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## 3.14 Public Safety



### 3.14 PUBLIC SAFETY

Public safety concerns are assessed in terms of the potential for Navy training activities to injure civilians or put them at risk in any way. Impacts may arise directly as physical injuries from hazardous activities or indirectly as a result of exposure to hazardous materials expended during a training event. Activities that could affect public safety include surface and subsurface ship movements, aircraft movements, use of munitions, and emissions of acoustic and electromagnetic energy (e.g., sonar and radar). These potential sources of safety risks were identified by a detailed analysis of training activities, geographic locations, and Navy standard operating procedures and protocols. It is Navy policy to prevent personal injury or property damage by observing every possible precaution in the planning and execution of all Navy training activities.

#### 3.14.1 Affected Environment

For purposes of this Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS), the Region of Influence (ROI) for public safety includes the Gulf of Alaska (GOA) Temporary Maritime Activities Area (TMAA). Areas inland from the coastline, including United States (U.S.) Air Force (Air Force) air ranges and U.S. Army (Army) training lands, are addressed in the *Alaska Military Operations Areas EIS* (U.S. Air Force [USAF] 1995), *Improvements to Military Training Routes in Alaska Environmental Assessment* (USAF 2007), *Alaska Army Lands Withdrawal Renewal Final Legislative EIS* (Army 1999), and the *Transformation of U.S. Army Alaska FEIS* (Army 2004).

##### 3.14.1.1 Existing Conditions

###### Operating Areas

Military, commercial, institutional, and recreational activities take place in the TMAA. The Navy conducts hazardous activities, such as missile firings, naval gunfire, and air-to-surface ordnance delivery, in international waters within the TMAA. The Federal Aviation Administration (FAA) has established Warning Area 612 (W-612) for military activities; W-612 is open to public co-use most of the time. The public typically uses the TMAA for shipping, aviation, tourism, boating, and commercial fishing, which includes salmon, crab, and shellfish harvesting. Recreational activities include whale watching and fishing (Department of Navy [DoN] 2008). Commercial and recreational vessels are allowed to operate in the TMAA, the surface waters are accessible to recreational and commercial boaters, and there are no continuously restricted zones in this area. Public use of offshore marine areas is a safety concern for the Navy because training activities occur primarily in international waters.

The TMAA also is used for subsistence harvesting by Alaska Natives. Alaska Natives rely heavily on the harvesting of marine mammals and fish that inhabit the TMAA. Designated subsistence-use areas are located within 3 nautical miles (nm) (5.5 kilometers [km]) of shore. Navy training exercises will not affect subsistence harvesting because the subsistence use areas are outside of the TMAA.

When hazardous training activities occur, and the Navy requires exclusive control for public safety concerns, Notices to Mariners (NOTMARs) and Notices to Airmen (NOTAMs) about the hazards are issued. In addition, during training activities in the TMAA, weapons delivery activities are delayed or cancelled if training areas are not clear of nonparticipants. A training area is considered a “Green Range” if the ordnance-area footprint is clear of all nonparticipating surface vessels, divers, and aircraft; if the training area is not clear, then the area is considered a “Red Range.” Training can only be conducted if a “Green Range” is issued, and, if considered a “Red Range,” training must be delayed until all nonparticipants are cleared and a “Green Range” is issued. These designations assure public safety during training activities that otherwise could harm nearby nonparticipants.

### **Ordnance Handling**

As described in Chapter 2, some training activities use ordnance. The procedures for handling and storing ordnance are found in Naval Sea Systems Command (NAVSEA) Operational Procedures (OP) 5, *Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation, and Shipping* (DoN 2001).

### **Public Access and Proximity**

The waters of the TMAA are available to civilian vessels, except during hazardous training activities. During such activities, the public is excluded because of safety concerns. NOTMARs and NOTAMs are issued to notify the public about the hazards of operating vessels or aircraft in the vicinity. Additional Standard Operating Procedures (SOPs) and best management practices to assure public safety are discussed later in this section.

#### **3.14.1.2 Current Requirements and Practices**

Navy training activities in the TMAA comply with numerous established safety procedures to ensure that neither participants nor nonparticipants engage in activities that endanger life or property.

### **Fleet Area Control and Surveillance Facility Safety Procedures**

Fleet Area Control and Surveillance Facility (FACSFAC) provides active management of assigned airspace, operating areas, ranges, and training resources to enhance combat readiness of U.S. Pacific Fleet units in all warfare areas. Although FACSFAC does not have procedures specific to the TMAA, Navy ships will comply with the FACSFAC procedures for their home base. FACSFAC procedures for other training areas, such as Southern California (SOCAL) Range Training Complex, would be sufficient for use in the TMAA because of the greater risk to public safety along the more densely populated California coast. FACSFAC San Diego has published safety procedures for activities on the offshore and nearshore areas (DoN 1997, 2004). These guidelines apply to range users as follows:

- Commanders are responsible for ensuring that impact areas and targets are clear prior to commencing hazardous activities.
- The use of underwater ordnance must be coordinated with submarine operational authorities. The coordination also applies to towed sonar arrays and torpedo decoys.
- Aircraft or vessels expending ordnance shall not commence firing without permission of the scheduling authority for their specific range area.
- Firing units and targets must remain in their assigned areas, and units must fire in accordance with current safety instructions.
- Vessels are authorized to fire their weapons only in offshore areas and at specific distances from land, depending on the caliber and range of the weapons fired. The larger the caliber, the farther offshore the firing must take place.
- Aircraft carrying ordnance to or from ranges shall avoid populated areas to the maximum extent possible.

Aircrews must be aware that nonparticipating aircraft are not precluded from entering the area and may not comply with a NOTAM or radio warnings that hazardous activities are scheduled or occurring. Aircrews are required to maintain a continuous lookout for nonparticipating aircraft while operating under visual flight rules in warning areas.

### **DoD Standard Operating Procedures**

All training activities will comply with Department of Defense (DoD) Directive 4540.1, *Use of Airspace by U.S. Military Aircraft and Firings Over the High Seas*, and Chief of Naval Operations Instruction (OPNAVINST) 3770.4A, *Use of Airspace by U.S. Military Aircraft and Firing Over the High Seas*, which specify procedures for conducting aircraft maneuvers and for firing missiles and projectiles. The missile and projectile firing areas are to be selected “so that trajectories are clear of established oceanic air routes or areas of known surface or air activity” (DoD 1981).

### **Navy Standard Operating Procedures**

In addition to FACSFAC procedures, the Navy has instituted the following SOPs at the Northwest Training Range Complex (NWTRC) Operational Areas and the SOCAL Range Training Complex. These SOPs are applicable to the TMAA because Navy ships conducting training in the TMAA will typically be based out of SOCAL or the NWTRC, and the activities conducted in SOCAL and NWTRC are similar to those conducted in the TMAA.

#### **Aviation Safety**

Aircraft fly under visual flight rules and under visual meteorological conditions. This means that the commanders of military aircraft are responsible for the safe conduct of their flight. Prior to releasing any weapons or ordnance, the impact area must be clear of nonparticipating vessels, people, or aircraft. The Officer Conducting the Exercise is ultimately responsible for the safe conduct of range training. A qualified safety officer is assigned to each training event or exercise, and can terminate activities if unsafe conditions exist.

#### **Submarine Navigation Safety**

Navigation safety, while submarines are submerged, consists of several methods used to alert submarine crews to the potential dangers of collision, both during training activities within Warning Areas and during transits to and from these training areas. Training areas are typically closed to sport and commercial fishing vessels during training activities to avoid ensnaring nets towed by fishing vessels. Closures are communicated by issuing NOTMARs. The surface is scanned visually and by radar for such vessels before and during training activities. During training activities in offshore areas, weapons delivery activities are delayed or cancelled if the training area is not clear. Prior to issuing a “Green Range,” Navy personnel must ensure that the hazard footprint of the ordnance being fired is clear of nonparticipating surface vessels. During transit to and from training areas, submerged submarines use sonar and navigational maps that identify known fishing areas to avoid fishing vessels.

#### **General Exercise Safety**

##### ***Surface Vessels***

Prior to launching a weapon, vessels are required to determine that all safety criteria have been satisfied, that the weapons and target recovery conditions are acceptable, and that recovery helicopters and boats are ready to be deployed.

##### ***Aircraft***

Only hazardous activities require exclusive use of airspace, and these periods are scheduled and broadcast by the Navy through NOTAMs. Navy personnel must ensure that the hazard footprint of the ordnance being fired is clear of nonparticipating aircraft.

### ***Live and Inert Ordnance***

Whenever live or inert ordnance is expended, a qualified Range Safety Officer (RSO) is present. Units must ensure that the area can contain the hazard footprints of the weapons employed. RSOs ensure that these footprints are clear of personnel during training activities. After live-fire events, participating units ensure that weapons are safe and clear of live rounds. The RSOs are also responsible for the emergency medical evacuation of people from the area in case of a mishap.

### ***Sonar***

The Naval Sea Systems Command Instruction (NAVSEAINST) 3150.2, *Safe Diving Distances from Transmitting Sonar*, is the Navy's governing document for human divers in relation to active sonar systems; it provides procedures for calculating safe distances from active sonars. Such procedures are derived from experimental and theoretical research conducted at the Naval Submarine Medical Research Laboratory and the Navy Experimental Diving Unit.

Safety ranges vary based on conditions that include diver dress, type of sonar, and duration of time in the water. If low-frequency sonar (160 kilohertz (kHz) to 320 kHz) is used, divers should not be in the vicinity or should be warned that exposure is likely. Low-frequency sonar can cause dizziness, vertigo, skin tingling, or vibratory sensations in the throat and abdomen.

### ***Electromagnetic Radiation***

Communications and electronic devices such as radar, electronic jammers, and other radio transmitters produce electromagnetic radiation (EMR). Equipment that produces an electromagnetic field may generate hazardous levels of EMR. An EMR hazard exists when transmitting equipment generates an electromagnetic field that induces currents or voltages large enough to trigger electro-explosive devices in ordnance. EMR also can be a health hazard to people or an explosive hazard for fuel. EMR hazards are reduced or eliminated by establishing minimum separation distances between EMR emitters and people, ordnance, and fuel.

EMR effects are directly proportional to the frequency of the EMR source. For example, the lower the frequency of the EMR source, the lower the acceptable power density threshold before a potential hazard to human health exists. Likewise, the higher the frequency of the EMR source, the higher the acceptable power density threshold before health effects occur. Hazards of EMR to personnel, ordnance, and fuel have been determined for EMR sources based on frequency and power output.

Sources of EMR include radar, navigational aids, and Electronic Warfare (EW) hardware. These systems are the same as, or similar to, civilian navigational aids and radars at local airports and television weather stations throughout the United States. EW systems emit EMR similar to that from cell phones, hand-held radios, commercial radio, and television stations. SOPs in place to protect Navy personnel and the public include setting the heights and angles of EMR transmission to avoid direct exposure, posting warning signs, establishing safe operating levels, and activating warning lights when radar systems are operational. To avoid excessive exposures from EMR, military aircraft are operated in accordance with standard procedures that establish minimum separation distances between EMR emitters and people, ordnance, and fuels.

### ***Lasers***

Lasers may be used for precision range finding and as target designation devices for guided munitions. Laser safety procedures for aircraft require an initial pass over the target prior to laser activation to ensure that target areas are clear. During actual laser use, aircraft run-in headings are restricted to avoid unintentional contact with personnel or nonparticipants. Personnel participating in laser training activities

are required to complete a laser safety course. For training activities conducted in the TMAA, eye-safe lasers are used.

### **3.14.2 Environmental Consequences**

As noted in Section 3.14.1, the ROI for public safety includes the TMAA. Navy training activities that occur within the Air Force inland Special Use Airspace and the Army inland training lands were evaluated under previous National Environmental Policy Act (NEPA) documentation (USAF 1995, USAF 2007, Army 1999, Army 2004). These documents are incorporated by reference. Environmental effects in the open ocean beyond the U.S. territorial seas (outside of 12 nm [22 km]) are analyzed in this EIS/OEIS pursuant to Executive Order (EO) 12114.

#### **3.14.2.1 Previous Analyses**

Impacts related to public safety were previously evaluated in Sections 3.2 and 4.2 of the *Alaska Military Operations Areas EIS* (USAF 1995), Sections 3.2.3 and 4.0 of the *Improvements to Military Training Routes in Alaska Environmental Assessment* (USAF 2007), Sections 3.16 and 4.16 of the *Alaska Army Lands Withdrawal Renewal Final Legislative EIS* (Army 1999), and Sections 3.17 and 4.17 of the *Transformation of U.S. Army Alaska FEIS* (Army 2004).

#### **3.14.2.2 Approach to Analysis**

Public safety is considered to be affected if the general public is substantially endangered as a result of Navy activities on the ranges. For each training activity or group of similar activities, an estimate of risk to the general public was formulated, based on the Navy's current set of safety procedures for range activities. Navy training activities in the TMAA would be conducted in accordance with guidance provided in FACSFAC San Diego Instruction 3120.1, *Manual of EASTPAC and MIDPAC Fleet Operating Areas*. The instruction provides operational and safety procedures for all normal range activities. Its emphasis is on providing the necessary information to range users so that they can operate safely and avoid affecting non-military activities such as shipping, recreational boating, and commercial or recreational fishing (DoN 1997). Several factors were considered in evaluating the effects of the Navy's activities on public safety, including proximity to the public, ownership, access control, scheduling, public notification of events, frequency and duration of activities, range safety procedures, operational control of training events, and safety history.

#### **Data Sources**

Available reference materials, including prior Environmental Assessments (EAs) and EISs/OEISs, were reviewed and used where their information on training activities, policies, equipment, or environmental impacts was applicable. All current and proposed training activities were examined for the possibility of civilians entering a hazardous training environment. Current Navy safety procedures in existing Navy instructions were assessed to determine whether the procedures would protect the public from the hazardous training activities proposed in the alternatives.

#### **Assessment Methods**

Each alternative analyzed in this EIS/OEIS includes training activities in several warfare areas (e.g., Anti-Air Warfare, Anti-Surface Warfare), and most warfare areas encompass more than one training activity (e.g., Surface-to-Air Gunnery Exercise, Air-to-Surface Missile Exercise [MISSILEX]). Likewise, each activity has several elements (e.g., weapons firing, target deployment). Accordingly, this analysis is organized by specific activity rather than by warfare area (Table 3.14-1). The approach to the public safety analysis includes characterizing the training activities that may affect public safety in the TMAA. These activities include: missile flights; target expenditures; ship, vessel, and aircraft movements; and weapons firing. Training materials that could affect public safety include ordnance.

### 3.14.2.3 No Action Alternative

Fleet training activities will continue to be conducted in the TMAA. Training activities under the No Action Alternative are conducted once per year for up to 14 days. Some offshore activities will expend ordnance, sonobuoys, or targets from vessels or aircraft. The ordnance used in offshore training activities may have either live or inert warheads. The U.S. Navy's standard range safety procedures, as outlined in the SOPs discussed in Section 3.14.1.2, are designed to avoid risks to the public and to Navy activities.

**Table 3.14-1: Training Activities Affecting Public Safety**

Warfare Area	Activity	Ordnance	Aircraft/Ship Movement
<b>Anti-Air Warfare (AAW)</b>	Air Combat Maneuvers (ACM)		✓
	Air Defense Exercise (ADEX)		✓
	Surface-to-Air Missile Exercise	✓	✓
	Surface-to-Air Gunnery Exercise (GUNEX)	✓	✓
	Air-to-Air MISSILEX	✓	✓
<b>Anti-Surface Warfare (ASUW)</b>	Visit Board Search and Seizure (VBSS)	✓	✓
	Air-to-Surface MISSILEX		✓
	Air-to-Surface Bombing Exercise (BOMBEX)	✓	✓
	Air-to-Surface GUNEX	✓	✓
	Surface-to-Surface GUNEX	✓	✓
	Maritime Interdiction	✓	✓
	Sea Surface Control		✓
	Sinking Exercise (SINKEX)	✓	✓
<b>Anti-Submarine Warfare (ASW)</b>	ASW Tracking Exercise (TRACKEX)– Helicopter		✓
	ASW TRACKEX – Maritime Patrol Aircraft		✓
	ASW TRACKEX – Extended Echo Ranging	✓	✓
	ASW TRACKEX – Surface Ship		✓
	ASW TRACKEX – Submarine		✓
<b>Electronic Combat (EC)</b>	EC Exercises		✓
	Chaff Exercises	✓	✓
	Counter Targeting Exercises	✓	✓
<b>Naval Special Warfare (NSW)</b>	Insertion/Extraction		✓
<b>Strike Warfare (STW)</b>	Air-to-Ground BOMBEX	✓	✓
	Personnel Recovery		✓
<b>Support Operations</b>	Deck Landing Qualifications		✓



### **Training Area Clearance**

The hazard footprint of the ordnance in use is based on the range of the weapon, and includes a large safety buffer to account for the item going off-target or malfunctioning. For activities with a large hazard footprint (e.g., MISSILEXs), special sea and air surveillance measures are taken to search for, detect, and clear the area of intended activities. Aircraft are required to make a preliminary pass over the intended target area to ensure that it is clear of boats, divers, or other nonparticipants. Aircraft carrying ordnance are not allowed to fly over surface vessels.

Target areas are cleared of nonparticipants prior to conducting training, so public safety issues will only occur if an activity exceeds the safety area boundaries or a nonparticipant is not identified prior to the start of training. Risks to public safety are reduced, in part, by providing termination systems on some of the missiles. In those cases where a weapon system does not have a flight termination capability, the target area is determined to be clear of unauthorized vessels and aircraft, based on the flight distance the vehicle can travel plus a 5-mile-long area beyond the system's performance parameters.

### **Undetonated Ordnance**

Under the No Action Alternative, approximately 88 explosive ordnance items will be used during training exercises (see Table 3.6-7 for types of ordnance). Based on the estimated failure rates identified in Table 3.2-2, approximately 3.5 explosive ordnance items will be expected to fail and end up as undetonated ordnance on the ocean floor. Ordnance will be expended across 20 percent of the TMAA, which will result in approximately 0.0004 undetonated explosive items per square nautical mile (nm<sup>2</sup>) or one undetonated explosive item per 2,500 nm<sup>2</sup>. Undetonated ordnance will sink quickly to the ocean floor, where it will corrode, become encrusted by benthic organisms, and be buried through sedimentation.

Undetonated ordnance on the ocean floor may pose a risk to fishermen, particularly bottom trawlers. If a trawl contacted an undetonated ordnance item, the item could detonate. Most likely, the ordnance will not detonate because it failed to detonate upon impact with a training target or the water surface. While fisherman may contact undetonated ordnance, it will be unlikely given the large area of the TMAA.

### **Chaff**

Chaff will be used during Chaff Exercises and Counter Targeting training activities under the No Action Alternative. The purpose of chaff is to counter avoid aircraft detection by radar by masking the aircraft and to provide false radar returns to defeat radar-guided anti-aircraft defensive systems. Chaff will form a large cloud of fiber that disperses slowly, which could affect public safety. Potential effects on safety include interference with communications or tracking systems, disruption of or interference with airborne and ground-based radar systems, damage or disruption of electrical power, and damage to aircraft through engine ingestion (USAF 1997). Navy training activities typically use training chaff, which is designed not to interfere with FAA radar frequencies. The Navy coordinates electronic countermeasures, including use of chaff, with FAA. FAA has established procedures for coordinating electronic countermeasure missions.

Although chaff could interfere with airborne and ground-based radar systems, the likelihood is low. Chaff will not be expected to affect radio communications, and coordination with FAA will reduce potential effects on public safety. Chaff will be dispersed upon deployment, and will not be expected gather in concentrations high enough to affect communication or radar systems.

### **Naval Special Warfare Activities**

Specific NSW training events include insertion/extraction activities to hone individual skills in delivery and withdrawal of personnel and equipment using unconventional methods. Access control is the key to reducing the risk to the public due to the hazardous nature of NSW training. There is public access to the

TMAA, but NSW activities will pose little danger to public safety because no ordnance is expended. The Navy will ensure that the area is clear of civilian boats, divers, or aircraft before any potentially hazardous activity commences. Activities will be cancelled or delayed if there is any question about the safety of the public or the participants. Radio communications will be used extensively during training to avoid unsafe situations.

Prior public notification of Navy training activities, use of known training areas, avoidance of nonmilitary vessels and personnel, and the remoteness of the TMAA will reduce the potential for interaction between the public and Navy vessels during training activities. To date, these generally conservative safety strategies have been successful.

### **Aircraft Overflights**

Aircraft overflights during training exercises and during transits to and from the TMAA and the inland training lands could affect public safety. Aircraft transit through an established Altitude Reservation (ALTRV). The ALTRV is a flight clearance corridor provided by the FAA. A description of a typical ALTRV is provided in Section 3.11, Transportation and Circulation. While operating within the ALTRV, aircraft are under positive control of the FAA, and comply with all FAA flight rules. Aircraft accidents are rare, but may occur during training activities. However, aircraft overflights would not have a substantial effect on public safety because of the use of the ALTRV, the FAA and military procedures, and flight rules that the participating aircraft must follow. With regard to the TMAA, there is a very low probability that an aircraft could collide with a public surface vessel or aircraft due to the remoteness of the TMAA and its relative size. Therefore, aircraft overflights pose little to no risk to public safety.

#### **3.14.2.4 Alternative 1**

Offshore activities proposed under Alternative 1 would have all the components of the No Action Alternative. Additionally, Alternative 1 would support an increase in training activities to include force structure changes associated with the introduction of new weapon systems and vessels into the fleet (Table 3.14-1). Under Alternative 1, baseline training activities generally would be increased. In addition, new ASW activities (including the use of active sonar) would be implemented. Force structure changes associated with new weapon systems would include sonobuoys, which would add a small number of detonations associated with the SSQ-110A Extended Echo-Ranging (EER)/Improved EER (IEER) sonobuoy. The safety procedures implemented under the No Action Alternative would continue to be implemented under Alternative 1. The remoteness of the TMAA, the use of temporary access restrictions, and public notification procedures would substantially reduce potential safety risks during these activities.

Several training activities would experience increases from current levels; increases in the number of individual training activities would increase the potential for conflicts with nonparticipants. However, given the Navy's comprehensive, conservative safety procedures and its excellent safety record for these activities, the actual potential for public safety impacts from training activities would remain very low. Potential for aircraft collisions with public surface vessels and aircraft would remain low because of the large area available in the GOA.

### **Training Area Clearance**

Training area clearance procedures for hazardous activities under Alternative 1 would remain the same as under the No Action Alternative. These procedures would be adequate to prevent interactions with nonparticipants during training exercises.

### **Undetonated Ordnance**

Under Alternative 1, approximately 168 explosive ordnance items would be used during training exercises (see Table 3.6-7 for types of ordnance). Based on the estimated failure rates identified in Table

3.2-2, approximately 6.4 explosive ordnance items would be expected to fail and end up as undetonated ordnance on the ocean floor. Ordnance would be expended across 20 percent of the TMAA, which would result in approximately 0.0007 undetonated explosive items per  $\text{nm}^2$  or one undetonated explosive item per 1,430  $\text{nm}^2$ . Undetonated ordnance would sink quickly to the ocean floor, where it would corrode, become encrusted by benthic organisms, and be buried through sedimentation.

Undetonated ordnance on the ocean floor could pose a risk to fishermen, particularly bottom trawlers. If a trawl were to contact an undetonated ordnance item, it could trigger a detonation. Most likely, the ordnance would not detonate because it had failed to detonate upon impact with a training target or the water surface. While fishermen could contact undetonated ordnance, it would be unlikely given the large area of the TMAA.

### **Chaff**

Under Alternative 1, there would be no increase in the annual amount of chaff used during training activities from the No Action Alternative. Thus, the impacts of chaff used during training activities under Alternative 1 would be the same as described under the No Action Alternative.

### **NSW Activities**

Alternative 1 would include all NSW training activities described under the No Action Alternative. There would be no increase in NSW activities under Alternative 1. Thus, the impacts of NSW training activities under Alternative 1 are the same as described under the No Action Alternative and would be negligible.

### **Aircraft Overflights**

Under Alternative 1, there would be an increase in overflights from the TMAA to the Alaska inland training areas via the ALTRV. Safety procedures for participants using the ALTRV would remain consistent. Public safety would not be affected by the increase in overflights because of the light air traffic in the GOA and coordination between the Navy and the FAA.

### **ASW Activities**

#### **Sonar**

ASW activities within the TMAA would use active sonar. The effect of sonar on humans varies with the frequency of sonar involved. Of the three types of sonar (high-, mid-, and low-frequency), mid-frequency and low-frequency have the greatest potential to affect humans. NAVSEAINST 3150.2 is the Navy's governing document for human divers in relation to active sonar systems; it provides procedures for calculating safe distances from active sonars. For example, a diver wearing a wetsuit without a hood has a permissible exposure limit of 71 minutes at a distance of 1,000 yards from the Navy's most powerful sonar. At this distance, the sound pressure level would be approximately 190 decibels (dB). At 2,000 yards, or approximately 1 nm, a diver could operate for over 3 hours. Exposure to sonar in excess of 190 dB could cause slight visual-field shifts, fogging of the faceplate, spraying of water within the mask, and general ear discomfort. (DoN 2005). Under Alternative 1, sonar could affect nonparticipants in the water nearby. However, nonparticipants in the water would not be expected in the TMAA because of the temperature of the water, the Navy safety procedures prior to training activities, and the distance from shore to the areas where ASW activities would take place. If nonparticipants were present in the training area, Navy safety procedures would delay training until nonparticipants were cleared from the range. The training area would be constantly monitored for nonparticipants during training activities that use sonar.

#### **Sonobuoys**

ASW exercises would introduce the use of sonobuoys in the TMAA. Although extremely rare, some solid training items expended at sea could migrate to the shoreline where the public could encounter them.

Included among these items are targets and sonobuoys. Targets typically would be recovered after each use. However, expendable targets such as the MK-39 Expendable Mobile Anti-Submarine Warfare Training Target (EMATT) would not be recovered. MK-39 EMATTs and sonobuoys are designed to scuttle and sink either when commanded, or when their service life has expired, no greater than 8 hours after being deployed. If either an EMATT or a sonobuoy migrated to shore, they would pose little risk to the public. Sonobuoys contain no fuel, the batteries would have lost all power, and the materials used in their construction are inert or sealed in hard plastic casings. Section 3.2, Expended Materials, discusses the hazardous materials and environmental effects of sonobuoys.

One type of sonobuoy, the EER sonobuoy, has explosive charges used to generate acoustic energy in the water. At-sea explosions would cause acoustic pressure, which could harm nonparticipants in the water nearby. Nonparticipants in the water would not be expected because of Navy safety procedures prior to training exercises. If nonparticipants were present in the training area, Navy safety procedures would delay training until nonparticipants were cleared from the range. The training area would be constantly monitored for nonparticipants during training for activities that use ordnance. This sonobuoy would present a hazard if it failed to detonate and washed ashore. These sonobuoys would be used far out to sea, however, and have several redundancies built in to assure that the charges detonate when the sonobuoy is scuttled. Management of expended materials (including hazardous materials) in conjunction with U.S. Navy training activities is addressed in Section 3.2, Expended Materials. No substantial releases of these materials to the environment are anticipated.

#### **Portable Undersea Tracking Range (PUTR)**

Alternative 1 would include the use of a Portable Undersea Tracking Range (PUTR). The PUTR requires the temporary placement of seven electronics packages on the seafloor, each approximately 3 feet (ft) (0.9 meters [m]) long by 2 ft (0.6 m) in diameter. No specific locations have yet been identified, but the electronic packages would be placed in water depths greater than 600 ft (182 m), at least 3 nm (5.5 km) from land. This is a temporary installation (to be recovered once training is complete), so no formally restricted areas would be designated and no limitations would be placed on commercial or civilian use of the area. The presence of the PUTR on the ocean floor for the duration of the training exercise would have no effect on public safety because – other than fishing trawls – these areas are not used by the public.

#### **3.14.2.5 Alternative 2**

Alternative 2, the Preferred Alternative, would include all elements of Alternative 1 (accommodating training activities currently conducted, increasing training activities, accommodating force structure changes, and conducting ASW activities with the use of active sonar). In addition, training tempo for all activities would be increased 100 percent over levels identified in Alternative 1 (see Table 2-7).

#### **Training Area Clearance**

With the exception of SINKEX, no new training exercises would be conducted. The safety procedures implemented under Alternative 2 would be the same as those described under the No Action Alternative. These safety procedures would substantially decrease the likelihood that Navy training in the TMAA would affect public safety. The remoteness of the TMAA, the use of temporary access restrictions, and public notification procedures would substantially reduce potential safety risks during these activities. Therefore, effects on public safety under Alternative 2 would be similar to those under Alternative 1.

#### **Undetonated Ordnance**

Under Alternative 2, approximately 1,194 explosive ordnance items would be used during training exercises (see Table 3.6-7 for types of ordnance). The number of explosive ordnance items, however,

accounts for explosive ordnance used during SINKEX training (approximately 858 explosive ordnance items). This section addresses undetonated ordnance for all training activities except SINKEX; undetonated ordnance for SINKEX will be addressed in the next section.

Based on the estimated failure rates identified in Table 3.2-2, approximately 13.5 explosive ordnance items would be expected to fail and end up as undetonated ordnance on the ocean floor. Ordnance would be expended across 20 percent of the TMAA, which would result in approximately 0.002 undetonated explosive items per  $\text{nm}^2$  or one undetonated explosive item per  $500 \text{ nm}^2$ . Undetonated ordnance would sink quickly to the ocean floor, where it would corrode, become encrusted by benthic organisms, and be buried by sediments. Effects on public safety would be the same as described under Alternative 1.

### **Chaff**

Under Alternative 2, the annual amount of chaff used during training activities would increase to 1,080 pounds from 540 pounds under the No Action Alternative. The increase in chaff would not be expected to adversely affect public safety because of coordination with FAA. Chaff would be dispersed upon deployment, and would not be expected gather in concentrations high enough to affect communication or radar systems.

### **NSW Activities**

NSW activities proposed under Alternative 2 would be the same as those described under Alternative 1. Safety procedures as described under Alternative 1 would ensure that nonparticipants were not endangered.

### **ASW Activities**

ASW activities proposed under Alternative 2 would be the same as those described under Alternative 1. Safety procedures as described under Alternative 1 would ensure that nonparticipants were not endangered.

### **Sinking Exercise**

Alternative 2 would include two SINKEX. A single SINKEX would be conducted once per summertime training exercise. During a SINKEX, a decommissioned surface ship is towed to a deep-water location and sunk using a variety of ordnance. The use of live ordnance could affect public safety, but a SINKEX would occur, by rule, at least 50 nm (93 km) offshore. Public use of waters at least 50 nm (93 km) offshore would be infrequent. Navy clearance measures for live-fire training exercises would be implemented, which would greatly decrease the chance that nonparticipants would be in the training area during SINKEX. Therefore, SINKEX would not affect public safety because of the implemented range clearance measures and remoteness of the location.

Approximately 858 explosive ordnance items would be used during two SINKEX training activities per year. Based on the estimated failure rates identified in Table 3.2-2, approximately 40 explosive ordnance items would be expected to fail and end up as undetonated ordnance on the ocean floor. Most of the undetonated ordnance would be Naval gun shells, which accounts for about 93 percent of expended ordnance during SINKEX. SINKEX would occur in a small area, approximately  $8 \text{ nm}^2$ , resulting in a high density of expended materials relative to other training events. SINKEX would result in approximately 2.5 undetonated explosive items per  $\text{nm}^2$ . Undetonated ordnance would sink quickly to the ocean floor, where it would corrode, become encrusted by benthic organisms, and be buried through sedimentation. The high density of undetonated ordnance during SINKEX events would not affect public safety because undetonated ordnance would fall near the sunken ship hulk. The sunken ship hulk would be identified as a hazard to navigation on navigational charts, and bottom trawl fishing would not be expected in the vicinity of the ship hulk.

### 3.14.3 Mitigation

No substantial impacts have been identified. The safety procedures followed by the Navy lower the risk that Navy training activities pose on public safety. No further mitigation measures would be required.

### 3.14.4 Summary of Effects

Table 3.14-2 summarizes the effects of the No Action Alternative, Alternative 1, and Alternative 2 on public safety under both NEPA and EO 12114.

**Table 3.14-2: Summary of Effects by Alternative**

Alternative	NEPA (U.S. Territorial Seas, 0 to 12 nm)	EO 12114 (Non-U.S. Territorial Seas, > 12 nm)
<b>No Action Alternative</b>	<ul style="list-style-type: none"> <li>• Current Navy activities were considered and are consistent with those analyzed in the previous environmental documentation (USAF 1995, USAF 2007, Army 1999, Army 2004). These documents concluded that no significant impacts on public safety would occur.</li> <li>• Aircraft overflights would not affect public safety because aircraft are limited to flying within the ALTRV and follow FAA guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>• Navy training exercises in the TMAA will not affect public safety. The Navy will issue NOTAMs or NOTMARs to notify the public of training exercises. If non-participants are in the training area, training activities will not proceed until non-participants have left the area.</li> </ul>
<b>Alternative 1</b>	<ul style="list-style-type: none"> <li>• Under Alternative 1, Navy activities were considered and would be consistent with those analyzed in the previous environmental documentation (USAF 1995, USAF 2007, Army 1999, Army 2004). These documents concluded that no significant impacts on public safety would occur.</li> <li>• Increase in aircraft overflights would not affect public safety because aircraft are limited to flying within the ALTRV and follow FAA guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>• Navy training exercises in the TMAA will not affect public safety. The Navy will issue NOTAMs or NOTMARs to notify the public of training exercises. If non-participants are in the training area, training activities will not proceed until non-participants have left the area.</li> <li>• Impacts on public safety would be the same as under the No Action Alternative.</li> <li>• Installation and use of the temporary PUTR will not affect public health or safety.</li> </ul>

**Table 3.14-2: Summary of Effects by Alternative (continued)**

Alternative	NEPA (U.S. Territorial Seas, 0 to 12 nm)	EO 12114 (Non-U.S. Territorial Seas, > 12 nm)
<b>Alternative 2 (Preferred Alternative)</b>	<ul style="list-style-type: none"> <li>• Under Alternative 2, Navy activities were considered and would be consistent with those analyzed in the previous environmental documentation (USAF 1995, USAF 2007, Army 1999, Army 2004). These documents concluded that no significant impacts on public safety would occur.</li> <li>• Increase in aircraft overflights would not affect public safety because aircraft are limited to flying within the ALTRV and follow FAA guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>• Navy training exercises in the TMAA will not affect public safety. The Navy will issue NOTAMs or NOTMARs to notify the public of training exercises. If non-participants are in the training area, training activities will not proceed until non-participants have left the area.</li> <li>• There would be an increase in training tempo and new training activities, but impacts on public safety would be the same as under the No Action Alternative and Alternative 1.</li> <li>• With implementation of SOPs, range clearance procedures, and NOTMARs, SINKEX will not affect public health or safety.</li> </ul>

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