

Economic Benefit. The paint gun washer dramatically reduces labor required to clean paint guns, as well as solvent procurement and disposal.

Implementation Costs: $10,722.204 (4 paint gun cleaners at 2,680.55 each)
Recurring Costs: $530 per unit per year
Recurring Cost Savings: $3,810 per unit per year
Payback Period: .7759 years

5.4.13 Paper/Cardboard Recycling Sub Site

Description. Paper products have been estimated to represent 35-40% of the waste presently disposed in landfills. The pollution prevention goal for federal facilities reduction of Municipal Solid Waste (MSW) is 50%. Significant progress toward this goal can be achieved through waste paper recycling. Recycling offers the opportunity to decrease the cost of landfill disposal and provide a renewable source of fiber for recycled paper production as well as a number of other uses.

The quality of recycled paper products continues to improve, thereby increasing the demand for recyclable paper, especially, Office Waste Paper (OWP), which is normally of higher quality due to a higher fiber content. This paper is now recycled for use in printing and writing paper, graphics stock, and tissue paper. The paper industry has been improving and integrating paper de-inking processes in existing mills in order to improve their ability to increase the quantity and quality of their recycled pulp feedstocks. Some projections indicate that there could be a shortage of recycled feedstocks in the near future if the quantities of recycled paper do not increase.

Cardboard is reportedly the largest single source of recovered paper, comprising 51% of all paper recovered for recycling in the U.S. (*American Forest and Paper Association*, 1999). Corrugated cardboard is made from strong, good quality wood fiber and includes un-waxed cardboard boxes and brown paper bags. Cardboard usage is widespread and contributes significantly to the waste stream disposed in landfills, even though cardboard is universally marketable, profitable, and easily recycled.

Environmental Benefit. Recycling paper/corrugated cardboard or reducing the use of cardboard will help facilities meet the requirements under Executive Order 13101 requiring executive agencies (e.g., DOD) to incorporate waste prevention and recycling in their daily operations. Reduces the volume of waste disposed in landfills by an average of 12.7% (U.S. EPA, 1994), reduces landfill disposal fees and may generate revenue from the sale of the cardboard.

Economic Benefit.
Implementation Costs: $0.00

Recurring Costs: $
Recurring Cost Savings: $
Payback Period: N/A

5.4.14 Propane Cylinder System

Description. The propane cylinder recycling system safely removes the valve stem so the canister can be recycled as scrap steel. The going rate for disposal of propane bottles that aren't entirely empty is between $150 and $250 each, depending on the size.

Environmental Benefit. The Department of Environmental Quality considers a compressed gas cylinder a reactive hazardous waste until the cylinder stem is removed or the cylinder is punctured. Activated carbon filters in the system help remove Volatile Organic Compounds from the propellant.

Economic Benefit.

Implementation Costs: $8,369.28 (12 propane cylinder systems at $697.44 each)
Recurring Costs: $19 per unit per year
Recurring Cost Savings: $7,450 per unit per year
Payback Period: .0994 years

5.4.15 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 was built to house fuel hauling vehicles.

Environmental Benefit. By providing secondary containment structures the possibility of spills reaching the environment is reduced.

Economic Benefit. This initiative will reduce the amount of spilled materials that are released to the environment, reduce cleanup costs and comply with 40 CFR 112.

Implementation Costs: $
Recurring Costs: $
Recurring Cost Savings: $
Payback Period:

5.4.16 Surface preparation using rags

Description: Towels are routinely used for shop maintenance to replace typical baled rags. A contractor delivers new towels when ordered, and replaces HAZMAT-soaked towels with clean towels within EPA guidelines. By using these contracts, activities reduce the procurement cost and eliminate disposal costs associated with performing maintenance using baled rags. A contractor delivers new towels when ordered, replaces dirty towels with clean towels, and launders the dirty towels within EPA guidelines.

Environmental Benefit. By using the rental program activities eliminate procurement and disposal costs associated with baled rags.

Economic Benefit. This program will eliminate the need for disposal of contaminated shop rags as hazardous waste.

Implementation Costs: $
Recurring Costs: $
Recurring Cost Savings: $
Payback Period:

5.4.17 Vehicle and Aircraft Washing Landa Oil/Water Separator System

Description: Aircraft and vehicle washing operations generate large quantities of wastewater containing free and emulsified oils, detergents, heavy metals, suspended solids, and other contaminants. Management of wash rack wastewater varies from activity to activity. However, the most prevalent practice used involves treatment with an oil/water separator (OWS) prior to discharging into a sanitary sewer. This practice is not recommended due to the emulsified oils generated by the detergents and heavy metals found in the waste stream. Conventional OWS do not remove these contaminants that are commonly found at levels that exceed sanitary sewer discharge limits.

A closed loop wash rack wastewater recycling system offers activities an alternative that can achieve compliance with discharge limits while reducing water and detergent usage. As environmental regulations continue to set more stringent discharge limits for wastewater contaminants, recycling becomes even more lucrative since regulatory agencies grant permitting exemptions to activities that recycle wastewater on-site.

The wash rack is equipped with a Landa Alpha 3100D Waster Maze coalescing filter system with an ozone generator. Wash water will discharge to the oil/water separator, then pass through the coalescing filter prior to discharge to the sanitary sewer system. The Landa is an in-line filtration system, but does not have water recycling and storage capability.

Environmental Benefit. Use of a closed loop wash rack recycle system complies with Executive Orders 12902 and 12856 requiring federal facilities to implement water conservation projects and to reduce offsite hazardous waste disposal. Systems also keep activities in compliance with local discharge requirements.

- Complies with discharge requirements.
- Reduces annual quantity of water used to wash vehicles, equipment, and aircraft.
- Reduces annual detergent used to wash vehicles, equipment, and aircraft.
- Reduces loading on wastewater treatment plants.

Economic Benefit. Closed loop wash racks are specifically sized to meet the needs of the facility. System design varies on the number and types of vehicles, equipment, and/or aircraft washed at the specific facility. Consequently, the purchase, installation, and operation cost of a closed loop system varies significantly from activity to activity. The following illustrates the fixed costs and recurring

costs for the Navy's closed loop system as described in the overview section. Costs based on an estimated 500,000 gallons of wastewater generated in one year.

Implementation Costs: $~100,000
Recurring Costs: ~$18,800
Recurring Cost Savings:
Payback Period: 2-7 years

5.4.18 VOC Emissions from Painting/Scrubber Sludge from Paint Booths/Cleanup Solvent from Painting.

Description: The paint booth is a rear-draft system where air, VOC emissions, and paint mists are drawn through filters in the back wall. HVLP paint guns are used for more efficient application of paint, reduction of paint over spray, and reduction of VOC emissions. Paint guns and pots are cleaned using a Safety Kleen Model 1107-paint gun cleaning system. Paint-related wastes are disposed through the Safety Kleen contract.

The paint booth is a fully enclosed Binks system equipped with dry filters and a manometer. The manometer measures differential pressure across the filters and indicates when filters require replacement. The facility is also equipped with a multi-media blasting system to remove oil paint form equipment surfaces. The new system is capable of using garnet, glass, and plastic blast media. An attached cyclone unit will separate dry paint chips from blast media, allowing for reuse of the blast media. Paint residue will be sampled and analyzed to determine proper disposal.

Environmental Benefit. The waste stream generated in a dry filter paint booth is a spent filter laden with paint booth particulate emissions. No other media is contaminated during the collection of the particulate waste; hence the quantity of waste generated is minimized. For instance, when using lead or zinc chromate paints, the dry filter can eliminate approximately 50 to 90% of the hazardous waste that is generated by a water curtain spray paint booth. The removal and replacement of the spent filters is a simple procedure. The method for disposal of the spent filters will depend on the particular constituents of the paint used. Many facilities now segregate operations involving hazardous and non-hazardous painting into separate paint booths in order to expedite waste handling and disposal.

Economic Benefit.

Implementation Costs: $~100,000
Recurring Costs: ~$18,800
Recurring Cost Savings:
Payback Period: 2-7 years

5.4.19 Water Coolers Non-ODS

Description. The refrigerants used in drinking fountains to chill the water are typically chlorofluorocarbons (CFC). However, there are several companies that have developed CFC-free refrigeration units for their drinking fountains. At least two companies offer CFC-free refrigeration units as part of their drinking fountain products. Both use a non-ozone-depleting chemical called HFC-134a (also known as R-134a), which is a hydrofluorocarbon. While R-134a is a non-ozone-depleting

refrigerant, it is a greenhouse gas and has a global warming potential. Thus, these units must be serviced by certified refrigeration technicians and are subject to the "non-venting rule" for Class I and Class II ODS replacements per the Clean Air Act Amendments as stated in 58 FR 92, Section 608(c)(2) page 28,664, that took effect as of 15 Nov 95

Environmental Benefit. Use of non-ozone depleting chemicals as refrigerants in drinking fountains (such as HFC-134a) will help facilities meet the requirements under 40 CFR 82, Subpart D and Executive Order 12843 requiring federal agencies to maximize the use of safe alternatives to Class I and Class II ozone depleting substances, to the maximum extent practicable. It should be noted that while R-134a is a non-ozone depleting refrigerant, these units are subject to the "non-venting rule" for Class I and Class II ODS replacements per Section 608 of the Clean Air Act Amendments.

Economic Benefit. Water fountains are typically only replaced on an "as needed" basis. The installation costs for both CFC-12 and ODS-free fountains are the same. Water fountains do not typically require special periodic maintenance. Any service would require personnel trained in the handling of R-134a. ODS free water fountains range in price from $250 to $350 from GSA depending on size.

Implementation Costs: $25,010.56
Recurring Costs: $25.00 per unit per year
Recurring Cost Savings: $1,050.00 per unit per year
Payback Period: 73.756 years

5.4.20 Weapons Cleaning System

Description. The Inland Technology IT-48WC Weapons Cleaning System is a high volume usage system that recycles the breakthrough solvent continuously through a high efficiency filtration system.

Environmental Benefit. Breakthrough is a state of the art solvent designed to help users break out of the tangle of regulations regarding emissions, disposal, and industrial health hazards. Breakthrough is a virtually odorless, low toxicity, high-purity hydrocarbon that exhibits a very low degree of irritancy to the eyes and is non-irritating to the skin. Breakthrough has low vapor pressure to control volatile organic compound emissions, in non-photochemically reactive, non-carcinogenic and is exempt from SARA, Title III, Sections 302 or 313, CERCLA, and RCRA requirements. Also worker exposure is not regulated by the OSHA Z-list, and breakthrough has no listed components and no characteristics of hazardous waste per EPA.

The implementation of this initiative has reduced the amount of used solvent and filters by about 1642 lbs per year.

Economic Benefit.

Implementation Costs: $51,578.10 **(**14 weapon cleaning systems at $3,684.15 each)
Recurring Costs: $125.00 each per year
Recurring Cost Savings: $2031.00 each per year
Payback Period: 1.9213 years

5.4.21 ZEP Parts Washers

Description. This system uses a petroleum-based solvent rather than a citrus-based solvent. Reasons cited were the cleaning capability of petroleum-based solvents and are less irritant to some employees than citrus-based products.

Environmental Benefit. The solvent is never removed from the parts washer, therefore, the solvent never becomes a HW requiring disposal. Due to evaporation, small quantities of new solvent are added, as required. The system uses a 3-phase filtering system:

a) The first filtration process consists of a filter cartridge and housing located on the side of the parts washer. This filter removes any larger particles or residue that have not settled to the bottom of the parts washer solvent reservoir. These filters are replaced approximately every three to four weeks.

b) A secondary filter process is used when the operator determines that the solvent is dirty and is losing its cleaning capabilities. The solvent gets darker in color due to the presence of oil in the solvent. Before leaving the shop for the evening, a Dyna Trap filter is hooked up and the parts washer is left running for the evening. Upon arrival at the shop the following morning, the operator unhooks the filter from the system and changes the cartridge filter on the side of the parts washer. These filters are reused and last approximately six months.

c) The third filtration process in the Dyna Reclaim filter, which is used on a three month interval, right after the Dyna Trap filter process. The Dyna Reclaim filter is hooked up to the system overnight to make a final complete cleaning and revitalizing of the solvent. These filters are replaced approximately once per year.

The final process of the ZEP system is removal of the sludge from the system. On an annual or biannual basis, the sludge is collected from the bottom of the solvent reservoir. This sludge must be tested and will probably be characterized as a HW due to heavy metals from the parts cleaning process itself.

This has reduced waste generation by about 730 lbs of used solvent per year per parts washing unit. Replacing the 27 washing units throughout the state has reduced annual waste generation by 19,730 pounds per year.

Economic Benefit.

Implementation Costs: $33,000
27 ZEP parts washers at $1222.22 each
Recurring Costs: $9,450
Recurring Cost Savings: $10,550
Payback Period: 3.152

5.5 Potential Pollution Prevention Initiatives

5.5.1 Aerosol Can Puncturer

Description. Aerosol can puncturing and crushing is a cost effective alternative to disposal of aerosol cans as hazardous waste. The devices puncture and empty cans in compliance with EPA requirements and also collect or filter propellants to meet state air emission standards. Aerosol can residues are mainly divided into paints and lubricants, with dedicated drums for each. Propellant filters must be changed periodically depending on the unit. Savings in disposal costs are significant as empty steel cans can be sold for scrap.

Environmental Evaluation. Aerosol can puncturing and crushing is a cost effective alternative to disposal of aerosol cans as hazardous waste. The units range from manually operated single can puncturers to more sophisticated puncturers/crushers with pre-loaders. The devices puncture and empty cans in compliance with EPA requirement and also collect or filter propellants to meet most state air emission standards. Aerosol can residues are mainly divided into paints and lubricants, with dedicated 55-gallon drums for each. Propellant filters must be changed periodically depending on the unit. Savings in disposal costs are significant as empty steel cans can be sold for scrap.

Economic Evaluation.

Implementation Costs. The implementation costs associated with this initiative varies from $577 to $903 and the equipment typically pays for itself in less than two years.

Recurring Costs. Replacement of combination filters averages $203.65 yearly with this initiative. With the replacement of filters every other year.

Recurring Cost Savings. Savings result from reduced labor requirements as well as disposal of empty aerosol cans. These costs total $1,725.

Payback Period. The payback period is calculated by dividing implementation cost by the net cost savings as follows:

$577/ ($1725-$203.65) = 0.379 years

Implementation Status – Pursuing Funding. This initiative has been approved as a valid project and will be funded if funds are available at year-end closure.

5.5.2 Antifreeze Recycler

Description. The three main reasons for recycling used antifreeze are to conserve our natural resources, reduce the cost of new antifreeze purchases, and reduce both the cost and problems associated with used antifreeze disposal. The latter reason is becoming a stronger impetus for recycling due to the increasing trend of federal, state and local governing agencies enacting more restrictive legislation on environmental protection matters.

Environmental Evaluation. Recycling of spent antifreeze solutions is a viable alternative to disposing of these products, which may be considered hazardous due to the toxicity of the ethylene glycol component, the toxicity of the products of degradation/oxidation of ethylene glycol, and/or the heavy metals contents. Recycling antifreeze is a cost effective alternative to disposal. All units produce waste either in the form of sludge or spent filters.

Economic Evaluation.

Implementation Costs. The implementation costs associated with this initiative is $3,332.16 and the equipment typically pays for itself in less than two years.

Recurring Costs. Recurring costs average $300.16 year for antifreeze additives.

Recurring Cost Savings. Savings result from reduced labor requirements as well as disposal of used antifreeze contaminated with oils and heavy metals. These costs total $2,536.

Payback Period. The payback period is calculated by dividing implementation cost by the net cost savings as follows:

$3,332.16/ ($2,536-$300.16) = 1.4903 years

Implementation Status – Pursuing Funding. This initiative has been approved as a valid project and will be funded if funds are available at year-end closure.

5.5.3 Containment Structures

Description. This initiative would provide secondary containment structures as required in 40 CFR 112. The purchase of secondary containment units will be used to store drums or containers, which contain hazardous materials.

Environmental Evaluation. Implementation of this initiative would reduce the amount of hazardous materials that are released to the environment, thereby reducing the amount of contaminated soils requiring disposal.

Economic Evaluation.

Implementation Costs. The implementation costs associated with this initiative range from $3,528 to $25,733. This equipment typically has an extensive payback period, but is required by regulation.

Recurring Costs. There are no significant recurring costs associated with this initiative.

Cost Savings. Savings result from reduced cleanup requirements since spills are unpredictable an estimate of cost savings is not available. An average cost for the cleanup of a small spill would be $350.00.

Payback Period. The payback period is calculated by dividing implementation cost by the net cost savings as follows:

$25,733/($350-$0) = 73.522 years

Implementation Status – Pursuing Funding. This initiative has been approved as a valid project and will be funded if funds are available at year-end closure.

5.5.4 Hot Pressure Washer

Description. Purchase of a hot pressure washer replaced the current method of removing large automotive components from vehicles and transporting them to the wash rack.

Environmental Evaluation. Use of a hot pressure washer prevents oil and other automotive fluids from dripping onto the bay floors and leaving a trail of contaminated soil from the bay to the wash rack. Replacing the current method of large parts cleaning has reduced the amount of contaminated soil and media generated per year.

Economic Evaluation.

Implementation Costs. The implementation costs associated with this initiative is $3,867.00.

Recurring Costs. Annual costs associated with replacement parts and utilities are $120 per year.

Cost Savings. Savings result from reduced cleanup requirements since equipment is washed in place. An average cost for the cleanup of a small spill would be $350.00.

Payback Period. The payback period is calculated by dividing implementation cost by the net cost savings as follows:

$3,867/($2525-$120) = 1.60 years

Implementation Status – Pursuing Funding. This initiative has been approved as a valid project and will be funded if funds are available at year-end closure.

5.5.5 Oil Filter Crusher

Description. Crushed oil filters can be sold as scrap metal if the following criteria are met: the filters are not terne lined, have not been mixed with HW and have been gravity hot drained. Hot draining required puncturing the dome end of the filter and allowing it to drain before crushing. Gravity draining may include dismantling the filter or any other method that drains free-flowing oil from the filter. Oil filter crushers hydraulically puncture and crush filters to reduce waste volume and collect free-flowing oil in a drum for disposal or recycling.

Environmental Evaluation. Oil filter crushing and emptying helps eliminate the cost and liability associated with hazardous waste disposal, minimizes the volume of waste disposed and creates useful steel products through recycling.

Economic Evaluation.

Implementation Costs. The implementation costs associated with this initiative is $3,988.80.

Recurring Costs. The average costs of utilities to implement this initiative are $48.00 yearly.

Cost Savings. Savings result from the recycling of oil filters and used oil rather than the disposal of oil filters. These costs total $1,935.50 per year.

Payback Period. The payback period is calculated by dividing implementation cost by the net cost savings as follows:

$3,988.80/($1,935.50-$48.00) = 2.11 years

Implementation Status – Pursuing Funding. This initiative has been approved as a valid project and will be funded if funds are available at year-end closure.

5.5.6 Propane Cylinder System

Description. The propane cylinder recycling system safely removes the valve stem so the canister can be recycled as scrap steel. The going rate for disposal of propane bottles that aren't entirely empty is between $150 and $250 each, depending on the size.

Environmental Evaluation. The going rate for disposal of propane bottles that aren't entirely empty is between $150 and $250 each, depending on the size of the container. Once the valve stem has been removed and the propellant has been released, a the cylinder becomes "recyclable" steel.

Economic Evaluation.

Implementation Costs. The implementation costs associated with this initiative is $697.44.

Recurring Costs. The average costs of recovered solvents are $12.00 per year.

Cost Savings. Savings resulting from the recycling of propane cylinders rather than disposal is $7,450.00.

Payback Period. The payback period is calculated by dividing implementation cost by the net cost savings as follows:

$697.44/($7,450-$19) = 0.093 years

Implementation Status – Pursuing Funding. This initiative has been approved as a valid project and will be funded if funds are available at year-end closure.

5.5.7 Rechargeable Alkaline Batteries.

Description. Most units and activities with equipment requiring small standard sized batteries (AAA through D-cells) on the installation dispose of their alkaline batteries as a non-hazardous industrial waste. To minimize this waste stream, activities could begin using rechargeable alkaline batteries. Since they are rechargeable, these batteries have a much longer life than traditional alkaline batteries. Using these batteries would therefore reduce the frequency at which batteries are changed and would, in turn, reduce the amount of used batteries being disposed of. Renewable batteries are available in sizes AAA through D-cells, as well as other specialty sizes such as 6V and 9V.

Technical Evaluation. Implementing this alternative would require all users of alkaline batteries to procure battery-recharging devices. It would also involve each unit to establish a procedure to ensure

that spent batteries are frequently recharged and that a minimal supply of charged batteries be available for emergencies.

Environmental Evaluation. Rechargeable alkaline batteries can be expected to last at least 25 times as long. Waste generation records indicate that the installation disposes of about 3,566 lbs of used alkaline batteries per year. Assuming that the rechargeable batteries can last 25 times longer, fully implementing this initiative could reduce battery disposal from 3,566 lbs to 143 lbs per year for a net reduction of 3,423 pounds

Economic Evaluation.

Implementation Costs. Initial costs for this initiative include purchasing rechargeable alkaline batteries as well as recharging equipment. Implementation costs total $24,570.

Batteries. As described above, the installation generates about 3,566 lbs of used alkaline batteries per year. Assuming that there are an average of 2.7 alkaline batteries per pound, this equates to an annual battery use of 9,628 batteries. At an average purchase cost of $2.50 per rechargeable battery, purchasing 9,628 batteries would cost $24,070.

Rechargers. Units/activities using these batteries would need to purchase a number of recharging units depending on the types and quantities of batteries they use. These devices typically cost about $25 each and a unit would probably need about two rechargers. An estimated 10 units/activities (based on disposal records) would be qualified candidates for using renewable alkaline batteries. This would bring the total implementation cost to $500 for the entire installation.

Recurring Costs. Recurring costs will result from having to periodically buy new rechargeable batteries and dispose of unusable ones. These costs will total $1,060 per year.

Battery Purchase. Renewable alkaline batteries typically cost about three times as much as regular non-rechargeable alkaline batteries. However, as described above, they can be expected to last at least 25 times as long. As such, fully implementing this initiative could reduce the 9,628 batteries per year to 385 per year. At an average cost of $2.50 per rechargeable battery, purchasing 385 rechargeable batteries per year would cost $963.

Battery Disposal. Disposing of 385 rechargeable batteries equates to about 143 lbs of waste. The installation waste generation records show that this installation spends $0.68 per pound to dispose of used alkaline batteries. Assuming that disposing of rechargeable alkalines will have the same unit costs, disposal would total $97 per year.

Recurring Cost Savings. Savings would result from reduced purchase and disposal of traditional alkaline batteries. These savings total $10,416

Purchase. Implementing this initiative would result in no longer having to purchase the estimated 9,628 non-rechargeable alkaline batteries per year. At an average cost of $0.83 for a traditional alkaline battery, this would save $7,991 per year.

Disposal. Waste generation records show that the installation spends $0.68 per pound to dispose of used alkaline batteries. Eliminating the disposal of 3,566 pounds of traditional alkaline batteries per year would, therefore, save an annual total of $2,425.

Payback Period. The payback period is calculated by dividing the implementation cost by the net cost savings. Note that the net cost savings is the difference between the recurring costs and the recurring cost savings.

$24,570/($10,416-$1,060)=2.6 years

Implementation Status – Requires Further Investigation. This project is being evaluated for applicability and benefits.

Chapter 6
Solid Waste

6.1 Goal

Ensure that the diversion rate for non-hazardous solid waste is greater than 40% by the end of FY 2005.

6.1.1 Baseline and Progress

Note that this goal does not have a baseline amount. This is because the 40% diversion rate represents 40% of the total amount of solid waste generated in 2005 and is independent of previous years' diversion amounts.

Solid Waste (percentage diverted from disposal to recycling)						Target: 40%
1999	2000	2001	2002	2003	2004	2005
7%	11%	44%				

6.2 Description of Major Solid Waste Streams

6.2.1 The major solid waste streams generated throughout the state is office type waste consisting of paper and cardboard.

6.3 Current P2 Initiatives

There are currently no P2 initiatives to reduce the amount of solid waste being generated.

6.4 Potential P2 Initiatives

There are currently no potential P2 initiatives identified to reduce the amount of solid waste being generated.

Chapter 7
Air Emissions

7.1 Goal

The installation's goal is to not create any major emission sources.

7.1.1 Baseline and Progress

Air Emissions (Tons emitted per calendar year)							Target: Continuous Reduction
Pollutant	1999	2000	2001	2002	2003	2004	2005
PM_{10}							
SO_2							
CO							
NO_x							
VOCs							
HAPs							

7.2 Description of Major Emission Sources

The Oregon Guard does not currently have any major emission sources.

7.3 Current P2 Initiatives

Camp Withycombe is required to have an Employee Commute Options plan per Oregon Administrative Rules. The ECO rules (OAR 340-242-0100 through 0290), affect employers in the Portland area with *more than 50 employees* reporting to a single work site. Affected employers must provide incentives for employee use of alternative commute options. The incentives must have the potential to reduce commute trips to the work site by ten percent within three years. Annual employee surveys measure progress toward this goal.

7.4 Potential P2 Initiatives

None have been identified at this time.

Chapter 8
Water And Wastewater

8.1 Goal

The installation's goal is to show a continuous annual reduction in potable water consumption and in wastewater generation.

8.1.1 Baselines and Progress

Water Consumption

(Million of Gallons per year)

							Target: Continuous Reduction
1999	2000	2001	2002	2003	2004	2005	2006
139.9							

Wastewater Generation

(Million of Gallons per year)

							Target: Continuous Reduction
1999	2000	2001	2002	2003	2004	2005	2006
34.9							

8.2 Current Initiatives

The Oregon Guard does not have any current initiatives.

8.3 Potential P2 Initiatives

The Oregon Guard does not anticipate any potential P2 initiatives.

Chapter 9
Toxic Release Inventory Form R Releases

9.1 Goal

The Oregon Guard is currently below any reporting threshold for toxic releases.

9.1.1 Baseline and Progress

A baseline was never established due to the minimal amounts of toxic chemicals being released.

TRI Form R Releases
(Total pounds released per calendar year)

TRI Form R Chemical	Baseline 2001	2002	2003	2004	2005	2006	Target
Glycol Ethers							
Lead Compounds							
Chlorine							

9.2 Description of Form R Releases

The Oregon Guard does not release any Form R chemicals in reportable quantities.

9.3 Current P2 Initiatives

The Oregon Guard does not have any current initiatives.

9.4 Potential P2 Initiatives

There are no potential P2 initiatives to decrease Form R Toxic Releases.

Chapter 10
EPA Priority Chemical Reduction

10.1 Goal

The Oregon Guard is currently below any reporting thresholds for the EPA priority chemicals.

10.2 Baseline and Progress

EPA TOXIC CHEMICALS
(pounds used per calendar year)

EPA Chemical	Baseline 2002	2003	2004	2005	2006	Target
Chemical 1						
Chemical 2						
Chemical 3						
Chemical 4						
Chemical 5						
Chemical 6						
Chemical 7						
Chemical 8						
Chemical 9						
Chemical 10						
Chemical 11						
Chemical 12						
Chemical 13						
Chemical 14						
Chemical 15						
Total use						

Note that the EPA Interagency Workgroup will determine specific chemicals for this table in 2001.

Chapter 11
Ozone Depleting Substances

11.1 Goal

Eliminate all Class I Ozone Depleting Substances from the installation' inventory by 31 December 2003.

11.2 Baseline and Progress

Class I Ozone Depleting Substances (Total pounds in inventory)				Target: 0 lbs
1999	2000	2001	2002	2003
4757.35	4748.79	4304.73		

11.3 Description of ODS-Containing Equipment

ODS-containing equipment still being utilized are:

Absocold
Air Conditioners,
Beer Cooler
Beer Tap
Chiller
Cold Chest
Cold Food Counter
Cold Food Table
Cold Table Bayonne
Fire Extinguishers
Freezer
Heat Pumps
HVAC
Ice Machine
Juice Machine
Milk Machine
Refer
Total Flooding Systems

11.4 Current P2 Initiatives

No current initiatives exist to replace the equipment currently in use. National Guard Bureau will not fund projects for the above listed ODS-containing equipment.

11.5 Potential P2 Initiatives

The Oregon Guard had one P2 initiative project number OR00099005 for fire extinguisher replacement, however National Guard Bureau removed validation and funding for this project.

Chapter 12
Vehicle Fuel Conservation

12.1 Goals

- Increase the average EPA fuel economy of cars and light trucks by at 1 mpg by the end of FY 2002 and 3 mpg by the end of FY 2005 from a FY 1999 baseline.
- Reduce vehicle petroleum consumption 20% be the end of FY 2005 from a FY 1999 baseline.
- Ensure that alternative fuels account for at least 50% of the fuels used in dual-fuel, alternative fuel vehicles.
- Ensure that at least 75% of car and light truck procurements are alternatively-fueled vehicles.

12.2 Baselines and Progress

FLEET FUEL ECONOMY						Target:
Baseline	**(average fuel efficiency of non-tactical fleet in miles/gal)**					16.8
FY 1999	2000	2001	2002	2003	2004	FY 2005

VEHICLE FUEL USE						Target:
Baseline	**(total gallons consumed for non-tactical fleet vehicles)**					20% less
FY 1999	2000	2001	2002	2003	2004	FY 2005

ALTERNATIVE FUEL USE						Target:
(% of alternative fuel consumed in alternative-fueled vehicles)						50%
1999	2000	2001	2002	2003	2004	2005

ALTERNATIVE FUELED VEHICLE PROCUREMENT						Target:
(% of vehicles procured that are alternatively fueled)						50%
1999	2000	2001	2002	2003	2004	2005

12.3 Current P2 Initiatives

There are currently no P2 initiatives for vehicle fuel conservation.

12.4 Potential P2 Initiatives

There are no potential P2 initiatives for vehicle fuel conservation.

Chapter 13
Energy Conservation

13.1 Goal

Reduce facility energy consumption 30% per square foot by 2005 and 35% by 2010 from a 1985 baseline. Note that the Executive Order 13123 allows for a separate, less stringent goal for industrial and laboratory activities. However, this installation does not track energy consumption separately for such activities. As a result, the 30-35% (more stringent) reduction goal will apply to the installation as a whole.

13.2 Baseline and Progress

	Energy Consumption ($KWHr/ft^2$)					
Baseline						Target: 20% less
FY 1985	2000	2001	2002	2003	2004	FY 2005

13.3 Current P2 Initiatives

There are currently no P2 initiatives for energy conservation.

13.4 Potential P2 Initiatives

There are no P2 initiatives identified for energy conservation.

Chapter 14
Affirmative Procurement

14.1 Goals

- Train procurement officers
- Integrate AP into developing plans, work statements, and specifications

14.2 Current Pollution Prevention Initiatives.

There are currently no P2 initiatives for affirmative procurement.

14.3 Potential Pollution Prevention Initiatives.

There are no potential P2 initiatives for affirmative procurement.

Appendix A
Abbreviations

AR	Army Regulation
CAAA90	Clean Air Act Amendment of 1990
COE	Corps of Engineers
DA	Department of the Army
DEH	Director of Engineering and Housing
DFE	Director of Facility Engineering
DIO	Director of Industrial Operations
DLA	Defense Logistics Agency
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EO	Executive Order
EQCC	Environmental Quality Control Committee
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
FAO	Finance and Accounting Office
FOA	Field Operating Agency
FE	Facility Engineer
GMP	Good Management Practice
GOCO	Government-Owned, Contractor-Operated
HMIS	Hazardous Material Information System
HWM	Hazardous Waste Management
IHWM	Installation Hazardous Waste Manager
IC	Installation Commander
ISCP	Installation Spill Control Plan
MACOM	Major Army Command
MCA	Military Construction, Army
MEDDAC	Medical Department Activity
MWR	Moral, Welfare, and Recreation
O&M	Operation and Maintenance
PPAT	Pollution Prevention Assessment Team
POL	Petroleum, Oil, and Lubricants
PPOA	Pollution Prevention Opportunity Assessment
RCRA	Resource conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986
SCP	Spill Contingency Plan
SPCC Plan	Spill Prevention Control and Countermeasures Plan
TRI	Toxics Release Inventory
TSCA	Toxic Substance Control Act
TSDF	Treatment, Storage or Disposal Facility
TSG	The Surgeon General
VOC	Volatile Organic Compound

Definitions

Appliance: Any device that contains and uses a Class I or Class II substance as a refrigerant and that is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.

Cartridge Filter: A discrete filter unit containing both filter paper and activated carbon that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in installing this device.

Characteristic Waste: The characteristics of ignitability, corrosivity, reactivity, and toxicity that identify hazardous waste.

Chemical Warfare Agent: A substance that because of its chemical properties is used in military operations to kill, seriously injure, or incapacitate humans or animals or deny use of indigenous resources.

Container: Any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

Designated Facility: A hazardous waste treatment, storage, or disposal facility (TSDF) that is identified on a manifest as the destination of a hazardous waste shipment. The facility must have an appropriate permit, have interim status, or be regulated under specific recycling requirements.

Nonattainment Area: Any area designated as being in nonattainment with the National Ambient Air Quality Standard (NAAQS) for ozone pursuant to rulemaking under section 107(d)(4)(A)(ii) of the CAA.

Disposal: The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or onto any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

EPA Hazardous Waste Number: The number assigned by USEPA to each hazardous waste listed in 40 CFR 261, Subpart D, and to each characteristic identified in 40 CFR 261, Subpart C.

Facility: All contiguous land and structures, other appurtenances, and improvements of the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (i.e., one or more landfills, surface impoundments, or combination of them).

Federally Enforceable: All limitations and conditions enforceable by the Administration, including those requirements developed pursuant to 40 CFR, requirements within any applicable state implementation plan, and any permit requirements established pursuant to 40 CFR.

Generator: Any person or group whose act or process produces hazardous waste identified or listed in 40 CFR 261 or whose act first causes a hazardous waste to become subject to regulations.

Good Management Practice (GMP): A practice that, although not mandated by law, is encouraged to promote safe operating procedures.

Hazardous Waste: A solid waste, not specifically excluded from the restrictions of Federal regulation (42 USC 6901), that meets the criteria listed in 40 CFR 261 or is specifically named as a hazardous waste in Federal regulations.

Household Waste: Includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing.

Incinerator: Any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter.

Infectious Waste: 1. Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and who must therefore be isolated as required by public health agencies. 2. Laboratory waste, such as pathological specimens and disposable fomites (any substance that may harbor or transmit pathological organism). 3. Surgical operating room pathological specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

Landfill: A disposal facility or a part of a facility where waste is placed in or on land and that is not a land treatment facility, a surface impoundment, an underground injection well, a salt bed formation, an underground mine, or a cave.

Hazardous Waste Management: The systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste.

Material-Tracking System: Each generator developing an in-house system to ensure that all hazardous materials and wastes are controlled from purchase to release or disposal in order to reduce loss and spillage.

Medical Waste: When defined as applicable to municipal waste combustors, any solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in production or testing of biological agents. Medical waste does not include hazardous waste identified under RCRA-C or any household waste as defined in RCRA, subpart C.

Off-Specification Used Oil: Used oil burned for energy recovery and any fuel produced from used oil that exceeds the following allowable limits:

Arsenic	5 ppm max.
Cadmium	2 ppm max.
Chromium	10 ppm max.
Lead	100 ppm max.

Flash Point	100 °F min.
Total halogens	4000 ppm max.

Particulate Emissions: Any airborne finely divided solid or liquid material, except uncombined water, emitted to the ambient air.

Pollution Prevention: Source reduction and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, or protection of natural resources by conservation. Recycling, energy, treatment, and disposal are not included in the definition of pollution prevention. However, some practices commonly described as "in-process recycling" may qualify as pollution prevention. Examples might include solvent recycling, metal recovery from a spent plating bath, and recovery of volatile organic compounds (VOCs).

Qualifying Recycling Program: Organized operations that require concerted efforts to (a) divert or recover scrap or waste from waste streams; (b) identify, segregate, and maintain the integrity of the recyclable materials to maintain or enhance the marketability of the material.

Recyclable Material: Material that normally has been or would be discarded (such as scraps and waste) and material that may be reused after undergoing some type of physical or chemical processing. Recyclable materials may include discarded materials that have undergone demilitarization or mutilation at an installation before being transferred to the property disposal office for sale. Recyclable materials do not include (1) precious-metal-bearing scrap; (2) those items that may be used again for their original purpose or functions without any special processing, such as used vehicles, vehicle or machine parts, bottles (not scrap glass), electrical components, and unopened containers of unused oil or solvent.

Recycling: The process by which recovered materials are transformed into new or usable products.

Resource Recovery Facility: Any physical plant that processes residential, commercial, or institutional sold waste biologically, chemically, or physically and recovers useful products (such as shredded fuel, combustible oil or gas, steam, metal, or glass) for resale or reuse.

Sludge: Any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

Source Reduction: Any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or emitted to the environment (including fugitive emissions) before recycling, treatment, or disposal. The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution or raw materials, and improvements in housekeeping, maintenance, training, and inventory control.

Source Separation: The setting aside of recyclable materials at their points of generation by the generator.

Sump: Any pit or reservoir that meets the definition of tank and the troughs or trenches connected to it that serve to collect hazardous waste for transport to hazardous waste TSDFs, except that as used in the landfill, surface impoundment, and waste pile rules, "sump" means any lined pit or reservoir that serves to collect liquids drained from a collection and removal system or a leak-detection system for subsequent removal from the system.

Treatability Study: A study in which a hazardous waste is subjected to a treatment process to determine one or more of the following:

- Whether the waste is amenable to the treatment process
- What pretreatment, if any, is required
- The optimal process conditions needed to achieve the desired treatment
- The efficiency of a treatment process for a specific waste or wastes
- The characteristics and volumes of residuals from a particular treatment process

Treatment: Any method, technique, or process (including neutralization) designed to change the physical, chemical, or biological character or composition of any hazardous waste.

Used Oil: Any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such is contaminated by physical or chemical impurities.

Volatile Organic compound (VOC): Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions.

Appendix B
References/Pollution Prevention Opportunity Assessments

ENVIRONMENTAL PROTECTION AGENCY GUIDANCE

General Guidance

Waste Minimization Opportunity Assessment manual, EPA/625/7-88/003, 1988.
Facility Pollution Prevention Guide, EPA/600/R-92/088, 1992.
Pollution Prevention in the Federal Government: Guide for Developing Pollution Prevention Strategies for Executive Order 12856 and Beyond, EPA/300/B-94/007, 1994.
Pollution Prevention and Right-to-Know in the Government: Executive Order 12856, EPA/100/K-93/001, 1993.
Setting Priorities for Hazardous Waste Minimization, EPA/530/R-94/015, 1994.
A Primer for Financial Analysis of Pollution Prevention Projects, EPA/600/R-93/059, 1993.
Pollution Prevention Act of 1990, Public Law 101-508, 1990.

Industry-Specific Guidance

These guides list source-reduction and recycling techniques for specific industries. The guides have been published by the Pollution Prevention Research Branch of EPA's Office of Research and Development as a series of industry-specific pollution prevention guidance manuals.

Industrial Category	EPA Document No.	Date
Automotive Refinishing Industry	*EPA/625/7-91/016*	*10/91*
Auto Repair Industry	*EPA/625/7-91/013*	*10/91*
Fiberglass Reinforced and Composite Plastics	*EPA/625/7-91/014*	*1991*
Mechanical Equipment Repair Industry	*EPA/625/R-92/008*	*1992*
Metal Finishing Industry	*EPA/625/R-92/011*	*1992*

Fact Sheets

The following fact sheets contain overviews, tips, or guidelines for pollution prevention. Some provide only general information or advice on how to set up programs; others identify pollution prevention opportunities for specific industries, processes, or materials. EPA, state agencies, and local governments produced the fact sheets. In many cases, multiple sources have published fact sheets on particular topics. Fact sheets on the topic areas below are available from the EPA library, 401 M Street, SW, Washington DC 20460 (202/260-1963). The source of this information is *Pollution Prevention Resources and Training Opportunities in 1992,* EPA, Office of Pollution Prevention and Toxics and Office of Environmental Engineering and Technology Demonstration, EPA/5650/8-92-002, January 1992.

FACT SHEETS

General and Introductory Information

Conservation Tips for Business
General Guidelines
Getting More Use Out of What We Have
Glossary of Waste Reduction Terms
Guides to Pollution Prevention
Hazardous Waste Minimization
How Business Organizations Can Help
Local Governments and Pollution Prevention
Pollution Prevention (General)
Pollution Prevention Fees
Pollution Prevention Training and Education
Pollution Prevention Through Waste Reduction
Recent Publications
Reduce Hazardous Waste
Reuse Strategies for Local Government
Source Reduction Techniques for Local Government
U.S. EPA's Pollution Prevention Program
Waste Exchanges: Everybody Wins!
Waste Exchange Services
Waste Minimization Fact Sheet
Waste Minimization in the Workplace
Waste Reduction Can Work For You
Waste Reduction Overview
Waste Reduction/Pollution Prevention: Getting Started
Waste Reduction Tips for All Businesses
Waste Source Reduction
Waste Source Reduction Checklist
What is Pollution Prevention?
Why Reduce Waste?

Legislative Information/EPA and State Initiatives

EPA's 2% Set Aside Pollution Prevention Projects
EPA's "List of Lists" Projects
EPA's Pollution Prevention Enforcement Settlement Policy
EPA's Pollution Prevention Incentives for States
EPA's Pollution Prevention Strategy
New Form R Reporting Requirements
Oregon's Toxic Use Reduction Act
Pollution Prevention Act of 1990

Setting Up A Program

1991 Small Business Pollution Prevention Grants
An Organization Strategy for Pollution Prevention
Considerations in Selecting a Still for Onsite Recycling

Pollution Prevention Grant Program Summaries and Reports
Procuring Recycled Products
Recycling Market Development Program
Selecting a Supplier, Hauler, and Materials Broker
Solid Waste Management Financial Assistance Program
Source Reduction at Your Facility
Starting Your Own Waste Reduction Program
The Alexander Motor's Success Story
The Eastside Plating Success Story
The Wacker Payoff
Waste Reduction Checklists
- *General*
- *Cleaning*
- *Coating/Painting*
- *Formulating*
- *Machining*
- *Operating Procedures*
- *Plating/Metal Finishing*

Waste Source Reduction: Implementing a Program

Process/Material Specific

Aerosol Containers
Aircraft Rinsewater Disposal
Acids/Bases
Chemigation Practices to Prevent Groundwater Contamination
Corrugated Cardboard Waste Reduction
Demolition
Empty Containers
Gunwasher Maintenance
Lead Acid Batteries
Machine Coolants:
- *Prolonging Coolant Life*
- *Waste Reduction*

Metal Recovery:
- *Dragout Reduction*
- *Ion Exchange/Electrolytic Recovery*
- *Etchant Substitution*

Old Paints, Inks, Residuals, and Related Materials
Pesticides:
- *Disposal of Unused Pesticides, Tank Mixes, and Rinsewater*
- *In-Filled Sprayer Rinse System to Reduce Pesticide Wastes*
- *Pesticide Container Disposal*
- *Preventing Pesticide Pollution of Surface and Groundwater*
- *Preventing Well Contamination by Pesticides*
- *Protecting Mountain Springs from Pesticide contamination*

Reducing and Saving Money Using Integrated Pest Management
Metals Recycling
Office Paper Waste Reduction
Plastics:
The Facts About Production, Use, and Disposal
The Facts on Degradable Plastics
The Facts on Recycling Plastics
The Facts on Source Reduction
Printing Equipment
Refrigerant Reclamation Equipment/Services
Reverse Osmosis
Safety Kleen, Inc. Users
Shop Rags from Printers
Small Silver Recovery Units
Solvents:
Alternatives to CFC-113 Used in the Cleaning of Electronic Circuit Boards
Onsite Solvent Reclamation
Reducing Shingle Waste at a Manufacturing Facility
Reducing Solvent Emissions from Vapor Degreasers
Small Solvent Recovery Systems
Solvent Loss Control
Solvent Management: Fiber Production Plant
Solvent Reuse: Technical Institute
Trichloroethylene and Stoddard Solvent Reduction Alternatives
Solvent Recovery: Fiber Production Plant
Solvent Reduction in Metal Parts Cleaning
Ultrafiltration
Used Containers: Management
Used Oil Recycling
Waste Management Guidance for Oil Cleanup
Water and Chemical Reduction for Cooling Towers
Waste Water Treatment Opportunities

Industry-Specific

Auto Body Shops
Automotive Painting
Automotive/Vehicle repair Shops
Asbestos Handling, Transport, and Disposal
Machine Toolers
Metal Finishers:
General
Effluent Minimization
Rinsewater Reduction

U.S. ARMY GUIDANCE

General Assistance

U.S. Army Construction Engineering Research Laboratory. P.O. Box 4005, Champaign, IL, 61820. 800-USA-CERL
U.S. Army Cold Regions Research and Engineering Laboratory (CERCL), Hanover, NH 03755-1290. 603-646-4200, DSN 684-4200
U.S. Army Environmental Hygiene Agency. Aberdeen Proving Ground, MD, 21010. (301) 671-3651 or DSN 584-3651.
U.S. Army Environmental Office. The Pentagon, Washington, DC, 20310-2600, (703) 693-5032 or DSN 223-5032.
U.S. Army Environmental Center (formerly the U.S. Army Toxic and Hazardous Materials Agency). Aberdeen Proving Ground, MD, 21010. 800-USA-EVHL, (301) 671-2427 or DSN 584-2427.
U.S. Army Environmental Policy Institute. Champaign, IL, 61820. (217) 373-3320.

Pollution Prevention

U.S. Army Environmental Center (formerly the U.S. Army Toxic and Hazardous Material Agency). Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

Recycling

U.S. Army Engineering and Housing Support Center (USAEHSC). Directorate of Public Works. (703) 704-1606/1601.
Defense Logistics Agency. Check local Defense Reutilization and Marketing Organization (DRMO) Fort Lewis WA.

Air Pollution

U.S. Army Environmental Hygiene Agency. Air Pollution Engineering Division. Air Pollution Source Management (301) 671-3500 or DSN 584-3500: or Ambient Air Quality Management (301) 671-3954 or DSN 584-3954.
U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

CFCs and Halon

U.S. Army Environmental Office. The Pentagon, Washington, DC 20310-2600, (703) 693-5032 or DSN 223-5032.
U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

Endangered Threatened Species, Natural Resources

U.S. Army Environmental Center. Natural and Cultural Resource Division (703) 355-7968 or DSN 345-7968.

U.S. Army Engineering Waterways Experiment Station (CEWES), Vicksburg, MS 39180-6199, (601) 634-2512, FTS 542-2513.

Hazardous and Toxic Waste and Material Management

U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.
U.S. Army Environmental Hygiene Agency. Waste Disposal Engineering Division. (301) 671-3651 or DSN 584-3651.
Environmental Protection Agency-RCRA/Superfund Hotline. (800) 424-9346.
Environmental Protection Agency-TSCA Hotline. (202) 554-1404.

Hazardous Waste Minimization

U.S. Army Environmental Center. Environmental Compliance Division. Army HAZMIN Program. (301) 671-2427 or DSN 584-2427
U.S. Army Environmental Hygiene Agency. Waste Disposal Engineering Division, (301) 671-3651 or DSN 584-3651.

Solid Waste Management

U.S. Army Environmental Hygiene Agency. Ground Water and Solid Waste Management. (301) 671-2024.
U.S. Army Environmental Center. Environmental Compliance Division. (301) 671-2427 or DSN 584-2427.

General Environmental/Pollution Prevention

National Defense Center for Environmental Excellence. 1415 Scalp Avenue, Johnstown, PA 15904. (814) 269-2432
Air Force Center for Environmental Excellence, Pollution Prevention Division, Brooks Air Force Base, TX 78235-5318. (210) 526-4214, DSN 240-4214.
Navy Energy and Environmental Support Agency (NEESA). Port Hueneme, CA (805) 982-4897.
Annapolis Detachment of the Carderock Division, Naval Surface Warfare Center, Environmental Protection Branch, Craig Alig, Director, (410) 267-3526, DSN 281-3526.

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