

POLLUTION PREVENTION PLAN FOR MARINE CORPS AIR STATION MIRAMAR SAN DIEGO, CALIFORNIA

Prepared for

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and

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LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ARB	California Air Resources Board
BMP	Best Management Practice
CFR	Code of Federal Regulations
CMC LF	Commandant of the Marine Corps Logistics and Facilities
CMEP	Centrally-Managed Environmental Program
CNG	compressed natural gas
CO ₂ e	carbon dioxide equivalent
CPG	Consumer Packaged Goods
CY	Calendar Year
C&D	Construction and Demolition
DoD	Department of Defense
DON	Department of the Navy
ECRB	Environmental Compliance Review Board
EIRB	Environmental Impact Review Board
EISA	Energy Independence and Security Act
EMH	Environmental Management Hierarchy
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPACT	Energy Policy Act
EPCRA	Emergency Planning and Community Right-to-Know Act
EPEAT	Electronic Product Environmental Assessment Tool
EPR Portal	Environmental Portal
FAST	Federal Automotive Statistical Tool
FEMP	Federal Energy Management Program
FGS	Final Governing Standards
FY	Fiscal Year
GHG	greenhouse gas
GSA	General Services Administration
HCP	Hazardous Materials Consolidation Program
HM	hazardous material
HW	hazardous waste
ISWM	Integrated Solid Waste Management
kgal	thousand gallon
kSF	thousand square feet
kW	kilowatt
lbs	pounds
LEED	Leadership in Energy and Environmental Design
MCAS	Marine Corps Air Station
MCO	Marine Corps Order
MMBtu	Million British Thermal Units
MT	Metric Ton
N/A	Not Applicable

NEPA	National Environmental Policy Act
NOV	Notice of Violation
O&MMC	Operation and Maintenance, Marine Corps
ODS	Ozone Depleting Substance
PACE	Pollution Prevention Approach to Compliance Efforts
PIH	plug-in hybrid
PPA	Pollution Prevention Act
P2	Pollution Prevention
QRP	Qualified Recycling Program
RCRA	Resource Conservation and Recovery Act
SB	Senate Bill
SCC	Satellite CHRIMP Center
SF	square feet
SSPP	Strategic Sustainability Performance Plan
SW	Solid Waste
T&D	Transmission & Distribution
tpd	tons per day
TRI	Toxics Release Inventory

**POLLUTION PREVENTION (P2) PLAN FOR
MARINE CORPS AIR STATION MIRAMAR**

**Record of Annual Review and
Approval**

In accordance with MCO P5090.2A , this Plan has been reviewed, updated, and/or approved as follows.

MCAS Miramar
Environmental Officer

MCAS Miramar
Commanding Officer

<i>P2 PROGRAM MANAGER</i> (Responsible for annual review and update)		
<i>Signature</i>	<i>Date</i>	<i>Remarks</i>

EXECUTIVE SUMMARY

The *Marine Corps Environmental Compliance and Protection Manual, Marine Corps Order (MCO) P5090.2A*, states that the preferred method of environmental protection is to eliminate or control the pollutant source (i.e., pollution prevention [P2] and waste minimization). Responsible parties in the Marine Corps are required to identify means and methods for the elimination or minimization of pollutants and, where possible, incorporate them at the earliest stages of planning, design, and procurement of facilities, weapon systems, equipment, and material. The Marine Corps P2 program is intended to be a cross-cutting program with relevance to most environmental program areas.

MCO P5090.2A has established 18 distinct program areas within the Environmental Compliance and Protection Program. The order also assigns P2 responsibilities to each program area and requires the application of the environmental management hierarchy, the evaluation of P2 alternatives, and the assessment of lifecycle cost impacts when evaluating and selecting projects that address compliance requirements related to their area of responsibility.

To ensure that a viable, effective P2 program is established and maintained, MCO P5090.2A requires each facility to develop a written P2 Plan to identify opportunities to eliminate or reduce its use of extremely hazardous substances and toxic chemicals. The order also requires an annual update of the plan. This document fulfills the MCO P5090.2A requirement to maintain a current P2 Plan and supersedes the Marine Corps Air Station (MCAS) Miramar P2 Plan dated September 2009.

Because P2 has proven to be the most cost-effective and efficient means to ensure compliance and reduce pollution, several federal, state, Department of Defense (DoD), and Marine Corps requirements have been issued in the form of laws, Executive Orders (EOs), and Marine Corps instructions, directives, and orders. The primary requirements governing the content of this plan and the implementation of the P2 Program are the Pollution Prevention Act of 1990; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*; EO 13221, *Energy Efficient Standby Power Devices*; DoD P2 and Compliance Metrics; MCO P5090.2A; State of California Requirements; Senate Bill 14; and Assembly Bill 32.

The primary mission of MCAS Miramar (Station) is to maintain and operate facilities, provide services and material to support the operations of the 3rd Marine Aircraft Wing and the other tenant organizations and support all aircraft operations occurring aboard the Station. The Station has made a commitment to accomplish the mission while protecting natural resources in and around the Station. The preferred method of environmental protection at MCAS Miramar is to eliminate or control the pollutant source.

The Commanding Officer's Environmental Policy Statement requires that all personnel commit to continuous improvement of MCAS Miramar's environmental programs. MCAS Miramar is committed to the conservation of natural and cultural resources to ensure preservation of resources over the entire air station and to promote more ground training opportunities in East Miramar.

EO 13514, the most recent EO, will be used to guide the direction of the P2 Program in future years. DoD has made progress in developing agency-level goals as well as some metrics and plans to meet the

requirements of EO 13514. Greenhouse gas goals were determined by DoD, the remainder of the program goals were set by the EO.

Table ES-1 summarizes the major accomplishments that the MCAS Miramar P2 Program has achieved.

Table ES-1. Summary of Major P2 Successes

Program Area	Accomplishment
Water Conservation	An aggressive water conservation program and the completion of an 8-phase recycled water distribution system are responsible for MCAS Miramar exceeding the potable water reduction goals. Since the baseline year, potable water intensity has dropped by 29.6 percent, therefore meeting the EO 13514 target.
Building Performance	MCAS Miramar was selected by the DoD/DOE Net Zero Analysis Task Force as the initial prototype installation for net zero energy analysis. As of April 2012, the Station has completed five Leadership in Energy and Environmental Design (LEED) projects and has programmed three projects to be developed as LEED-certified facilities. Since 2011, 100 percent of the new construction has been LEED certified.

To achieve further accomplishments, improve program efficiency, and meet the federal and DoD requirements governing MCAS Miramar, several P2 opportunities and Best Management Practices (BMPs) are being studied and considered for implementation, as summarized in Table ES-2.

Table ES-2. Summary of Recommended P2 Options

Title	Description
P2 Opportunities	
Composting ¹	Implementing composting would assist MCAS Miramar in achieving the EO SW diversion goals. A review of organizations and activities that generate compostable SW will be conducted to determine how MCAS can implement a composting program.
Alternative Fuel Vehicles	The compressed natural gas (CNG) vehicles and stations at MCAS Miramar are not utilized as often as they could be, because of the time it takes to refuel a vehicle. Because of this, CNG use has drastically decreased. MCAS Miramar has many FlexFuel vehicles that can be fueled with either gasoline or E85. Although, the E85 tank failed the California Air Resources Board require pressure test and is not currently utilized. This forces the vehicles to use gasoline only. Repairs to both the CNG and E85 tank systems must be made in order to increase the alternative fuel usage aboard the Station and contribute to the overall reduction of petroleum usage.
Qualified Recycling Program (QRP)	To further increase revenues the following are being considered: <ul style="list-style-type: none"> ▪ Establish a more dedicated workforce; ▪ Establish a civilian QRP manager; ▪ Increase frequency of pick-up of recyclable materials; ▪ Implement crushing of aluminum cans at the Dining Facility; and ▪ Begin collection of plastic shrink wrap and grocery bags.²
BMPs	
Increase P2 Awareness	Currently, the Environmental Department conducts monthly and quarterly meetings with unit and tenant Environmental Compliance Coordinators and Hazardous Waste Coordinators regarding environmental programs. These meetings are the perfect setting to make personnel aware of the various P2 programs aboard the Station, including HazMin Center Re-use Program and the QRP. Mention of the Station's progress toward the EO goals will be a standard subject for each meeting.

¹ Implementation steps listed in Section 7 of the “Integrated Solid Waste Management Plan,” MCAS Miramar, September 2012.

² For further information see Section 7.1.1 of the “Integrated Solid Waste Management Plan,” MCAS Miramar, September 2012.

1.0 INTRODUCTION

The Marine Corps is committed to actively protect and enhance the quality of the environment by strictly complying with all applicable regulatory requirements through a process of continual improvement. However, rising costs have compelled the Marine Corps to re-evaluate its approach to compliance in recent years. In the past, environmental projects have focused on costly end-of-the-pipe solutions (i.e., treatment). Currently, the Marine Corps operates under the Pollution Prevention Approach to Compliance Efforts (PACE) initiative to reduce the lifecycle cost of environmental compliance. This initiative is enabling all Marine Corps installations to meet today's compliance requirements and to alleviate future compliance costs by implementing pollution prevention (P2) techniques to address compliance issues.

P2, as defined in the Pollution Prevention Act (PPA) of 1990, refers to source reduction, recycling, 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; and
- Protection of natural resources by conservation.

Examples of P2 techniques include:

- Input substitution;
- Product reformulation;
- Process redesign/modification;
- Improved operation and maintenance; and
- Reuse (in-process recycling).

Waste minimization includes types of recycling: beneficial use/reuse and reclamation. Waste minimization does NOT include recycling activities that constitute disposal or burning for energy recovery.

The PPA utilizes the Environmental Management Hierarchy (EMH) for P2. The hierarchy ranks the most effective means by which to reduce pollution as follows:

1. Source reduction;
2. Material recycling;
3. Treatment; and
4. Disposal.

1.1 MARINE CORPS POLICY

The *Marine Corps Environmental Compliance and Protection Manual, Marine Corps Order (MCO) P5090.2A*, states that the preferred method of environmental protection is to eliminate or control the pollutant source (i.e., P2). Responsible parties within the Marine Corps are required to identify means and methods for the elimination or minimization of pollutants and, where possible, incorporate them at the

earliest stages of planning, design, and procurement of facilities, weapon systems, equipment, and material. Dedicated efforts are necessary to eliminate or minimize the use of hazardous material (HM) and the generation of hazardous waste (HW). When assessing solutions to address compliance requirements, installations and commands, are required to employ the EMH in environmental project planning.

Source reduction, the highest priority approach to P2, is defined in the PPA and MCO P5090.2A as any practice that:

- Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, and disposal; and
- Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

The term also includes equipment or technology modification, process or procedure modification, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control. Source reduction does not entail any form of waste management (i.e., recycling, treatment, and disposal).

The Marine Corps P2 Program is intended to be a cross-cutting program with relevance to most environmental program areas. MCO P5090.2A has established 18 distinct program areas within the Environmental Compliance and Protection Program. The order establishes that each area has the responsibility to ensure that the EMH is employed, P2 alternatives are evaluated, and lifecycle cost impacts are assessed when evaluating and selecting projects that address compliance requirements related to their area of responsibility.

To ensure that a viable, effective P2 program is established and maintained, MCO P5090.2A requires each facility to develop and maintain a written P2 Plan and to identify opportunities to eliminate or reduce its use of extremely hazardous substances and toxic chemicals.

1.2 PURPOSE

This plan was prepared to meet the Marine Corps requirement to develop and maintain a current, written P2 Plan. This plan was developed in accordance with the requirements in MCO P5090.2A and to supersede the existing P2 Plan written in September 2009. Those requirements, presented in Section 15203 of the order, are as follows:

“All Marine Corps installations are required to have a P2 plan that addresses the necessary installation actions for reducing pollution from all sources and to all media. Installation P2 plans must be developed in accordance with applicable regulatory requirements and the Marine Corps Pollution Prevention Planning Guide, and fully integrated with, and implemented through, the appropriate elements and procedures of the Marine Corps EMS to ensure a consistent approach and avoid potential duplication of effort. The P2 plan may be a stand-alone management plan which aligns with the EMS manual or it may be incorporated into the relevant elements and

terminology of the installation EMS manual. The plan should be reviewed at least annually as part of the EMS management review, and updated as appropriate. The P2 plans should include pollution information for the baseline years, PPOAs, investment strategies, and P2 techniques such as HM consolidation, recycling, improved control technologies, and material sharing programs.

Investment/implementation options selected in the pollution prevention plans should be evaluated in consideration of prioritization criteria consistent with the Marine Corps EMS and reflect the following priorities:

- Lifecycle cost-effectiveness;
- Compliance (e.g., those P2 projects that help achieve/maintain compliance will receive high priority);
- Ranking in the environmental management hierarchy (e.g., source reduction is preferable to recycling);
- Achieving Marine Corps P2 goals;
- Ease of implementation; and
- Proven technologies.”

This plan was prepared in accordance with the requirements presented in MCO P5090.2A; however, it should be noted that the P2 Planning Guide and the Model P2 Plan Technical Paper referenced in the order are outdated and no longer in use. Marine Corps Air Station (MCAS) Miramar Commanding Officer’s Policy Statement on Pollution Prevention directs Miramar personnel to comply with all applicable federal, state, and local regulations as well as Department of Defense (DoD) directives that require implementation of P2 programs. This Policy Statement directs the Environmental Department to develop and implement P2 programs to reduce pollution for all tenant commands where it is technically and economically feasible. Responsibility for development and implementation of the P2 Plan resides with the S-7 Environmental Management Department.

1.3 P2 PLAN ORGANIZATION

This P2 Plan was prepared in accordance with the federal, state, and DoD regulations governing P2 programs and the application of P2 to Station operations. The plan is organized as follows:

- Section 1.0 provides an introduction to P2 and the commitment of the Marine Corps to the application of P2 principles and the purpose.
- Section 2.0 profiles MCAS Miramar (facility description) and provides a brief history of the installation, location and demographic data, and a summary of the commands and units at MCAS Miramar.
- Section 3.0 summarizes federal, state, and DoD orders, regulations, laws, and policies that govern the content of this plan and the operation of the P2 program. The summaries cover: the PPA of 1990; Executive Orders (EOs) 13423, 13514, and 13221; MCO P5090.2A; and state requirements. Each summary also contains applicability and scope information.

- Section 4.0 outlines the MCAS Miramar P2 program policy statement and infrastructure and discusses P2 program responsibilities, management and administrative elements, and training and other relevant requirements.
- Section 5.0 summarizes the current status of the P2 program and highlights the major P2 accomplishments of the installation.
- Section 6.0 presents the recommended P2 opportunities and Best Management Practices (BMPs).

2.0 MCAS MIRAMAR PROFILE

2.1 BACKGROUND

The land in and around MCAS Miramar was used for grazing and farming until the early 1900s.

During World War I, the U.S. Army acquired 12,721 acres of land in the Miramar Ranch area. Camp Kearny was opened on 18 January 1917 and was primarily used to train infantrymen on their way to the battlefields of Europe. Following the Armistice, the base was used to demobilize servicemen and was closed on 20 October 1920.

During the 1930s, the Navy briefly used the air base for helium dirigibles. In 1932 a mooring mast and hangar were built at the camp for the dirigibles. In the early 1940s Camp Elliott was built on part of old Camp Kearny, to be used for Marine artillery and machine gun training. Camp Elliott became home to Fleet Marine Force Training Center, West Coast and the 2nd Marine Division, charged with defending the California coast. Runways were constructed in 1940, and the 1st Marine Air Wing arrived on 21 December 1940. The Navy commissioned Naval Auxiliary Air Station Camp Kearny in February 1943 and in March 1943 the Marines established MCAS Miramar.

During the 1940s, both the Navy and the Marine Corps occupied Miramar. East Miramar (Camp Elliott) was used to train Marine artillery and armored personnel, while Navy and Marine Corps pilots trained on the western side. The bases were combined and designated MCAS Miramar in 1946.

In 1947, the Marines moved to MCAS El Toro in Orange County, California, and Miramar was re-designated as a Naval Auxiliary Air Station. In 1969 the United States Navy Fighter Weapons School was established to train pilots in dog-fighting and in fleet air defense.

In 1993, the Base Realignment and Closure Commission (BRAC) recommended that MCAS El Toro and MCAS Tustin be closed down and that Naval Air Station (NAS) Miramar be transferred to the Marine Corps. BRAC also recommended that the Naval Fighter Weapons School and Navy Reserve adversary squadron be relocated to NAS Fallon in Nevada. On 1 October 1997

MCAS Miramar occupies 24,000 acres in the suburbs of San Diego, California approximately 13 miles north of downtown. Nearly 17,000 acres of this land is unimproved or semi-improved and consist of native vegetation. The installation lies on a plateau and is bordered by the communities of Mira Mesa and Scripps Ranch to the north, University City and Clairemont to the west, Kearny Mesa and Tierrasanta to the south, and unincorporated rural areas of San Diego to the east. Interstate 15 divides the Base into two halves: West of Interstate 15 is the Main Station and South/West Miramar, occupied by operational, administrative, commercial, and residential facilities. East of Interstate 15 is East Miramar, composed of primarily undeveloped land used for military training and warehousing.

2.2 MISSION AND DEMOGRAPHICS

The primary mission of MCAS Miramar is to maintain and operate facilities and provide services and materials to support operations of the 3rd Marine Aircraft Wing (3rd MAW) and other tenants of the base. The mission of 3rd MAW is to provide combat ready expeditionary aviation forces capable of short notice world wide deployment to Marine Air Ground Task Force, fleet and unified commanders. MCAS Miramar supports the military aviation training and maintenance operations for the squadrons of 3rd MAW, including CH-53, F/A-18, KC-130, and MV-22 aircraft.

MCAS Miramar has a population of approximately 11,000; consisting of military personnel, their dependents, and civilian employees.

2.3 MCAS MIRAMAR OPERATIONS AND ACTIVITIES

MCAS Miramar's main function is to support the operations of the 3rd MAW and other tenant organizations aboard the base by maintaining and operating facilities and providing required services and materials. The greatest priority of the base is providing and equipping well trained and organized combat ready forces. MCAS Miramar averages 250 aircraft at any given day, with about 200,000 flight operations per year. The Station provides operational support, maintenance, and unit and individual training for tactical deployment and combat for eight F/A-18C and F/A-18D jet squadrons, four CH-53E helicopter squadrons, five MV-22 squadrons, one KC-130 transport and refueling squadron, and nine station support aircraft.

MCAS Miramar controls and supports the training areas and buildings within its boundaries, and provides housing, law enforcement, training facilities, facilities maintenance, and logistical support to its tenant commands and organizations.

3.0 POLLUTION PREVENTION REQUIREMENTS

P2 has proven to be the most cost-effective and efficient means to ensure compliance and reduce pollution; therefore, several federal, state, DoD, and Marine Corps requirements have been issued in the form of laws, EOs, and Marine Corps instructions, directives, and orders. This section provides a summary of the requirements that govern the content of this plan and the operation of the P2 program on board MCAS Miramar.

3.1 FEDERAL REQUIREMENTS

3.1.1 Pollution Prevention Act of 1990

The PPA of 1990 was enacted on 5 November 1990. This act established P2 as national policy in the United States. This act was pivotal because it instituted a paradigm shift that emphasized source reduction rather than control to reduce or eliminate the generation of pollutants. The pollutants subject to the act include Toxic Release Inventory (TRI) chemicals, HW, and all hazardous substances, pollutants, or contaminants that may be harmful to human health or the environment.

3.1.2 Executive Order 13221

On 31 July 2001, the federal government introduced EO 13221, *Energy Efficient Standby Power Devices*. EO 13221 states that each agency, when it purchases commercially available, off-the-shelf products that use external standby power devices, or that contain an internal standby power function, shall purchase products that use no more than one watt in their standby power consuming mode.

3.1.3 Executive Order 13423

On 24 January 2007, the federal government introduced EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*. EO 13423 builds on the successes of past EOs through the integration of prior practices, strategies, and requirements to further enhance the environmental and energy performance and compliance requirements within the federal government. EO 13423 replaces the “Greening the Government” series of EOs that were applicable to P2 and HW minimization. The following is a list of the EOs that were revoked upon the signing of EO 13423:

- EO 13148: *Greening the Government Through Leadership in Environmental Management*;
- EO 13101: *Greening the Government Through Waste Prevention Recycling and Federal Acquisition*;
- EO 13123: *Greening the Government through Efficient Energy Management*;
- EO 13149: *Greening the Government through Federal Fleet and Transportation Efficiency*; and
- EO 13134: *Developing and Promoting Biobased Products and Bioenergy*.

3.1.4 Executive Order 13514

On 8 October 2009, the federal government introduced EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*. EO 13514 is the latest update to past EOs and defines some of the goals and targets previously set. It builds on, but does not replace, EO 13423.

Table 3-1 provides a summary of the elements and requirements presented in EOs 13423 and 13514.

Table 3-1. Summary of EOs 13423 and 13514 Requirements

Element	EO 13423	EO 13514
Energy Efficiency	Each agency shall ensure that at least 50% of the statutorily required renewable energy consumed by the agency in a fiscal year (FY) comes from renewable energy sources. In addition, to the extent feasible, the agency should implement renewable energy generation projects on agency property for agency use. Baseline year: none.	Increase the use of renewable energy and implement renewable energy projects. Baseline year: none.
Greenhouse Gases (GHGs)	Agencies are required to improve their overall energy efficiency and reduce GHG emissions by 3% annually through the end of 2015 or 30% by the end of 2015, relative to the energy efficiency baseline year of 2003.	Establish a percentage reduction target for GHG emissions by the end of 2020. Baseline year: 2008. Pursue opportunities to work with vendors and contractors to incorporate incentives to reduce GHG emissions. Implement strategies and accommodations for transit and traveling to support reducing the carbon footprint. In addition, inventory absolute GHG emissions within 15 months of FY 2010 and annually thereafter. Baseline year: FY 2010.
Water Conservation	Agencies are required to reduce water consumption intensity. A 2% annual reduction through the end of 2015 or a 16% total reduction by 2015. Baseline year: 2007.	Agencies are required to reduce potable water consumption intensity. A 2% annual reduction through the end of 2020, or a 26% total reduction by 2020. Baseline year: 2007. Agencies are required to reduce industrial, landscaping, and agricultural water consumption intensity by 2% annually or 20% by 2020. Baseline year: 2010.
Procurement	Federal agencies are required to procure environmentally sound goods and services that are environmentally preferred, energy-efficient, water-efficient, and produced in a sustainable environmental manner. In addition, agencies must also acquire biobased and recycled-content products. Agencies are required to use paper with at least 30% post-consumer-fiber content. Each agency shall purchase environmentally preferred products and services using the U.S. Environmental Protection Agency's (EPA's) guidance on the <i>Acquisition of Environmentally Preferred Products and Services</i> . Baseline year: none.	Federal agencies are required to procure environmentally sound goods and services that are environmentally preferred, energy-efficient, water-efficient, and produced in a sustainable environmental manner. Agencies are required to acquire uncoated printing and writing paper with at least 30% post-consumer-fiber content. Agencies shall ensure that 95% of new contracts meet sustainable acquisition requirements (excluding weapons systems). Baseline year: none.

Table 3-1. Summary of EOs 13423 and 13514 Requirements

Element	EO 13423	EO 13514
P2	<p>There are three main components: first, agencies are required to reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed through efficient material management; second, agencies shall increase the diversion of solid waste (SW) as appropriate; third, agencies shall maintain a cost-effective waste prevention and recycling program in their facilities. Baseline year: none.</p> <p>Agencies shall increase the diversion of SW as appropriate. By 24 April 2007, each agency shall establish SW diversion goals to be achieved by 31 December 2010. Each agency shall maintain waste prevention and recycling programs in the most cost-effective manner possible. At a minimum, agencies shall strive to meet the national 35% recycling goal established by the EPA. Baseline year: 2000.</p>	<p>Agencies are required to reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of through efficient material management. Agencies shall increase the diversion of SW and increase diversion of compostable/organic materials from the waste stream. Agencies shall implement integrated pest management and other appropriate landscaping practices. Baseline year: none.</p> <p>Agencies shall increase the diversion of SW by:</p> <ul style="list-style-type: none"> (1) Diverting at least 50% of nonhazardous SW (excluding construction and demolition debris) by the end of 2015; (2) Diverting at least 50% of construction and demolition materials and debris by the end of 2015;³ and (3) Reducing printing paper use and acquiring uncoated printing and writing paper containing at least 30% post-consumer fiber. (4) Increase diversion of compostable and organic material from waste streams. <p>Baseline year: none.</p>
Building Performance	<p>Each agency shall ensure that new construction and major renovation of agency buildings comply with the <i>Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings</i> set forth in the <i>Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding</i> (2006).</p> <p>At least 15% of the existing federal capital asset building inventory of the agency must incorporate the sustainable practices in the <i>Guiding Principles</i> by 2015. The 15% goal applies to an agency's full building inventory as it exists in FY 2015.</p> <p>By 15 August 2007, and annually thereafter, each agency shall submit a plan to Office of Management and Budget and Office of the Federal Environmental Executive that addresses how the agency will ensure that the building goals of EO 13423 are being met.</p>	<p>Each agency shall implement high-performance sustainable federal building design, construction, operation and management, maintenance, and deconstruction by meeting the following objectives: Zero-net-energy for all new buildings by 2030, but begin implementation in 2020; All new construction buildings and major renovations must follow "Guiding Principles;" and Fifteen percent of existing buildings (>5,000 square feet) must meet "Guiding Principles" by 2015. In addition, agencies must pursue innovative strategies (i.e., reflective or vegetative roofs) to reduce energy, water, and materials consumption for new construction, management of existing buildings, and renovations. When adding assets to the real property inventory, identify opportunities to consolidate and dispose of existing assets to optimize performance and reduce environmental impacts.</p> <p>Baseline year: none.</p>

³ DoD Strategic Sustainability Performance Plan requires that 60% C&D non-hazardous SW be diverted by the end of 2015.

Table 3-1. Summary of EOs 13423 and 13514 Requirements

Element	EO 13423	EO 13514
Fleet Management	Each agency shall increase their purchase of alternative fuel, hybrid, and plug-in hybrid (PIH) electric vehicles when commercially available. In addition, agencies that operate a fleet of at least 20 motor vehicles relative to the baseline year of 2005 are required to reduce petroleum consumption by 2% annually through 2015 and increase non-petroleum fuel use by 10% percent annually. The requirement to increase non-petroleum fuel use by 10% annually is measured relative to the prior year's alternative fuel usage levels. Baseline year: 2005.	Each agency shall increase their purchase of alternative fuel, hybrid, and PIH electric vehicles when commercially available. In addition, agencies that operate a fleet of at least 20 motor vehicles are required to reduce petroleum consumption by 2% annually through 2020. Baseline year: 2005.
Electronics Management	Each agency shall ensure that annually, 95% of electronic products purchased must meet Electronic Product Environmental Assessment Tool standards where applicable; enable Energy Star features on 100% of computers and monitors; and reuse, donate, sell, or recycle 100% of electronic products using environmentally sound management practices. By 1 May 2007, each agency shall develop and submit to Office of the Federal Environmental Executive a plan to implement electronics stewardship practices for all eligible owned or leased electronic equipment in support of the goals of EO 13423. Baseline year: none.	Each agency shall ensure that annually, 95% of electronic products purchased must meet Electronic Product Environmental Assessment Tool (EPEAT) standards where applicable and establish and implement policies that enable power management, double-sided printing, and environmentally sound practices for electronics disposal. Procure Energy Star and Federal Energy Management Program designated electronic equipment and implement BMPs for energy-efficient servers and federal data centers. Baseline year: none.

3.1.5 Energy Policy Act of 2005

Energy Policy Act (EPACT) of 2005 requires federal agencies to purchase energy-efficient products including: computer monitors; printers; scanners; fax machines; copiers; along with other products used in building construction, renovation and maintenance projects, materials, and appliances. Federal agencies are required to procure devices that use no more than one watt of energy in the standby power consuming mode. In addition to energy-efficient purchases, EPACT also requires the use of alternative fuels in dual-fueled vehicles, unless a waiver is granted and requires federal agencies to procure only energy efficient products listed by ENERGY STAR® or designated by the Federal Energy Management Program (FEMP) when purchasing covered products.

3.1.6 Energy Independence and Security Act of 2007

The Energy Independence and Security Act (EISA) of 2007 is an omnibus energy policy law that consists mainly of provisions designed to increase energy efficiency and the availability of renewable energy.⁴ EISA aims to reduce U.S. dependence on petroleum and includes grant programs to encourage the development of cellulosic biofuels, PIH electric vehicles, and other emerging electric vehicle technologies. The law is projected to reduce GHG emissions by 9% by 2030.⁵

⁴ <http://energy.senate.gov/public/files/RL342941.pdf>

⁵ <http://www.afdc.energy.gov/afdc/laws/eisa>

3.1.7 Resource Conservation and Recovery Act Section 6002

The Resource Conservation and Recovery Act (RCRA) acknowledges the importance of recycling in managing the Nation's SW, as well as the manufacture of recycled content products that can be purchased and used by consumers. Federal agencies must give preference in the acquisition process to products and practices that conserve and protect natural resources and the environment. It mandates four elements of the recovered materials program: (1) a preference program; (2) a promotion program; (3) a program for vendor estimates, certification, and verification; and (4) a monitoring program. Per RCRA Section 6002, the U.S. Environmental Protection Agency (EPA) developed designated Comprehensive Procurement Guideline (CPG) containing items that are, or can be, made with recovered materials, environmentally preferable, and biobased products. Once a CPG item is designated, procuring agencies are required to purchase it with the highest recovered material content level practicable, but no less than the minimum percentage specified by the Recovered Materials Advisory Notices. These guidelines are updated every two years, or as appropriate, and currently contain many items in the following eight categories: (1) Construction Products, (2) Landscaping Products, (3) Non-paper Office Products, (4) Paper and Paper Products, (5) Park and Recreation Products, (6) Transportation Products, (7) Vehicular Products, and (8) Miscellaneous Products. All purchases must be compliant unless specific exemptions apply (i.e., price, performance, or availability). Per the Department of Navy Green Procurement Program Implementation Guide, the basis for any non-compliant purchase above the micro-purchase limit must be documented.⁶

3.1.8 Farm Bill 2008

US Farm Bill 2008 (Food, Conservation, and Energy Act of 2008) Section 9009 "Rural Energy Self-Sufficiency Initiative" supports efforts to develop community-wide renewable energy systems. The Energy Title of the 2008 bill expands existing programs and adds a number of new ones to encourage production, use, and development of biobased and other renewable energy sources. If a purchaser determines that a biobased product is preferred, the biobased product can be selected in place of a similar recycled-content product, and vice versa. All purchases must be compliant unless specific exemptions apply (i.e., price, performance, or availability). However, unlike the mandates set by the RCRA 2006 there is no documentation required for non-compliant products.

3.2 STATE REQUIREMENTS

3.2.1 Senate Bill 14

In 1989, the California Legislature adopted legislation that requires HW generators to consider source reduction as the preferred method of managing HW. This legislation was introduced as Senate Bill 14 (SB 14) and is entitled the Hazardous Waste Source Reduction and Management Review Act of 1989. It is most commonly referred to as the SB 14 requirements and will be referenced as such throughout the remainder of this document. SB 14 requires large-quantity generators of HW meeting a threshold greater than 26,400 pounds (lbs) to prepare documents for HW source reduction.

⁶ Department of Navy, "Green Program Implementation Guide," February 2009.

3.2.2 Assembly Bill 32

Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, was signed by Governor Schwarzenegger in September 2006. This new law added Division 25.5 (commencing with Section 38500) to the California Health and Safety Code related to air pollution, specifically GHG emissions.

AB 32 requires the California Air Resources Board (ARB) to administer a comprehensive, multi-year program to reduce GHG emissions, with the overall goal of restoring emissions to 1990 levels by the year 2020. ARB is authorized to adopt regulations to require the reporting and verification of statewide GHG emissions, to achieve the maximum technologically feasible and cost-effective GHG emission reductions, and to monitor and enforce compliance with this program. Overall compliance with this program will be achieved by enforcing rules, regulations, EOs, emission limits, emission reduction measures, and implementing market-based mechanisms. AB 32 also authorizes ARB to adopt a schedule of fees to be paid by regulated facilities for GHG emissions.

3.3 MCO P5090.2A, ENVIRONMENTAL COMPLIANCE AND PROTECTION MANUAL

3.3.1 General Requirements

The Secretary of Defense has made the commitment that the DoD will take the lead in federal agency environmental compliance and protection. Military leaders are expected to conform to a national ethic and to consider a set of priorities that have been superimposed on our traditional defense mission. Consistent with this objective, the *Environmental Compliance and Protection Manual* was prepared to provide guidance and instruction to installations to enable them to meet stringent environmental legislation and increasing pressure by regulatory agencies at the federal, state, and local level.

The Manual was prepared to accomplish the following:

- Implement the substantive requirements of DoD environmental policy;
- Outline the requirements for compliance with federal environmental regulations; and
- Establish Marine Corps policy for funding, evaluating, and continually improving environmental compliance and protection programs, with emphasis on P2, training, and education.

The order identifies and establishes requirements for the following 18 environmental program areas:

- | | |
|---|---|
| ▪ Environmental Compliance Evaluation Program | ▪ Pesticide P2 |
| ▪ Environmental Training and Education | ▪ P2 |
| ▪ Air Quality Management | ▪ Drinking Water Systems and Water Conservation |
| ▪ Emergency Planning and Response | ▪ SW Management and Resource Recovery |
| ▪ Cultural Resources Management | ▪ Underground Storage Tanks |
| ▪ HW Management | ▪ Polychlorinated Biphenyls Management |
| ▪ Installation Restoration Program | ▪ Water Quality Management |
| ▪ Natural Resources Management | ▪ Waste Military Munitions |
| ▪ National Environmental Policy Act (NEPA) | |
| ▪ Noise Management | |

The P2, SW, and funding chapters in MCO P5090.2A, primarily govern the content of this plan and the operation of the P2 program; thus, requirements from those sections are summarized below. However, it must be noted that P2 requirements are presented in each program area and are addressed in the order.

3.3.2 Pollution Prevention

Chapter 15 of MCO P5090.2A addresses P2 and was prepared primarily in response to EO 12856, the precursor to EO 13148. The goals presented in the order are those contained in EO 12856 and not in EO 13148. Therefore, most of the goals and goal years presented in MCO P5090.2A are outdated and/or have been met.

The order clearly outlines the P2 practices that are expected to be employed at each Marine Corps installation to accomplish the provisions outlined in DoD policy. Those practices are:

- Reduce the amount of HM used and HW generated by up-front HM control in procurement, supply, and use by employing the Marine Corps Hazardous Materials Consolidation Program, which strives to reduce the amount of HM used and HW generated through HM lifecycle control and the management of HM.
- Establish methods for substituting non- or less hazardous material whenever possible.
- Develop and incorporate new technology or materials that have a reduced impact upon the environment, are safer and healthier, or result in reduced emissions.
- Promote the use of environmentally preferable products and services.
- Emphasize P2, including improvements in energy and resource use, as the alternative of “first choice” in achieving compliance with applicable environmental requirements and EOs.
- Incorporate P2 at installations and into all phases of acquisition, operations, maintenance, support, and the ultimate disposal of weapon systems over the system lifecycle.
- Reduce weapons systems lifecycle cost by avoiding the use of HM.
- Instill knowledge and understanding in all personnel (military and civilian) of P2 requirements through comprehensive education, training, career development, and awareness programs.
- Develop, demonstrate, and implement innovative P2 and business practices.
- Promote P2 through positive relations and partnerships with federal, state, Native American tribal and local government officials, as well as host country and other private and public stakeholders.
- Use the EMH to develop solutions to environmental compliance issues.
- Plan, program, and budget to achieve these policies, using the environmental quality classes (defined in Chapter 3 of MCO P5090.2A) to prioritize environmental projects for funding.
- Ensure, where cost effective, that all installations and activities have, or participate in a QRP, and that these recycling programs are available to serve all host and tenant organizations occupying space on the installation, including leased space.

3.3.3 SW Management and Resource Recovery

This section establishes Marine Corps policy and responsibilities for compliance with statutory and procedural requirements for SW disposal, waste minimization, recycling, and resource recovery requirements. Federal, state, and local requirements concerning collection, storage, and disposal apply to Marine Corps installations that:

- Generate SW, whether it is collected by the Marine Corps or by a nonmilitary collector;
- Dispose of SW on Marine Corps property, regardless of whether the waste is originated by the Marine Corps or other sources; and
- Dispose of SW off of Marine Corps property if the waste is generated by a Marine Corps installation and if the installation has direct management control over the disposal operation.

3.3.3.1 Marine Corps SW Policy

The Marine Corps will design SW disposal programs as total systems that consider the relative economic advantages of the latest technology as well as the potential for resource recovery. Installation SW programs should also explore shredding, compacting, energy recovery, and similar processes, and develop an installation ISWM plan according to the following hierarchy:

- Source reduction;
- Reuse;
- Donation;
- Recycling; and
- Composting/mulching.

Marine Corps source reduction programs must incorporate the following, where feasible:

- Composting to facilitate yard waste reduction;
- Reducing excessive packaging, especially where packaging is used for attractive merchandising or convenience functions;
- Reducing waste generation in an office by reusing materials (e.g., file folders, paper clips, and interoffice routing envelopes), employing double-sided copying, and using electronic mail instead of paper memos; reducing mail and distribution lists; and
- Procurement of materials that generate less waste.

In addition, all Marine Corps installations must establish an installation recycling program for the following purposes:

- To protect the environment and prevent the depletion of valuable natural resources;
- To comply with federal, state, and local environmental laws and regulations;
- To reduce the volume of waste disposed in landfills;
- To reuse readily available resources;
- To avoid excessive costs for the disposal of SW by other means; and

- To obtain proceeds from the sale of recyclable material.

Marine Corps installations must establish a recycling program and, at a minimum, must segregate scrap metal, high-grade paper, corrugated containers, and aluminum cans for recycling. Installations must also consider glass, plastic, newspaper from housing areas, scrap wood and other wastes (as the market demand arises) in the development of recyclable material markets.

3.3.3.2 SW Resource Recovery

The EPA, with the cooperation of other federal agencies, has surveyed federal activities to determine SW disposal rates within Standard Metropolitan Statistical Areas (SMSAs). The Department of the Navy (DON) has been designated the lead agency in nine SMSA's by the EPA: Charleston-North Charleston, SC; Chicago, IL; Honolulu, HI; Los Angeles-Long Beach, CA; San Diego, CA; San Francisco-Oakland, CA; Norfolk-Virginia Beach Portsmouth, VA/NC; Pensacola, FL; and Philadelphia, PA.

The philosophy underlying resource recovery is that material or energy recovery from waste is possible at a point downstream from the point of generation, and is an alternative to landfilling, incinerating, or otherwise disposing of the waste in a manner harmful to the environment or wasteful of natural resources.

Generation rates, discussed under resource recovery guidelines, are based on 260 days per year and 100 tons per day (tpd), equivalent to 26,000 tons per year. The amount of SW is calculated from the volume that remains after implementing the source separation guidelines. Marine Corps installations located within SMSAs, like MCAS Miramar, must participate with the DoD components and federal facilities in the establishment and/or utilization of a single resource recovery facility if:

- Any one federal facility generates 50 tpd or more of SW after complying with waste reduction and source separation policies;
- The combined total of this SW from all federal installations within an SMSA is 100 tpd or more; and
- Within a qualified SMSA, the federal agency generating the largest quantity of SW is designated by the EPA as the lead agency and has the responsibility for implementing the guidelines in the SMSA.

The elements of a SW Resource Recovery Program as listed in MCO P5090.2A are:

- Recycling Programs;
 - High Grade Paper
 - Used Newspaper
 - Corrugated Container Waste
 - Returnable Beverage Containers
- Resource Recovery Facilities.

Recycling Programs. DoD policy requires all installations and commands to establish recycling programs and procedures that ensure, where cost-effective, that all installations and activities have, or participate in, QRP, and that these recycling programs are available to serve all host and tenant

organizations occupying space on the installation, including leased space. Installations should also operate a composting program or participate in a regional composting program, if it is practicable to do so.

- **High-Grade Paper.** Waste high-grade paper generated at Marine Corps installations must be separated at the source of generation, separately collected, and sold for the purpose of recycling. Exceptions may be made only if analysis by the managing installation determines that a market for recovered products is not available, or that compliance is not economical. In situations where a Marine Corps office facility is a tenant activity, the host activity (or lessor) is responsible for establishing a source separation program.
- **Used Newspaper.** Installations should separate used newspapers generated in Marine Corps residential areas at the source of generation, and sell them for recycling. Exceptions are appropriate only if the managing installation determines through analysis that markets are not available or that compliance is not economical.
- **Corrugated Container Waste.** Installations should collect and sell waste-corrugated containers for the purpose of recycling. Exceptions are appropriate only if the managing installation determines through analysis that markets are not available or that compliance is not economical.
- **Returnable Beverage Containers.** Marine Corps installations must comply with state laws regarding beverage containers. They should bring to the attention of the Commandant of the Marine Corps Logistics and Facilities (CMC LF) any conflicts between federal (40 Code of Federal Regulations [CFR] 244) and state requirements, as well as any situations that preclude compliance.

Resource Recovery Facilities. Marine Corps installations with resource recovery programs must follow requirements outlined in 40 CFR 243 and 245. Marine Corps installations that dispose of, or are responsible for, the disposal of residential, commercial, or institutional SW in amounts of 100 tpd or more (equivalent to 26,000 tons or more annually), after the implementation of source separation and other waste reduction procedures, must establish and/or use resource recovery facilities to separate and recover materials and/or energy from such SW. Such resource recovery facilities may be owned by the Marine Corps, federal agencies, or local/regional governmental or commercial interests.

Marine Corps installations must not compete with a locally available commercial recycling industry that offers a total SW resource recovery system as directed by SECNAVINST 4860.44. Installations should make every effort to use an established commercial industry and should only consider constructing resource recovery facilities after a thorough study has been made of alternative methods for processing SW. Marine Corps installations choosing to construct their own facilities should design them to process all residential, commercial, and institutional SW disposed of at DoD facilities, and they should convert as much as possible of the input SW into recycled material, fuel, or energy.

3.3.4 Funding

A crucial component of any P2 program is a thorough understanding of the funding process and how projects are classified and prioritized for funding. As part of the PACE initiative, Marine Corps installations must categorize all environmental projects to determine whether all or part of an environmental project employs P2 solutions. Projects that contribute to the Marine Corps' goal of increasing P2 investments, while meeting compliance requirements, will have high funding priority. The Marine Corps uses the following funds to meet environmental requirements:

- Naval Working Capital Fund;
- Military Construction;
- Operation and Maintenance, Marine Corps (O&MMC);
- Operation and Maintenance, Marine Corps Reserve;
- Reimbursable Agricultural Outlease, Forestry, and Fish and Wildlife Access Fees;
- QRP Revenues; and
- The Defense Logistics Agency, Defense Fuel Supply Center funds.

O&MMC is the primary source of environmental funds for active installations. It includes both centrally-managed and local accounts. Environmental O&MMC funds come from two main sources: Installation operating funds and the Centrally-Managed Environmental Program (CMEP). The CMEP funds both environmental management and environmental projects at the installation level. CMEP is also used to support Marine Corps-wide environmental initiatives such as the Environmental Compliance Evaluation Program and the fielding of standard DoD databases. For both installation operating funds and the CMEP, installations identify requirements through the Programming, Planning, and Budgeting System and CompTRAK. The CMC LF tracks and reports these requirements up the chain to the DON, DoD, and Congress. Both installation operating and CMEP O&MMC funds are appropriated for one year. Installations must execute these funds using the Standard Accounting and Budgeting Reporting System environmental accounting codes.

The Office of the Secretary of Defense annually establishes environmental funding policy through the Defense Planning Guide (DPG). In general, the DPG attempts to fund all DoD Class 0 and Class I requirements and a prudent number of Class II requirements to ensure that forthcoming deadlines are met in accordance with environmental laws and regulations. Policy for the Marine Corps is published in the Commandant's Planning Guidance. This document establishes annual goals for the Marine Corps, including those relating to environmental programs. The DoD environmental quality classes for funding are summarized in Table 3-2.⁷

⁷ Headquarters United States Marine Corps, "Environmental Compliance and Protection Manual, Marine Corps Order (MCO) P5090.2A," May 2009.

Table 3-2. Summary of Environmental Quality Classes for Funding

Class	Description
0	This class includes activities needed to cover recurring administrative, personnel, and other costs associated with managing environmental programs that are necessary to meet applicable compliance requirements (i.e., federal, state, and local laws and regulations as well as EOs, DoD policies, and the Final Governing Standards [FGS] overseas) or that are in direct support of the military mission. This class also includes environmental management activities associated with the operation of facilities, installations, and deployed weapon systems. Recurring costs consist of manpower, training, supplies, HW disposal, operating recycling activities, permits, fees, testing, monitoring and/or sampling and analysis, reporting and recordkeeping (i.e., TRI reporting), maintenance of environmental equipment, and compliance self-assessments.
I	This class includes necessary projects and activities that are currently out of compliance (i.e., have received an enforcement action from a duly authorized federal, state, or local authority; have a signed compliance agreement or have received a consent order; and/or have not met requirements based on applicable federal, state, and local laws and regulations as well as EOs, DoD policies, and FGS overseas). This class also includes necessary projects and activities that are not currently out of compliance (i.e., deadlines or requirements have been established by applicable requirements, but deadlines have not passed or requirements are not in force), but will be out of compliance if projects or activities are not implemented within the current program year. Those activities include the preparation of plans (e.g., NEPA documentation, master plans, emergency response plans, integrated natural and cultural resources management plans, P2 plans, etc.), opportunity assessments, and inventories. The preferred approach is to use P2 projects or activities, if cost effective, to bring a facility into compliance. For overseas facilities, this class includes projects and activities necessary to alleviate the human health threats to ongoing operations or necessary to comply with applicable treaties and agreements.
II	This class includes necessary projects and activities that are not currently out of compliance (i.e., deadlines or requirements have been established by applicable federal, state, and local laws and regulations as well as EOs, DoD policies, and FGS overseas, but deadlines have not passed or requirements are not in force), but will be out of compliance if projects or activities are not implemented in time to meet an established deadline beyond the current program year. The preferred approach is to use P2 projects or activities, if cost effective, as the means of maintaining or bringing a facility into compliance. For overseas facilities, this class includes projects and activities identified using risk-based prioritization practices that meet the long-term objective of full implementation of the FGS for each foreign country where DoD maintains substantial installations.
III	This class includes projects and activities that are not explicitly required by law, but are needed to address overall environmental goals and objectives.

4.0 MCAS MIRAMAR P2 PROGRAM INFRASTRUCTURE

4.1 POLICY STATEMENT

MCAS Miramar is committed to actively protecting and enhancing the quality of the environment by strictly complying with all applicable regulatory requirements through a process of continual improvement. The preferred method of environmental protection at MCAS Miramar is to eliminate or control the pollutant source. All MCAS personnel are required to identify means and methods for the elimination or minimization of pollutants and, where possible, incorporate them at the earliest stages of planning, design, and procurement of facilities, weapon systems, equipment, and material. MCAS Miramar is dedicated to eliminating or minimizing the use of HM and the generation of HW. Each command and tenant organization at MCAS Miramar is required to employ the EMH in environmental project planning when assessing solutions to compliance requirements.

4.2 PROGRAM GOALS

The P2 program employed by MCAS Miramar is based on environmental management principles that direct the installation to meet federal and California mandated waste minimization requirements. These principles outline the benefits of reducing the use and disposal of HM whenever possible, which results in lower costs, safer work environments, fewer environmental impacts, and lower waste disposal costs. The P2 program shall be aligned with, and integrated into, appropriate elements of the Marine Corps Environmental Management System (EMS), to ensure a consistent approach and avoid potential duplication of effort.

4.3 ORGANIZATION AND RESPONSIBILITIES

Although P2 is established as a separate program area, MCO P5090.2A clearly assigns P2 responsibilities to other program areas and to all Marine Corps personnel as a whole. Chapter 1, Section 3 of MCO P5090.2A, states that it is the responsibility of all Marine Corps personnel to:

- Know and comply with the environmental rules and regulations that apply to their duties;
- Maintain a general awareness of all applicable Marine Corps environmental policies and goals;
- Apply the principles of Total Quality Leadership to incorporate environmentally safe practices and procedures into daily operations;
- Take advantage of P2 opportunities in everything the Marine Corps does;
- Emphasize environmental awareness and incorporate environmental compliance into every aspect of operational practices;
- Promote P2 as the primary means of achieving and maintaining compliance with environmental requirements; and
- Address environmental problems, rather than ignore them.

4.3.1 Environmental Department

The P2 Program at MCAS Miramar is administered by the Waste Management Division of the Environmental Management Department (EMD). The P2 Manager works closely with Station personnel and tenant organizations to work towards compliance with P2 requirements. The Environmental Management Department is responsible for implementing all requirements provided in MCO P5090.2A, as well as all federal, state, and local regulations addressing environmental issues. Additionally, EMD is responsible for ensuring P2 is employed to the best extent practicable across the installation to meet all requirements and goals. The fundamental management approach at MCAS Miramar is partnering with tenant commands, permanent personnel, other DoD activities, and the community to educate them on their responsibility to protect and preserve the environment. The overall Station responsibilities for environmental protection and compliance as presented in MCO P5090.2A are:

1. Adhere to the policies in the MCO Manual and this P2 plan.
2. Maintain a focal point for the coordination of the Marine Corps environmental compliance and protection programs with appropriate federal, state, and local agencies and with private organizations and individuals.
3. Maintain compliance with applicable laws, regulations, agreements, orders, and permit conditions.
4. Respond to Notices of Violations (NOVs) or similar assertions of noncompliance.
5. Respond to demands for payment of Marine Corps funds from regulatory agencies.
6. Organize, as needed, a base Environmental Compliance Review Board (ECRB) to consider current environmental compliance and protection issues. The ECRB should assist in the development of environmental policy to be implemented through appropriate base or station orders. The ECRB may be established as a part of, or in addition to, the Environmental Impact Review Board (EIRB), whose function is to review actions for NEPA applicability.
7. Submit nominations for the Environmental Quality and Natural Resources Conservation Awards, and other awards programs, as appropriate.
8. Develop an Environmental Compliance and Protection Standard Operating Procedure to ensure, assist in, and monitor environmental compliance and protection.
9. Organize and establish an installation EIRB to administer procedures for the preparation, review, and submission of environmental documentation prepared in compliance with NEPA (including Environmental Assessments and Environmental Impact Statements).
10. Plan, program, and budget for the resources and staffs needed to ensure environmental compliance and protection for an integrated natural resources management program.
11. Coordinate environmental matters with the CMC LF, counsel, and other appropriate federal, state, and local agencies. Such matters may include, but are not limited to, the following:
 - Negotiation of permit limits;
 - Payment of fees and fines;

- NOV's;
 - Compliance agreements or administrative orders;
 - Positions and concerns relative to new or proposed regulations and requirements;
 - Certification and acceptance of environmental permits;
 - Any proposal or requirements with potential to adversely affect the installation's mission; and
 - Host-tenant agreement roles and responsibilities (including permit conditions).
12. Notify the Marine Corps Regional Environmental Coordinator of any regulatory issues or regulatory agency actions that may be of state- or region-wide importance.
 13. Ensure that all personnel engaged in environmental protection and compliance activities are adequately trained and certified as required by the MCO Manual and by federal, state, or local rules and regulations.
 14. Plan, program, and budget for the resources and staff required to ensure that the EMH ethic and P2 concepts are integrated into procurement, facilities management, and environmental projects.

4.3.2 Pollution Prevention Manager

The P2 Manager has four broad areas of responsibility:

- General management of the P2 Program with emphasis placed on the initiation, identification, and implementation of P2 initiatives;
- Coordination of outreach efforts to promote education and inform station personnel about P2 Program activities and opportunities;
- Maintain the central repository for all information related to P2 goals and requirements; and
- Advise, coordinate, facilitate, and monitor P2 implementation.

The P2 Manager, in conjunction with the EMD, serves as a focal point to coordinate, document, and support Station P2 activities. However, the P2 Manager does not have sole responsibility for all P2 activities – it is a shared responsibility for all station organizations and tenants to implement. The P2 Program is a cross-cutting program that requires the collaboration of all divisions, branches, commands, and units to be truly successful. The responsibility for implementing P2 is clearly assigned to all personnel on station through the Commanding Officer's Policy Statement on Environmental Protection. The P2 Manager will identify P2 training needs and integrate such needs into the Comprehensive Environmental Training and Education Program.

The P2 Manager has overall responsibility for the development and implementation of this P2 Plan and coordinating, documenting, and supporting Station P2 activities. The P2 Manager has, at a minimum, the following detailed responsibilities:

- Facilitate the integration of P2 into MCAS Miramar's comprehensive planning process;
- Support, assist, and encourage all commands and units at MCAS Miramar to comply with P2 directives contained in MCO P5090.2A and the Commanding Officer's Policy Statement on Environmental Protection;

- Collect data from MCAS Miramar's organizations necessary to monitor, track, and report on P2 progress;
- Complete the Environmental Portal (EPR Portal) HW Annual Data Call that replaced the Pollution Prevention Annual Data Summary;
- Work with the various departments, divisions, and branches to establish MCAS Miramar's P2 goals and objectives;
- Coordinate P2 Opportunity Assessments to identify and evaluate P2 procedural changes, projects, and equipment;
- Perform P2 Opportunity Assessments⁸;
- Prepare the annual updates to the P2 and HW Minimization Plan;
- Recommend priorities for funding P2 projects and equipment; and
- Supervise the performance of P2 projects.

⁸https://portal.navy.mil/portal/page/portal/NAVFAC/NAVFAC_WW_PP/NAVFAC_NFESC_PP/ENVIRONMENTAL/PRODUCTSANDSERVICES.HTM/POLLUTION%20PREVENTION%20OPPORTUNITY%20ASSESSMENTS/

5.0 PROGRAM STATUS

5.1 REQUIREMENTS

Per MCO P5090.2A, P2 plans are living documents and should be updated annually to reflect new technologies, investment strategies, or environmental requirements. Based upon site visits and a review of the existing P2 Plan, P2 metrics were established for MCAS Miramar based upon EOs 13423 and 13514.

MCAS Miramar is required to report progress in P2 to the Naval Facilities Engineering Service Center (NFESC) and to CMC (LFL-6) and CMC (LFF) via the ERP Portal. HW data for the previous calendar year is to be submitted via the EPR Portal each year in March. The EPR Portal report tracks progress made towards HW and SW reduction. MCAS Miramar personnel can also use P2 metrics as a decision-making tool to focus the resources of the Station’s environmental program.

5.2 SUMMARY OF GOAL STATUS

Table 5-1 provides a summary of the goals set forth in EO 13514. EO 13514 did not revoke EO 13423, but extends the reduction requirements of EO 13423 goals. As such, MCAS Miramar goals and targets for environmental performance will be measured against EO 13514.

Table 5-1 Summary of Goal Status

Goal Area	Requirement	Baseline	2011 Metrics	Goal Status
Energy Efficiency	Increase use of renewable energy and implement renewable energy projects.	None	11,950 MMBtu	Solar lighting projects have been very successful.
	Reduce building energy intensity 3% annually through FY 2015, or 30% total reduction by FY 2015. Baseline FY 2003.	56.98 Btu/SF	51.33 Btu/SF	9.2% reduction since baseline.
GHGs	DoD set 2020 GHG reduction goals relative to the baseline year of 2008: Scope 1 and 2: 34% reduction Scope 3: 14.5% reduction Pursue opportunities to work with vendors and contractors to incorporate incentives to reduce GHG emissions. Implement strategies and accommodations for transit and traveling to support reducing the carbon footprint. In addition, inventory absolute GHG emissions within 15 months of FY 2010 and annually thereafter.	Scope 1: 12,073 metric tons (MT) carbon dioxide equivalent (CO ₂ e) Scope 2: 27,684 MT CO ₂ e Scope 3: 12,904 MT CO ₂ e	Scope 1: 11,176 MT CO ₂ e Scope 2: 26,012 MT CO ₂ e Scope 3: 13,171 MT CO ₂ e	2010 GHG inventory complete. 6.5% reduction in Scope 1 and 2 emissions since baseline. 2% increase in Scope 3 emissions since baseline.
Water Conservation	Reduce water use intensity by 2% annually relative to the 2007 baseline year or achieve a 26% total reduction by 2020.	35.39 thousand gallons (kgal)/kSF	24.9 kgal/kSF	29.6% reduction since baseline.
Procurement	Agencies shall ensure that 95% of new contracts meet sustainable acquisition requirements (excluding weapons systems).	None	NA	NA

Table 5-1 Summary of Goal Status

Goal Area	Requirement	Baseline	2011 Metrics	Goal Status
P2	(1) Divert at least 50% of nonhazardous SW (excluding construction and demolition [C&D] debris) by the end of 2015.	2015	581.4 tons recycled	8% diversion in 2011.
	(2) Divert at least 50% of C&D materials and debris by the end of 2015. ⁹	2015	7,647.8 tons recycled	22% diversion in 2011.
	(3) Reduce printing paper use and acquire uncoated printing and writing paper containing at least 30% post-consumer fiber.	None	No system in place to track progress toward sustainable acquisition goals.	All procurements aboard MCAS Miramar go through Marine Corps Air Station Camp Pendleton's Serve Mart.
Building Performance	Zero-net-energy for all new buildings by 2030, begin implementation in 2020. All new construction buildings and major renovations must follow "Guiding Principles." Fifteen percent of existing buildings (>5,000 square feet) must meet "Guiding Principles" by 2015.	None	MCAS Miramar is currently at a low BTUs/SF rate of 51. Since 2011, 100 percent of the new construction has been Leadership in Energy and Environmental Design (LEED) certified.	The new Hangar 7 is slated to be on an alternative energy source when it is completed in 2013. As of April 2012, the Station has completed five LEED projects and has programmed three projects to be developed as LEED-certified facilities.
Fleet Management	Agencies that operate a fleet of at least 20 motor vehicles relative to the baseline year of 2005 are required to reduce petroleum consumption by 2% annually through 2015 (total reduction of 20%).	101,231 gallons	91,837 gallons	9.3% reduction since baseline
	Each agency shall increase their purchase of alternative fuel, hybrid, and PIH electric vehicles when commercially available.	None	185 alternative fuel vehicles	8% increase in alternative fuel vehicles from 2010-2011.
Electronics Management	Ensure that annually, 95% of electronic products purchased meet EPEAT standards where applicable. Establish and implement policies that enable power management, double-sided printing, and environmentally sound practices for electronics disposal. Procure Energy Star and FEMP-designated electronic equipment and implement BMPs for energy-efficient servers and federal data centers.	None	DON administers contract to purchase desktop and laptop computers. E-Waste is recycled and sold through the QRP at the Recycling Center. No policy in place to mandate double-sided printing.	DON administers contract to purchase desktop and laptop computers. E-Waste is recycled and sold through the QRP at the Recycling Center. No policy in place to mandate double-sided printing.

MMBtu – million British thermal units
 MT CO_{2e} – metric tons carbon dioxide equivalent
 kgal/kSF – thousand gallons/thousand square feet

⁹ DoD Strategic Sustainability Performance Plan requires that 60% C&D non-hazardous SW be diverted by the end of 2015.

5.3 ENVIRONMENTAL PROGRAMS

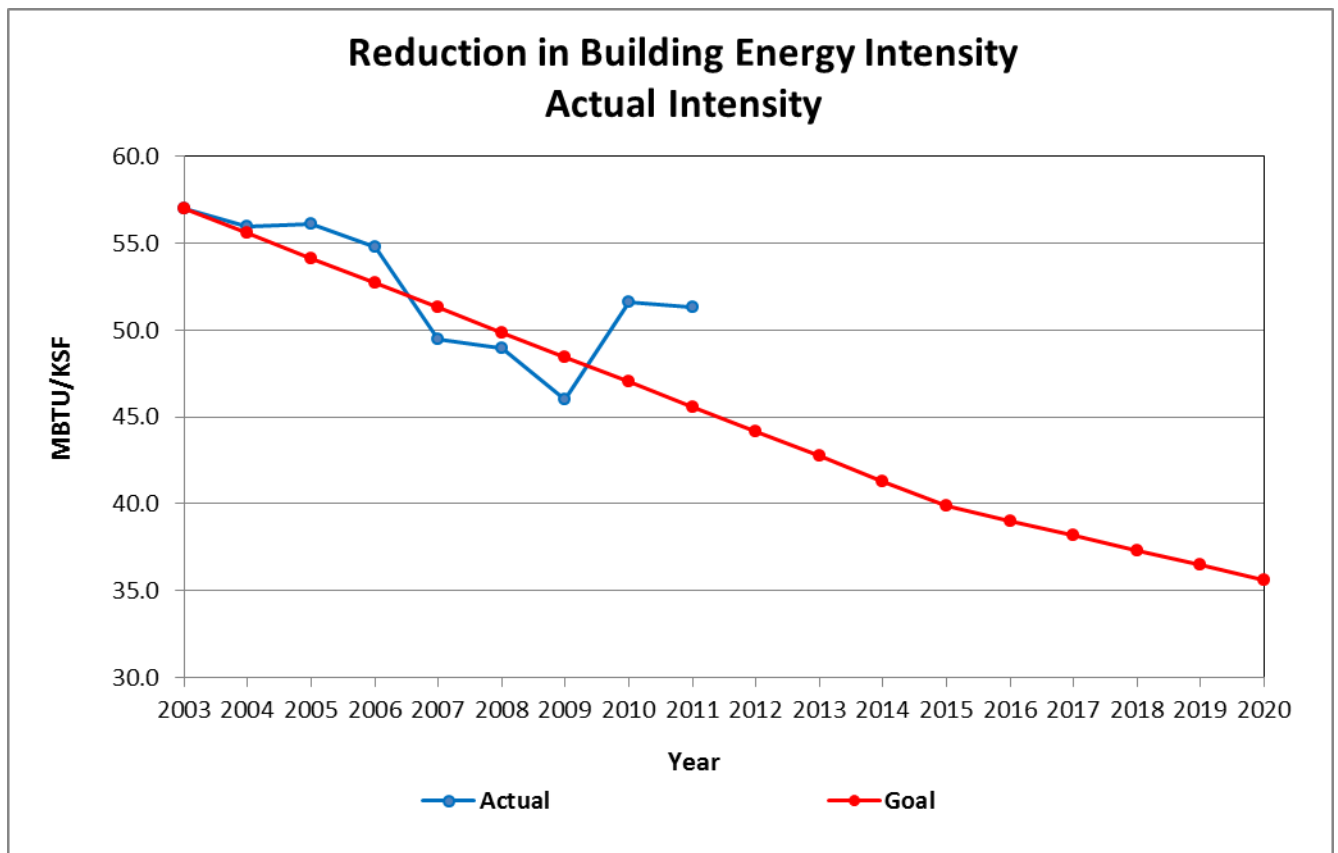
This section provides a summary of the environmental programs in place at MCAS Miramar. Information contained in this section was derived from interviews with MCAS personnel and through various MCAS documents.

5.3.1 Energy Conservation

EO 13423 and EISA 2007 required federal facilities to reduce energy intensity by 3% annually through 2015 or by 30% by 2015 based on a 2003 baseline year. EISA 2007 also identifies a goal of 30% hot water demand for new buildings must come from solar sources.

Energy intensity is defined as energy consumption per square foot of building space. MCAS Miramar’s total energy consumption and square footage for the FY 2003 baseline year were 319,749 Million British Thermal Units (MBTU) and 56,812 thousand square feet (KSF), respectively. The resulting energy intensity value was 56.98 British Thermal Units per square feet (SF). MCAS Miramar’s energy intensity levels for FYs 2003 – 2011 are shown in Figure 5-1. Since the baseline year, MCAS Miramar’s total energy consumption was reduced by 12.7 percent. During the same period, MCAS Miramar’s gross square footage was reduced by 9.0 percent. This has resulted in an energy intensity reduction of 9.2 percent.

Figure 5-1. Reduction in Energy Intensity



The Station Energy Manager continues to implement an aggressive energy conservation and management program. Goals were formalized in the MCAS Miramar Energy Campaign Plan 2011. The Campaign Plan's stated goal is to "significantly reduce energy consumption per square foot by energy conservation and energy efficiency upgrades and then capitalize on our renewable assets." These goals, which are summarized below, are aligned with Marine Corps Installations West's energy strategy, as stated in the Commanding General's Policy Letter 13-10.

Since the baseline year, MCAS Miramar has installed hundreds of solar-powered parking lot and street lights, two solar carports (200 kilowatt [kW] and 250 kW), a 120-kW concentrated solar power system, and a solar thermal heating system at the station training tank. Estimated production was 11, 950 MBTU during fiscal year (FY) 2011. In June 2012, MCAS Miramar brought online 3 megawatts of renewable power using landfill gas.

5.3.2 Greenhouse Gas

The DoD has set GHG reduction goals under EO 13514 at 34% reduction of Scope 1 and Scope 2 GHG emissions and 14.5% reduction of Scope 3 GHG emissions compared to the 2008 baseline.¹⁰ Scope emissions are categorized/defined as follows. Note, that while there may be additional sources of Scope 3 emissions, those listed below currently have established methods for their calculation at federal agencies.¹¹

- Scope 1 – Direct Emissions are emissions from sources that are owned or controlled by the reporting entity and can include:
 - Stationary combustion
 - Mobile combustion
 - Fugitive sources (i.e., refrigerant and fire suppressions systems)
 - Landfills
 - Wastewater treatment
- Scope 2 – Indirect Emissions are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity:
 - Purchased electricity
 - Purchased steam
- Scope 3 – Other indirect emissions
 - Transmission & distribution (T&D) losses
 - Employee commuting
 - Contracted waste disposal
 - Contracted wastewater disposal
 - Employee business travel

¹⁰ DoD, "Strategic Sustainability Performance Plan," August 2010.

¹¹ <http://www.epa.gov/oaintmnt/ghg/index.htm>

Table 5-2 summarizes the GHG emissions by scope and emissions source category, as well as the breakdown between biogenic and anthropogenic emissions for MCAS Miramar.¹² Figure 5-2 illustrates the total Scope 1, 2, and 3 GHG emissions as well as the reduction goals.¹³ According to the DRAFT Federal Greenhouse Gas Accounting and Reporting Guidance dated 2 July 2010, biogenic emissions are not subject to agency reduction targets at this time.¹⁴

Table 5-2. Summary of MCAS Miramar GHG Emissions for FY10

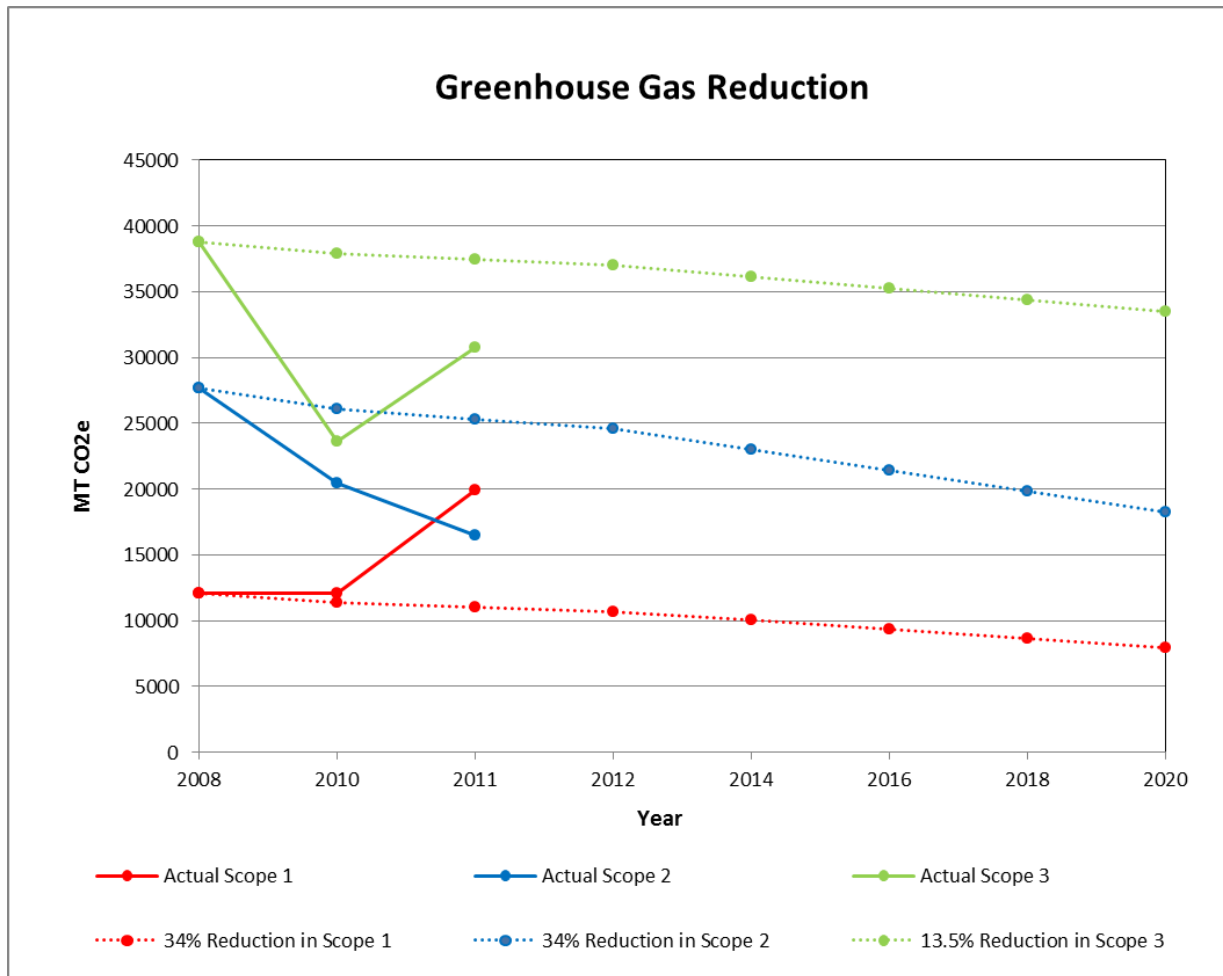
Scope	Source Category	Total Quantity Emitted (MT CO ₂ e)	Total Quantity Emitted Biogenic CO ₂ (MT)	Total Emitted (MT CO ₂ e)
Scope 1	Stationary Combustion	8,793	0	8,793
	Mobile Emissions	2,289	92	2,382
	Fugitive gases (Refrigerants)	94	0	94
	Wastewater Treatment Plants	0	0	0
	Landfills	0	0	0
	Subtotal Scope 1	11,176	92	11,269
Scope 2	Purchased Electricity	26,012	0	26,012
	Purchased Steam	0	0	0
	Subtotal Scope 2	26,012	0	26,012
	Subtotal Scope 1 and 2	37,188	92	37,281
Scope 3	T&D Losses	1,713	0	1,713
	Employee Commuting	7,676	0	7,676
	Contracted Wastewater Treatment	65	0	65
	Contracted SW Disposal	3,717	0	3,717
Subtotal Scope 3	13,171	0	13,171	
Total	50,360	92	50,452	

¹² URS Group, Inc. (URS), "Draft Greenhouse Gas Inventory for Marine Corps Installations West to Support Compliance with Executive Order 13514," January 2011.

¹³ URS, "Draft Greenhouse Gas Inventory for Marine Corps Installations West to Support Compliance with Executive Order 13514," January 2011.

¹⁴ <http://www.whitehouse.gov/sites/default/files/microsites/ceq/Draft-GHG-Accounting-and-Reporting-Guidance-6-30-10.pdf>

Figure 5-2. GHG Emissions and Reduction Goals



MCAS Miramar’s main source of GHG emissions is from its purchased electricity, which contributes to Scope 2 emissions. Although MCAS Miramar has a landfill within its fence line, it is owned and operated by the City of San Diego for its municipal SW.

5.3.3 Water Conservation

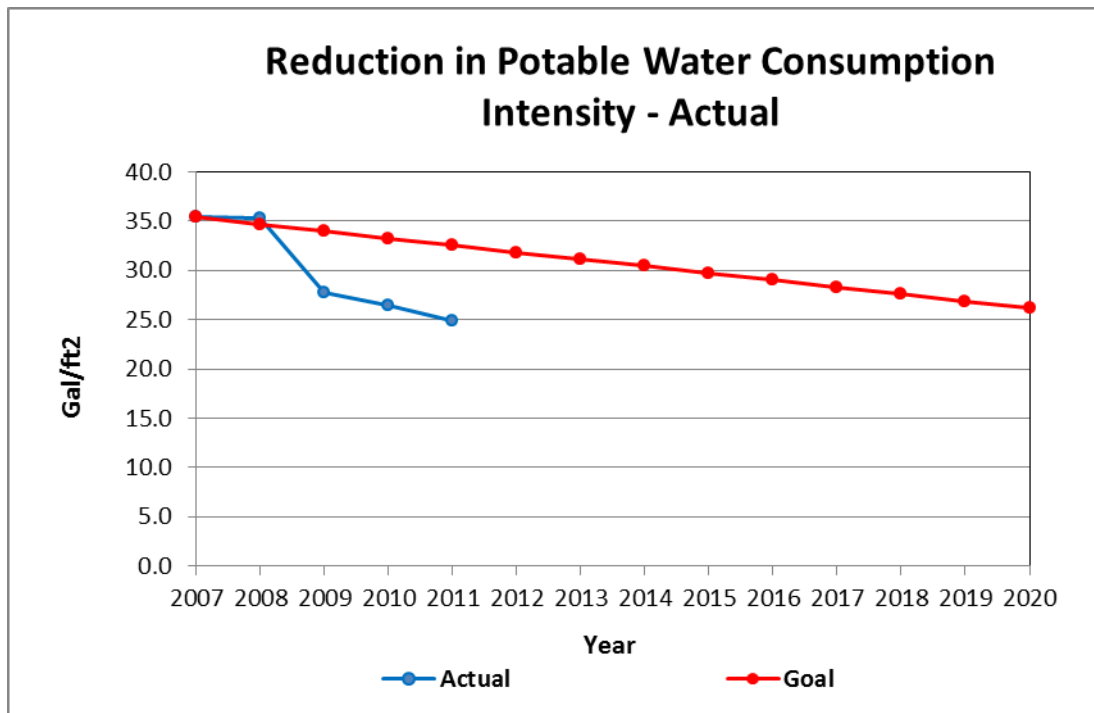
The Marine Corps has not established a numeric goal for reducing water consumption. Chapter 16 of MCO P5090.2A, Drinking Water Systems and Water Conservation, requires each Marine Corps installation to establish a water conservation program. EO 13514 requires agencies to reduce water consumption intensity, relative to the baseline of the facility’s water consumption in FY 2007, by 2% annually through the end of FY 2020 or to reduce a total of 26% by the end of FY 2020. Where possible, water cost savings and associated energy cost savings should be included in Energy-Savings Performance Contracts and other financing mechanisms.

All water and sewerage services at MCAS Miramar are purchased from the City of San Diego Public Utilities. The City of San Diego imports approximately 85-90% of its water from the Metropolitan Water

District of Southern California via the San Diego County Water Authority.¹⁵ The water is a blend from the Colorado River, State Water Project, and local sources.

Potable water intensity is defined as the fresh water consumption per square foot of building space. MCAS Miramar’s potable water consumption and square footage for the FY 2007 baseline year were 198,582,000 gallons and 5,612 KSF, respectively. The resulting potable water energy intensity value was 35.39 Gal/SF. MCAS Miramar’s potable water intensity levels for the years 2007 – 2011 are shown in Figure 5-3. Since the baseline year, potable water intensity has dropped by 29.6 percent.

Figure 5-3. Potable Water Intensity Levels



An aggressive water conservation program and the completion of an 8-phase recycled water distribution system are responsible for MCAS Miramar exceeding the potable water reduction goals. The recycled water distribution system utilizes a local City of San Diego connection point. Recycled water is in use on playing fields, green spaces, and in a number of dual-plumbed occupied buildings. During FY 2011, the potable water savings was estimated to be 56,582,000 gallons.

MCAS Miramar continues to aggressively pursue water conservation opportunities. New technologies are being investigated to detect potable water system leaks. New construction Requests for Proposal include a requirement for dual plumbing where feasible.

5.3.4 Green Procurement Plan

The Green Procurement Plan involves procuring quality goods and services, while using public market power to bring about financial, environmental, and social benefits.¹⁶ Obtaining quality goods and

¹⁵ City of San Diego, “2010 Annual Drinking Water Quality Report,” <http://www.sandiego.gov/water/quality/pdf/waterqual10.pdf>

services that meet specifications, are reasonably priced, and are delivered on time are key considerations in any acquisition. For any agency, goods and services must meet specifications. This is critical for the DoD, especially in a field setting where items must perform as required and not result in collateral burdens. Although tactical vehicles and equipment are exempt from sustainable acquisition, the DoD is committed to taking advantage of sustainable opportunities.¹⁷ While Sustainable Acquisition never trumps specifications and performance in any setting, purchasing sustainable, eco-efficient goods and services can enhance DoD's ability to meet its mission.

The DoD's Strategic Sustainability Performance Plan (SSPP) outlines goals and performance expectations for the next decade, establishing the path by which it will serve as a model of sustainability for the nation. The DoD SSPP goals include making sustainability practices the norm, with sustainable acquisitions serving as a key subgoal.¹⁸ DoD and its installations, including MCAS Miramar, by the sheer size of its purchasing power, have a tremendous opportunity to influence the marketplace when applying sustainable acquisition principles to their selection of goods and services.

With regards to acquisition, EO 13514 directs federal agencies to ensure that 95% of new contracting actions for products and services are sustainable, applying at least one of the following criteria as agency performance specifications allows:

- **Energy efficient** – measures, practices, or programs that reduce the energy used by specific devices and systems, typically without affecting the services provided. Such efficiencies are generally achieved by technically more advanced equipment or operating procedures to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less energy input.
- **Water efficient** – measures, practices, or programs that reduce the water used and wastewater produced by specific devices and systems, typically without affecting the services provided.
- **Bio-based** – a commercial or industrial product (other than food or feed) that uses biological products, or renewable domestic agricultural (i.e., plant, animal, and marine) or forestry materials.
- **Environmentally Preferable** – products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, product, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.

¹⁶ United Nations Development Programme, 2008. *Environmental Procurement Practice Guide*. Procurement Services Office, Quality Assurance and Professionalisation Unit. February.

¹⁷ DON, 2009. Green Procurement Program Implementation Guide, February. "Military tactical vehicles and equipment are exempt. Military tactical vehicles and equipment include weapon systems used on the battleground, portable equipment that supports logistical and combat aircraft, vehicle to transport combat and support personnel during military operations, and other military equipment weapon systems."

¹⁸ DoD, "Strategic Sustainability Performance Plan," August 2010.

- **Non-Ozone Depleting** – ozone depleting substances (ODSs) are any chemical listed as a Class I or Class II substance as defined by the Clean Air Act and 40 CFR 82. While production of Class I ODSs has ceased, production phase-outs of Class II ODSs are underway.
- **Recycled Content** – products that contain previously used materials, substitutable for a raw or source material in the manufacturing process. If not recycled, this material would become waste.
- **Non/less-toxic** – products or services that contain non- or less-toxic compounds when compared with competing products or services that serve the same purpose.

While there is a section in EO 13514 specific to sustainable acquisition, there are other areas in the EO that impact procurement as follows:

- **Printing Paper:** The section on promotion of P2 directs the purchase of uncoated printing and writing paper that contains at least 30% post-consumer fiber.
- **Electronics Stewardship:** EO 13514 has a section on promoting electronics stewardship with a preference for procuring EPEAT registered products.
- **GHG Emissions:** Tasked by EO 13514, the General Services Administration (GSA) concluded that it is feasible for the federal government to track and reduce its Scope 3 supply chain emissions through coordination with suppliers and other stakeholders. Scope 3 emissions are a consequence of the activities of the organization, but come from sources outside of the organizational boundary (i.e., the manufacture and distribution of goods and services prior to their purchase and use). The fields of GHG emissions reporting, especially Scope 3 sustainable supply chain management, are still emerging. Adopting a phased approach should allow the Government to incorporate leading practices as they develop.

MCAS Miramar has a Green Procurement Plan; however it does not currently address EO 13514. Further, records of procurements that are considered “sustainable” or not are not kept. Additionally, this objective does not have a baseline year; it requires that 95% of acquisitions be sustainable on an annual basis. Military procurements aboard MCAS Miramar go through MCAS Camp Pendleton’s Serve Mart. MCCS procures supplies through their own vendor.

5.3.5 Hazardous Materials

In the State of California, a business is in compliance with Emergency Planning and Community Right-to-Know Act (EPCRA) Tier II reporting requirements if the business has a current permit from the Administering Agency.¹⁹ In San Diego County, the Administering Agency is the San Diego County Department of Environmental Health, Hazardous Materials Division; this agency is also referred to as the Consolidated Unified Program Agency (CUPA). The local permit that facilities must obtain for hazardous materials is a Unified Program Facility permit. Permits are required if a facility uses, handles, or stores hazardous materials or wastes in quantities equal to or greater than:

- 55 gallons of a liquid;

¹⁹ <http://www.co.san-diego.ca.us/deh/hazmat/pdf/hmbp/hm-952-full-version.pdf>

- 500 pounds of a solid substance;
- 200 cubic feet of a compressed gas;
- a toxic compressed gas in any amount if the threshold limit value is less than 10 parts per million; and/or
- extremely hazardous substances in quantities equal to or greater than the threshold planning quantities.

MCAS Miramar currently has 54 permits which comprises Station activities, including medical waste permits.

5.3.6 Hazardous Waste

MCAS Miramar is a large quantity generator of HW; a generator that generates more than 1,000 kilograms [2,200 pounds] of RCRA HW or over 1 kilogram [2.2 pounds] of extremely HW in any calendar month. The Waste Management Division utilizes a database to track hazardous waste disposal. The database is programmed to produce summary reports. These reports are used in completing the annual EPR Portal report. Data for the table below were derived from EPR Portal data from calendar year (CY) 2007 through CY 2011.

Table 5-3. MCAS Miramar Hazardous Waste Generation for CY 2007 – CY 2011

Year	HW Generated (lbs)	HW Recycled Off-Site (lbs)	HW Management Costs
2007	1,658,902	387,094	\$338,001
2008	1,169,480	375,636	\$389,674
2009	1,052,069	501,965	\$541,864
2010	18,920,539	1,050,958	\$279,295
2011	4,069,086	412,084	\$319,759

The largest generating hazardous waste activity aboard the Station includes aircraft support and maintenance. The processes involved in aircraft maintenance include aircraft touch-up-painting, vehicle and aircraft washing, and other routine aircraft engine maintenance, which results in large waste streams of oil/water separator wastes, paint and paint related wastes, and aircraft engine fluids, rags, and debris from routine shop cleanups.

The Station recycles as much hazardous waste as practicable. For instance, uncontaminated oil and antifreeze are recycled and reutilized. Used oil recovery generates approximately \$0.10 per gallon of revenue through the Station Qualified Recycling Program (QRP). In addition the Station utilizes a Recycling Contractor to dispose of rechargeable batteries at no cost.

The SB 14 process requires an assessment of major waste streams based on their contribution to the total volume of hazardous waste generated. Routinely generated hazardous waste streams that comprise 5% or more of total hazardous waste generated are defined as major hazardous waste streams and are subject to SB 14 evaluation. The SB 14 requires a review of the major waste streams every four years; the latest

review was submitted to Department of Toxic Substances Control (DTSC) in September 2011, for Report Year 2010 waste streams.

Table 5-4 lists the major hazardous waste streams identified for Reporting Year 2010.²⁰ Station waste streams were identified through a thorough review of generated wastes and confirmed by Base personnel interviews as routinely generated wastes subject to SB 14 evaluation.

Table 5-4. Major Hazardous Waste Streams

CWC	Waste Stream	2010 Weight (lbs)	Percent by Weight
134	NON RCRA HAZ WASTE LIQ (O/W)	762,544	87.16%
223	WET OILY RAGS/DEBRIS	23,503	2.69%
352	DRY OILY DEBRIS/HOSES/RAGS/PADS	22,209	2.54%

Detailed information is presented below for each of the major waste streams identified for Reporting Year 2010. When looking at both wet and dry oily rags and debris together, the total generation is over the 5% threshold, making wet and dry oily rags/debris together a major waste stream. However, the two waste streams have different cost work centers (CWCs) and therefore per the SB 14 guidance should not be grouped and subtotaled as a single major waste stream.²¹ MCAS Miramar has chosen to evaluate source reduction measures for wet and dry oily rags and debris separately, even though each waste stream comprises less than 5% by weight of the total hazardous waste generated at the Station.

Hazardous waste source reduction is further discussed in Section 6.0 Pollution Prevention Opportunities.

5.3.7 SW and Recycling

In order to optimize its mission through diversion, the DoD requires installations to implement Integrated SW Management (ISWM) to achieve these goals.²² ISWM is a comprehensive approach to managing non-hazardous SW that encompasses waste prevention, recycling, composting, and disposal programs. Instead of solely focusing on SW disposal activities, the ISWM approach minimizes the initial generation of materials through source reduction, then through reuse and recycling further reduces the volume before disposal via landfill or incineration. Further program information as well as current and proposed options for managing SW are included in the Miramar's ISWM Plan.

Table 5-5 summarizes the SW management activities at MCAS Miramar between FY 2007 and 2011.

²⁰ URS, "Source Reduction Review and Evaluation Plan," June 2011.

²¹ Department of Toxic Substance and Control, "Guidance Manual For Complying with the Hazardous Waste Source Reduction and Management Review Act of 1989," December 2010.

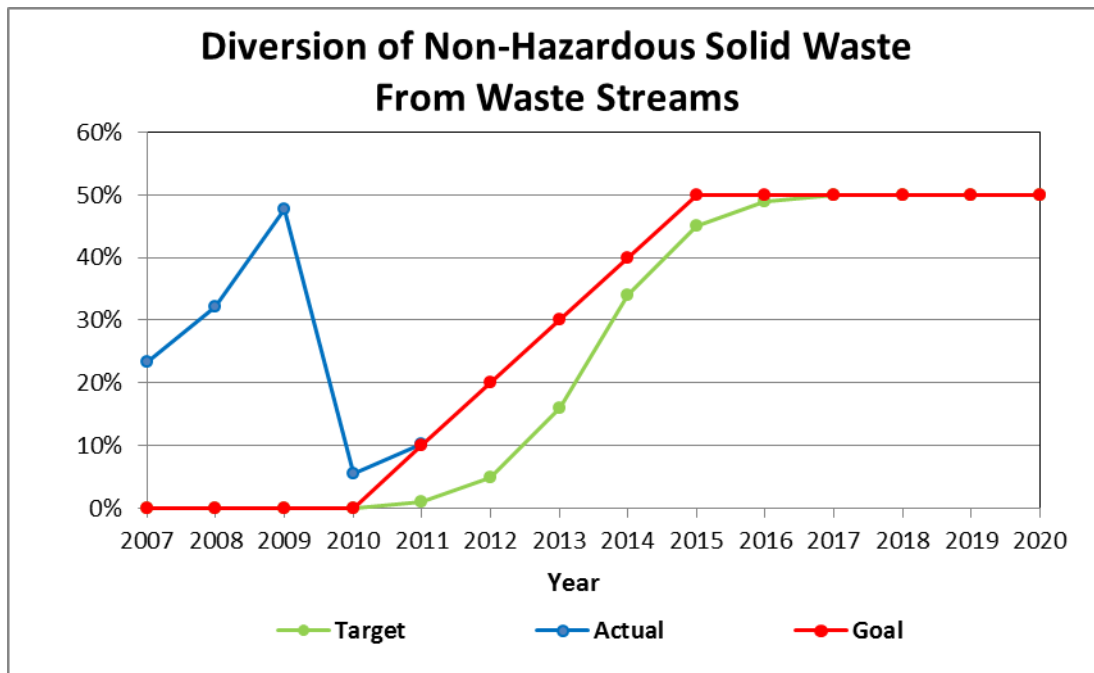
²² DoD, "DoD Integrated (Non-Hazardous) Solid Waste Management Policy," February 2008.

Table 5-5. SW Management Activities (tons)

Fiscal Year	Station Population	Recycled	Composted	Incinerated	Landfilled	Total	Percent Diverted
2007	1,183	1,010.78	0.0	0.0	10,566	11,576.78	9%
2008	2,009	1,487.6	0.0	0.0	4,534.16	6,021.76	25%
2009	14,292	2,763.25	0.0	0.0	1,771	4,534.25	61%
2010	10,265	984.6	0.0	0.0	5,090.3	6,074.9	16%
2011	10,832	581.4	0.0	0.0	6,553.16	7,134.56	8%

MCAS Miramar tracks progress on SW reduction and diversion and reports these results to NFESC through the EPR Portal. Diversion and landfill volumes are depicted on Figure 5-4. Note this figure does not include construction and demolition (C&D) debris. Additionally, the figure shows the percent diversion. Currently, MCAS Miramar is not meeting the diversion goals identified in EO 13514.

Figure 5-4. Diversion of SW Volumes Percentage Diverted



The C&D debris data for 2007 was incomplete in the annual report; the report did not indicate the volume of C&D debris recycled. However, the annual reports from FY 2008 through FY 2011 appear to contain accurate data. Table 5-6 summarizes the C&D waste management activities at MCAS Miramar between FY 2007 and 2011.

Table 5-6. C&D Waste Management Activities (tons)

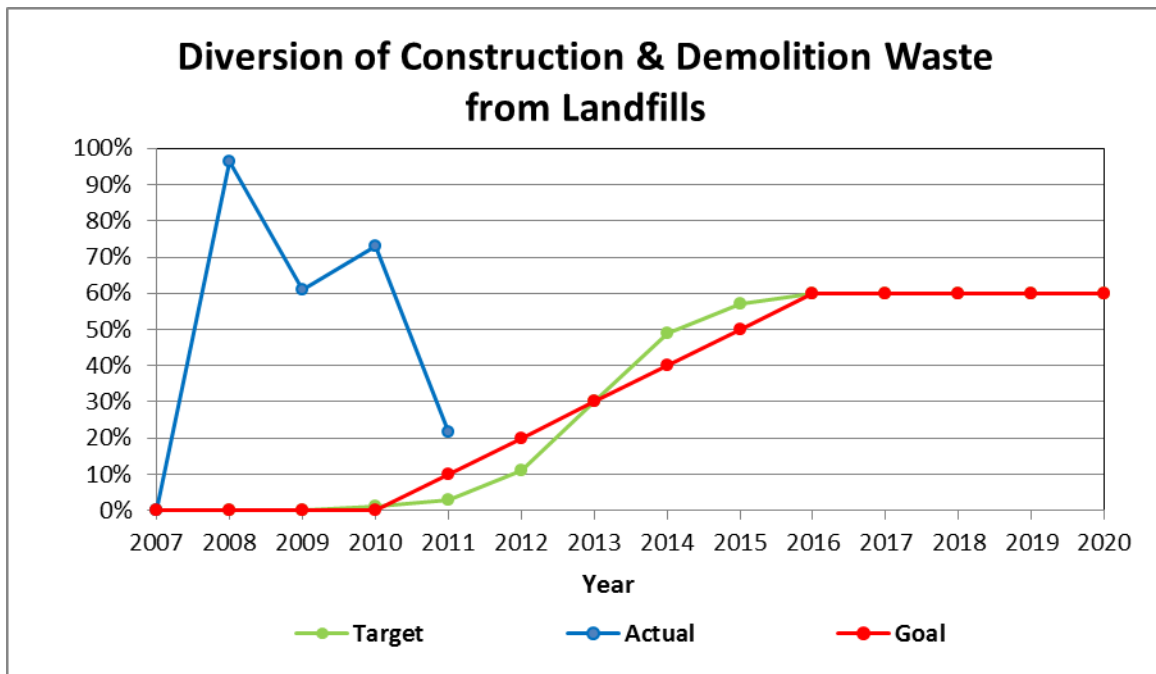
FY	Recycled	Landfilled	Total	% Diverted
2007	0	41.33	41.33	0%
2008	28926.65	1061.50	29988.15	96%
2009	627.45	400.16	1027.61	61%

Table 5-6. C&D Waste Management Activities (tons)

FY	Recycled	Landfilled	Total	% Diverted
2010	15237.57	5621.71	20859.28	73%
2011	7647.83	27392.45	35040.28	22%

C&D debris data for 2007 was incomplete in the annual reports; this report did not indicate the volume of C&D debris recycled. However the annual reports from FY 2008 through FY 2011 appear to contain accurate data. Figure 5-5 depicts the total volume of C&D debris generated and diverted from the landfill.

Figure 5-5. C&D Diversion of SW Volumes Percentage Diverted



MCAS Miramar operates a direct sale QRP. The QRP Manager obtains bids for each commodity every month in order to maximize revenue. Commodities currently processed through the QRP include: cardboard, paper (various types), metals (i.e., steel, aluminum, copper, etc.), and pallets (wooden and plastic). In addition to these items, the Station recycles beverage containers at the current California Redemption Value.

For more information regarding the SW Program or the QRP, see the Integrated SW Management Plan.

5.3.8 Building Performance

MCAS Miramar intends for all new buildings in the planning process from 2020 to be designed to achieve zero-net-energy by 2030. This effort includes several existing and planned projects that advance its position in achieving zero-net-energy including: landfill power, solar panels, solar thermal energy, boiler replacement, co-generation, and a smart grid. The new Hangar 7 is slated to be on an alternative energy source when it is completed in 2013. MCAS Miramar is currently at a low BTUs/SF rate of 51.

MCAS Miramar was selected by the DoD/DOE Net Zero Analysis Task Force as the initial prototype installation for net zero energy analysis. Miramar was selected based on its strong history of energy advocacy and extensive track record of successful energy projects. The National Renewable Energy Laboratory expanded the initial definition of a Net Zero Energy Installation (NZEI) in consultation with the task force and MCAS Miramar to clarify the focus on renewable energy and expand analysis to include fleet transportation fuel use. For the purposes of this assessment, a NZEI is defined as: “A military installation that produces as much energy on-site from renewable energy generation or through the onsite use of renewable fuels, as it consumes in its buildings, facilities, and fleet vehicles.”

MCAS Miramar has progressively worked toward achieving LEED Gold certification and complying with Guiding Principles of High Performance and Sustainable Buildings. As of April 2012, the Station has completed five LEED projects and has programmed three projects to be developed as LEED-certified facilities. Since 2011, 100 percent of the new construction has been LEED certified.

5.3.9 Storm Water Management

MCAS Miramar’s EMD is programmed to install a total of 19 storm water treatment systems throughout the industrial areas of the station. As of October 2011, EMD has installed 12 storm water treatment systems that serve to capture and remove pollutants such as oil, debris, trash, and sediment from storm water runoff at the station before it enters Rose Canyon and eventually flows to the Pacific Ocean.

For operations and construction projects at MCAS Miramar, compliance with storm water regulations is managed through the EMD. For ongoing operations and compliance with the Industrial Storm Water General Permit, the office of the Director of Environmental Engineering generates an Annual Storm Water Monitoring Report. This document contains data on monthly and quarterly, dry and wet weather observational readings; storm water sampling and analysis; and Storm Water Pollution Prevention Plans (SWPPPs) for operational activities. In accordance with the 2010-2011 Storm Water Monitoring Report, MCAS Miramar is 100 percent compliant with the General Permit requirements. The report also catalogues the history of the storm water monitoring program and compliance since the 1993-1994 reporting year.

For facility construction projects, storm water review and compliance is managed by the office of Environmental Planning through the NEPA process. On new project plan submittals, projects are routed by Environmental Planning to stakeholders for review, including for storm water and site disturbance, and to the Integrated Product Team at NAVFAC, and then catalogued in the NEPA database. To comply with State Water Resources Control Board regulations, a SWPPP must be prepared for projects involving more than 1 acre of disturbance. Projects involving less than 1 acre of site disturbance are guided by the California Storm Water Quality Handbook.

5.3.10 Fleet Management

A federal agency is subject to the fleet requirements under EO 13514 if it owns, operates, leases or otherwise controls 20 or more automobiles and/or motor vehicles, including light-duty vehicles, medium-duty vehicles, and heavy-duty vehicles, within the U.S. and not on the list of exempt vehicles. It should be noted that the exempt vehicles include: law enforcement and emergency, military tactical, non-road, and vehicles operated outside of the United States.

MCAS Miramar, through the Southwest Region Fleet Transportation (SWRFT), utilizes the Federal Automotive Statistical Tool (FAST) system to track and report on fleet metrics. FAST was developed by the Department of Energy and the GSA to assist fleets in meeting the data reporting requirements of several EOs and acts, including EO 13514.

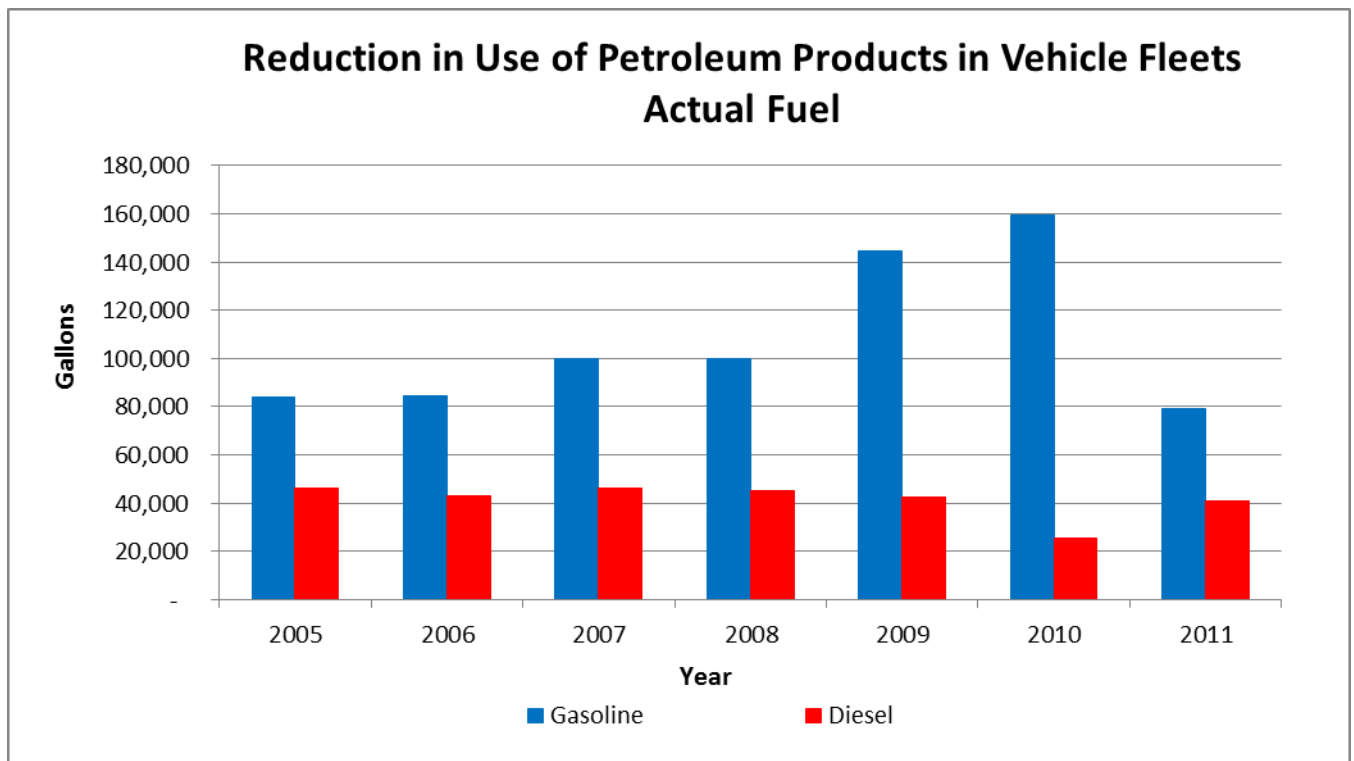
MCAS Miramar has a fleet of alternative fuel vehicles and is continuing to increase the number of alternative fuel and hybrid vehicles when making new purchases or entering into new lease agreements. Table 5-7 summarizes the number of various alternative fuel vehicles at MCAS Miramar from FY 2005 through 2011.²³

Table 5-7. Alternative Fuel Consumption FY 2000 – 2011

Vehicle Type	2005	2006	2007	2008	2009	2010	2011
CNG	96	96	55	53	47	36	37
E-85	57	59	95	102	101	102	116
Electric	-	-	-	-	-	25	24
Hybrid	-	-	-	-	5	8	8

In addition to the number of alternative fuel vehicles within the fleet, MCAS Miramar also tracks petroleum consumption. Figure 5-6 depicts the fleet fuel consumption of the fleet since the baseline year, FY 2005. This figure also identifies the percentage of alternative fuel consumed.

Figure 5-6. Fleet Fuel Consumption



²³ Federal Automotive Statistical Tool, "Data Quality/Consistency Report," 2011.

As shown in Figure 5-6, MCAS Miramar has reduced its petroleum use by 9.3 percent, since the FY 2005 baseline. This is short of the 12 percent reduction that is mandated by the regulatory drivers. Alternative Fueled Vehicles are further discussed in Section 6.0 Pollution Prevention Opportunities.

5.3.11 Electronics Management

EO 13514 promotes electronics stewardship with a preference for procuring EPEAT registered products, as well as Energy Star and FEMP designated electronic equipment. Additionally, the EO requires an agency to employ environmentally sound practices with respect to the agency's disposition of all agency excess or surplus electronic products.

MCAS Miramar currently collects e-Waste at the Recycling Center and processes the e-Waste through the Station QRP.

5.3.12 Toxics Release Inventory

The EPCRA, or Title III of the Superfund Amendments and Reauthorization Act of 1986, acknowledges the public's right to information concerning toxic chemical usage and releases to the environment. Section 313 of EPCRA establishes a framework for reporting the use of listed toxic chemicals from facilities that meet reporting criteria and providing the EPA with release information to assist the agency in determining the need for future regulations. Facilities are required to submit a TRI Report under EPCRA Section 313 and must complete a Form R for each listed toxic chemical that meets the reporting criteria. The TRI consists of all of the Form Rs required for that facility.

Determining whether the threshold quantities have been met depends on how the toxic chemical is used (i.e., manufactured, processed, or otherwise used) at MCAS Miramar. The reporting thresholds are defined below, with the threshold quantities in parentheses. More extensive definitions can be found in *Toxic Chemical Release Inventory Reporting Forms and Instructions*:

- Manufacture (25,000 lbs) – Produce, prepare, compound, or import from a foreign supplier. This category also includes coincidentally manufactured chemicals, such as combustion or waste treatment byproducts.
- Process (25,000 lbs) – Preparation of a listed chemical, after its manufacture, for distribution in commerce.
- Otherwise Use (10,000 lbs) – Any use of a listed chemical that is not covered under the definitions of manufacture or process, or non-incorporative activities.

Threshold and release calculations were performed for MCAS Miramar based on annual ordnance expenditures and material use for Reporting Year (RY) 2010. The U.S. Environmental Protection Agency (EPA) requires that annual use and releases of chemicals exceeding specified thresholds be reported on Form Rs. In RY 2010, the following three toxic chemicals exceeded EPCRA Section 313 thresholds at MCAS Miramar:

- ethylbenzene - 16,731 lbs (otherwise used);
- lead - 26,303 lbs (otherwise used); and
- naphthalene - 26,638 lbs (otherwise used).

Ethylbenzene and naphthalene exceeded the “otherwise use” threshold of 10,000 lbs. Lead and lead compounds have been designated as persistent PBT chemicals with a specifically assigned threshold. The PBT reporting threshold for lead and lead compounds, for each threshold activity, is 100 lbs. Lead exceeded the “otherwise use” threshold.

Per the DoD Consolidated EPCRA Policy, where a toxic chemical has triggered reporting, two Form Rs may be necessary to separately report releases from the installation (i.e., non-range releases) and releases from range activities. Where one part of the facility does not release the reportable toxic chemical, a Form R is not required (per EPA guidance). For example, many toxic chemicals are specific to range activities and will not be found in non-range activities. If a toxic chemical from range activities is not used or released in non-range activities, then no Form R is required for the non-range activities. Since there are lead activities at both the Main Facility (i.e., non-ranges) and the Ranges, two Form Rs were prepared for lead. Completed Form Rs for the toxic chemicals listed in Table 5-8, below.

Table 5-8. Reporting Year 2010 MCAS Miramar Form Rs

Toxic Chemical	Main Facility Form R	Ranges Form R
Ethylbenzene	X	
Lead	X	X
Naphthalene	X	

Form Rs must be submitted to USEPA and the appropriate state agency in electronic format, using USEPA’s Toxics Release Inventory - Made Easy (TRI-ME) web system. Reporting must be completed by 1 July of each year. The California DTSC has established a state TRI data exchange agreement with EPA. California facilities no longer need to submit a separate copy of their TRI reports to DTSC. Whether facilities submit their TRI reports to the EPA via the TRI-ME web or via hardcopy, the state TRI data exchange will forward the TRI data to DTSC.

Table 5-9 below identifies the total pounds of TRI chemicals released from MCAS Miramar since the 2007 baseline year. Further detail regarding type of chemical and source of release is provided in Table 5-10.

Table 5-9. Total Aggregate Releases of TRI Chemicals (lbs) 2007 through 2010²⁴

Media	2007	2008	2009	2010
Air Emissions	1,096	306	306	321
Surface Water Discharges	N/A	N/A	N/A	N/A
Releases to Land	24,508.4	1,808.4	26,130.1	26,293.1
Underground Injection	N/A	N/A	N/A	N/A
Total On-Site Releases	25,604.4	18,687.4	26,736.1	26,614.1
Transfer Off-Site to Disposal	1.7	81.1	61.2	337.3
TOTAL RELEASES	25,606.1	18,768.5	26,797.3	26,951.4

N/A = Not Applicable

²⁴ http://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=92145SMRNC45249

Table 5-10. TRI Chemicals Releases (lbs)²⁵ 2007-2010²⁶

Chemical Name	Source	2007	2008	2009	2010
1,2,4-Trimethylbenzene	Air Stack	46	N/A	N/A	N/A
Benzene	Air Stack	N/A	N/A	N/A	N/A
Copper	Oth Disp	6,518	N/A	N/A	N/A
Ethylbenzene	Air Fug	1	4	0	0
Ethylbenzene	Air Stack	46	62	94	98
Ethylbenzene	Disp Non Metals	N/A	1	7	130
Lead	Disp Non Metals	0.7	0.1	0.2	0.3
Lead	Oth Disp	17,990.4	18,084.4	26,430.1	26,293.1
Methyl Tert-Butyl Ether	Air Stack	N/A	N/A	N/A	N/A
N-Hexane	Air Stack	N/A	N/A	N/A	N/A
Naphthalene	Air Fug	0	0	0	0
Naphthalene	Air Stack	122	150	212	223
Naphthalene	Disp Non Metals	N/A	0	54	207
Toluene	Air Fug	5	N/A	N/A	N/A
Toluene	Air Stack	456	N/A	N/A	N/A
Toluene	Disp Non Metals	1	N/A	N/A	N/A
Xylene (Mixed Isomers)	Air Fug	2	12	N/A	N/A
Xylene (Mixed Isomers)	Air Stack	418	365	N/A	N/A
Xylene (Mixed Isomers)	Disp Non Metals	0	80	N/A	N/A

Acronyms/Abbreviations:

Air Fug = Fugitive or non-point air emissions

Air Stack = Stack or point air emission

Disp Non Metals = The summation of a group of the methods that can be used to dispose of a metal or non-metal chemical off site

lbs = pounds

N/A = Not Applicable

Oth Disp = Other on-site land disposal

TRI = Toxic Release Inventory

MCAS Miramar operates a Hazardous Material Consolidation Program (HCP) and reissues unused hazardous materials to units and tenant organizations at no cost. The reuse of these materials diverts this discarded material from being disposed of as a hazardous waste. HCP is the Marine Corps-wide program to achieve life-cycle control and management of HM through the application of sound management practices that minimize the types and quantities of HM procured, stored, distributed, and used to accomplish mission requirements at commands and installations.

The HCP is operated by the Satellite Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) Center (SCC). A list of items for reuse is maintained by the SCC. Table 5-11 shows the amount of hazardous materials reutilized through the HCP.

²⁵ http://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=92145SMRNC45249

²⁶ http://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=92145SMRNC45249

Table 5-11. MCAS Miramar Hazardous Materials Reuse

Year	Pounds Reutilized
2007	25,767
2008	19,306
2009	8,452
2010	84,367
2011	183,751

5.3.13 Environmental Management System

The purpose of the Marine Corps EMS is to help Marine Corps installations achieve internal environmental goals through repeatable and consistent control of operations. The Marine Corps EMS is a cost-effective approach supporting mission and operational requirements at implementing installations. A central goal of EMS is mission enhancement through improved environmental performance. Marine Corps' EMS Policy establishes "systematic environmental management as an integral part of the Marine Corps' day-to-day decision-making and long term planning processes" and as an "important step in supporting mission readiness and effective use of resources." The Marine Corps EMS, as described in the Marine Corps EMS Conformance Guide (December 2004) and Marine Corps EMS Conformance and Self Declaration Policy and Guidance (March 2007), is modeled on the cyclic "Plan-Do-Check-Act" approach found in ISO 14001, the international EMS standard. The Plan-Do-Check-Act cycle is mirrored in five EMS components—Policy, Planning, Implementation, Checking and Corrective Action, and Management Review. MCAS Miramar has implemented an EMS to manage and improve environmental processes and decision making at the air station. The MCAS Environmental Department administers the EMS. The EMS is currently hosted online and has been updated and moved to a SharePoint website.²⁷ The update was completed in March 2012.

5.4 POLLUTION PREVENTION SUCCESS

MCAS Miramar has demonstrated continual improvement in source reduction efforts. This section provides a synopsis of the key successes MCAS Miramar has achieved.

5.4.1 Water Conservation

An aggressive water conservation program and the completion of an 8-phase recycled water distribution system are responsible for MCAS Miramar exceeding the potable water reduction goals. The recycled water distribution system utilizes a local City of San Diego connection point. Recycled water is in use on playing fields, green spaces, and in a number of dual-plumbed occupied buildings. During FY 2011, the potable water savings was estimated to be 56,582,000 gallons.

²⁷ <https://www.marines.mil>

Potable water intensity is defined as the fresh water consumption per square foot of building space. MCAS Miramar's potable water consumption and square footage for the FY 2007 baseline year were 198,582,000 gallons and 5,612 KSF, respectively. The resulting potable water energy intensity value was 35.39 Gal/SF. Since the baseline year, potable water intensity has dropped by 29.6 percent, therefore meeting the EO 13514 target.

5.4.2 Building Performance

MCAS Miramar was selected by the DoD/DOE Net Zero Analysis Task Force as the initial prototype installation for net zero energy analysis. Miramar was selected based on its strong history of energy advocacy and extensive track record of successful energy projects.

MCAS Miramar has progressively worked toward achieving LEED Gold certification and complying with Guiding Principles of High Performance and Sustainable Buildings. As of April 2012, the Station has completed five LEED projects and has programmed three projects to be developed as LEED-certified facilities. Since 2011, 100 percent of the new construction has been LEED certified.

6.0 POLLUTION PREVENTION OPPORTUNITIES

An effective P2 program depends upon ideas, that when implemented, have a positive environmental benefit and contribute towards meeting a Marine Corps P2 goal. These ideas come from a variety of sources, including formal Process-specific Opportunity Assessments, suggestions from shop personnel and supervisors, and lessons learned at other Marine Corps installations. The P2 opportunities listed in this section were derived primarily from interviews with personnel aboard MCAS Miramar. To ensure continued progress towards achieving the federal, state, and Marine Corps P2 goals, MCAS Miramar must develop and implement a system to periodically identify and evaluate new P2 opportunities. P2 opportunities are initiatives that involve significant equipment, process, or technology modifications. Implementation of P2 opportunities usually requires an initial capital expenditure.

BMPs are initiatives that typically involve changes in administrative procedures, service contract modifications, changes in management practices, or minor process modifications. Examples of BMPs include substitution of a water-based cleaner for a chlorinated solvent, or improved housekeeping. BMPs typically do not require significant capital investment to implement.

6.1 RECOMMENDED P2 OPPORTUNITIES

Based upon the information obtained during site visits and interviews with MCAS personnel, it is recommended that MCAS Miramar implement the following opportunities.

6.1.1 Composting

Composting is the controlled aerobic decomposition of organic matter (i.e., yard and food wastes), into a soil-like material called humus.²⁸ Compost is organic material that can be used as a soil amendment or as a medium to grow plants. Compost not only keeps organic wastes out of landfills, but it has numerous other benefits, such as providing nutrients to soil and increasing beneficial soil organisms (e.g., worms and centipedes).

The EPA has collected and reported data on the generation and disposal of waste in the United States for more than 30 years. The information is used to measure the success of waste reduction and recycling programs across the country. In 2010, Americans generated about 250 million tons of trash and recycled and composted nearly 85 million tons of this material. On average, we generate 0.36 lb/day of SW that can be composted.²⁹

For MCAS Miramar, implementing composting would assist the Station in meeting the EO SW diversion goals. Table 6-1 summarizes the current SW management activities at MCAS Miramar between FY 2007 and 2011 and includes composting potential.

²⁸ Naval Facilities Engineering Command, "Integrated Solid Waste Management Plan (ISWMP) Guide," April 2009.

²⁹ EPA, Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2010.

Table 6-1. SW Management Activities (tons) with Compost Potential

FY	Installation Population	Recycled	Potential Compost	Landfilled	Total	Percent Diverted
2007	1,183	1,010.78	77.72	10,488.28	11,576.78	9%
2008	2,009	1,487.6	131.99	4,402.17	6,021.76	27%
2009	14,292	2,763.25	938.98	832.02	4,534.25	82%
2010	10,265	984.6	674.41	4,415.89	6,074.9	27%
2011	10,832	581.4	711.66	5,841.50	7,134.56	18%

MCAS Miramar would still not meet diversion goal identified in EO 13514 with the addition of composting alone; however, coupled with improvements in the QRP (see Section 6.1.3), the overall diversion rate would be enhanced.

MCAS Miramar is conducting further studies on implementation or expansion of composting activities. Composting will not be conducted on Station, but rather, composting activities could increase by providing water-tight end-dump containers near the largest dining facilities, where the most volume of food waste is generated. These containers would then be collected on a regular schedule by Waste Management and brought to the Miramar Greenery.

6.1.2 Alternative Fuel Vehicles

The compressed natural gas (CNG) vehicles and stations at MCAS Miramar have been reported to be ineffective because of the time it takes to refuel a vehicle. Because of this, CNG use has drastically decreased. Repairing/upgrading the CNG pumps located on station is currently being considered. Vehicles with CNG capabilities currently have the option of refueling off-station.

MCAS Miramar has an E85 tank that is expected to be repaired and operational by the end of 2012.

Repairs made to both the CNG and E85 tank systems will increase the alternative fuel usage aboard the Station and contribute to the overall reduction of petroleum usage.

6.1.3 Qualified Recycling Program

MCAS Miramar operates a direct sale QRP and has an established Recycling Center. The Recycling Center is operated by Marines, which benefits the program by not having to pay civilian labor out of the commodity revenue. To further increase revenues the following are under consideration:

- Establish a more dedicated workforce;
- Employ a civilian QRP Manager;
- Increase frequency of pick-up of recyclable materials;
- Implement crushing of aluminum cans from the Dining Facility; and
- Begin collection of plastic shrink wrap and grocery bags.

6.1.4 Hazardous Waste Source Reduction

The Hazardous Waste Source Reduction & Management Review Act of 1989 (commonly referred to as SB 14) requires facilities generating more than 26,400 pounds (lbs) of hazardous waste in reporting years to prepare documents to evaluate hazardous waste source reduction measures.

MCAS Miramar prepared and reported an SB 14 and outlined the following hazardous waste source reductions in the 2010 plan:³⁰

- Non RCRA Hazardous Waste Liquid from Oil/Water Separators (CWC 134)
 - Use a contractor that filters out waste and reuses the water;
 - Re-characterize the waste;
 - Install an foreign object or debris (i.e., FOD) Shaker at Camp Elliot and East Miramar;
 - Modify the OWS cleaning procedure to skim the oil;
 - Install a shaker by the wash racks near 373 and 473; and
 - Use pressure washers instead of hoses to reduce water volume used.
- Wet Oily Rags/Debris (CWC 223)
 - Use a portable pump to reduce spills; an
 - Increase awareness of best practices for rag use.
- Dry Oily Debris/Hoses/Rags/Pads (CWC 352)
 - Reuse disposable rags until completely saturated.

During 2011, oil/water separator waste (CWC 134) was dramatically reduced due to a change in cleaning process. Waste Management Division personnel continue to review procedures for the use and disposal of wet and dry oily rags.

6.2 RECOMMENDED P2 BEST MANAGEMENT PRACTICES

The following BMPs have been identified for implementation at MCAS Miramar.

6.2.1 Increase P2 Awareness

Currently, the Environmental Department conducts monthly meetings with unit and tenant Environmental Compliance Coordinators and Hazardous Waste Coordinators regarding environmental programs. These meetings are used to address the various environmental issues aboard the Station to include P2 programs, HazMin Center Re-use Program, and the QRP. Of particular mention during these meetings will be the Station's progress toward the EO goals and stressing the need for all personnel aboard MCAS Miramar to conduct hazardous waste minimization, green procurement and reuse, reissue, and recycling of all products.

³⁰ MCAS Miramar, "Source Reduction Evaluation Review and Plan," 2010.