(Continued from page 3, MRS 5: Skeet Range 1980)

MRS 10: Pistol Ranges 9-11

Description: Located within the western portion of the surface danger zone for the former recreational skeet and trap ranges designated as IR Site 19. Located on 1.98 acres in the southernmost portion of the installation, adjacent to the southern boundary of IR Site 20; overlapped by the western extent of IR Site 19

Background: Ranges in use between 1917 and 1920 for small arms training with .45-caliber pistols; undeveloped land

Investigations: PA - 2008; SI - March 2011

COCs: elevated levels of metals associates with munitions: lead, copper, zinc, antimony

Activities: Closed for MEC per 2011 SI

Status: The site is recommended for administrative closure under the MRP Program and inclusion in the CERCLA Program under IR Site 19 due to co-mingling of contamination

MRS 15: Rifle Range—200 Targets

Description: Located in northern portion of the installation

Background: Former rifle range limited to .30 caliber rifle ammunition used between 1917 – 1920, consisting of a target berm and three firing lines

Investigations: PA/SI - March 2011

COCs: elevated levels of metals associates with munitions: lead, copper, zinc, antimony

Activities: Pending RI/FS

Status: Funding was not received for this site

program contact

Environmental Restoration Program Manager
Marine Corps Air Station Miramar
Environmental Management Department
PO Box 452001
San Diego, CA 92145-2001
(858) 577-6702

program website

MCAS Miramar Environmental Management System, Environmental Restoration Program
http://www.miramar-ems.marines.mil/Divisions/EnvironmentalEngineeringDivision/InstallationRestoration%28IR%29.aspx

scan to access program website

Avoiding Impact to the Gnatcatcher During Environmental Cleanups

California gnatcatchers (*Polioptila californica*) are small, non-migratory insectivorous birds that live in coastal sage scrub in Southern California and Baja California. They are a uniform grey color, with a dark black cap that is evident mainly in spring, when they are defending territories and breeding. Because of loss to their habitat, California gnatcatchers were listed as 'threatened' by the United States Fish and Wildlife Service in 1993. Surveys for gnatcatchers were first conducted at Miramar in 1994, just after listing, and have been conducted approximately every 3 years since.

Gnatcatchers have been observed using vegetation during breeding season throughout MCAS Miramar since approximately 17% of the total acreage is considered suitable habitat. This includes major areas in and adjacent to the flightline area, and the Rose Canyon area on the Main Station. Between 19 and 70 pairs of gnatcatchers have been observed and recorded during breeding surveys on Miramar through spring 2016. One of these successful pairs lives adjacent to IR Site 5 in San Clemente Canyon, and were seen using brush near the revegetated laydown area.

The Integrated Natural Resources Management Plan restricts training, soil disturbance, brush clearance and construction activities impacting gnatcatcher habitat or occurring within 500 feet of breeding pairs during the nesting season (roughly February 15 to August 31). Because of this, gnatcatchers are a major factor limiting the use of some training areas and limiting maintenance and construction activities on MCAS Miramar in areas adjacent to gnatcatcher habitat. If work is required during the gnatcatcher breeding season, preventative measured are implemented to ensure minimal disturbance. Measures include biologist surveys, work area delineation, using established vehicular and foot paths, daily inspections, and avoidance. If a project requires work to be performed in gnatcatcher habitat, the area is restored to prior conditions and includes native vegetation to allow for gnatcatcher repopulation of the area.

2017 ANNUAL UPDATE OF CLEANUP ACHIEVEMENTS

Cleanup Update

Marine Corps Air Station Miramar Environmental Restoration Program

MCAS Miramar Environmental Program Successes to Date:

- Closed or transferred 13 Installation Restoration Sites.
- Closed 7 Munitions Response Program Sites
- IR Site 16 received No Further Action in 2016.

Technical Terminology

The following terms are used throughout this document in reference to the environmental cleanup activities at MCAS Miramar

- EA—Environmental Assessment
- EE/CA—Engineering Evaluation/ Cost Analysis
- FS—Feasibility Study
- IR—Installation Restoration
- MC—munitions constituents
- MEC—munitions and explosives of concern.
- MRP—Munitions Response Program
- NFA—No Further Action
- PA—Preliminary Assessment
- RA—Remedial Action
- RI—Remedial Investigation
- SI—Site Inspection
- TCRA—Time Critical Removal Action
- ESI—Extended Site Investigation
- USTs—underground storage tanks

MCAS Miramar Entrance

What's inside:

Environmental Cleanup at MCAS Miramar—Spotlight Sites

The Navy and Marine Corps are committed to cleaning up the property that makes up Marine Corps Air Station (MCAS) Miramar to meet or exceed federal standards as established in the Superfund Program.

In this Annual Update, the Marine Corps is spotlighting two Installation Restoration (IR) Program cleanup sites: IR Site 5, San Clemente Canyon Disposal Area, and IR Site 16, K212 Boiler Plant Mercury Spill. The remainder of the active Environmental Restoration (ER) Program cleanup sites may be found on the following pages.

IR Site 5: San Clemente Canyon Disposal Area—Main Waste Area

After completion of a TCRA in 2012, the Main Waste Area of IR Site 5 met the removal action objectives and landfill cap and erosion measures were installed in 2015. As a result, the decision was made to reconfigure the site to limit it to the footprint of the remediated Main Waste Area. The area is now undergoing re-vegetation.

Description: Located at the end of the main runway for the airfield; undeveloped land

Background: Served as the main waste area for the installation between 1940 and 1974

Investigations: Verification Phase Confirmation Study – 1987; RI/FS Coping Summary Report – 1991; RI Report - 2012

COCs: metals, dioxins/furans, PCBs, semi-volatile organic compounds, and organochlorine pesticides

Activities: Portions of IR Site 5 were re-designated as IR Site 20 in 2015

Status: Long-term monitoring and maintenance was scheduled for 2016

IR Site 16: K212 Boiler Plant Mercury Spill

During the removal of USTs in 1996, pooled liquid mercury was observed in soil. Approximately 10 cubic yards, characterized as "all mercury-impacted soil" was removed and disposed of offsite as non-hazardous waste in January 1997. In 1997, 44,000 gallons of oily water and free product were pumped from the excavations. Approximately 2,226 tons of petroleum hydrocarbon-impacted soil were removed in 2011 and transported offsite. In February 2016, the site was granted NFA status.

Location: Adjacent to the K212 Boiler Plant

Background: Evidence of a mercury release found during tank excavation (broken mercury manometers and leaking fuel tanks)

Investigations: Final SI- 2014

COCs: mercury, petroleum hydrocarbons

Activities: Soil and vapor samples from a 2011/2014 SI resulted in contaminants at levels that do not pose a significant health risk to site occupants or future site users.

Status: NFA granted October 2016

The Laws and Agencies Involved in Environmental Cleanup at MCAS Miramar

CERCLA

The Comprehensive Environmental Response Compensation, and Liability Act (CERCLA), also known as Superfund, was created by Congress in 1980 to create a program to identify, investigate, and clean up hazardous wastes. The chemicals regulated under CERCLA include chemicals used to manufacture solvents, pesticides, and metals. The environmental cleanup at MCAS Miramar follows the requirements in CERCLA.

RWQCB

The California Regional Water Quality Control Board (RWQCB) acts as the lead regulatory agency for the IR Program, providing oversight for the environmental program at MCAS Miramar, as well as responsibility for overseeing cleanup of groundwater-related issues.

DTSC

The California Department of Toxic Substances Control (DTSC) is the regulatory agency responsible for overseeing the Munitions Response Program (MRP).

Coordination at MCAS Miramar

Naval Facilities Engineering Command Southwest (NAVFAC SW) is the lead federal agency for CERCLA cleanup at MCAS Miramar, and manages cleanup on the base in conjunction with MCAS Miramar's Environmental Restoration (ER) Program. NAVFAC SW and MCAS Miramar's ER Program representatives work closely with RWQCB and DTSC to ensure that past hazardous wastes at MCAS Miramar will be cleaned up.

Installation Restoration (IR) Program

The IR Program was created by the Department of Defense (DoD) in 1986 to identify, evaluate, and cleanup contamination at US Navy and Marine Corps bases. The IR Program meets the requirements of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Since the start of the IR Program, efforts have been made by MCAS Miramar IR Program team members and NAVFAC SW program managers to identify, assess, and clean up contaminated sites on MCAS Miramar. Ten potentially contaminated sites were initially identified under the IR Program in 1984. Since that time, ten additional IR Sites have been added and one potential site, resulting in a total of 21 IR Sites. There are currently seven active IR Sites at MCAS Miramar.

Drilling operations at IR Site 2

IR Site 1: Fuel Farm Operations Area

Description: Located within the main MCAS Miramar base area, on both the northern and southern sides of the flight line; made up of eight non-contiguous areas (A-F), including the existing fuel farm

Background: POLs and tank bottom sludges were sprayed on vegetated areas and bare soil for weed and dust control from the 1940s through 1975

Investigations: SI – 1987; Areas A, B, D and F: Action Memo – Aug 2013; Area C: Final RA 2007; Area E: Limited Subsurface Investigation 1992

COCs: Petroleum hydrocarbons, including POLs, and tank bottom sludges; arsenic and lead are reported at specific subsites.

Activities: Soils with elevated concentrations of TPH and PCBs were removed during new fuel farm construction; NTCRA at Sites 1B and 1D was completed in 2014

Status: 1A-1C, 1E — Open. RA completed and a new gas station under construction at Site 1D; NFA pending for Area F

IR Site 2: Rose Canyon

Description: The land within the boundaries of the Rose Canyon drainage, traversing approximately 3 miles from east to west across MCAS Miramar

Background: Industrial wastes were disposed into Rose Canyon via storm drains during the 1940's through the 1960's

Investigations: Initial Assessment Study (IAS) – 1984; Verification Phase Confirmation Study (CS) – 1987; RI/FS – 1991; SI— 2015; ESI WP— 2016

COCs: POLs, solvents, paint thinners, plating wastewater, corrosive waste, beryllium dust, cyanide (rodenticide).

Status: Extended SI Work Plan finalized January 2016

IR Site 10: Sycamore Canyon Atlas Missile Facility

Location: Located in the northeast corner of East Miramar, in the former Camp Elliot area east of Interstate 15

Background: Atlas Missile booster testing was conducted by the National Aeronautics and Space Administration (NASA) and the U.S. Air Force between late 1955 and late 1960's; following closure of the facility, the site was vandalized and several electrical transformers containing PCBs were damaged

Investigations: SI – 2006**;** RA – 2010; SAP - 2014; Draft Pilot Study Completion Report—2016

COCs: PCBs

Activities: RA to remove asbestos contamination in 1994; Pilot study and soil/debris removal conducted 2015

Status: RI Work Plan under development – 2016

IR Site 18: MCX Gas Station

Location: Located near the eastern entrance to MCAS Miramar; primary service station on the air station for non-military vehicles

Background: Contamination to soil and groundwater from leaking gasoline and Underground Storage Tanks (USTs); soil below site impacted with petroleum hydrocarbons

Investigations: Groundwater Data Collection – 2002-present; Site Characterization Report–2014

COCs: TPH-g, benzene, VOCs

Activities: Groundwater monitoring – ongoing since 2001; soil-gas sample results show high concentrations of COCs

Status: Work Plan for Passive Soil Gas Venting System was completed in 2016

IR Site 19: Former Gun Club

Location: In the southeastern corner of the installation on approximately 43 acres' made up of two areas: the former shotgun range (30 acres), and the overshot area (13 acres)

Background: Lead shot deposits observed in both portions of the site; undocumented fill material made up of construction debris

Investigations: Final Report Verification Phase Confirmation Study – 1987; Final Assessment, Trap and Skeet Range – 1994; Phase 1 EA – 1999; Environmental Baseline Study – 2003; Preliminary SI – 2006; Final SI- 2009

COCs: lead shot; concentrations of metals (antimony, arsenic, copper, lead, and zinc); PAHs

Activities: EE/CA completed in 2014

Status: NTCRA scheduled to take place in 2017

IR Site 20: San Clemente Canyon Disposal Area

Location: Located at the end of the main runway for the airfield; undeveloped land

Background: Composed of 30.22 acres that surround IR Site 5, Main Waste Area

Investigations: RI – 2008; Final TCRA - 2015 for IR Site 5

COCs: Concentrations of metals, organochlorine pesticides, and dioxins/furans present in soil

Status: A Draft Work Plan for a supplemental RI was submitted in December 2015

IR Site 19 Retention Pond

Environmental Contaminants Found at MCAS Miramar

The following hazardous wastes, or contaminants of concern (**COCs**) relating to historical use as an air station have been and/or are being investigated under the cleanup programs.

PCBs: Prior to banning in 1979, PCBs, or polychlorinated biphenyls, were commonly used to cool electrical equipment and lubricants.

PAHs: Polycyclic aromatic hydrocarbons are a group of compounds created when oil, gasoline, garbage, wood or coal are burned. They are also present in tar and asphalt.

SVOCs: Semi-volatile organic compounds are a class of organic chemicals that turn into vapor above room temperature. They are associated with petroleum products.

TPH: Total Petroleum hydrocarbons are a mixture of chemicals that come from crude oil.

VOCs: Volatile organic compounds are chemicals that easily evaporate into the air, for example paint thinner.

POLs: Petroleum, oils and lubricants

Munitions Response Program (MRP)

In 2000, the National Defense Authorization Act established a program addressing military munitions and explosives of concern (MEC) and munitions constituents (MCs) used or released on sites from past operations and activities. The Munitions Response Program (MRP) is the Navy's equivalent to the DoD's munitions program.

Current IR Program policies and procedures apply to sites under the MRP, as well as provisions for unique explosives safety hazards. MRP Sites are referred to as Munitions Response Sites (MRS). Of the twelve MRS sites that were recommended for further study at MCAS Miramar, four are currently active.

MRS 1: Grenade Course

Description: Two areas comprised of 35.4 acres located in west Miramar under the flight line; over 50% covered with paved surfaces associated with Interstate 15, portions contain large warehouses as well as vacant land

Background: Most likely used as a dummy-round practice range between 1941 and 1943; undeveloped land

Investigations: PA - 2008; SI - June 2011

COCs: MC, zinc

Activities: No removal actions planned; long term land use controls will be implemented

Status: Draft WP for an ESI was submitted in March 2016

MRS 5: Skeet Range 1980

Description: A 41.32-acre parcel in western Miramar; undeveloped land

Background: Used between 1958 and 1980, providing up to eight firing positions for shot gun skeet (20 gauge) shooting; natural vegetation covered the range completely by 1996

Investigations: PA - 2008

COCs: MCs, MECs , PAHs, lead, arsenic, copper

Activities: Final SI—2011

Status: Draft WP for RI/FS submitted December 2015

(Continued on page 4)

For additional information on the IR Program or MRP at MCAS Miramar, visit
http://www.miramar-ems.marines.mil/Divisions/EnvironmentalEngineeringDivision/InstallationRestoration(IR).aspx