



During a recent review of operational range locations, Marine Corps Base (MCB) Camp Lejeune discovered that portions of the surface danger zones (SDZs) for one existing range (G-7) and several historical ranges were located outside the surveyed base boundary. (See right for more information on SDZs.)

The safety buffer (secondary danger area) for artillery range G-7 was adjusted, so that the entire SDZ now lies within the base boundary. Prompted by this discovery, historic range maps and documents were reviewed and it was determined that some other SDZs were also off the installation, during specific time frames dating back to the 1940s.

Figures 1 and 2 show the off-base areas that might have been affected. The greater part of this area consists of the SDZ for Rocket Range Number 1, which has not been used for over 50 years.

Investigation of Former Off-Base SDZs Begins

MCB Camp Lejeune is now investigating the off-base areas that might have been affected by munitions training in the past. This fact sheet describes what actions have already been taken and the goals of the proposed investigation.

This investigation is proactive and is not a result of any incident or discovery of munitions. Either it will confirm that there is no risk to human safety or the environment, or it will be followed by appropriate action if a risk is identified.

Training Ranges and SDZs

MCB Camp Lejeune is a military installation bordering the city of Jacksonville, in Onslow County, North Carolina. Camp Lejeune is the home of "Expeditionary Forces in Readiness." For more than 50 years, Camp Lejeune has been the home base for the II Marine Expeditionary Force, 2^d Marine Division, 2^d Marine Logistics Group, and other combat units and support commands.

A Surface Danger Zone (SDZ) is an area associated with a training range that is designed to protect people during weapons training. It may include land, water, and airspace. An SDZ is an exclusion area that is strictly controlled and could contain projectiles, fragments, or components from firing, launching, or detonating weapons and explosives.

An SDZ is comprised of three parts:

- 1. Weapons Firing Position:** Position from which the munitions are fired.
- 2. Impact Area:** The target or intended area of munitions impact where munitions and munitions fragments are expected to land.
- 3. Secondary Danger Area:** A safety buffer area where fragments from munitions may land.

SDZs are established by MCB Camp Lejeune through Army guidelines and through regulations that are normally associated with public comment periods. The U.S. Army Corps of Engineers' regulations for public lands and waters are documented in the Code of Federal Regulations (Corps of Engineers, Department of the Army, Part 334 Danger Zones and Restricted Area Regulations, Section 440).

These regulations include safety procedures to ensure that the SDZs are clear of all personnel during training, and that the public is notified when training is conducted. The Department of Defense's current regulations require that SDZs be calculated so that there is only a one-in-one-million chance that munitions or munitions fragments would land outside the secondary danger area.

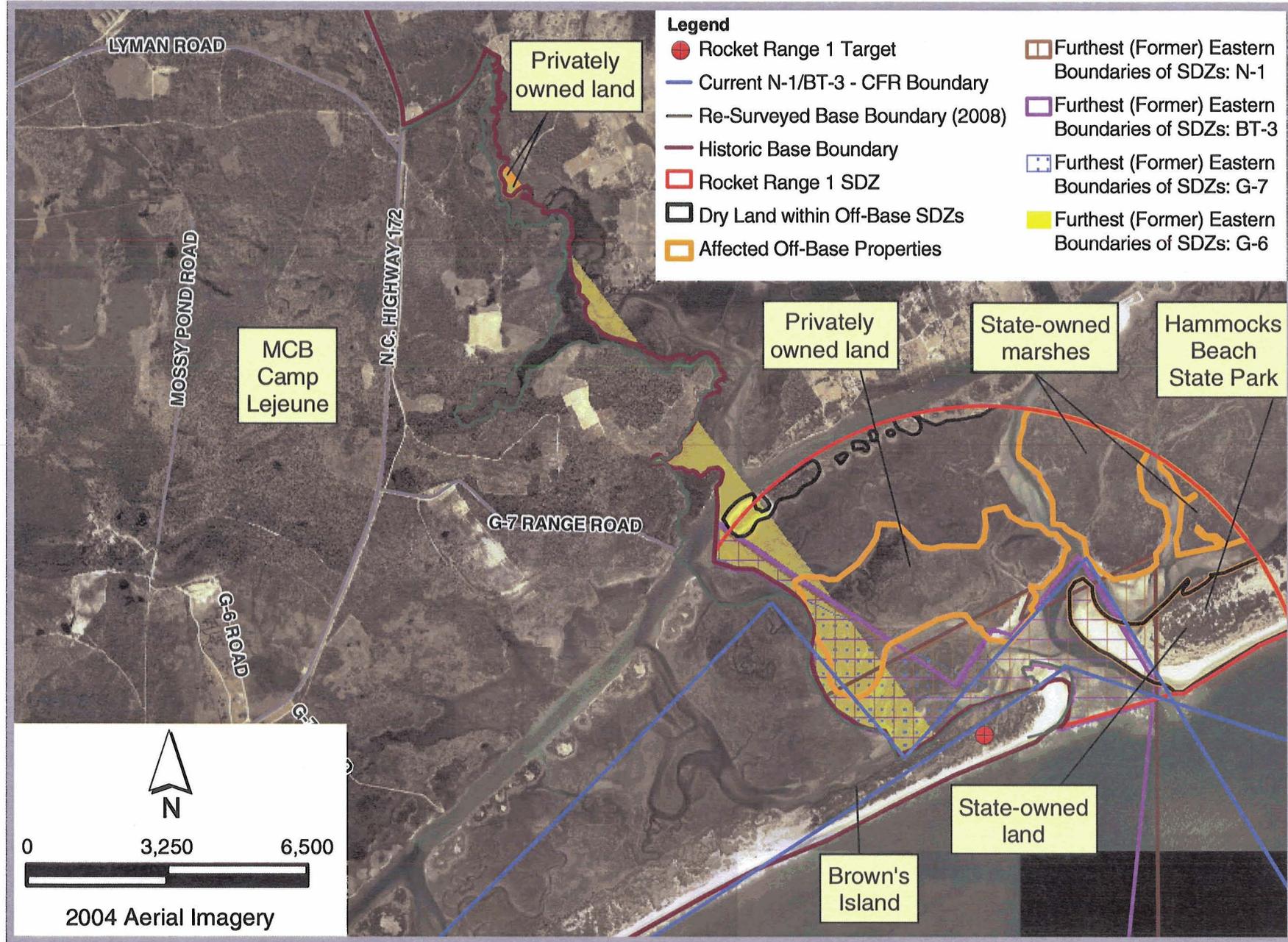


Figure 1 – Off-base SDZs aerial photograph

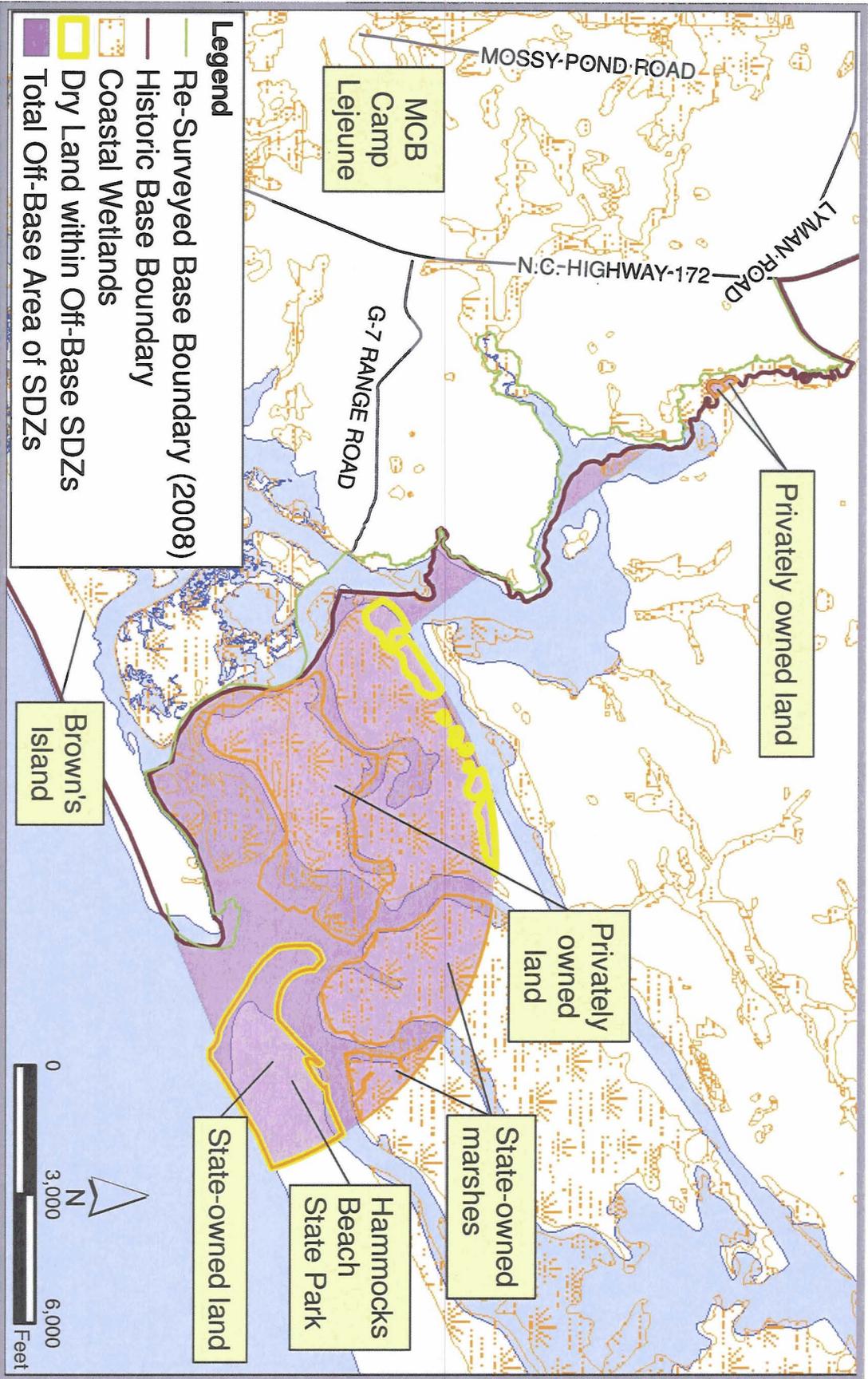
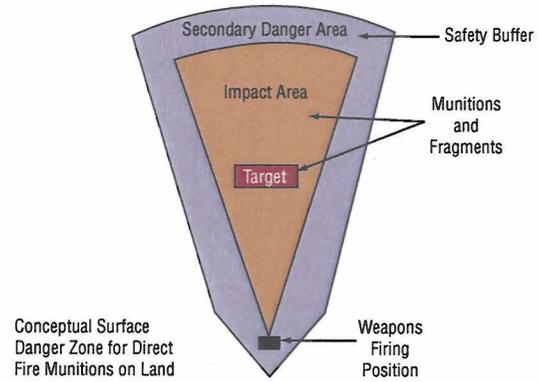
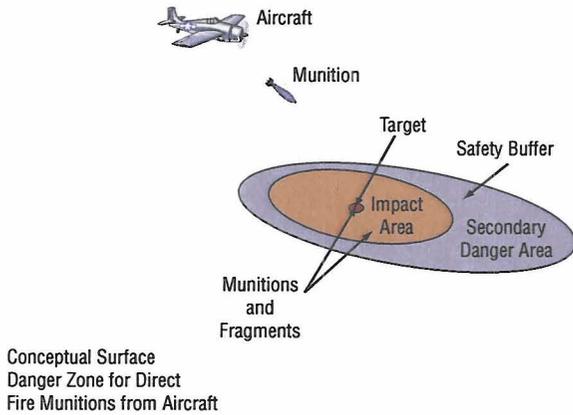


Figure 2 – Off-base SDZs map and wetlands



To ensure that MCB Camp Lejeune units are combat ready, certain areas on the base are used to train military personnel in the use of munitions. For safety purposes, each munitions training range is associated with a safety buffer area, called a surface danger zone.

Background on the Off-Base SDZs

Review and update of MCB Camp Lejeune's Military Installation Map (dated 1996) revealed that one current SDZ was depicted as being outside the installation boundary. Specifically, the eastern lateral limit of the SDZ for the G-7 direct fire artillery range (see Table 1) was depicted as being on private property near the southeast boundary of the base. As soon as the issue was identified, the G-7 safety buffer (secondary danger area) was adjusted, so that the entire SDZ now lies within the base boundary.

Historic range maps and documents were reviewed, and it was determined that some other SDZs were also off the

The southeastern base boundary of MCB Camp Lejeune lies along a tidally-influenced area and is delineated by the high water mark. Due to the effects of nature, the surveyed boundary has changed over the years and will continue to change in the future.

installation. SDZs are continuously updated and examined to reflect changes in training requirements. The SDZs in question were off-base only during specific time-frames, dating back to the 1940s when the base was established.

After further review of the historic delineations, it is believed that only portions of the safety buffer areas were located beyond the boundaries of the base. The boundaries of BT-3/N-1 (see Table 1) might have been simply an alignment or mapping error and would not reflect actual operations.

However, it is possible that munitions or munitions fragments might have inadvertently landed beyond the boundaries of

Table 1 – Ranges being Investigated

Range	Description	Years SDZ was Off Base
Rocket Range Number 1	Land target for rockets fired from aircraft. SDZ extended into off-shore waters, lands and wetlands.	1945 – 1947
G-6 Artillery Range	Land targets for artillery fired from land and from ships at sea. Small portion of SDZ extended into off-shore waters, lands and wetlands.	1945 – 1951
G-7 Artillery Range	Land targets for artillery fired from land. Small portion of SDZ extended into off-shore waters, lands and wetlands.	1945 – 1951 & 1987 – 2007
N-1 Surface Ship Maneuver Area	Land and off-shore waters for ships firing artillery into land ranges. SDZ extended into off-shore waters, lands and wetlands.	1945 – 1987
BT-3/N-1 Combined Impact Area	Land targets for various munitions from aircraft, ships and land-based equipment. SDZ extended into off-shore waters, lands and wetlands within the N-1 Surface Ship Maneuver Area.	1985 – 2007

the base. Although there has been no indication that a safety risk exists, MCB Camp Lejeune is conducting an investigation to ensure the protection of human safety and health and of the environment.

MCB Camp Lejeune personnel re-evaluated all ranges on the base for conflicts with private and State property and are confident that there are no other SDZ's which encroach onto off-base lands.

Off-Base Areas Possibly Affected

The off-base areas that might have been affected include three private properties totaling approximately 301 acres; the southwestern tip of Bear Island (182 acres of Hammocks Beach State Park); State-owned salt marshes that lie between Bear Island and the mainland; State waters used for fishing and recreation, including portions of Bear Creek; and shallow water areas of the Atlantic Intracoastal Waterway.

As Figure 2 shows, most of the affected acreage is marsh land.

The First Step is a Site Inspection

MCB Camp Lejeune is leading the investigation, working in partnership with the Naval Facilities Engineering Command Mid-Atlantic, the U.S. Environmental Protection Agency, and the North Carolina Department of Environment and Natural Resources, and in consultation with private property owners and all other interested parties.

A munitions site investigation follows the same basic steps as an investigation of environmental sites under the national "Superfund" program. It begins with a Preliminary Assessment and Site Inspection, which sets the stage for further action. Data is gathered and evaluated to determine if immediate action or more detailed investigation is needed, or if all or part of the site can be eliminated from further investigation.

The following activities are expected to begin in fall 2009. MCB Camp Lejeune is preparing a Work Plan describing these actions in more detail, which will be made available to the public in the Information Repositories (see back page).

- **Aerial Magnetometer Survey:** A helicopter will be flown over the entire affected area. The resulting data will identify areas and patterns of metallic debris, which could contain munitions-related material (or other unrelated metallic objects).

- **Focused Digital Geophysical Mapping (DGM):** Accessible areas of dry land will be investigated using magnetometers. The resulting data will identify specific locations, if any, that might contain buried munitions-related items.
- **Environmental Sampling:** Samples will be collected from:
 - Soil (both on and below the surface) and groundwater, in dry land areas.
 - Surface water and sediment in accessible portions of the creeks and salt marshes, in areas where the aerial survey reveals high densities of metallic objects.The resulting data will identify any areas of potential contamination from munitions-related chemicals

The information gathered by these investigations will be used to determine whether or not additional actions are necessary to ensure public safety and protection of the environment.

Digital geophysical mapping surveys use magnetometers (scientific instruments that measure the strength or direction of the earth's magnetic field) to locate and create a digital map of "magnetic anomalies"—metal objects submerged under water or buried under the ground—that might be munitions. The instruments can be hand-carried, towed behind a boat, or mounted onto aircraft. The resulting data is used to select areas for further evaluation.

Possible Future Steps

Depending on the results of the Site Inspection, future phases of the investigation could include:

- Taking actions to ensure public safety if any hazard is discovered, while the investigation continues; for example, posting warning signs and working with local officials
- Identifying and exploring "magnetic anomalies" that might be buried munitions and explosives of concern and might need to be removed to protect the public and the environment (an "intrusive investigation")
- An underwater investigation of the former surface danger zone in Bear Inlet

Public Involvement

In the U.S. Department of Defense's Munitions Response Program, military installations are encouraged to ask stakeholders for their input in developing relative priorities for investigating munitions sites. Stakeholders include federal agencies, state and local regulatory agencies, tribal governments, landowners directly affected by a site, and interested community members who live or work near the site.

MCB Camp Lejeune is committed to informing and involving community members. When the public is actively involved, the investigation/cleanup process is better understood and better cleanup decisions are made.

MCB Camp Lejeune compiles and makes available to the public a complete record of documents that were used to make investigation and cleanup decisions, called the Administrative Record File. Documents in the Administrative Record File include site work plans, investigation studies, risk assessments, sampling reports, and other materials related to the site. *How to find the Administrative Record File for MCB Camp Lejeune: see back page.*

MCB Camp Lejeune invites you to be a part of the decision-making process, as we develop a work plan for the initial investigation and use the results of that investigation in planning the next steps.

Restoration Advisory Board

You can learn more about MCB Camp Lejeune's environmental cleanup and munitions response by attending meetings of the Restoration Advisory Board (RAB). The best way to get involved in the process is to become an RAB member.

The RAB is made up of community members, along with representatives of federal and state regulatory agencies,

MCB Camp Lejeune, and the Naval Facilities Command Mid-Atlantic. The RAB acts as a focal point for exchanging information between the base and the local community about environmental restoration and munitions response activities.

The RAB meets quarterly at the Coastal Community College, Jacksonville, NC. The date, time, and place of RAB meetings are advertised in the *Jacksonville Daily News* and the *Globe* newspapers. The public is always welcome to attend RAB meetings and membership is encouraged.

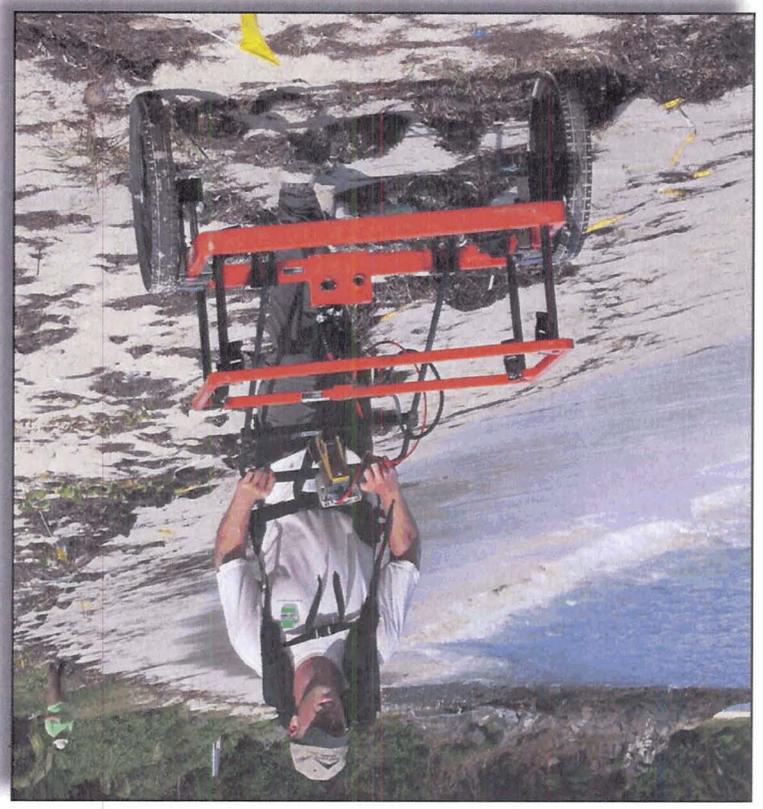
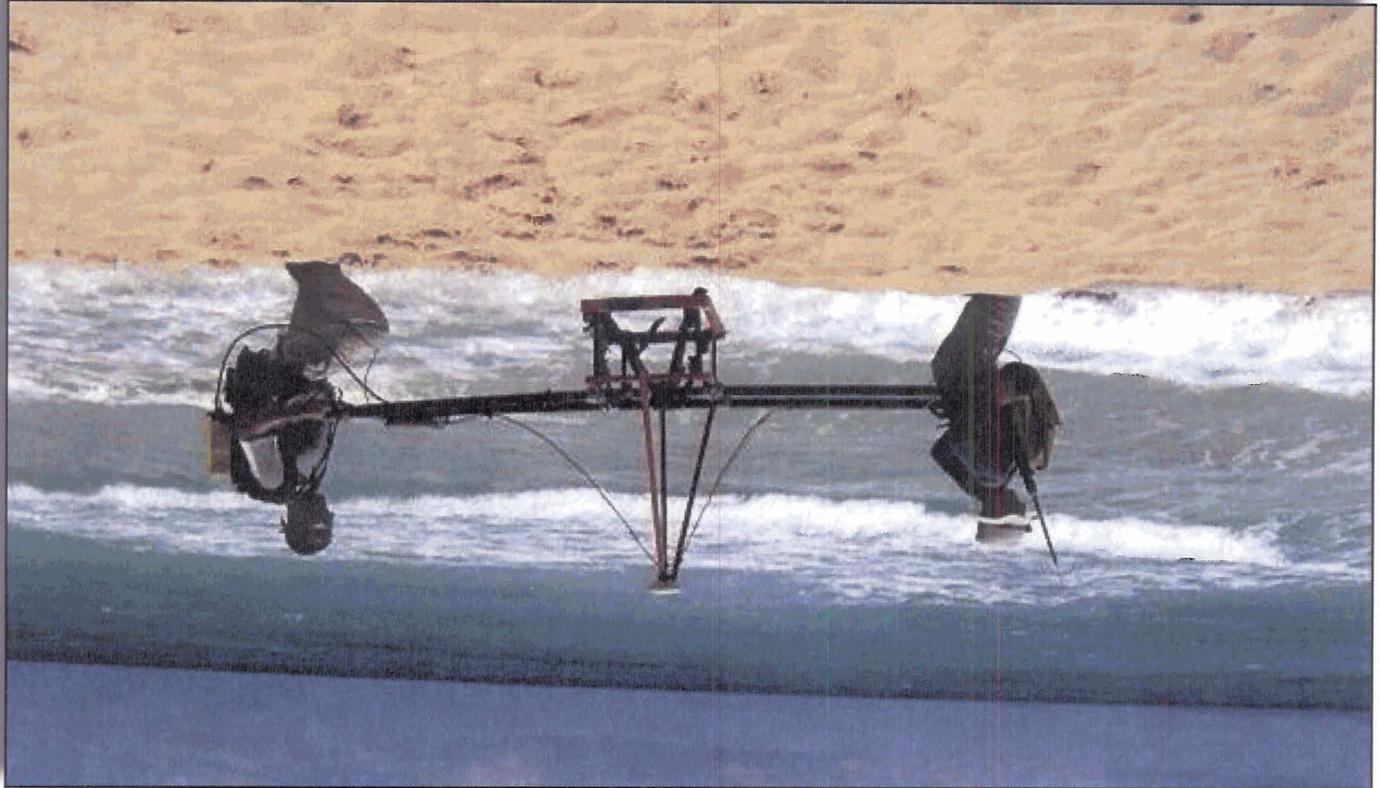
A Public Open House is Planned

MCB Camp Lejeune will present the Work Plan for the Off-Base SDZs Preliminary Assessment / Site Inspection and answer any questions you might have at a public open house meeting in summer 2009. The meeting will be advertised in the *Jacksonville Daily News*, the *Globe*, and the *Tideland News*.

If you are interested in this investigation, or if you have personal knowledge of the historical use of these ranges, please plan to attend the public meeting to share your views and discuss any concerns. Any relevant information that community members can provide will be included, as appropriate, in the investigation records.

If you would like to receive public meeting notices and future fact sheets by mail or e-mail, please sign up for the mailing list by returning the enclosed postage-paid form.

Or, if you prefer, just e-mail your address to: joe.m.ramirez@usmc.mil. Please put "SDZs Mailing List" in the subject line.



How to Find More Information

The complete Administrative Record for MCB Camp Lejeune's Environmental Restoration and Munitions Response Programs is available on CDs in the Reference Room at:

Onslow County Public Library
58 Doris Avenue East
Jacksonville, NC 28540
Phone: 910-455-7350

For your convenience, the Work Plan and related documents for the Off-Base SDZs investigation will be placed at:

Swansboro Branch Library
1460 West Corbett Avenue
Swansboro, NC 28584
Phone: 910-326-4888

For questions about MCB Camp Lejeune, please contact:

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Marine Corps Base
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Camp Lejeune, NC 28542-0004

CH2M HILL, Inc.
(Attn: MCB Camp Lejeune Team)
5700 Cleveland Street, Suite 101
Virginia Beach, VA 23462

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The CERCLA (or SUPERFUND) Program

CERCLA (the Comprehensive Environmental Response, Compensation & Liability Act), or Superfund as it is more commonly known:

- Provides the regulations and guidance for consistent and effective environmental responses at sites nationwide
- Provides a framework for using a risk management approach to protect human health, safety, and the environment by:
 - First focusing on actions that reduce risks in the short-term
 - Then addressing longer-term risk management actions
- Is the backbone of the Navy/Marine Corps Environmental Restoration Program

Marine Corps Base (MCB) Camp Lejeune carries out CERCLA environmental investigation and cleanup work in partnership with:

- Naval Facilities Engineering Command Mid-Atlantic
- U.S. Environmental Protection Agency
- North Carolina Department of Environment and Natural Resources
 - Continuous oversight ensures that the cleanup program meets all State and Federal laws and regulations, and provides long-term protection of both human health and the environment



Through the CERCLA process, it is Marine Corps policy to effectively communicate with stakeholders, including:

- Property owners
- Community members
- Local officials
- Federal and State regulators
- Other interested parties



Munitions Response Actions Follow the CERCLA Process

