

Fort Ord Environmental Cleanup 2004 ANNUAL REPORT

Fort Ord BRAC Office

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Progress of the Cleanup and Property Transfers

From 1917 to 1994, Fort Ord served as an infantry training and staging area for the U.S. Army. The installation was closed in 1994. Since that time the Army has carried out a major program to remove or treat various kinds of environmental contamination and prepare the documents necessary to transfer the land to the community. This report describes the progress that was made during 2004.



A Historical Review of the Former Fort Ord

During its years of operation, Fort Ord had many features of a small city. Fort Ord's operations involved nearly 35,000 people. Fort Ord had its own facilities for vehicle maintenance, gas stations, sewage plants, landfills, hospital, water supply, and underground storage tanks. Like other communities of this size and era, some of these facilities were not built to present-day standards and ultimately led to contaminated soils and groundwater.

The one thing that distinguished Fort Ord from other small cities was the presence of training ranges where soldiers fired millions of rounds of small arms ammunition. They also fired grenades, mortars, rockets and artillery. Soldiers were also trained in the use of land mines, pyrotechnics, bombs, and demolition material. These items are known as "military munitions."

Most of the training ranges were located in a 8,000-acre portion of the former Fort Ord known as the "Impact Area." Most of the high explosive materials were fired in this area, and the Impact Area is now the primary focus of the military munitions cleanup program. The Impact Area is located in the southwestern portion of the former Fort Ord.

Inevitably a small percentage of the millions of rounds of military munitions fired during Fort Ord's training days did not explode and could still be triggered if these materials are disturbed. These military munitions are very unstable and can pose a serious safety hazard if people trespass on lands where these items are located. The Army must clean up these munitions before the land can

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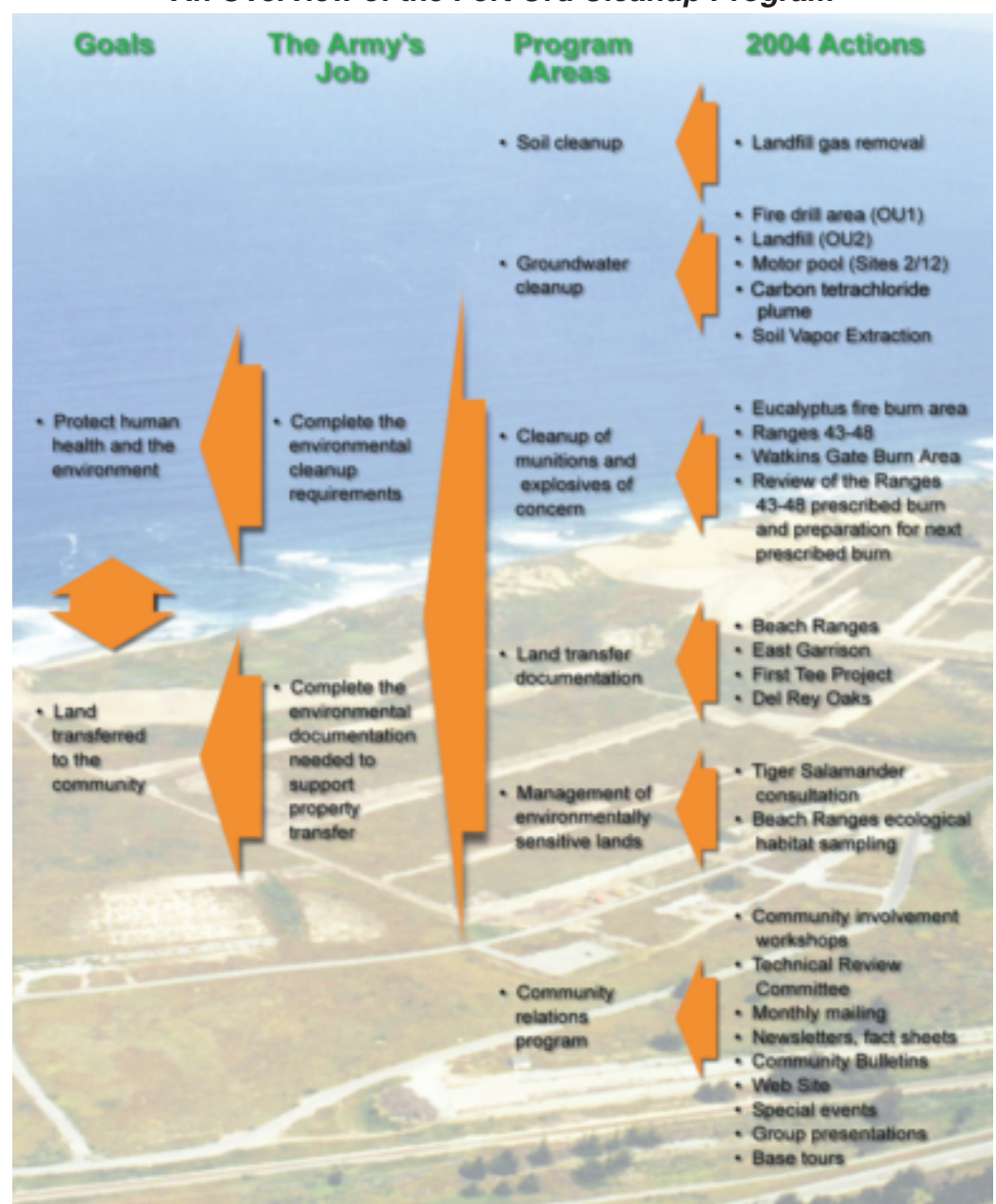
An Overview of the Cleanup Program

The Army's job is to clean up the former Fort Ord so that it is safe for reuse. Once the cleanup meets the regulatory standards needed to protect human health and the environment, the Army prepares the environmental documentation needed to transfer the land.

The chart below provides a quick summary of the entire cleanup program. The Army is involved in three kinds of clean up: (1) soil cleanup, (2) groundwater cleanup, and (3) cleanup of munitions and explosives of concern. The Army must prepare the environmental documentation necessary to carry out both the cleanup program and land transfers. This is a major task.

As long as the Army continues to own the land, it must engage in wise environmental stewardship of the land, especially of environmentally sensitive areas.

An Overview of the Fort Ord Cleanup Program



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Installation of landfill cover (2002)

The challenge, though, is to ensure that no new contamination reaches the groundwater. The primary way that materials in the landfill can cause contamination is for water to flow through the landfill materials, carrying any chemicals from the landfill with it as it flows into the groundwater below the site.

As part of the cleanup program, the Army put a cover over the landfill to

keep all surface water (such as rainfall) from passing through the materials in the landfill. This is a standard cleanup/closure method used to avoid future contamination of groundwater. The cap consists of an impermeable geomembrane that is placed on top of foundation soil and then covered with two-feet of soil. The entire area is replanted with natural vegetation.

All landfills generate gases when organic waste decomposes. This results from the action of anaerobic bacteria on the organic matter present in the waste. Landfill gas is chiefly composed of methane and carbon dioxide, with small amounts of other volatile or semi-volatile organic gases. Methane gas has practically no toxic effects. Califor-

nia regulations require that methane concentrations be less than 5% at the landfill boundary. This is because methane in concentrations above 5% can explode if there is a source of ignition. The Environmental Protection Agency also has established standards for exposure to chemicals known as volatile organic compounds (VOCs).

The Army has conducted landfill gas testing and monitoring since the landfill's closure. The Army installed monitoring devices that allow the sampling and detection of methane and volatile organic compounds.

In 2000, the Army installed a landfill gas extraction and treatment system adjacent to the landfill. The system draws methane and other gases from a series of extraction wells/pipes located around the eastern edge of the landfill. These gases are then transported in pipes to a facility where potentially harmful compounds are treated.

In 2004, the Army conducted extensive tests of air quality near the landfill. The Army conducted a number of measurements "upwind" of the landfill so air quality unaffected by the landfill could be compared with the air quality downwind of the landfill. If methane gas were escaping from the landfill it would be found in the downwind air samples. The Army found that air quality upwind and downwind of the landfill are essentially the same. In addition, the readings overall are consistent with average readings throughout populated areas of California. In other words, any chemicals in the air at the former Fort Ord are in the normal range, and are not the result of landfill gas emissions.

The Army also implements a major community relations program. This program is designed both to keep the community informed and involve the community in decisions being made about the cleanup program.

In 2004, the Army carried out many actions in each of these program areas. These actions—shown in the right-hand column on the chart on the page 1—are described in the pages that follow.

Soil Cleanup

The soil cleanup program involves removal of petroleum hydrocarbons (such as oil left over from motor pool operations), pesticides, residues of explosives, and metals (particularly lead, much of it from bullets and other debris from small arms ranges). The level of cleanup required is specified in agreements between the Army and federal and state environmental regulatory agencies.

2004 Accomplishments

Most of the soil cleanup was completed before 2004. However, during 2004, work was completed on landfill methane gas removal as indicated below:

Landfill Methane Gas Removal

Like many cities, Fort Ord maintained a landfill during its years as an Army training base. The landfill was used for residential and on-base commercial waste disposal. Like many such landfills, chemicals leaked into the ground beneath the Fort Ord's landfill waste. In addition, lead contaminated soil from cleanup of the former firing ranges at the beaches was also disposed of in this area. The Army has built and operates a large groundwater treatment system to remove this contamination from the groundwater.

Figure 2: SNAPSHOT OF GROUNDWATER CONTAMINATION SITES

Name	Contamination Source	Primary Contaminants of Concern	Soil Treatment	Total Groundwater
Operable Unit 1—Fritzsche Army Airfield Fire Drill Area	As part of training activities, fuel was discharged from an onsite storage tank into a pit, ignited, and then extinguished. Fire fighter training activities were discontinued in 1985.	Petroleum hydrocarbons including benzene and TCE	4,000 cubic yards of petroleum-contaminated soil were removed, and the excavation was backfilled with clean soil. The excavated soil was placed over the top and biotreated. Biotreatment was completed in 1991.	109.5 million gallons of water extracted and treated
Operable Unit 2	Former municipal landfill operation	Common solvents and other volatile organic compounds mainly TCE	Landfill closed and consolidated; landfill capped to prevent rain water passing through the materials in landfill	2.95 billion gallons of water extracted and treated
Sites 2 & 12	Improper disposal of solvents from automotive and other repair facilities.	TCE	Source area excavated and backfilled with clean soil. Contaminated soil was disposed of in the OU2 landfill.	710 million gallons of water extracted and treated
Operable Unit CTP	Possibly use of carbon tetrachloride as a cleaning solvent for radios and other communications gear	Carbon tetrachloride	Soil vapor extraction and treatment	Treatment methods are being evaluated

East Garrison Trap and Skeet Range

During its years of operation, Fort Ord offered several recreational opportunities including a trap and skeet shooting range located near the former East Garrison. Bullets were fired at targets 25 or 50 meters away and became embedded in the hillsides at the back of the range. Previously the Army excavated soils and removed the bullets, which contained contaminants such as arsenic, antimony, copper and lead associated with spent ammunition.

In 2004, the Army completed removal of soils containing clay pigeons, used as targets for the skeet and trap shooting. These clay pigeons contain 32 percent petroleum pitch (asphalt). The Army removed approximately 9,000 cubic yards of soil. This property is being prepared for land transfer.

Groundwater Cleanup

Chemicals of concern have entered into the groundwater at four known locations on the former Fort Ord. The four contamination locations are as follows (see map):

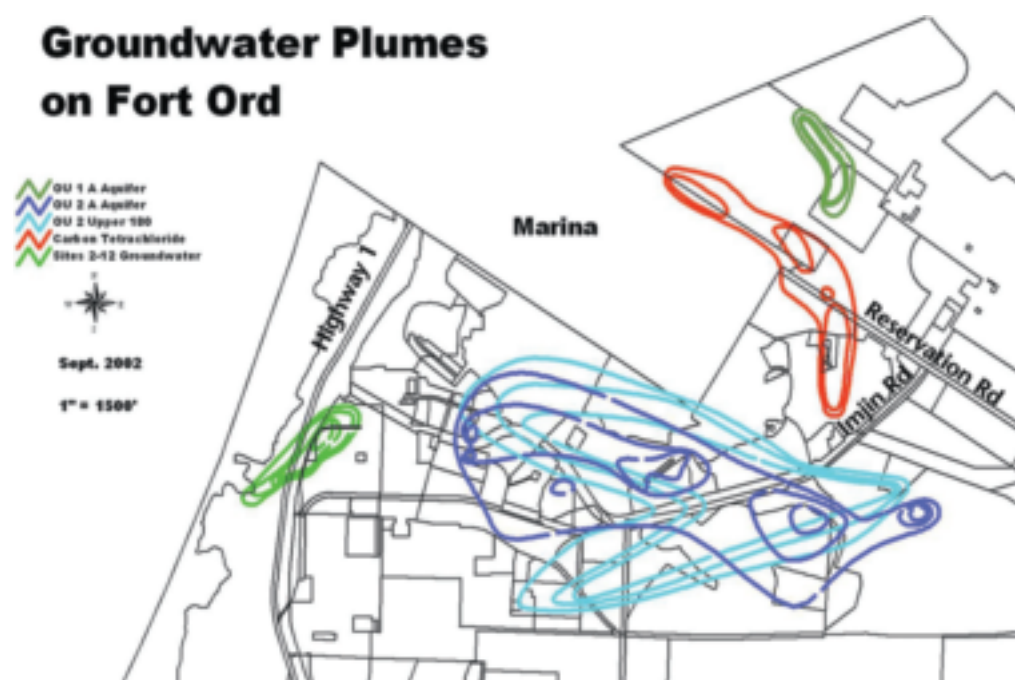
- (1) A fire-fighting training area near the former Fritzsche Army Airfield now called Marina Airport (known in regulatory terminology as Operable Unit 1);
- (2) A former landfill south of the corner of Imjin and Abrams Roads (Operable Unit 2);
- (3) A former truck and auto maintenance facility east of Highway 1 (Sites 2/12); and
- (4) A more recently discovered plume north of the corner of Imjin and Abrams Roads (Operable Unit Carbon Tetrachloride Plume).

None of this contamination threatens existing water supplies currently in use. However the Army is responsible for removing the contamination.

The Army has removed the soil containing the chemicals that were the original source of the contamination at the former Fritzsche Army Airfield, and the former truck and auto maintenance facility. At the landfill, the Army has stopped the spread of contaminants by capping the landfill, so no water that could spread the contamination reaches the contaminants. The Army has also built water treatment facilities to extract and clean up contaminated groundwater associated with these three sites. This treatment is gradually removing the contamination. The Army will continue to treat the water for a number of years until the concentrations of contaminants attain the agreed-upon cleanup levels.

Figure 2 contains a quick snapshot of the groundwater treatment that has occurred.

Groundwater Plumes on Fort Ord



What Is “Groundwater”?

When rainfall falls on the land, some of the water—especially when there is sandy soil like that found in the Monterey Bay Area—passes into the ground. The water continues to percolate through the soil until it encounters an underground layer of clay or rock, and can go no further. When this happens, water accumulates in the ground. Geologists refer to water stored in the ground in this way as groundwater.

HISTORICAL continued on page 3

be used for other purposes.

The closure of Fort Ord had a significant impact on the surrounding community. As many as 5,000 community jobs were lost. Marina and Seaside were particularly hard-hit. One way that community leaders – and Congress – hoped to soften the blow was to develop the former Fort Ord property in ways that would bring jobs and other economic, educational and environmental benefits to the area.



The Army does not decide how the land will be used in the future. These decisions are made by the Fort Ord Reuse Authority (FORA). This organization was set up in 1994 by the California State Legislature to make decisions about future uses of Fort Ord land. FORA’s Board of Directors is made up of representatives from local governments. The Board also includes ex-officio members, such as federal and state elected officials from the area and representatives from some of the major current and future users of the property such as California State University.

In 1997, FORA approved an overall plan, called the Base Reuse Plan, and the environmental documents needed to support that plan. This plan was developed after an extensive public process, during which the public had opportunities to provide comments.

Under the FORA plan, the Army will retain some property at the former Fort Ord, but will turn the vast majority of the former Fort Ord over to FORA and the U.S. Bureau of Land Management (BLM). FORA will either develop the property it receives or turn it over to other governmental agencies or organizations. Many of these areas have already been transferred to organizations such as California State University Monterey Bay (CSUMB) and the University of California, or to governmental organizations. Lands transferred to the BLM will be maintained as a habitat reserve.

The Army is obligated to clean up the property before the land can be transferred. This includes cleaning up areas where there is chemical contamination of soils or groundwater, or munitions and explosives of concern. The former Fort Ord has been listed on the National Priority List for environmental cleanup (sometimes called “Superfund” sites).

The Army does not decide by itself when a property is sufficiently cleaned up for the intended reuse. The U.S. Environmental Protection Agency (EPA) and the State of California, represented by the California Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWCQB), must agree with the conclusion that the cleanup is sufficient and that the property is safe for transfer. In fact, under an agreement signed by the four agencies, decisions about the cleanup program are made by all four agencies, although the Army remains responsible for implementing the cleanup program.

The former Fort Ord is also home to several threatened or endangered species and their habitat. When decisions could affect these species, the Army must also consult with the U.S. Fish & Wildlife Service, the agency responsible for administering the federal Endangered Species Act.



Workers install vapor extraction system.

Following the pilot treatment, Army scientists were unable to detect carbon tetrachloride in the nearest monitoring well. This is evidence that the treatment process was effective. The use of lactate is considered a proven method for removing carbon tetrachloride, but the Army still has to determine how long and how often it needs to be used in order to remove all the carbon tetrachloride. The Army continues

to work on a final plan for removal of the carbon tetrachloride.

of the carbon tetrachloride vapor. Towards the end of 2004, the Army conducted additional tests and found that carbon tetrachloride vapors were beginning to accumulate in the soil once again. The Army will continue to operate the soil vapor extraction system as needed to keep the gas from reaching ground level.

Cleanup of Munitions and Explosives of Concern

As mentioned above, parts of the former Fort Ord were used to train soldiers in the use of various kinds of military munitions and explosives. A small percentage of these munitions never detonated, and could be triggered if someone walks over them or bumps them, or by extreme heat. As long as these potentially explosive items remain on the land, it is unsafe to use the land for any purpose. The Army must cleanup these munitions and explosives of concern left over from use of the training ranges. In order to facilitate the removal of munitions and explosives, the Army will usually remove other materials such as expended munitions (munitions debris), targets (such as old tanks) and other scrap metal.

This process of munitions cleanup



Munitions and explosives revealed after prescribed burn.

The fourth location is a more recently discovered plume of carbon tetrachloride near the City of Marina border. Carbon tetrachloride is a man-made product that was used extensively in the past in the production of refrigeration fluid and propellants for aerosol cans, as a pesticide, as a cleaning fluid and degreasing agent, in fire extinguishers, and in spot removers. People commonly used carbon tetrachloride as a cleaning solvent in their homes or in businesses. Because of its harmful effects, these uses are now banned and carbon tetrachloride is only used in some industrial applications.

Carbon tetrachloride was used as a cleaning solvent for radios and other communications gear that were maintained at a training facility near the source of the plume. During these operations, some carbon tetrachloride may have been discarded on the ground. The estimated amount of carbon tetrachloride at the original source of the contamination was relatively small—about 10 to 50 gallons.

The first challenge was to identify the boundaries of the carbon tetrachloride contamination in groundwater. This was done by drilling numerous monitoring wells and testing the water in the wells. The carbon tetrachloride plume does not affect drinking water supplies.

2004 Actions Biological Treatment Pilot Study

In 2004, the Army conducted a pilot program to test the use of a biological treatment to remove carbon tetrachloride from groundwater. Lactate, a naturally occurring chemical, is injected into recirculation wells. The lactate activates bacteria already in the groundwater, and over a period of several weeks the bacteria breaks carbon tetrachloride down into chloroform, which is not a health concern at the concentrations found in the water.

Soil Vapor Extraction System

Carbon tetrachloride can escape through the soil as a gas or soil vapor. At concentrations above US EPA guidelines, this soil vapor can be a threat to human health.

Since 2001 the Army has been conducting tests to determine whether carbon tetrachloride soil vapor is being released into the air in the vicinity of Lexington Court housing. There is a buildup of carbon tetrachloride soil vapor at about 85 feet below the ground level. At ground level, the concentrations in the air do not pose a health threat. In 2004 the Army conducted tests to determine whether there could be an accumulation of carbon tetrachloride vapor in residences. The indoor sampling showed no health concerns.

The Army has constructed a soil vapor extraction system to remove the gas from the soil. The extraction system includes five extraction wells and a network of vapor probes. The extraction equipment is located in a garage located in a vacant residence on Lexington Court, and the garage has been soundproofed so it does not annoy nearby residents.

The Army operated the soil vapor extraction system for several months, until it was no longer able to detect significant amounts



usually follows several steps:

The first step in a munitions removal action is to remove vegetation that grows on the land. The surface of the land is often covered with thick vegetation that makes it impossible for workers to see the ground and the high explosive items that could be hidden by the brush. The Army's explosive safety experts have determined that the munitions and explosives of concern cannot be safely removed until the vegetation is thoroughly cleared.

Much of the former Fort Ord land is habitat for plants and animals that are protected by federal and state laws. This makes the removal of brush covering munitions sites more challenging. On some areas of the former Fort Ord the Army has been able to clear this brush by hand or using mechanical clearing equipment. In areas covered by a habitat known as Central Maritime Chaparral, a habitat that supports a variety of rare and endangered species, the habitat has difficulty recovering if mechanical clearing is used. On the other hand, Maritime Chaparral habitat is rejuvenated by fire. As a result, the Army has reached an agreement with the U.S. Fish & Wildlife, the federal agency that oversees the Endangered Species Act, to use prescribed burns in areas dominated by Maritime Chaparral habitat.

The Army is currently completing an evaluation of what methods of vegetation clearing will be used for the entire former Fort Ord site. In 2002, the Army decided to go ahead with the cleanup of three areas known as Ranges 43-48, Range 30A, and Munitions Response Site 16, using an interim authority that allows the Army to take action when there is an imminent threat to public safety or the environment. The Army, in consultation with the U.S. Environmental Protection Agency and the California Department of Toxic Substances Control, decided that prescribed burns would be used to clear vegetation on these three sites to facilitate the cleanup of munitions and explosives of concern. The explosives on these sites are so dangerous that cleanup workers cannot safely enter the land to clear brush by hand or using mechanical methods, and the vegetation on these sites is Central Maritime Chaparral. The Army's interim authority allowed the Army to proceed with cleanup, but every site where cleanup occurs on an interim basis will need to be reevaluated to be sure the interim cleanup is sufficient.

Once the land has been cleared of vegetation, the next step is to locate any unexploded munitions or explosives. There are two levels of cleanup: surface and subsurface removal. Surface removal involves removing all the munitions and explosives of concern that can be found on the surface of the ground. Subsurface

removal means detection of the items below the surface of the ground, usually using sophisticated geophysical instruments, then digging these items up and removing them.

The equipment that is used to locate these materials—and the Army uses the most modern equipment that will do the job—detects metal, not just metal associated with unexploded munitions and explosives. So each individual metal detection must be dug up and checked by hand, whether it is a tin can or an unexploded rocket. These metal detections are referred to as an “anomaly,” because until they are checked out it isn't known whether they are munitions or something harmless.

To give you a sense of the magnitude of the challenge: since 1994, the Army has investigated 11.7 million detections of metal (anomalies). During that period it has found and removed 7,215 high explosive munitions and explosive items. It has also removed 735,236 pounds of munitions debris.

Once explosive items are located, they are either exploded in place, or, if it is safe to consolidate them, they are detonated together in a centralized location.

The Army estimates that cleanup of the entire Impact Area will take at least another ten years.

2004 Actions **Eucalyptus Fire Area**

In 2004 the Army completed removal of every metal item 2 inches or larger that could be found on the surface of the land in the Eucalyptus Fire Area. This area, which is located in the east central portion of the former Fort Ord, burned in an accidental fire in July 2003. This fire burned approximately 637 acres of land. This included 367 acres of land under Army control within the former Impact Area. It also included approximately 270 acres that have already been transferred to the Bureau of Land Management for management as natural reserve. While the fire was unfortunate, and caused undesirable smoke impact on Fort Ord's neighbors, it did provide an opportunity—while the vegetation was cleared – for the Army to go in and clean up this portion of the Impact Area.

On Army land, cleanup workers found and removed 91 munitions or explosives of concern (MEC), as well as 29,300 pounds of munitions debris. On Bureau of Land Management land, cleanup workers found 22 MEC items and removed 311 pounds of munitions debris.



Technician looks for subsurface munitions and explosives.

Ranges 43-48 Cleanup

A prescribed burn was conducted in October 2003 to clear vegetation on former artillery training ranges known as Ranges 43-48 in the Impact Area. This site was the highest priority for cleanup. It was high priority both because of the very dangerous kinds of explosives that were found on that site and its proximity to residence and schools.

The Army has completed the surface removal of Ranges 43-48, and has begun subsurface removal. During surface removal, removal teams found and removed and detonated more than 4,600 munitions and explosives (MEC) items. They found an additional 300 MEC items during removal of tanks, vehicles and other metal objects

2004 CLEANUP STATISTICS

During 2004 the Army:

- Investigated **2.7 million detections of metal (anomalies)**
- Removed **3,570 munitions and explosives of concern, of which 1,351 were high explosive items**
- Removed **90,167 pounds of munitions debris, and more than 1,000,000 pounds of target debris (vehicle hulls, etc.)**



Munitions and Explosives Cleanup Areas

Monterey County Site 2

The Army also completed the first phase of subsurface cleanup on a site just to the north of Seaside Sites 1-4, adjoining Eucalyptus Road. This site is also in the immediate vicinity of homes and the schools named above. Eucalyptus Road is regularly used by bikers, hikers, and joggers who might have been tempted to trespass in this area. In 2004, the Army completed the documentation needed to finalize this phase of the cleanup and began preparing for the second phase of cleanup. Areas such as roads and asphalt pads within this site were not cleaned up during the first phase because these areas are used to support the ongoing munitions cleanup at Ranges 43-48. These areas will be cleaned up after the Ranges 43-48 cleanup is completed, later in 2005.

that were used as targets during artillery training.

Removal teams have conducted subsurface removal on 240 acres of the 500 acres at the site. So far they have removed an additional 1,000 MEC items. Removal workers had to check out more than 5,000 anomalies per acre while looking for explosive items.

The Army is also going back and mapping the site using digital geophysical survey instruments. The data from the survey instruments will show remaining anomalies recorded by the survey instruments. Each of these items will then be investigated.

The Army will also begin sifting the soil on Range 45. In this 14-acre area of the site, there is so much metal debris that it is impossible to identify individual anomalies. Armored bulldozers will remove the top 2 feet of soil, and the excavated soil will be run through an armored sifter that will remove the debris from the soil. The sifted debris will be checked for MEC. After the top 2 feet of the soil is removed, the Army will also survey the area with geophysical instruments to locate any items buried deeper in the soil. Then the sifted soil will be returned to the Range 45 area.

The cleanup of Ranges 43-48 site is expected to continue into the summer of 2005.

Watkins Gate Burn Area Cleanup

The October 2003 prescribed burn unintentionally burned off vegetation on 1,100 acres that would have been scheduled for cleanup at a later time. The Army decided to proceed with surface clearance of the land while the vegetation was cleared.

During the surface removal the Army found 535 MEC items, and also removed 68,590 pounds of munitions debris and an

additional 77,245 pounds of other debris related to training, such as vehicles used as targets.

Now that surface removal of MEC has been completed, the Army is surveying the area using digital geophysical equipment to determine the level of effort that will be required for subsurface removal.

Seaside Sites 1-4

The Army completed the first phase of subsurface munitions and explosives cleanup on Seaside Sites 1-4 in March 2004. These sites adjoin General Jim Moore Boulevard, just to the east. They were high priority for cleanup because they are very near houses and schools (Fitch Middle School and Manzanita Elementary), making them susceptible to trespassers despite razor-wire fences and warning signs. Before the cleanup, trespassers were in danger of triggering explosives that could have maimed or killed.

First Tee Area

The City of Seaside was considering building a golf course, to be known as the First Tee course, on property to the north of Eucalyptus Road, just to the east of General Jim Moore Boulevard. Several years ago the Army did find one 57 mm high explosive shell on this site, and the site is also near other munitions response sites where investigations have not been completed. As a result, the Army conducted a careful investigation of the site using a Schonstedt magnetometer (a device that detects metal). The Army did not locate any explosive items during this investigation. The Army believes that there is minimal chance of encountering MEC during reuse of this land.

The land has now been leased to the City of Seaside. As an added safety precaution, the lease contains clauses designed to ensure that people doing any grading are trained to recognize any military munitions they might find.





Review of the 2003 Prescribed Burn and Preparation for the Next Prescribed Burn

In 2004, the Army completed a review of how it conducted a prescribed burn at the 500-acre Ranges 43-48 site in 2003. This fire escaped the first line of containment and burned 1,100 more acres of land than planned. The resulting fire created a great deal of smoke.

This review included an evaluation of how the fire escaped; the results of air monitoring before, during and after the burn; and the effectiveness of the relocation program. The review also resulted in recommendations to improve the Army's planning and procedures for the next prescribed burn.

The Army consulted closely with local fire chiefs on how to avoid the problems that occurred during the 2003 prescribed burns. Local fire chiefs agree that prescribed burns at the former Fort Ord are necessary. However they believe that controlling fires solely from the air, as was done in the 2003 fire, is not sufficient. The problem is that when there are fires on lands where there is unexploded munitions and explosives, the fire will detonate some of these items, endangering firefighters. If firefighters stay back a safe distance, they cannot control the fire aggressively enough.

Local fire chiefs have proposed several ways to improve fire control. In particular they encouraged clearing a ring around the outside of the Impact Area. This ring would consist of parcels where munitions have been removed, so it would be safe for firefighters to fight the fire from the ring. Much of this ring has already been completed by past fires and other Army cleanup actions.

The fire chiefs also identified an area

along South Boundary road as holding the greatest danger of a fire escaping outside of Fort Ord. The Army widened the fuel break along South Boundary road from east of York School to a cleared area adjoining Laguna Seca Race Track. Vegetation was removed from an area between South Boundary Road and a pre-existing fuel break inside the impact area. The area cleared is approximately 55 feet deep, and

two miles long. Some trees were also cleared on the south side of South Boundary Road. The Army continues to work with local fire chiefs to ensure full control of future fires.

The Army is planning for the next prescribed burn. This fire will be conducted on a site known as Munitions Response Site 16. This site is approximately 80 acres. This will be a considerably smaller fire than the 2003 prescribed burn, which was designed to burn approximately 500 acres of vegetation.

Munitions Response Remedial Investigation/ Feasibility Study

The Army has been investigating and cleaning up munitions and explosives of concern at the former Fort Ord since 1993. In 1998, the Army began a comprehensive study of explosive hazards from military munitions at the former Fort Ord called a Munitions Response Remedial Investigation and Feasibility Study (MRRI/FS). This study will evaluate various cleanup alternatives that would make the land safe for subsequent reuse of the former Fort Ord land. The study will also evaluate whether the interim cleanup that has already occurred on some parcels is sufficient.

In this study, parcels of land have been categorized into four separate tracks, based on an evaluation of how likely it is that military munitions were ever used on the land. The definition and status of the tracks is shown in the table below.

Land Categories and Status

Track	Definition	Schedule for Record of Decision
Track 0	There is no evidence that military munitions were ever used on this land	Completed June 2002
Track 1	Based on the records, there was some suspicion that munitions and explosives of concern could be found, but thorough inspection found the suspected training did not occur; the training did not involve explosive items; or the training involved practice or pyrotechnic munitions but MEC is not expected	April 2005
Track 2	There were munitions and explosives found on this land, but they have been removed	April 2006
Track 3	Further investigation is necessary	June 2006

A separate study, known as a Remedial Investigation/Feasibility Study (RI/FS), is conducted for each track. The Army also issues a Proposed Plan with recommended actions. The RI/FS and Proposed Plan are distributed to solicit public input. After reaching a decision on how to proceed, the Army publishes a Record of Decision describing the cleanup decision for the study track. Here's a synopsis of where progress stands:

Track 0: The Army has completed the Track 0 study, and a Record of Decision (ROD) for Track 0 was published in 2002. The ROD concluded that no munitions cleanup response was required in these areas. The ROD also established a process for recommending Track 0 status for additional parcels not described in the ROD, if an evaluation indicates the parcel meets Track 0 criteria. This process is called the Track 0 "plug-in process." Under this process, the Army prepares an Approval Memorandum which describes the property and the reasons why the Army believes the parcels should be treated as Track 0 (requiring no response action). The public is given an opportunity to comment upon the memo, and then the decision is made by the Army in consultation with the U.S. Environmental Protection Agency and the California Department of Toxic Substances Control.

The Army issued two Approval Memoranda during spring 2005. The first covers 30 parcels totaling approximately 220 acres. The second covers 20 parcels totaling 535 acres. All the parcels covered by the two memos are proposed as Track 0 parcels.

Track 1: The Army completed the Remedial Investigation/Feasibility Study for Track 1 during 2004. In this study, the Army concluded that, because the investigations found that munitions and explosives of concern are not likely to be found at any of 21 Track 1 munitions response sites, no further munitions response is needed at these sites. This document, and the Army's Proposed Plan, was sent out for public review and comment.

The public comment period ended in November 2004. Numerous public comments were received.

The Army published the Track 1 Record of Decision in April 2005. The Record of Decision includes a summary of public comments received on the Proposed Plan and the Army's responses to the comments. These documents are available for public inspection in the Administrative Record, local information repositories and on the website www.fortordcleanup.com. The Track 1 Record of Decision concluded that no further action is needed for the twenty-one Track 1 munitions response sites. The Record of Decision also established a "plug-in process," similar to that used for Track 0 areas, for evaluating whether

additional parcels can be treated as Track 1 if they meet the criteria in the Record of Decision.

The Army plans to publish an Approval Memorandum during spring 2005 that will propose a 26-acre expansion of an area that is already classified as Track 1. The public will have an opportunity to comment on this memo.

Track 2: The Army published a Draft Track 2 Munitions Response Remedial Investigation/Feasibility Study in February 2005. This report evaluates the MEC removal action that was completed at an area called Parker Flats. The report also includes a MEC risk assessment of the Parker Flats area using the Fort Ord Ordnance and Explosives Risk Assessment Protocol. Finally, the report evaluates measures that could address any remaining explosive risks at the Parker Flats site. The draft report is available for public review through May 30, 2005. The Track 2 Record of Decision is scheduled for 2006.

Track 3: The Army is making plans for the studies necessary to prepare Track 3 reports. A Record of Decision is planned for 2006.

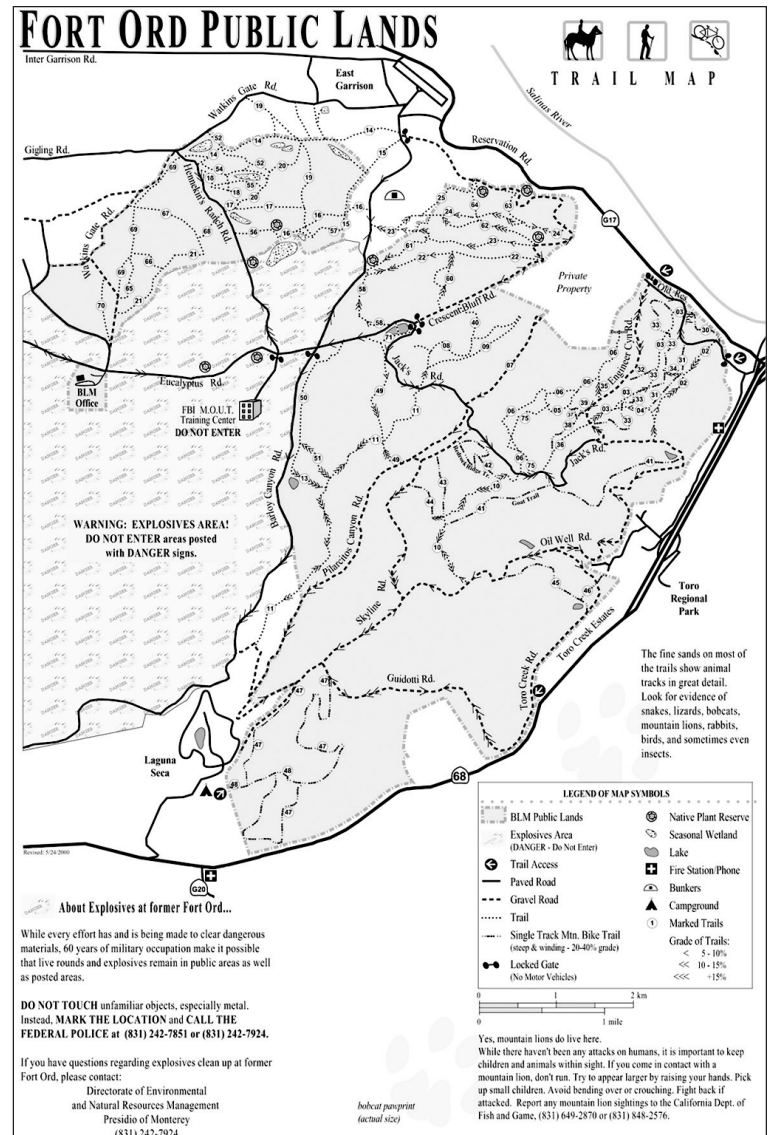
Unexploded Ordnance Safety Training

The Army continues to conduct safety awareness training at local schools. This training emphasizes the risks of explosive materials on the former Fort Ord, and the dangers of trespassing on this land. In 2004, this training was given to approximately 650 students and staff.

Now that more construction has begun on former Fort Ord property, construction workers are also encouraged to attend a brief UXO safety training before being allowed to work on the former base.

Management of Environmentally Sensitive Lands

While the Army remains the owner of significant portions of the former Fort Ord, it also retains responsibility for managing this land to protect environmentally sensitive land and species. This is a significant responsibility. There are 11 identified plant communities at Fort Ord, including many rare habitats such as coastal dunes, dune scrub, maritime chaparral, coast live oak woodland and savannas, vernal pools, and perennial grasslands. These habitats are home to many rare and endangered plants and animals. Worldwide distributions of many of these species are limited to the Monterey Bay area.



The cleanup actions that the Army takes can impact these habitats. So all major decisions require a careful analysis of the potential environmental impacts associated with those actions, and sometimes require coordination with federal or state wildlife agencies. Army biologists and consultants are included in virtually all decision making.

There are also many recreation opportunities on lands of the former Fort Ord. The U.S. Bureau of Land Management (BLM) manages 7,200 acres of the former Fort Ord lands. This land contains an extensive system of trails left behind by the military. These trails provide numerous opportunities for hiking, biking and equestrian use. Already, there are 75,000 recreation visitors per year, and the numbers are growing. There are numerous bike trails throughout Fort Ord. In fact, Fort Ord hosts the largest mountain bike event in the world every year.

Land Transfers

The Army's ultimate goal is to transfer all former Fort Ord lands—except a few small areas the Department of Defense (DoD) is retaining for military housing and administration—to a local reuse agency known as the Fort Ord Reuse Authority (FORA) and to the U.S. Department of the Interior, Bureau of Land Management (BLM). The Fort Ord Reuse Authority, in turn, transfers the land to appropriate local agencies or community organizations, in accordance with its Base Reuse Plan.

The Army has already transferred major properties to the community, including the following: more than 7,000 acres to the BLM; military golf courses to the City of Seaside; nearly 700 acres to California State University Monterey Bay, with another 200 acres planned; more than 950 acres to the University of California (environmental research facility); and the former Fritzsche Army Airfield (now the Marina Municipal Airport) to the City of Marina. The total land at the former Fort Ord transferred to date is approximately 12,700 acres, an area larger than the cities of Seaside and Marina combined.

Once the Army has completed all required cleanup of an area, the Army must publish a Finding of Suitability to Transfer (FOST), which documents the environmental suitability of parcels being considered for transfer outside of Army control. The FOST describes the environmental condition of properties, provides required environmental notices and documents any use restrictions placed on the property. The public has an opportunity to comment on the proposed land transfer before a final decision is made.

Here's a quick summary of the land transfer program:

2004 Accomplishments

Based on work completed in 2004, the Army recently issued one Finding of Suitability to Transfer (FOST) and plans to issue another this spring. These FOSTs will authorize the transfer of 59 parcels totaling more than 2,100 acres. All of the parcels that are being proposed for transfer qualify under the definitions used for Track 0 or Track 1. The Army will announce a public comment period for both FOSTs.

The land described in these FOSTs will be transferred to FORA, Monterey County, Monterey Peninsula College, York School, the Marina Coast Water District, the Veterans Transition Center, the California Department of Parks and Recreation and the California Department of Transportation (CalTrans) for a variety of uses.

One of the most significant land transfers will be the property west of Highway 1. Millions of people have driven by the beaches just off Highway 1 on the west edge of the former Fort Ord. These beaches have been closed to the public for decades. The Army will transfer all of the property west of Highway 1 to the California Department of Parks and Recreation, which will establish the Fort Ord Dunes State Park. The park will include 886 acres and extend four miles along the coast. This land transfer follows an extensive cleanup of the beaches conducted by the Army.

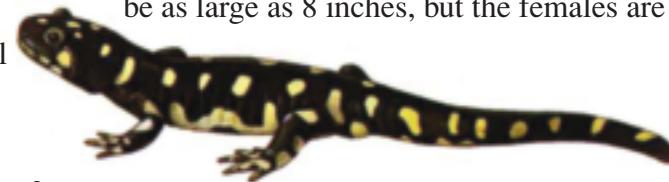
The First Tee parcel has been leased to the City of Seaside for development, possibly as a golf course.

2004 Actions Tiger Salamander Consultations

In August 2004 the U.S. Fish & Wildlife Service adopted a final rule listing the California tiger salamander as a threatened species under the federal Endangered Species Act. The tiger salamander can be found in locations throughout central California, including the California coastal area from San Francisco to Santa Barbara. There are a number of locations on the

former Fort Ord where the tiger salamander has been observed.

The tiger salamander is a terrestrial salamander with a broad rounded snout. The salamander's back may have white or pale yellow spots or bars on a black background. Its underside varies from a solid white or pale yellow to a varying pattern of white or pale yellow and black. Males may be as large as 8 inches, but the females are



COMMUNITY RELATIONS SURVEY

To help us improve the effectiveness of our Community Relations Program, we encourage you to complete this Community Relations Survey. After completing the survey, please clip and fold, insert in an envelop, stamp and mail to the address shown. Thank you.

1. When did you become aware of the environmental cleanup of the former Fort Ord?

2. How did you first learn about the environmental cleanup of the former Fort Ord?
 television news newspaper news newspaper notices
 neighbors/friends Fort Ord newsletter
 other (describe) _____
3. Is the information you currently receive about the Fort Ord cleanup:
 about right too much too little
 comments _____

4. What type of Fort Ord cleanup activities/information interests you?
 groundwater soil unexploded ordnance
 suitability of property to transfer vegetation burning
 other (describe) _____
5. How would you like to receive information about the Fort Ord cleanup?
 newsletter (mail) fact sheets/document summaries (mail)
 public meetings events/tours web site email notices
 other (describe) _____
6. How would you like to communicate your interests or concerns about the cleanup to the Army?
 public meetings written comments (mail) email
 telephone (800 number) small group meetings (clubs/associations)
 other (describe) _____
7. What time and place would be most convenient for you to attend public meetings about Fort Ord cleanup subjects?

8. In what language would you like to receive cleanup information?

(continued on other side)

smaller. The tiger salamander lives near vernal pools, pools that have water during the winter months and dry up during the summer. Vernal pools are an essential part of the life cycle of the tiger salamander.

The listing of the tiger salamander as a threatened species is not expected to impact the former Fort Ord cleanup program or land use significantly. The tiger salamander was among the species considered in a Habitat Management Plan that was signed in 1994 and updated in 1997. Under the Plan, the Army will be transferring 16,195 acres of the 27,827-acres former Fort Ord to

the Bureau of Land Management to be managed as a natural reserve. This should be more than adequate to ensure that there is no net loss of salamanders or salamander habitat. The Army has submitted a Biological Evaluation to the Fish & Wildlife Service in accordance with the Endangered Species Act.

In the meantime, some land transfers and environmental cleanup projects were on hold while the Army completed its consultation with the Fish & Wildlife Service regarding impacts on the tiger salamander. The Army's consultation was completed in

March 2005. Private landowners in the Monterey Bay Area may soon find that they too need to consult with the Fish & Wildlife Service if their property is near a vernal pool.

Community Relations

The Army maintains a major community relations program with two goals: (1) keep the public informed about the cleanup program; and (2) provide opportunities for the public to comment before major decisions are made. The Community Relations Plan, which outlines the planned activities is posted on the Fort Ord web site at http://www.fortordcleanup.com/adminrec/ar_pdfs/AR-BW-2150.

The Army is happy to make presentations to community groups about Fort Ord cleanup activities. This includes presentations for meetings and school groups. There is no charge. Call the Community Relations Office at (831) 393-1284.

Here is a summary of 2004 events:

Fort Ord Cleanup Web Page

Increasingly the Fort Ord Cleanup web page (www.FortOrdCleanup.com) is serving as a major source of information for the public. There were 109,799 visits to the site in 2004, by 18,016 different individuals. The web page not only provides current news, there are also numerous fact sheets available, and it is now possible to access virtually all recent technical documents in the Fort Ord Cleanup Program information repository from the website. It is also possible to search the site using the Google search engine.

Community Involvement Workshops

The Army hosted five community involvement workshops in 2004. Community Involvement Workshops are open public forums for discussion of the cleanup program. Typically there are briefings on current activities or pending decisions, following by an opportunity for the public to ask questions of the technical experts, as well as informally comment on programs. If you want to be informed about future Community Involvement Workshops, please contact the Community Relations Office at 1-800-852-9699. The local number for the Community Relations Office is (831) 242-7383. (Press 4 to speak to an environmental staff member.)

Technical Review Committee

The Technical Review Committee met quarterly in 2004. Technical Review Committee meetings are targeted primarily at technical staff of local government agencies. Typically Technical Review Committee meetings discuss the same topics as presented at the Community Involvement Workshops, but provide an opportunity for more detailed discussion of technical issues.

9. What newspaper do you read the most?

10. What library do you use the most?

11. Have you visited the cleanup information repository located at (check all that apply):

California State University, Monterey Bay Library

Monterey County Library, Seaside

Fort Ord Administrative Record, Building 4463, Ord Military Community

12. What are your interests or concerns about the cleanup process?

13. How would you like the Army to address your interests or concerns?

14. Is there a person, group, or organization you think would be interested in talking to the Army about the Fort Ord cleanup process?

15. Is there anything else about the cleanup you would like to share with us?

16. Do you live in the Monterey Bay area? yes no If yes, how long?

0 - 5 years 6 - 12 years 13 - 20 years 21 or more years

**Fort Ord Environmental Cleanup Survey
Fort Ord Community Relations Office
P.O. Box 5008
Monterey, CA 93944**

Public Comment Meetings

Public comment meetings are held, when needed, in addition to the Community Involvement Workshops. These meetings provide an opportunity for the public to comment on pending decisions. In 2004, the Army held one public comment meeting. This meeting provided the public the opportunity to comment on the Track 1 Remedial Investigation/Feasibility Study and Proposed Plan. More than 1,000 copies of the Track 1 Proposed Plan were distributed prior to the meeting.

Door-to-Door Notification

Occasionally, when there are issues that could have a direct impact on our neighbors, or people living on former Fort Ord lands, the Army will provide door-to-door notification. In 2004 Army staff walked local neighborhoods three times to provide information about the carbon tetrachloride soil gas studies and carbon tetrachloride treatment study facilities.

Publications

In June 2004 the Army published Community Bulletin #7 which summarized the Army's analysis of why the 2003 prescribed burn escaped the primary containment line, and the steps the Army is taking to ensure this does not occur on future burns. This bulletin was sent to 52,000 households.

In November 2004 the Army published the Fort Ord News, a summary of recent activities of the Fort Ord cleanup program. The Fort Ord News is being replaced by this Annual Report.

Fact Sheets

The Army has prepared and regularly updates a lengthy list of fact sheets, all of which are posted on the Fort Ord cleanup program web page. These fact sheets discuss both community outreach and technical topics. For example, the Military Munitions Response Program issued five newsletters in 2004 updating progress of the cleanup program.

Monthly Mailing

The Fort Ord Cleanup Office publishes a monthly bulletin with updates on technical reports, announcements about upcoming events, and other news bulletins. This monthly mailing goes to approximately 1,000 people who have expressed an interest in following activities or reviewing documents. To receive the monthly mailing, call the Fort Ord hotline at 1-800-852-9699 or send an e-mail to: Melissa.Broadston@monterey.army.mil
The local number for the information line is (831) 242-7383.

Presentations to Community Groups

Army staff makes presentations, upon request, to community groups. In 2004 the



Fort Ord public meeting

Army made presentations to 425 students, as well as professional groups such as the Monterey Bay Chapter of the Association of Environmental Professionals.

Information Booth

The Fort Ord Cleanup program sets up information booths at major community events including the Monterey County Fair, Marina's Festival of Winds, CSUMB and Presidio of Monterey events, and professional conferences. In 2004 this provided an

opportunity for informal discussions with several thousand Monterey Bay Area residents.

Bus Tours

The Community Relations Office conducted seven bus tours of the former Fort Ord for community members, seniors groups, and environmental professionals involved in cleanup issues. Call the Community Relations Office if you have a group that would like a bus tour.

What to Expect in 2005

Here are some activities to look for in 2005:

- The remedial investigation/feasibility study for possible treatment of the carbon tetrachloride groundwater plume will be available in 2005. The Army will invite the public to discuss the options and provide comments.
- The Army is planning for a prescribed burn of approximately 80 acres (Munitions Response Site 16).
- Sometime during 2005, the Army plans to transfer all property west of Highway 1. Soon they will be open to the public as the Fort Ord Dunes State Park.
- Documentation will be completed on various Track 0 and Track 1 areas, making them available for transfer to the community.
- The Army will install additional wells and pipeline to speed up the



remediation of the Operable Unit 2 groundwater contamination plume near Frederick Park.

- The groundwater treatment and vapor extraction systems will continue to be operated.
- The landfill gas extraction system is being expanded to do a better job of capturing landfill gases.
- The public review of Track 2 Munitions Response Remedial Investigation/Feasibility Study will continue.

How Can You Contact Us?

Fort Ord Cleanup Program Contacts

United States Environmental Protection Agency

75 Hawthorne Street, San Francisco, CA, 94105

Claire Trombadore, Remedial Project Manager, Member of Base Closure Team
(800) 231-3075 and (415) 972-3013 trombadore.claire@epa.gov

California Department of Toxic Substances Control

8800 Cal Center Drive, Sacramento, CA, 95826

Roman Racca, Remedial Project Manager, Member of Base Closure Team
(916) 255-6407 rracca@dtsc.ca.gov

Kris Escarda, Public Participation Specialist
(916) 255-6683 kescarda@dtsc.ca.gov

California Regional Water Quality Control Board *Central Coast Region*

895 Aerovista Place, Ste 101, San Luis Obispo, California 93401-7906

Grant Himebaugh, Remedial Project Manager, Member of Base Closure Team
(805) 542-4636 ghimebaugh@waterboards.ca.gov

United States Army—Fort Ord Base Realignment and Closure

Fort Ord BRAC Office, P.O. Box 5008,
Monterey, CA 93944

Gail Youngblood, BRAC Environmental Coordinator, Member of Base Closure Team,
(831) 242-7924 gail.youngblood@monterey.army.mil

Lyle Shurtleff, Military Munitions Response Program Manager
(831) 242-7919 lyle.shurtleff@monterey.army.mil

Melissa Broadston, Community Relations Program Coordinator
(831) 393-1284 / (800) 852-9699 Melissa.Broadston@monterey.army.mil

The Army is responsible for conducting cleanup of the former Fort Ord, but it must do so in a manner that complies with federal and state laws and under the supervision of federal and state regulatory agencies. At Fort Ord, the cleanup is supervised by the U.S. Environmental Protection Agency, California Department of Toxic Substances Control and the Regional Water Quality Control Board. Under an agreement between the agencies, each team assigns a representative to a Base Cleanup Team (BCT). This team makes day-to-day management decisions about the cleanup program. Contacts for each of the participating agencies in Fort Ord's cleanup are listed on the left.

Information Repositories

- Fort Ord Administrative Record, Building 4463, Gigling Road, former Fort Ord
- Seaside Library
- California State University Monterey Bay Library

For assistance in finding information of interest to you please contact Adrienne Goldsmith at: (831) 393-9186 or write to Community Relations, Fort Ord BRAC Office, P.O. Box 5008, Monterey, CA 93944.

Fort Ord Cleanup Website

www.FortOrdCleanup.com

Land Use of the Former Fort Ord

Fort Ord Reuse Authority (831) 883-3672

**Special
Annual
Report
Issue**

Fort Ord Environmental Cleanup

Community Relations Office
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