

NAVAL AIR FACILITY EL CENTRO



Installation Restoration Program

.....
The Installation Restoration Program was established by the Department of the Navy to identify, assess, and clean up or control pollution from past hazardous waste handling, storage, disposal operations, and hazardous material spills at its facilities.
.....

NAF EL CENTRO

Naval Air Facility (NAF) El Centro was commissioned in 1942 by the U.S. Marine Corps. Today, the facility is one of the larger employers in the Imperial Valley. NAF El Centro's main tenant command is the Strike Fighter Maintenance Unit. This unit provides maintenance and training support to fleet replacement squadrons from both the east and west coast. NAF El Centro is also the winter home of the world-renowned U.S. Navy Blue Angels Flight Demonstration Squadron.

ENVIRONMENTAL CLEANUP

Past use of hazardous materials and waste disposal methods, although acceptable at the time, resulted in unexpected and long-term environmental problems because pollutants were released

TENANT COMMANDS



➤ *NAF El Centro is home to numerous tenant commands. Tenant commands provide logistical support and services to aviation personnel and units of the operating forces of the military.*



➤ *NAF El Centro is the winter training ground of the U.S. Navy Blue Angels Flight Demonstration Squadron*

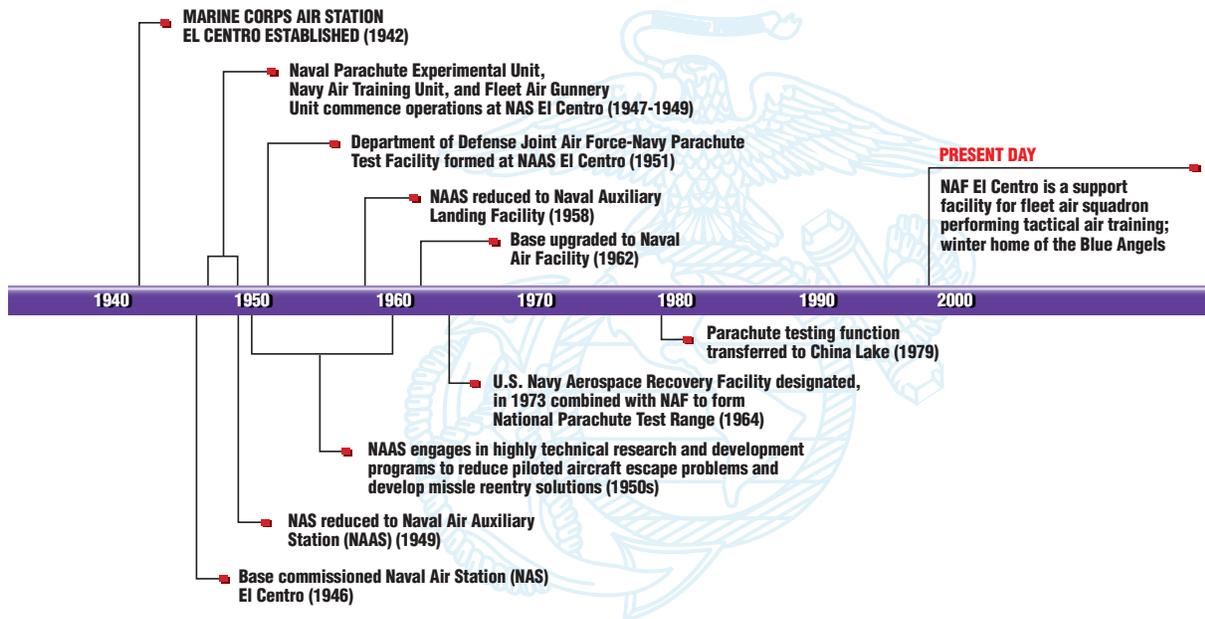


➤ **Regional Location Map**

into soil and groundwater. In 1980, the United States Environmental Protection Agency (U.S. EPA) established the Comprehensive Environmental Response, Compensation and Liability Act program, called CERCLA, to clean up these hazardous wastes. The program involves several steps to identify, assess, characterize, and clean up or control contamination from these sites. The Department of Defense developed the Installation Restoration (IR) Program to parallel the CERCLA program at military facilities.

IR PROGRAM MISSION

NAF El Centro supports U.S. Navy fleet air squadrons performing tactical air training such as field carrier landing practice, air-to-ground weapons training, and fleet fighter air combat maneuvers.



➤ NAF El Centro Timeline

REGULATORY INVOLVEMENT

The California Environmental Protection Agency has two branches that oversee all IR Program activities at NAF El Centro. The Department of Toxic Substances Control (DTSC) is the lead regulatory agency. The Colorado River Basin Region (Region 7) of the Water Quality Control Board (Water Board) supports DTSC by providing technical oversight of the investigation and cleanup of IR Program sites with regard to water quality.

ENVIRONMENTAL CLEANUP TEAM



- ◆ NAF El Centro Environmental Department
- ◆ Southwest Division Naval Facilities Engineering Command
- ◆ Investigation contractors
- ◆ Cleanup contractors
- ◆ Regulatory agencies



➤ **Navy F-18 Hornet.** Besides providing services to Navy aviation activities, NAF El Centro supports the Air Force, Army, Marine Corps, and Coast Guard branches of the U.S. military as necessary.



➤ **The U.S. Air Force's C-5 Galaxy is shown here unloading U.S. Army UH-60 Black Hawk helicopters for desert training exercises.** The C-5 is the largest military cargo aircraft.

THE INSTALLATION RESTORATION PROGRAM

The IR Program involves a series of steps to address areas with potential contamination. Under the IR Program, the Navy has a choice of two processes to follow: the *remedial action* process and the *removal action* process. The figure below illustrates both cleanup processes from beginning (preliminary assessment/site inspection) to end (site closure). At appropriate stages of the remedial action process, some sites may proceed to the removal action process. Many of the IR Program sites at NAF El Centro are being addressed through removal actions.

REMEDIAL ACTION PROCESS

Under the IR Program, the remedial action process begins with an assessment of individual sites that may be potentially hazardous to human health or the environment. This preliminary assessment includes collecting and reviewing all available information about a site and may include off-site surveys to see where the hazardous wastes are coming from and what kinds of

wastes may be there. This assessment is followed by a site inspection, which includes collecting surface water, groundwater, and/or soil samples to determine whether contamination is present.

Once it is determined that contamination is present at a site, the remedial investigation begins. The remedial investigation determines the type and extent of contamination. The investigation involves collecting samples of soil and groundwater. Each sample is tested to determine the type and quantity of contamination present, if any. All fieldwork is performed according to a sampling and analysis plan approved by regulatory agencies.

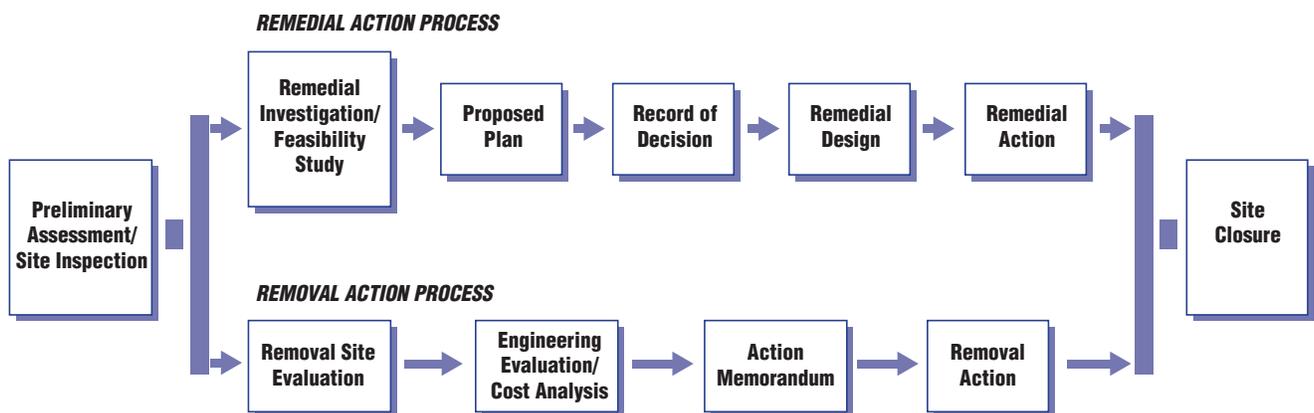
Based on the information gathered during the remedial investigation, the feasibility study is performed. This study looks at the possible ways to clean up the contamination at the site. The feasibility study helps the Navy and regulatory agencies determine the best way to clean up a site at the lowest cost while still protecting public health and the environment.

Following the feasibility study, a proposed plan is developed. The proposed plan informs the public and presents the Navy's preferred method for cleaning up a site. It is at this stage in the process that public comments are sought. Responses to public comments are prepared by the Navy and are included as part of the record of decision. The record of decision is a legal document that identifies the selected remedy (cleanup method).

REMOVAL ACTION PROCESS

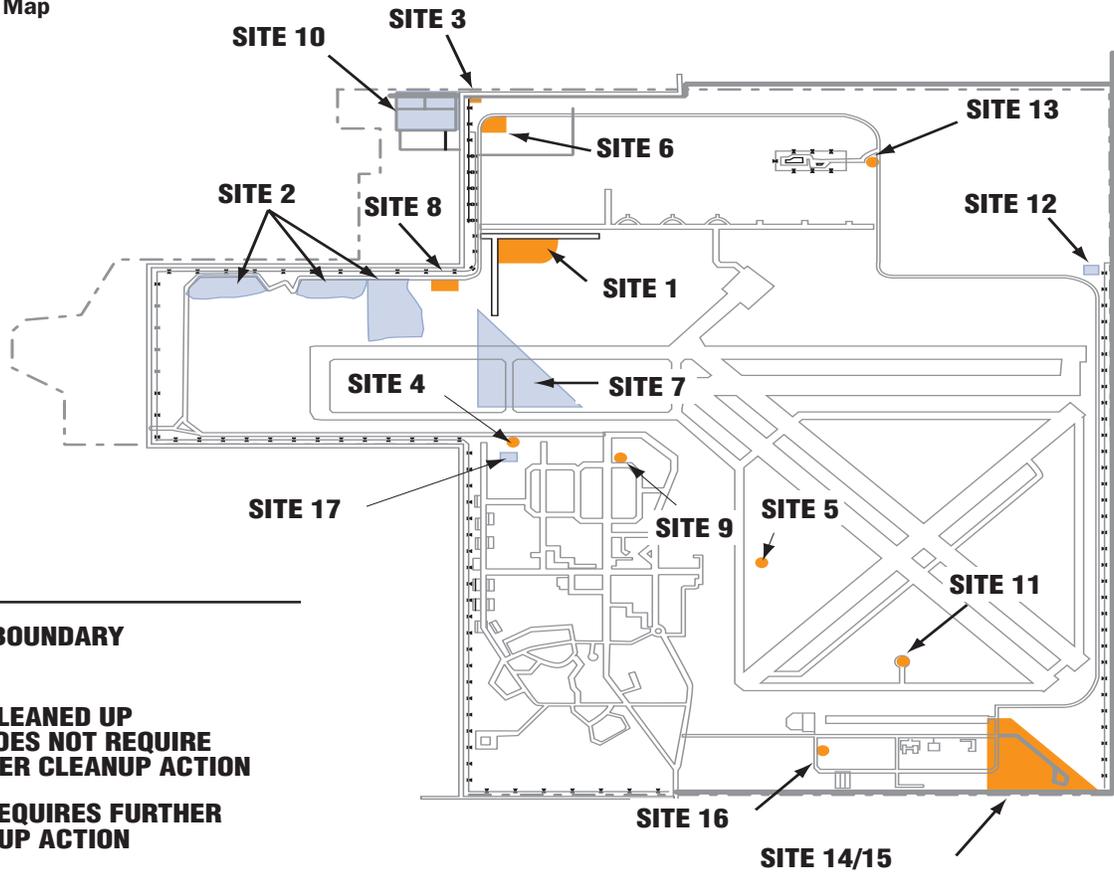
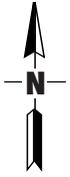
The removal action process also begins with a preliminary assessment/site inspection of individual sites. After this initial stage, the removal action process provides for faster site cleanup by combining stages of the remedial action process to remove any immediate threat to human health and/or the environment. The removal action process is being used to clean up most sites at NAF El Centro.

Depending on the results of the site inspection, a removal site evaluation may be conducted to assess the site further and determine the need for an engineering evaluation and cost analysis. This



➤ Cleanup Process Under the Installation Restoration Program

➤ Site Location Map



LEGEND:

- BASE BOUNDARY
- FENCE
- SITE CLEANED UP AND DOES NOT REQUIRE FURTHER CLEANUP ACTION
- SITE REQUIRES FURTHER CLEANUP ACTION

Site 1	Magazine Road Landfill	Site 10	Sewage Stabilization Ponds
Site 2	Patrol Road Landfill	Site 11	Runway Burn Area
Site 3	Sludge Burial Area	Site 12	Open Burn Pits
Site 4	Fourth Street Fire-Fighting Training Area	Site 13	Old Incinerator
Site 5	Fire-Fighting Training Area East of Hangar No. 3	Site 14/15	Fuel Farm (Tank Rinsate Disposal Area, Tank Cleaning Area, 8 Underground Storage Tanks)
Site 6	Northwest Fire-Fighting Training Area	Site 16	Potassium Ferricyanide Spill Area
Site 7	Abandoned Fuel Farm	Site 17	Fire-Fighting Training Area
Site 8	Scrapyard		
Site 9	Transformer Storage Area		

is a combination of the traditional proposed plan and remedial design stages. If needed, an engineering evaluation and cost analysis is conducted to identify the most effective way to clean up a site at the lowest cost.

This stage is followed by the release of an action memorandum, which is similar to the record of decision. As with remedial action, comments from the public are sought and addressed before cleanup begins.

IR PROGRAM SITE DESCRIPTIONS

The IR Program at NAF El Centro began in September 1987 with preliminary assessments that identified 17 areas with the potential for soil or groundwater contamination (see site location map above). The NAF El Centro environmental cleanup team aggressively worked together to clean up and close

those sites. Of the 17 IR Program sites identified, 6 did not require cleanup and 6 have been cleaned up. Most of these sites have received official regulatory closure with the remaining sites expecting closure in 1999. The remaining 5 sites are scheduled to be cleaned up by the year 2007. Summaries of each site are provided on the following pages.

Site 1 - Magazine Road Landfill

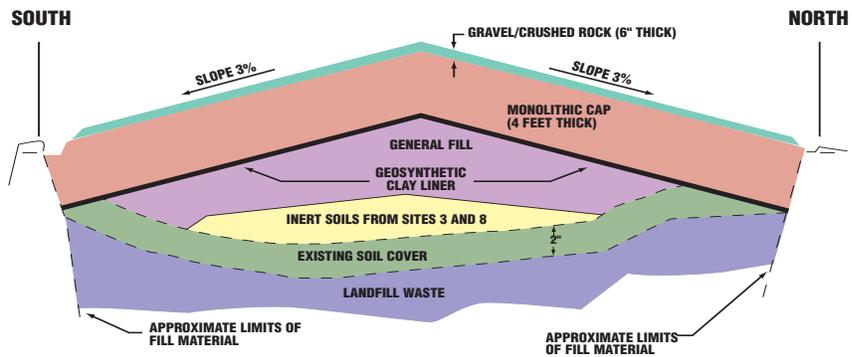
The Magazine Road Landfill was used from 1965 to 1983 for the disposal of base garbage. Metals, fuel by-products, and solvents were identified in groundwater and soil. The selected cleanup for the site was to cover the landfill with clean soil and fence it off to prevent people and animals from coming into contact with the contaminants. A landfill cover consisting of a soil layer 4 feet thick was placed over the landfill. Work was completed in August 1998. NAF El Centro continues to assess the groundwater at Site 1.

Site 2 - Patrol Road Landfill

The Patrol Road Landfill was used from about 1946 until 1965 for the disposal of base garbage and construction debris. Metals, pesticides, and solvents were identified in soil and groundwater. An engineering evaluation and cost analysis will be prepared to identify the best way to clean up the site. The final cleanup method will be agreed upon by NAF El Centro, DTSC, and the Water Board, taking into account public comments. Cleanup activities are expected to be completed in the year 2007.



► Landfill Site 1 - Covering geosynthetic clay liner with monolithic (soil) cap



► Site 1 Magazine Road Landfill Cap Design

Groundwater continues to be assessed at Site 2 in the interim.

Site 3 - Sludge Burial Area

In 1986, sludge from a drying bed at the sewage treatment plant was buried at the Sludge Burial Area. Metals and pesticides were identified in the soil but not in groundwater. Site 3 was cleaned up by removing contaminated soil and transporting it to a hazardous waste landfill. The excavation was then filled with clean soil. Cleanup activities were completed in May 1998.

Site 4 - Fourth Street Fire-Fighting Training Area

The Fourth Street Fire-Fighting Training Area was used for fire-

fighting training from 1963 through 1975. The training con-



► Site 3 - Excavating contaminated soil at the former sewage Sludge Burial Area

sisted of pouring fuel into the pit and burning it. When the site was no longer used for training, the pit was used to burn illegal drugs and paraphernalia confiscated by the Drug Enforcement Agency. Groundwater is not contaminated at the site and residual levels of fuel in the soil were below those requiring cleanup. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 4 and the site was officially closed in June 1998. The Fire-Fighting Training Area

Site 5 - Fire-Fighting Training Area East of Hangar No. 3

East of Hangar No. 3 was used for fire-fighting training exercises from before 1958 until 1963. During this training, fuel was poured onto the dirt and burned.

Residual levels of fuel in soil and groundwater are below those requiring cleanup. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 5 and the site was officially closed in June 1998.

Site 6 – Northwest Fire-Fighting Training Area

The Northwest Fire-Fighting Training Area was used for fire-fighting training from about 1946 to 1958. Gasoline was poured onto the ground during the training and burned. No contamination was detected in soil or groundwater. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 6 and the site was officially closed in June 1998.

Site 7 – Abandoned Fuel Farm

The Abandoned Fuel Farm consisted of twelve 50,000-gallon and eleven 25,000-gallon concrete underground storage tanks. Soil and groundwater contamination resulted from spills that occurred during both filling and refueling, and from leaking tanks. Fuel and fuel by-products were identified in groundwater. NAF El Centro plans to begin cleanup in March 1999 by removing contaminated groundwater and treating it on-site. Cleanup activities are expected to be completed in 2000.

Site 8 – Scrapyard

The Scrapyard was used to store various metallic debris before being recycled. Hazardous materials stored at this area included transformers containing hazardous fluids (polychlorinated biphenyls, or PCBs) and paint cans. In 1982, most of the scrap metal was removed from the yard. Studies identified that the top 6 inches of soil were contaminated, but that groundwater was

not. The site was cleaned up by removing contaminated soil, and transporting it to a hazardous waste landfill. The excavation was then filled with clean soil. Cleanup activities were completed in May 1998.

Site 9 – Transformer Storage Area

The Transformer Storage Area was used to store electrical transformers between 1963 and 1983. The site is currently used for material storage and equipment



➤ Site 7 – Sampling soil and groundwater at the Abandoned Fuel Farm while flight activities continue

parking. The site was cleaned up in 1983 by removing soil contaminated with oil and PCBs and hauling it off-site to a disposal facility. Groundwater was not tested because contamination was limited to the upper 1 foot of soil. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 9 and the site was officially closed in June 1998.



➤ Site 8 – Excavating contaminated soil at the Scrapyard

INSTALLATION RESTORATION PROGRAM MISSION



To prevent pollution, protect the environment, and protect natural, historic, and cultural resources while allowing for accomplishment of the daily operations of NAF El Centro.

Site 10 – Sewage Stabilization Ponds

The original base sewage treatment facility consisted of the three unlined Sewage Stabilization Ponds. Wastewater flowed into the ponds where solids were separated from the water that was then discharged to the New River. This system was replaced in 1978 when the current sewage treatment facility was built. Studies found that the surface soil at the old ponds is contaminated with metals, pesticides, and PCBs. Contamination levels detected in groundwater were below those requiring cleanup but will continue to be assessed. An engineering evaluation and cost analysis will be prepared to identify the best way to clean up the site. Cleanup activities for Site 10 are expected to begin around the year 2005.

Site 11 – Runway Burn Area

The Runway Burn Area was used for aircraft fire-fighting training during 1979 and 1980. During this training, an old plane was covered with jet fuel, set on fire, and then extinguished. Contamination levels detected in soil and groundwater were below those requiring cleanup. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 11 and the site was officially closed in June 1998.

Site 12 - Open Burn Pits

Between 1981 and 1986, the two Open Burn Pits were used to burn illegal drugs and drug paraphernalia confiscated by the Drug Enforcement Agency. Dioxins, metals, and polynuclear aromatic hydrocarbons (by-products of combustion) were identified in the soil. Groundwater was not tested because contamination was found only in the upper 2 feet of soil. NAF El Centro plans to clean up the site by removing the contaminated soil and transporting it to a hazardous waste landfill. Cleanup activities are expected to be completed in 2002.

Site 13 - Old Incinerator

The Old Incinerator was used to burn paper between 1942 and 1953 and was demolished in 1980. Studies did not identify any contamination in soil. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 13 and the site was officially closed in June 1998.

Site 14/15 - Fuel Farm

The Fuel Farm is a 7-acre site that originally included eight underground storage tanks, and tank rinsate and filter cleaning areas. From 1968 to 1985, fuel tanks were cleaned at this site by filling them with water and letting them drain onto the ground. This rinsewater evaporated or soaked into the soil, contaminating both soil and groundwater with jet fuel and fuel by-products (hydrocarbons). The tanks were also found to have leaked. All underground storage tanks were removed and replaced with two aboveground tanks.

Site 14/15 was cleaned up in 1997 using an *in situ* (in place) remediation method called multiphase extraction. The system removed contaminants from the ground by

injecting clean air into the soil and extracting the air a short distance away. The extracted air contained the residual hydrocarbons from the soil. In addition to removing hydrocarbons, the injected air also stimulated the growth of naturally occurring microorganisms that degrade hydrocarbons. Contaminated groundwater and jet fuel were also removed from the ground and treated in an on-site treatment system. Although cleanup activities are complete, NAF El Centro continues to monitor groundwater at Site 14/15. Official site closure is expected in 1999.



► Site 14/15 Fuel Farm Remediation Equipment Compound

Site 16 - Potassium Ferricyanide Spill Area

The Potassium Ferricyanide Spill Area covers an area about 15 feet in diameter. Potassium ferricyanide, a chemical used in photographic processing, was stored in a tank outside the photo lab. The tank ruptured in 1981, spilling about 100 gallons of the chemical onto the ground. Some contaminated soil was removed in 1983, and in 1995, the remaining contamination was dug up and taken off-site for disposal. Groundwater was not tested because contamination was found only in the upper 5 feet of soil. DTSC and the Water Board agreed with NAF El Centro that no further action is needed at Site 16 and the site was officially closed in February 1997.

Site 17 - Fire-Fighting Training Area

The Fire-Fighting Training Area was used for fire-fighting exercises from 1980 until 1990. These exercises involved pouring fuel into the pit and burning it. Dioxins and fuel were identified in the soil. Groundwater is not contaminated. NAF El Centro plans to clean up the site by removing the contaminated soil and transporting it to a hazardous waste landfill. Cleanup activities are expected to be completed in 2002.

Community Relations

The Navy recognizes the importance of citizen involvement in the environmental cleanup process to identify and address public concerns. A community relations program has been implemented to encourage communication among NAF El Centro environmental staff, regulatory agencies, and the community; provide information to the community about the IR Program; and encourage members of the public to participate in the cleanup process.



For more information regarding the IR Program and the community relations program, please contact the following individuals at NAF El Centro:

Public Affairs Officer/
Administration Officer
Public Affairs Office (Building 214)
NAF El Centro
1605 Third Street
El Centro, CA 92243-5001
(760) 339-2618 or (760) 339-2479

Mr. Fred Rivera, Code 83.FR
IR Program Manager
Environmental Division
NAF El Centro
1605 Third Street
El Centro, CA 92243-5001
(760) 339-2226
Fax (760) 339-2249

Email:
rivera.alfredo.g@nafec.nasni.navy.mil