

GAO

Report to the Honorable F. James  
Sensenbrenner, Jr., House of  
Representatives

**AD-A248 595**



March 1992

# MILITARY TRAINING

## Unexploded Ordnance Found in Lake Michigan



**92-09569**



Chicago Regional Office

200 West Adams Street  
Suite 700  
Chicago, IL 60606

B-213706

March 31, 1992

The Honorable F. James Sensenbrenner, Jr.  
House of RepresentativesDTIC  
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Dear Mr. Sensenbrenner:

As you requested, we reviewed the situation concerning ordnance recently found on the shores of Lake Michigan. On April 23, 1991, the Sheboygan, Wisconsin, Police Department was notified that a suspicious-looking object was on the Lake Michigan shoreline near a populated shopping area. Military officials later identified the weapon as a fully armed, air-to-air AIM-9B Sidewinder missile. On June 26, 1991, an unarmed aircraft rocket was retrieved from Lake Michigan, also near Sheboygan. In response to your request, we looked into various aspects of these incidents, including whether mariners are made aware of such potential hazards and the adequacy of the responses to the ordnance findings. Your specific questions and our answers are contained in appendix I.

## Background

The Department of Defense (DOD) has operated restricted military training ranges over Lake Michigan for more than 30 years. One such range, known as "range 6903," covers approximately 288 square miles of Lake Michigan between Port Washington and Manitowoc, Wisconsin, and is about 2 miles from the closest shoreline.

Since the late 1950s, this range has been used for training involving air-to-air missiles, air-to-air gunnery, rocketry, aircraft intercepts, air-to-air refueling, bombing, surface-to-surface firing, radar checks, and air combat maneuvers. Six other ranges existed over northern Lake Michigan before the late 1950s, but range 6903 is the only air training range now used.

The Air National Guard's Combat Readiness Training Center at Volk Field in Wisconsin schedules military exercises in range 6903. This organization notifies the Federal Aviation Administration (FAA) and the Coast Guard of upcoming military exercises. After receiving such notification, FAA directs commercial and private aircraft around the restricted range. The Coast Guard is responsible for notifying mariners of the exercises through radio broadcasts and, if given enough time, through written notification in a weekly "Local Notice to Mariners" bulletin.

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for public release and sale; its  
distribution is unlimited.

Navigational aids for travelers in the Great Lakes include aeronautical charts for aviators and nautical charts for mariners, both of which are published by the National Ocean Service of the National Oceanic and Atmospheric Administration, Department of Commerce. The National Ocean Service also publishes the U.S. Coast Pilot manual, which includes detailed navigational information for mariners in the Great Lakes region.

The Sidewinder missile was pulled up in a fishing net by fishermen. They discarded it on the beach on April 15, 1991, where it lay until April 23, 1991, when someone identified it as a Sidewinder missile. A subsequent Army examination disclosed that the warhead on the missile was still armed and capable of exploding.

## Results in Brief

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Between September 1965 and October 1970, at least 279 AIM-9B Sidewinder missiles were fired in range 6903. Records on these firings did not indicate the number of armed missiles that exploded in the air or the number that fell into the water unexploded. An unexploded AIM-9B Sidewinder missile still poses a hazard after being submerged in water because the explosive material in the warhead was designed for underwater applications and is insoluble in water, according to a Navy official. Since 1970, the range has been used primarily for air-to-air gunnery exercises using bullets fired at towed targets.

The location of range 6903 is shown on aviation charts but not on nautical charts. Further, while mariners can receive information on upcoming military exercises from the Coast Guard, no information is available on ordnance, unexploded or otherwise, which may exist in Lake Michigan. The Coast Pilot manual does not provide instructions on what actions mariners should take if they find unexploded ordnance.

DOD has explosive ordnance disposal units around the country, which coordinate ordnance recovery procedures with local police and Coast Guard officials. The adequacy of these procedures in the Sheboygan area was demonstrated when local police, Coast Guard, and Army units responded within minutes of notifications to safeguard and dispose of the live Sidewinder and the unarmed rocket.

Details on these issues are presented in appendix I.



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## Recommendations

To enhance public safety in and around Lake Michigan, we recommend that the Administrator, National Oceanic and Atmospheric Administration, and the Commandant, U.S. Coast Guard, take the following actions:

- Update applicable nautical charts for Lake Michigan to identify range 6903, caution mariners on the possible existence of ordnance, and prescribe procedures mariners should follow if they find ordnance. These changes should also be made to the U.S. Coast Pilot manual.
- Until new nautical charts are published, use the weekly "Local Notice to Mariners" bulletin to provide immediate information to the public on possible ordnance dangers.

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## Agency Comments

We requested written comments on a draft of this report from the Departments of Commerce, Defense, and Transportation and from the Environmental Protection Agency. The Department of Commerce responded and stated that it will work with the Department of Defense to ensure that appropriate changes, as recommended in our draft report, are carried out. (See app. II.) The Department of Defense wrote that it concurred without further comment. The Department of Transportation verbally suggested some technical improvements to the text, which we considered and adopted where appropriate. The Environmental Protection Agency wrote that it had no comments.

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## Scope and Methodology

We conducted our work at Volk Field Air National Guard Base, Camp Douglas, Wisconsin; Great Lakes (Ninth District) Coast Guard Headquarters, Cleveland, Ohio; the Army's 51st Explosive Ordnance Detachment, Fort Sheridan, Illinois; Glenview Naval Air Station, Glenview, Illinois; the Sheboygan, Wisconsin, Police Department and Coast Guard Station; and Marine Navigation, Inc., LaGrange, Illinois. We also obtained information from the Federal Aviation Administration, Kansas City, Missouri; Headquarters, U.S. Air Force, Washington, D.C.; Naval Air Systems Command Headquarters, Washington, D.C.; the Air National Guard Readiness Center, Andrews Air Force Base, Maryland; the National Guard Bureau's Environmental Division, Andrews Air Force Base, Maryland; the Environmental Protection Agency, Washington, D.C.; the National Ocean Service, Rockville, Maryland; Raytheon Corporation, Missile Systems Division, Bedford, Massachusetts; The Sheboygan Press, Sheboygan, Wisconsin; The Milwaukee Sentinel, Milwaukee, Wisconsin; and Palwaukee Airport, Wheeling, Illinois.

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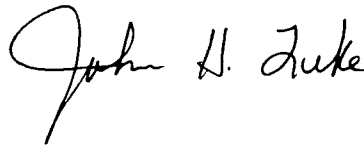
We conducted our review between June 1991 and October 1991 in accordance with generally accepted government auditing standards. Other major contributors to this report are shown in appendix III.

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Unless you publicly announce this reports' contents earlier, we plan no further distribution until 7 days after its issue date. At that time we will send copies to appropriate congressional committees; the Secretaries of Defense, the Army, the Navy, the Air Force, Transportation, and Commerce; the Administrator, Environmental Protection Agency; and the Director, Office of Management and Budget. We will also make copies available to others upon request.

Please contact me on (312) 220-7600 if you or your staff have any questions regarding this report.

Sincerely yours,



John H. Luke  
Regional Manager  
Chicago/Detroit Regional Offices



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# Contents

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Letter	1
Appendix I Questions and Answers Regarding Ordnance Found in Lake Michigan	8
Appendix II Comments From the Department of Commerce	13
Appendix III Major Contributors to This Report	15
Figure	8

Figure I.1: AIM-9B Sidewinder Missile Firings Over Lake Michigan

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## Abbreviations

DOD      Department of Defense  
FAA      Federal Aviation Administration

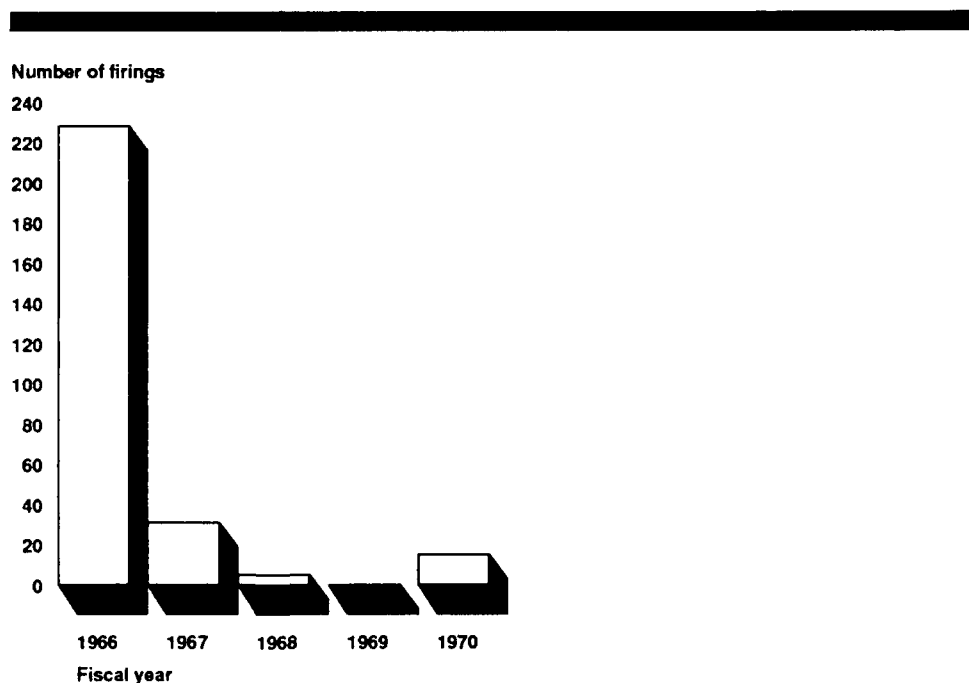


# Questions and Answers Regarding Ordnance Found in Lake Michigan

## What other instances of previously recovered and unrecovered weapons occurred in the Great Lakes?

The most extensive military use of range 6903 over Lake Michigan occurred during the 1960s when air-to-air missiles and rockets were fired and air-to-surface practice bombs were dropped. Air National Guard Bureau range utilization reports indicated that between September 1965 and October 1970 at least 279 AIM-9B Sidewinder missiles were fired within range 6903. Figure I.1 shows how many AIM-9B Sidewinder missile firings occurred during fiscal years 1966 through 1968 and in fiscal year 1970 (none were fired in 1969). Bureau reports did not indicate the number of armed missiles that exploded in the air versus the number that fell unexploded into the water. In addition, National Guard records kept since 1970 indicate that the range has been used primarily for air-to-air gunnery exercises using bullets fired at towed targets.

Figure I.1: AIM-9B Sidewinder Missile Firings Over Lake Michigan (1966-1970)



Source: Air National Guard Bureau

Nevertheless, smaller ordnance such as antiaircraft artillery shells, rockets, Army munitions, and Navy artillery shells may exist in other areas of northern Lake Michigan where six ranges were used in the 1950s. Army,

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**Appendix I  
Questions and Answers Regarding Ordnance  
Found in Lake Michigan**

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Navy, Coast Guard, and Sheboygan Police Department officials told us that smaller ordnance had been found in Lake Michigan before the Sidewinder missile incident. However, none of the individuals we interviewed recalled finding other missiles.

Records on ordnance found in the Lake Michigan region since 1989 were obtained from the Army's 51st Explosive Ordnance Detachment at Fort Sheridan, Illinois. These records indicated the number of pieces of ordnance recovered from Lake Michigan, but they were incomplete. However, we were able to determine that various pieces of ordnance were found in Lake Michigan, including aircraft rockets, grenades, and artillery shells. Records of ordnance findings more than 3 years ago were not available, however, since the Army's explosive ordnance detachments and the Coast Guard maintain incident reports only for 3 years.

**What are the possible dangers from unexploded weapons?**

According to officials at the Naval Air Systems Command, an AIM-9B Sidewinder missile still poses an explosive hazard after being submerged in water, since the explosive material in the warhead was designed for underwater applications and does not dissolve in water. However, Navy officials stated that the explosive material would not present an environmental hazard to the water. An Environmental Protection Agency official who has conducted research on the health effects of munitions concurred with the Navy officials' statements.

No records were found to indicate that an environmental assessment was prepared for range 6903. The National Environmental Policy Act of 1969 and the Council on Environmental Quality regulations (40 C.F.R., parts 1500-1508), established in 1979, were targeted primarily at proposed actions, rather than existing operations. Air National Guard officials said they did not perform an environmental assessment because range 6903 was established in the late 1950s, and no major changes in its operation have been proposed.

The Air National Guard has prepared environmental assessments for other airspace locations around Volk Field in Wisconsin. These assessments addressed environmental issues surrounding the use of airspace by military aircraft, but only one of the airspaces included live-fire exercises. These exercises were limited to firings of bullets and practice weapons without explosives on a ground range not accessible to the public.

Therefore, these environmental assessments did not address potential hazards from live, residual ordnance.

**Whom does the Department of Defense notify regarding dangers from unexploded weapons, and who should be notified? Are dangerous areas designated or otherwise made known to users of the area?**

No Department of Defense organization or other government agencies provide information to the public in general on the potential ordnance dangers in Lake Michigan. Information on range 6903 is disseminated to mariners in the Lake Michigan region only before a military training exercise.

According to Air National Guard officials at Volk Field, a military unit must submit a request to use range 6903 through the Airfield Superintendent at Volk Field, who then must contact the Federal Aviation Administration's (FAA) air traffic controllers at Chicago Center and Coast Guard officials in Milwaukee, Wisconsin. FAA is responsible for directing commercial and private aircraft around the restricted range during military exercises, while the Coast Guard is responsible for warning mariners about these exercises through radio broadcasts. Typically, the Coast Guard requires a 24-hour notice before agreeing to a range exercise, while the FAA's Chicago Center requires a 2-hour notice. In addition to radio broadcasts, the weekly bulletin, "Local Notice to Mariners," is also used to warn mariners of an upcoming military exercise.

However, no ongoing program or effort exists to inform the public about the potential dangers of ordnance in range 6903. The April 1991 Sidewinder missile was left on the beach for 8 days, indicating that the public, including experienced fishermen, did not realize the possible dangers from unexploded ordnance in Lake Michigan.

This lack of public knowledge on the existence and potential dangers of range 6903 was also evident in news accounts and in information that a town official gave us. The interviews that reporters had with individuals, and our discussion with the town official, showed that people were unaware of the potential ordnance dangers. Our interviews with police, Coast Guard, and Air National Guard officials in Wisconsin also revealed that information regarding the existence and use of range 6903 was primarily known only by officials within FAA, the Air National Guard, and the Coast Guard.

This lack of public awareness is due, in part, to the way in which the ranges are documented. Military ranges are marked on aeronautical charts but not always on nautical charts. Only two of the six military ranges that currently exist in the Great Lakes region are documented on nautical charts. These two ranges, which are used for surface weapon firings, are in Lake Michigan adjacent to the Great Lakes Naval Training Center, Illinois, and in Lake Erie.

In contrast, the other four military ranges, including range 6903, are used primarily by aircraft and are documented on aeronautical charts. Nautical charts of Lake Michigan, however, do not indicate the existence of range 6903 or prescribe procedures to follow if military ordnance is found. These omissions are also true of nautical charts covering Lakes Ontario, Huron, and Superior, where the other restricted military ranges are.

Nautical charts could be updated to indicate the location of range 6903, caution mariners on the possible existence of ordnance, and prescribe procedures to follow if military ordnance is found. This information could be included in the U.S. Coast Pilot manual, which includes detailed navigational information for mariners in the Great Lakes region.

The Coast Guard and the National Ocean Service could document chart updates in "Local Notice to Mariners" bulletins to provide immediate information to the public about possible ordnance dangers until new navigation charts are published.

**What steps does the Department of Defense take to recover dangerous ordnance? What more could be done?**

The Department of Defense operates explosive ordnance disposal units in each branch of the military services around the country to respond to and retrieve ordnance, when it is found. The Army's 51st Explosive Ordnance Detachment at Fort Sheridan, Illinois, responds to ordnance findings in sections of Illinois, Wisconsin, and Indiana after notification by local police departments, Coast Guard stations, or residents. Local police and Coast Guard officials can also contact nearby city bomb squads, depending on the type of explosive found.

The existing ordnance disposal procedures are adequate. This was demonstrated during the recent Sidewinder missile and rocket reportings at Sheboygan, Wisconsin. Within minutes of each ordnance reporting, local authorities safeguarded the ordnance and then contacted the Army's

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**Appendix I  
Questions and Answers Regarding Ordnance  
Found in Lake Michigan**

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Explosive Ordnance Detachment at Fort Sheridan, which dispatched personnel immediately to Sheboygan.

However, public awareness in recognizing dangerous ordnance is lacking, as is evident from the recent Sidewinder missile incident. Information on dangerous ordnance that may exist in Lake Michigan is not disseminated to the public. Fishermen, mariners, and others do not have information on where such ordnance might exist. Updating navigational charts and other publications used by mariners would help inform the public on the procedures to follow in the event of an ordnance finding.

**Were adequate recovery procedures followed regarding the April 23, 1991, Sidewinder missile and June 26, 1991, rocket incidents, and how can a recurrence be avoided?**

Our review indicated that once these findings were reported, adequate procedures were followed to recover the ordnance. The Sidewinder missile was reported to the Sheboygan Police Department, which, within minutes, safeguarded the weapon and later contacted the Army's Explosive Ordnance Detachment at Fort Sheridan, Illinois. Once notified, the Army immediately dispatched personnel to Sheboygan to retrieve the ordnance. Likewise, personnel at the Sheboygan Coast Guard Station and the Fort Sheridan Army unit expeditiously handled the rocket finding.

The Sheboygan Police Department has taken additional steps to safeguard residents from other potentially dangerous ordnance. In a local newspaper announcement, the department offered to pick up and dispose of any ordnance that residents may have in their homes. In addition, after the Sidewinder finding, the police department participated in a training session conducted by the Fort Sheridan Explosive Ordnance Detachment to help police identify and secure military ordnance.

# Comments From the Department of Commerce



UNITED STATES DEPARTMENT OF COMMERCE  
The Deputy Under Secretary for  
Oceans and Atmosphere  
Washington, D.C. 20230

MAR 17 1992

Honorable Frank C. Conahan  
Assistant Comptroller General  
United States General Accounting Office  
Washington, D.C. 20548

Dear Mr. Conahan:

Thank you for your letter requesting the Department's comments on the draft General Accounting Office report entitled "Military Training: Unexploded Ordnance Found in the Great Lakes."

Before responding to the two recommendations of the draft report, the reference to the publication entitled "U.S. Coast Guard Pilot #6" at the bottom of page 2 reflects an error in the title and it should be corrected to read "U.S. Coast Pilot 6."

Our comments on the subject report's recommendations follow:

Recommendation 1. "Update applicable nautical charts for Lake Michigan to identify range 6903, caution mariners on the possible existence of the ordnance, and prescribe procedures mariners should follow if they find the ordnance. These changes should also be made to the U.S. Coast Guard (sic) Pilot #6 manual."

NOAA will work directly with the Department of Defense (DOD) to ensure the appropriate reference on applicable nautical charts and "U.S. Coast Pilots" of not only Military Exercise Area R-6903 but other uncharted military ranges in the Great Lakes region. Charting features of this nature typically follow a prescribed pattern including either (1) reference to the area in the Code of Federal Regulations, Title 33; or (2) a request to chart a specific area from the cognizant agency.

As military ranges are added to nautical charts, the "POLLUTION REPORTS" marginal note which directs the mariner in reporting oil spills and hazardous substances will be modified to address unexploded ordnance.



**Appendix II  
Comments From the Department of  
Commerce**

2

Recommendation 2. "Until new nautical charts are published, use the weekly 'Local Notice to Mariners' to provide immediate information to the public on possible ordnance dangers."

NOAA will work with the DOD to ensure appropriate publication of possible ordnance dangers in the Notices to Mariners until the information can be issued on new editions of the affected nautical charts and in "U.S. Coast Pilot 6."

We appreciate the opportunity to comment on the draft report.

Sincerely,



Ray Kammer

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# Major Contributors to This Report

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George J. Wooditch, Assistant Director**

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