

8.12 HUMAN HEALTH AND SAFETY HAZARDS

8.12.1 Affected Environment

The following section describes the affected environment pertaining to human health and safety hazards as a result of military actions on PTA.

Hazardous Materials and Waste Management

The US Army maintains a spill prevention control and countermeasure plan for hazardous materials management at PTA. The major facility of concern for the plan is the bulk fuel storage area. Minor facilities include a grease rack used to inspect military vehicles and heating oil tanks (both aboveground and below ground) used for heating water for the kitchens, showers, and officers' quarters.

The US Army also maintains an installation-wide hazardous waste management plan that regulates the storage and disposal of hazardous waste. PTA operates its own TAP site, where it stores hazardous waste for a maximum of 90 days before a contractor picks it up and transports it to the DRMO, where it is shipped off-island for permanent disposal at a certified hazardous waste disposal site (Akasaki 2002b).

Specific Health and Safety Hazards

The following sections address specific human health and safety hazards, such as hazardous materials and wastes that may be used, stored, or transported within PTA. Hazardous materials and waste have the potential to affect the environment and often have specific regulations that govern their use, storage, and disposal.

Ammunition

As further discussed in Chapter 2, PTA provides the space for infantry and associated support units to maneuver. Under this maneuver, live bullets are not fired, and blanks are used in rifles and small caliber automatic weapons, along with MILES equipment. Chapter 2 also discusses the available range areas, types of ordnance used, and scheduling of the ranges at PTA.

In addition to the dry- and blank-fire maneuver space, PTA provides two types of live-fire ranges. The first is a series of static live-fire ranges used for familiarization, zero, or qualification of weapon systems (The process of setting the sights of a weapon to place the projectile at the point of aim is called zeroing the weapon [FRII 2002]). The other type of live-fire range provides fire teams, through company or larger units, the chance to engage a series of objectives.

During eight or nine months of the year, ammunition is brought from WAAF or Lualualei to PTA via boat or helicopter (Saldivar 2002). If boats are used, the ammunition is driven from Kawaihae Harbor to PTA. There have been no accidents involving the transport of ammunition in the last two years.

During training, ordnance is temporarily stored in ammunition holding areas on PTA. At completion of training, unused ammunition is returned to the ammunition supply point on WAAF. Permanent ammunition storage is not authorized on PTA (Borja 2002a).

Surface danger zones are designated for the ranges at PTA (Sato 1996, 5-8). Their construction is based on information in AR 385-63 and the draft update of this regulation. Increased emphasis is placed on the effects of ricochets at closer ranges in the draft version. During the last 24 months, there were no accidents pertaining to the transporting, storage, or firing of ammunitions at PTA that risked public safety (Kila 2002).

SDZs are configured toward a cumulative ordnance impact area (approximately 51,000 acres) in the central portion of PTA. In addition, although ICMs are no longer used on any Army training land due to the extreme safety risk (HQDA 2001), there is a 16,800-acre (6,800-hectare) ICM impact area within the larger impact area. ICMs, also referred to as cluster bombs, are artillery munitions that contain multiple submunitions. The ordnance impact area and ICM area are not accessible.

The Army conducts nonlive-fire maneuver training on training areas around PTA. UXO is suspected in various training areas and presents a potential threat to Army personnel. UXO is not cleared before maneuvers commence because there is a low level of suspected UXO. As further explained in Section 3.12, soldiers are taught how to identify UXO and how to properly handle it.

As discussed in Section 3.12, Ammunition, live-fire activities include artillery and mortar training, which requires the use of bags filled with explosive propellant for artillery and similar explosive propellant charges for mortars. Charges that are not used during training are burned, creating a residue. Residues from burned propellant are the only hazardous wastes temporarily stored at the range burn site in a designated HWSSP. Hazardous waste is transferred to the PTA TAP for proper storage until disposal contractors and DRMO coordinate to ensure proper disposal.

The burn site for PTA was selected and constructed in accordance with Section 17-5, the Department of Army Pamphlet 385-64, Ammunition and Explosive Safety Standards. Table 8-30 summarizes the burn pan operating specifications. The burn site is operated under the following restrictions (there are no OB/OD operations on PTA):

- All burn sites have a means of collecting remnants produced by the burning operation.
- Propellants to be burned are unconfined and spread evenly over the burn pan. The depth of the propellant would not exceed 3 inches (7.62 centimeters).
- The burn pan would be used only once per 24-hour period.

**Table 8-30
Burn Site Specifications**

Burn Site	Estimated Amount in Lbs./Burn	Estimated Frequency of Burns/Week	Type of Propellants	Burn-Pan Dimensions	Pan Quantity
PTA	10-50	2	M1, M8, M9, M10	5'9" by 8'10" by 33"	1 unit

Source: US Army 1999

Results from recent range soil sampling revealed metals, explosives, and SVOC levels above EPA Region IX residential and industrial PRGs on PTA ranges. Although metals such as aluminum and iron occur naturally in Hawaiian soils, byproducts of munitions, such as lead and RDX, contribute contaminants that could create health and safety in the natural environment. Section 8.8, Water Resources, and Section 8.9, Geology, Soils, and Seismology, provide a more detailed discussion of investigation results and effects on surface water and soils. The investigation study is provided in Appendix M1.

Installation Restoration Program

PTA was entered into the CERCLA System in July 1992, under the USEPA Identification number HI3214522234, and was inspected in 1997 as a potential hazardous waste site. The IRP investigation is described in detail in Appendix K-2.

Lead

The properties of and regulations for lead are described in detail in Section 3.12 of this document. To this date, DPW has not surveyed for lead at any of the structures on PTA. Any future lead survey information for PTA will be maintained on the DPW lead and asbestos database.

Asbestos

The properties of and regulations for asbestos are described in detail in Section 3.12 of this document. Asbestos survey information for PTA is maintained on the DPW lead and asbestos database.

To this date, DPW has surveyed for ACM at 35 locations on PTA. Fifteen of the surveys did not find asbestos as part of any structures. Asbestos was detected in 20 surveys; the ACM was friable in one of the surveys and nonfriable in the other surveys. Three of the survey structures were set for demolition (USARHAW 2002d). A total of 122 ACM surveys were contracted to begin the week of September 2, 2002. Results are being obtained by the DPW and will be incorporated upon receipt.

Polychlorinated Biphenyls

PRC Environmental Management, Inc., conducted a preliminary assessment/site inspection of four potential contaminant sources (a former pesticide storage area, a fire training area, and two landfills) within the boundaries of PTA during March and April 1993. The analytical results for soil sampling in these areas indicated that PCB concentrations were all below the listed PRG.

Efforts are ongoing to assess and remediate possible PCB contamination sources throughout PTA. The Army is committed to removing or refilling all electrical equipment containing regulated amounts of PCBs. On-line devices containing regulated levels of PCB are to be replaced with non-PCB devices or refilled and reclassified to non-PCB status, in accordance with reclassification requirements outlined in 40 CFR 761.30(a)(2)(v). Off-line devices containing regulated levels of PCB are to be removed from the installation and disposed of (PRC 1995, 4).

Electromagnetic Fields

Equipment producing EMF that could pose a serious health risk is operated under strict constraints, in site-approved areas, and by qualified personnel per technical publications (Moreno 2002). Mobile radar equipment is owned by Division Artillery and consists of a radar-set designed to detect incoming artillery and projectiles. It is operated and managed by the Forward Area Defense section.

Four remote weather stations on PTA are used for fire indexing, which forecasts the threat of wildfires. The RAWS, typically located in remote wildland areas on installations, requires personnel to be on-site only for maintenance and not for operations. The general public typically is not allowed in areas that could contain EMF hazards from Army equipment, minimizing exposure to potential sources of EMF.

Petroleum, Oils, and Lubricants

PRC Environmental Management conducted a preliminary assessment and site inspection of PTA in March and April 1993 (PRC 1997, ES-1). Soil samples were obtained across the installation and were analyzed for various constituents, including petroleum products. The results indicated that subsurface soils and bedrock at the fire training area and two landfill areas were contaminated with low concentrations of petroleum-based substances (likely used motor oil and fuel oil, such as kerosene). The former burn pit was in the vicinity of the fire training area and was constructed of rubber plates covered with dirt and surrounded by an earthen berm. Flammable liquids were poured into the burn pit during fire training exercises and may have seeped into the underlying soil and bedrock along the unsealed plate seams. The former burn pit was decommissioned after 1983, and a new fire training facility with a more suitable design was constructed in 1994.

Gross petroleum contamination was not apparent based on field observations and screening. Analytical results indicated that VOCs and SVOCs were below USEPA Region IX PRGs. Site inspection data for soils in these areas indicate the presence of some contaminants of concern, but at concentrations that if left in place, would pose minimal, if any, threat to human health and the environment (PRC 1997, ES-3).

There are four basic maintenance areas on PTA (Ross 2002):

- A 1-acre (0.4-hectare) two-bay motor pool in the building complex T-2 and T-3.
- A 10-acre (4.04-hectare) motor pool by Building T-41. Although this site is inactive, units may bring temporary, full-service maintenance tents during their maneuvers.

- A vehicle maintenance area in the hangar area that units use only during maneuvers.
- A former motor pool at Building T-25, where such materials as lubrication oil, used oil, antifreeze, and waste antifreeze were used. The facility is currently used as a Directorate of Logistics vehicle storage area.

DPW stores heavy equipment at Facility 401. As vehicles and equipment are stored for extended periods of time, petroleum and oils have been observed on the ground (Ross 2002).

Underground Storage Tanks

The bulk storage facility, which was constructed in early 1982 at Building 343, has eight USTs. POL containers belonging to the bulk fuel facility are stored on a concrete pad with secondary containment.

One UST is included on the LUST list maintained by DPW. This tank was located at the dining facility in Building T-186 and was removed in May 1994. This site has been remediated, and the USEPA issued a clean closure status in December 2001. One UST is in use at this dining facility, though details of the tank are not available.

Appendix K-4 lists all USTs and LUSTs currently in use and permanently out of use on PTA (Bourke 2002a). Additionally, this table provides location, responsible party, construction, and content information for all USTs and inspection and remediation status information for all LUSTs.

Aboveground Storage Tanks

Several ASTs are used to store diesel fuel and liquid petroleum gas, also known as propane, used for fueling building hot water heaters. Appendix K-4 provides a listing and location, capacity, and content information for all ASTs on PTA (Bourke 2002c). Additionally, this table provides containment and leak protection information.

Oil/Water Separators, Wash Racks, and Grease Traps

There are no OWSs on PTA, but an oil skimmer, similar to an oil-water separator, is attached to a wash rack used to wash vehicles and equipment. The oil generated from the wash rack is skimmed into this closed-loop device, where it is manually removed to be disposed of by a private contractor or DRMO, coordinated through USAG on O'ahu (Ross 2002).

Grease racks have not been used since November 1996 at any of the motor pool or maintenance areas. All grease racks have been condemned, and such facilities are used as inspection racks (Ross 2002).

Pesticides/Herbicides

Pest control operations on PTA cantonment area require only a part-time effort by one person (USARHAW 2000b). Big Island Pest Control, Inc., controls pests under contract. The workload consists of cockroach, ant, filth fly, rodent, and weed control.

An individual pest management plan is not required under AR 200-5, Environmental Quality, Pest Management. In addition to PTA being covered under the USAG-HI pest management plan, a section of the document is dedicated to addressing the specific pest management program for this area.

There is one primary pesticide storage location on PTA, the DPW Natural Resources Department (Building T-93). This entity controls alien species and protects native threatened and endangered species with the use of herbicides and rodenticides on all training areas. Small volumes of pesticides are stored in plastic lockers, with closed plastic containers as secondary containment. Larger volumes are stored in plastic containers on secondary containment pallets. Pest management of the cantonment area is completed under contract. Contractors are not allowed to store hazardous materials, including pesticides, on site (Yamamoto 2002).

According to site visits and interviews by outside consultants with PTA facility personnel during a 1997 hazardous waste inspection, a pesticide storage shed used to be located near the north side of Building T-31. In the 1980s, the pesticide storage shed was moved to the engineer's storage yard along the northwestern side of the cantonment area. The ground surface around the former pesticide storage area may be contaminated from inadvertent spills of pesticides during the formulation and mixing process; however, installation personnel identified no specific instances of spillage. Pesticide formulation and mixing was conducted at a potable water source equipped with a backflow-prevention device. Pesticide-contaminated rinsates from the spray equipment and container rinsing were also reportedly disposed of by applying the rinsate to needed areas. Pesticides may also have spilled within the storage shed and seeped through a pervious wooden floor, contaminating the underlying soils. A gravel driveway now exists north of Building T-31, over the area that is believed to have been occupied by the pesticide storage shed. Later soil analysis in the area positively detected pesticide constituents in the soil, but average pesticide concentrations across the former pesticide storage area were well below the USEPA Region IX PRG for pesticides of interest (PRC 1997, ES-3). As previously mentioned, pesticides are now stored in Building T-93 and are properly contained with an up-to-date spill plan.

Appendix K-5 provides a list of all pesticides used and stored on PTA (Yamamoto 2002).

Wildfires

PTA is particularly susceptible to fire for numerous reasons (USARHAW and 25th ID[L] 2001b, 78). First, there is a history of ordnance-induced fires because several ranges are used year-round for live firing of a wide variety of ordnance. Also, there is a high risk of wildfire ignition from the use of aerial flares and similar pyrotechnics. Fire suppression is difficult in the impact area's rugged habitat, and UXO makes it difficult for helicopters to drop water in the impact area. Vehicles with catalytic converters, which pose a potential fire threat, are used on PTA. Highly flammable fuels and unique weather conditions also lead to high ignition rates. However, fires may also originate from other sources, such as arson, cigarettes, or campfires, within or adjacent to training areas.

Military live fire activities start many of the fires in the ordnance impact area (USARHAW and 25th ID[L] 2001b, 149). Most of these fires and other fires that start on PTA are prevented from leaving the boundaries of the installation; however, some fires have burned onto adjacent lands. Also, fires can come onto the installation from off-post. For example, a wildfire in 1994 affected about 4,670 acres (1,890 hectares) on the installation and originated in the Pu'u Anahulu Game Management Area, and a wildfire in 1999 that affected 3,560 acres (1,441 hectares) originated along Māmalahoa Highway (Highway 190).

The PTA Fire Chief is responsible for ensuring that wildland fire responses are in accordance with the WFMP (USARHAW and 25th ID[L] 2001b, 149-151). Figure 8-34 shows the location of fire management facilities. Four remote weather stations on PTA are used for fire indexing. An auxiliary wildland firefighting force provides an initial attack on a fire before the fire department arrives. The Hawai'i County Fire Department, DLNR, and Hawai'i Volcanoes National Park assist with wildland fire suppression.

The PTA FMA, once completed, will address wildfire issues at the installation. Also, PTA wildland fire SOPs, once completed, will contain specific methods for handling fires.

Analysis of Fire History and Management Concerns at Pōhakuloa Training Area contains historical fire information (Beavers et al. 2002b, 10-19). Because PTA is dry throughout the year and the amount of precipitation received during the winter is probably not enough to change the probability of fire by any significant amount, an annual cycle in fire frequency was not expected. Therefore, the main cause of monthly variation in the data is probably the frequency and intensity of use by the military.

Tracer ammunition, which easily starts fires and is one of the most commonly used ammunitions, has started the largest number of fires at PTA. Ranges 1, 10, and 12 are the most common locations for fires. Unknown ignition sources also account for a large number of fires.

Fires originating from non-military sources have caused the overwhelming majority of the acres burned at PTA. Between July 1990 and April 2002, 8,424 acres (3,409 hectares) of PTA have been recorded as burned. Of these, over 7,700 acres (3,116 hectares) were by fires caused by lightning, arson, or carelessly discarded cigarettes.

A small number of large fires are responsible for most of the acreage burned. Eight individual fires of 100 acres (40.5 hectares) or more burned over 97 percent of the acres damaged by fire from 1987 to 1999. Two fires, the Kipuka Kalawamauna fires, which started off-site, account for 72 percent of all acres burned within PTA's boundaries. This demonstrates that, though military training does pose a danger, fires that originate off-site and burn onto PTA cause most of the on-site fire damage.

Figure 8-34
Pōhakuloa Training Area Fire Suppression

8.12.2 Environmental Consequences

Summary of Impacts

This section is a discussion of the potential impacts on human health and safety hazards under the Proposed Action and alternatives at PTA.

Significant and mitigable impacts are as follows:

- Due to a 25 percent increase in munitions under these alternatives and the results of recent soil analyses on PTA, ammunition presents a significant risk of soil contamination in the range areas. Remedial cleanup would take place when the training areas are permanently closed.
- Potential UXO exposure during maneuvers and construction, creating a significant threat to workers and Army personnel.
- Construction and demolition at PTA could expose workers to lead-based paint or lead-containing construction materials, creating a significant health and safety risk. In addition, construction of the AALFTR and BAX, as well as QTR2 under the RLA, would involve moving soils that could release lead to the environment, creating a significant impact.
- Construction and demolition at PTA could expose workers to asbestos-containing materials, which could be a significant health and safety risk.
- Adding two live-fire ranges under the Proposed Action and three ranges under the RLA Alternative and constructing a highway between PTA and Kawaihae Harbor would result in increased travel, occasionally involving hazardous and combustible materials; this presents a significant wildfire risk.

These impacts could be reduced to less than significant through mitigation. All other human health and safety hazard issues were considered either to have less than significant impact or to have no impact at all. Impacts, methodology, and factors determining significance are discussed in Section 4.12.1. Table 8-31 summarizes the potential impacts for PTA that have been identified in this analysis. No ordnance impact areas are being introduced to this installation. Each impact is a continuation and a possible insignificant augmentation of existing conditions.

Proposed Action (Preferred Alternative)

Significant Impacts Mitigable to Less than Significant

Impact 1: Ammunition. Recent range studies at PTA have revealed elevated levels of munition byproducts, such as lead and RDX, above USEPA Region IX residential and industrial PRGs at each installation (the investigation report is included in Appendix M1), which indicate that additional risk based investigations may need to be conducted. Section 8.8, Water Resources, and Section 8.9, Geology, Soils, and Seismology, provide more detailed analyses of specific effects on surface water and soils and is therefore considered significant.

control. All remediation necessary to mitigate an imminent threat to human health and the environment would be undertaken at such time.

Additional Mitigation 1. No additional mitigation has been identified.

Impact 2: Unexploded ordnance. Of the 25 percent increase in ammunition under the Proposed Action, 1.3 percent of the total increase would be from UXO-producing munitions (mortars, artillery, and grenades). The WPAA is part of the Former Waikoloa Maneuver Area, which is a Formerly Used Defense Site (FUDS) and has supported live-fire in the past. Based on an engineering evaluation/cost analysis conducted for the entire Waikoloa area, which includes a risk-based analysis for human health and the environmental, WPAA was assessed as low probability of UXO exposure. No live-fire training would be conducted on WPAA under the Proposed Action. The PTA trail would also be constructed through the former Waikoloa Maneuver Area. The same risk-based analysis assessed the area of the trail alignment as a medium to high risk of UXO exposure. Because this property would continue to be used for DoD operations, the trail alignment would not be eligible for FUDS UXO clearance prior to trail construction. However, construction would be preceded by Army-sponsored surface and subsurface clearance and if necessary followed by ordnance health and safety monitoring during construction in order to reduce potential exposure and impacts from this project.

Presence of UXO has the potential to affect the construction of the proposed AALFTR and BAX. The AALFTR and BAX would involve movement of soils that may be potentially contaminated with UXO from prior activities in the ordnance impact area that could present a significant safety risk. The SDZs for these proposed ranges would overlay the existing range impact and ICM areas. These areas are, however, inaccessible to Army personnel, thus preventing exposure to existing or future UXO. In addition, maneuver training would continue to be conducted on existing training areas, excluding the 1,500-acre (608-hectare) MPRC area, under the Proposed Action. When PTA is in full use in support of brigade-level training exercises, which currently occurs twice per year, company-sized units would typically train in these areas. Although this would not include live-fire training, which could introduce new UXO, UXO is suspected due to past training, which presents a potential threat to Army personnel. UXO would not be cleared prior to maneuvers because of the suspected low occurrence of UXO. In addition to the below mitigation measures, the Army would continue to educate soldiers on how to identify UXO and in proper safety procedures for handling UXO, as explained in Section 3.12.

Regulatory and Administrative Mitigation 2. Prior to initiation of any construction activities, if not already included in the project design plans, USARHAW would employ qualified professionals to perform a UXO sweep of the proposed construction area, remove all UXO encountered to ensure the safety of the site, and document UXO surveys and removal actions in full accordance with applicable laws, regulations, and guidances. Clearance would be separately funded by OMA before construction begins. In addition, all future UXO would be contained within the designated ordnance impact areas on SBMR ranges, which are not accessible to personnel. Full UXO clearance takes place when a live-fire range is closed.

These mitigation measures would minimize the risk of exposure to UXO and would reduce the impact to less than significant.

Additional Mitigation 2. No additional mitigation has been identified.

Impact 3: Lead. Construction activities associated with the Proposed Action could involve the exposure of workers to airborne lead particulates at project sites on PTA. The workers could be exposed to lead-based paint and pipes during demolition or soil excavation or grading at specific sites within PTA. There are three buildings proposed for demolition in conjunction with the construction of the Range Maintenance Facility: T17, T19, and T20. There have been no lead surveys conducted on these buildings. Implementation of the below mitigation would reduce the impacts to less than significant.

Construction of the AALFTR and BAX would redistribute the material from the berms at the current locations and redistribute the material onto retained firing range berms. In this manner, the material would be readily available for re-establishment of the berms at a future point to be determined. The berms used to stop projectiles fired at the ranges are expected to contain significant quantities of lead, and potentially UXO. Recent soil studies of the PTA ranges confirmed this, revealing elevated levels of lead in the soils, above USEPA Region IX residential and industrial PRGs (see Appendix M1 for the investigation report). The presence of lead may cause additional soils to become contaminated due to vehicle and equipment movement and soil deposition. Additional contamination would increase the volume of soil that needs to be remediated in the future.

Regulatory and Administrative Mitigation 3. Before project implementation, the Army would review the Army lead database to determine the presence of lead in any structures at PTA within the project areas. Any structures that are not on the database, including the three buildings to be demolished mentioned above, would be surveyed and added to the list prior to alteration. If LBP or lead pipes are discovered in a structure, proper cautionary and abatement procedures would be part of contract requirements when renovations are conducted. The manufacture and use of LBP is prohibited. Construction of new buildings or structures as part of the Proposed Action would not use LBP or lead pipes.

Lead-contaminated soils from berms would be retained on-site and used in the construction of new berms associated with the new facilities. In the event that lead-contaminated soil materials are not re-used at the site for new berm construction, lead-contaminated soils would be remediated or properly disposed of in accordance with applicable standards. The Army would ensure that workers on-site use appropriate OSHA and other protective measures if and when exposed to lead and asbestos-containing materials.

Additional Mitigation 3. No additional mitigation has been identified.

Impact 4: Asbestos. Construction activities associated with the Proposed Action could involve the exposure of workers to asbestos at PTA. The workers could be exposed to asbestos during demolition or grading at project sites within PTA. Asbestos surveys have been conducted on each of the above-mentioned buildings proposed for demolition for the

construction of the Range Maintenance Facility, and ACM was found in the roof sealant of Building T20. Implementation of the following mitigation would reduce the impacts to less than significant.

Regulatory and Administrative Mitigation 4. Before project implementation, the Army would review the Army asbestos database to determine the presence of asbestos in any structures in the PTA project area. Any structures not on the database would be surveyed and added to the list prior to construction. If asbestos is discovered in a structure involved in the project, proper cautionary and abatement procedures would be part of contract requirements when alteration takes place. For example, disturbance to friable ACM would be minimized per construction specifications to prevent airborne particulate and to decrease potential health and safety risks to workers. The Army would ensure that workers on-site use appropriate OSHA and other protective measures if they are exposed to lead and asbestos-containing materials.

No ACM would be used as a building material under the Proposed Action. Therefore, there would be no significant impacts from asbestos and no mitigation would be required when using materials during construction.

Additional Mitigation 4. No additional mitigation has been identified.

Impact 5: Wildfires. PTA is particularly susceptible to fire for numerous reasons. Two ranges are proposed to be built on PTA, the BAX and AALFTR. These ranges would be located in previously disturbed sites and oriented towards pre-existing ordnance impact areas. The proposed WPAA would be used for maneuver training and would remain a nonlive-fire area. As a result, both live- and nonlive-fire training would increase, resulting in the potential to increase the frequency of wildfires. Additionally, improving the military vehicle trail between Kawaihae Harbor and PTA would increase the trail's use, resulting in the potential to increase the frequency of wildfires along the trail. A wildfire could damage animal and plant communities, damage cultural resources, and contribute to soil erosion by removing vegetation.

The military vehicle trail would be improved and extended to provide off-highway transport of vehicles, personnel, and equipment between Kawaihae Harbor and PTA. Fire risks associated with this road and the Army involve the transportation of personnel and equipment.

Regulatory and Administrative Mitigation 5. The WFMP was developed to establish specific guidance, procedures, and protocols for managing wildfires on Army training lands. The WFMP, which includes the FMA, will be updated to address proposed activities at PTA, the WPAA, and PTA Trail in order to minimize wildfires. This would include, but not be limited to, preparing a FMA and wildland fire SOPs. These updates will be completed before activities associated with the Proposed Action commence. Additionally, ITAM geographic information systems will be used to monitor the effectiveness of wildfire management activities. Army personnel will practice BMPs in operations, and trained personnel and

equipment will be on hand during training activities to respond to wildfires. Smoking would not be allowed inside or outside vehicles while along PTA Trail.

Since the WPAA does not have a RAWS to aid in determining weather conditions and the threat of wildfire, a RAWS will be constructed there before activities associated with the Proposed Action commence. This will help identify weather conditions that pose a threat to the ignition and spread of a wildfire. To aid in suppressing any wildfires, two dip ponds (water sources for firefighting) will be constructed on the WPAA. During training, appropriate personnel and equipment will be assigned to dip ponds for responding to a wildfire.

Under this mitigation, there would be less than significant impacts involving wildfires.

Additional Mitigation 5. No additional mitigation has been identified.

Less than Significant Impacts

Hazardous materials management. The Proposed Action would not significantly increase hazardous materials usage at PTA. Impacts on hazardous materials management at PTA would be similar to those at SBMR, as discussed in Section 5.12.2. No new procedures would need to be implemented to store or use construction-related hazardous materials. The additional quantities of hazardous materials would be removed at the completion of construction.

In addition to general construction materials used for infrastructure, petroleum asphalt would be used in extending and upgrading the runway at BAAF. This project is depicted on Figure D-24. Although PTA Trail would primarily be composed of gravel, road grades steeper than 10 percent would be paved with asphalt or concrete to ensure all-weather safety conditions. These materials would also be used to install supporting provisions such as guardrails and signage.

The MSDSs for both asphalt and concrete are summarized in Section 4.12. Although OSHA does not categorize either of these materials as specifically carcinogenic to humans, serious health problems can result from extended exposure. Skin contact and breathing of mists, fumes, or vapors would be avoided by the construction team. Construction and disposal activities would be conducted in accordance with federal, state, and local regulations.

Hazardous materials would be handled in accordance with existing regulations and installation-wide hazardous materials management and SOPs. Hazardous materials for use during training are brought to PTA with the individual units and stored within temporary motor pools set up for each deployment operation. PTA personnel, the DPW, and Range Division manage and store the majority of hazardous materials within designated locations established to store these resources. Unused materials are brought back to O'ahu with the units. The Hazardous Substance Material System (HSMS) at PTA controls and tracks all base maintenance (Akasaki 2002b).

A new chemical would be used in conjunction with the proposed Stryker training as part of the JBPDS. A sodium azide (NaN_3) solution will be used to preserve suspected biological agent samples during combat maneuvers. Only simulated biological agents will be used during training in Hawai'i. The use of the chemical solution is considered a less than significant impact as stated in Sections 4.12 and 5.12.

Hazardous materials would not pose a significant impact at PTA. Mitigation would not be necessary.

Hazardous waste management. Activities related to the Proposed Action would not significantly affect hazardous waste management. Impacts on hazardous waste management on PTA would be similar to that on SBMR, as discussed in Section 5.12.2. The US Army follows strict regulations and SOPs for the temporary storage and disposal of hazardous waste. Temporary hazardous waste storage would be designated and operated through satellite accumulation point (SAP) facilities located at various facilities throughout PTA according to RCRA and state regulations. The Army would be required to manage and dispose of hazardous waste generated by operations through DRMO in accordance with existing regulations and installation-wide protocol regarding storage, use, and disposal. Hazardous waste associated with construction activities would cease being generated at the completion of construction.

The Range Maintenance Facility proposed to be constructed at PTA includes a carpentry shop, welding shop and target and raw material storage. These activities could potentially yield hazardous waste, in which case containment and disposal would be handled in accordance with the USAG-HI hazardous waste management plan.

The additional hazardous waste generated by the Proposed Action would not result in a significant increase to the total amount of hazardous waste managed at and disposed from the installation. Therefore, there would be no significant construction-related or operational impacts, and no mitigation would be required.

Ammunition. Several projects included in the Proposed Action could pose less than significant impacts on PTA due to the increased presence or use of ammunition. Complete descriptions of each proposed project are included in Appendix D; however, a brief explanation of relevant proposed projects are as follows:

- A 6,750-square-foot (627.1-square-meter) ammunition storage facility would be collocated with existing ammunition igloos;
- A BAX designed for live-fire, maneuver gunnery training and qualification requirements of weapons systems would be constructed; and
- A modified standard AALFTR would be constructed overlying Ranges 1, 3, and 8 on the east side of the installation.

The SDZs for the BAX and AALFTR would overlap the existing ordnance impact and ICM areas, but these areas are inaccessible to Army personnel; the firing points are beyond the

ordnance impact area borders. Targetry and security devices would be funded by OPA. Environmental mitigation and UXO clearance is required at these ranges and would be separately funded by OMA prior to construction commencement. A consolidated Range Maintenance Facility would be constructed under the Proposed Action within the PTA cantonment area, as seen in Figure D-23. This facility would provide a centralized command to monitor and control all range activities and operations, including ordnance use, throughout PTA and the island of Hawai'i. There are no live-fire activities or artillery firing points on the proposed WPAA.

The 105mm cannon on the Stryker mobile gun systems and the 120mm mortar are the only new weapons to be introduced at PTA as a part of the Proposed Action. Both weapons, however, would be used at PTA under the Proposed Action. The amounts of other weapon systems would also be increased with the elevated level of training proposed in the transformation. Although the Proposed Action would generate a significant increase of ammunition use (an additional four million rounds) due to the elevated level of training and expansion in military force, the impact of this increase would not be significant, as management of artillery and ammunition would not change. Handling and storage methods, disposal protocols, and safety procedures would continue to be conducted in accordance with existing regulations. No new conventions would need to be instated, thus there would be a less than significant impact from the increase in ammunition and ordnance.

The Army follows strict SOPs when handling ammunition. The disposal of ordnance is regulated by RCRA as explained in Section 3.12. Excess ammunition not used during training is either brought back with the unit or by commercial carrier to be stored at the permanent ASP on WAAF. Residues from the manual burn activity, discussed in Section 8.12.1, Ammunition, are stored in hazardous waste receptacles and brought to a temporary SAP facility set up during maneuvers for disposal by DRMO. Additionally, the Army conducts routine inspections of all facilities containing hazardous materials to ensure compliance. The WPAA has never supported live-fire training, and no live-fire training would be conducted on the WPAA under the Proposed Action, so there would be no significant impacts from ammunition, and no mitigation would be required.

Range sampling and contamination impacts are discussed under the significant impact section, above.

General training. Activities under the Proposed Action relevant to this class or type of activity include military training on training lands outside of developed (e.g., cantonment) areas. Such training would include nonlive-fire mounted maneuver training and other nonlive-fire dismounted military training. A slight increase in transformed live-fire training would occur on Legacy Force-era ranges. The increase would be maintained and managed in accordance with federal and USAG-HI protocol, therefore creating no additional significant impact. General training issues associated with the AALFTR and BAX would not likely result in any significant impacts. The SDZs for these proposed ranges overlie the existing range impact and ICM areas, but these areas are inaccessible to personnel and are not believed to present a safety risk. In addition, these training activities may expose additional areas to potential military training equipment leaks, spills, or drips to the environment. During any on-site

operational activities within a specific project area, USARHAW will implement SOPs to minimize the potential for spills or other harm to the environment.

As further explained in Section 4.12, in order to protect the public during range training, SDZs have been and would continue to be included in the range design, in accordance with Army Pamphlet 385-64, *Ammunition and Explosive Safety Standards*. Additionally, in order to protect Army personnel during range training, soldiers and officers are given safety manuals, operation-specific field manuals, and range-specific briefings before training exercises, with a complete discussion of safety procedures while training. Therefore, there would be no significant impacts from training operations, and no mitigation would be required.

Electromagnetic fields. The proposed FTI sites could potentially introduce EMF to PTA. Two of the FTI sites would be outside the proposed boundaries of the installation. The general public is typically not allowed in areas that could contain EMF hazards from Army equipment and, therefore, would not be inadvertently exposed to EMF on the installation. All FTI sites would be appropriately fenced to prevent trespassing and exposure to any harmful EMF. Signs would be posted around the perimeter of all potentially harmful EMF sources on- and off-post to warn people about the EMF source. DOD Instruction 6055.11 and Army Pamphlet 385-64, as well as other Army regulations pertaining to EMF, would be followed in the operation of the new facilities to protect personnel, as is the current practice. Only trained personnel would work with equipment emitting EMF. There would be no significant impact on the public from exposure to EMF, and no mitigation would be necessary.

Petroleum, oils and lubricants. O'ahu-based military vehicles accumulate soils and non-native species that may be tracked onto roads when they return to SBMR. A tactical vehicle wash facility is proposed to be designed to accommodate an 18.3-meter-long by 3.7-meter-wide vehicle and would have four wash stations. Treatment would include oil and grease removal, grit removal, and organic control. An oil-water separator would be provided to treat any residual water that did not go through the main system before wastewater is directed into the sewer main along Kawaihae Road. This project is discussed in detail in Appendix D.

In addition to the proposed infrastructure, the Proposed Action includes the construction of a runway extension and a turnaround area at BAAF. The runway, taxiway, and apron area would also be strengthened to accommodate C-130 and C-17 aircraft. Asphalt would be used in completing these construction/upgrade projects.

Although the proposed PTA Trail would be primarily composed of gravel, road grades steeper than 10 percent would be paved with asphalt or concrete to ensure all-weather safety conditions. These materials would also be used to install supporting provisions such as guardrails and signage.

Construction issues would not likely result in any specific hazardous materials and waste impacts. These construction activities may expose additional areas to potential construction equipment leaks, spills, or drips. USARHAW would, during any on-site construction

activities within a specific project area, implement the SOP measures summarized in Section 5.12 to minimize the potential for spills or other harm to the environment.

Specific project construction details are included in Chapter 2 and Appendix D. There would be no significant impacts from construction of the Proposed Action projects, and no mitigation would be necessary.

Stryker vehicles would be used at PTA under the Proposed Action. Maintenance and handling of the vehicles would continue under existing SOPs. Operations would practice BMPs and follow USEPA and USAG-HI protocol for use and handling of hazardous materials such as POLs. DPW maintains a spill contingency plan and an SOP plan. These plans outline proper operating and emergency response procedures and responsibilities. Additionally, the Army conducts routine inspections of all facilities containing hazardous materials to ensure compliance. Therefore, there would be no significant impacts from POLs, and no mitigation would be required.

Pesticides/Herbicides. The proposed land acquisition would generate a slight increase in the amount of pesticides/herbicides used on PTA in order to maintain the maneuver training area. Pest control would continue to be maintained by DPW in accordance with the existing USAG-HI IPMP. Pesticides would continue to be stored at the centralized Environmental Shop located on PTA in Building T-93. Therefore, there would be no significant impacts from pesticides/herbicides, and no mitigation would be required.

No Impacts

Installation Restoration Program. Construction and operational activities associated with this alternative would not affect IRP sites, as there are no proposed projects within IRP boundaries. A detailed description of the IRP program for PTA, including specific projects and locations, is provided in Appendix K-2. Activities at PTA under the Proposed Action would not conflict with the restoration progress of IRP sites. Therefore, there would be no impact, and no mitigation would be required.

Polychlorinated biphenyls. Construction and operational activities associated with the Proposed Action would not generate impacts from PCBs. The Army has committed to removing or retrofitting all electrical equipment containing regulated amounts of PCBs. No PCB-containing equipment is believed to exist within the project boundaries, however if PCBs are encountered, the devices would be properly handled in accordance with USEPA regulations. As per subsection 6(e) of the TSCA of 1976, no new PCB-containing equipment would be installed as part of this alternative. For that reason, there would be no impacts, and no mitigation would be required.

Reduced Land Acquisition Alternative

Under the RLA Alternative, impacts at PTA would generally be very similar to the Proposed Action, except QTR2 would not be built on the SBMR SRAA, but rather on the Range 8 site at PTA.

Significant Impacts Mitigable to Less than Significant

Significant impacts associated with the RLA Alternative projects would be identical to significant impacts associated with the Proposed Action except in three areas.

Unexploded Ordnance. Construction of QTR2 at PTA Range 8 would likely involve movement of soils that may be potentially contaminated with UXO from prior activities in the range area. This would potentially present a significant adverse safety hazard. Mitigation for this impact would be the same as the mitigation identified for UXO impacts under the Proposed Action. The SDZ for the proposed QTR2 range would overlie the existing ordnance impact and ICM areas, but these areas are inaccessible to Army personnel, thus preventing exposure to existing or future UXO.

Lead. The potential for lead contamination due to the re-distribution of lead-contaminated soils at PTA Range 8 may cause additional soils to become contaminated due to vehicle and equipment movement and soil deposition. Additional contamination would increase the volume of soil that needs to be remediated. Mitigation for this impact would be the same as the mitigation identified for lead impacts under the Proposed Action.

Wildfires. Construction of QTR2 would likely increase the amount of live-fire training at PTA, thereby potentially increasing the frequency of wildfires at PTA, and presenting a significant adverse safety hazard. Mitigation for this impact would be the same as the mitigation identified for wildfire impacts under the Proposed Action.

Less than Significant Impacts

Less than significant impacts associated with the RLA Alternative projects would be largely identical to impacts associated with the Proposed Action. The only difference would be that due to the relocation of proposed range, QTR2, from the SRAA to PTA, this installation would undergo an increase in ammunition used and training conducted at the installation as well as an increase in hazardous materials and waste used and generated to construct and maintain the range. In addition, the SDZ for the proposed QTR2 range would overlie the existing ordnance impact and ICM areas, but these areas are inaccessible to Army personnel, thus preventing exposure to existing or future UXO.

No Action Alternative

The current baseline of impact conditions would continue under No Action. No increase in hazardous material use or waste generation would occur. Less than significant impacts under No Action would primarily be due to continued practices at existing levels and would involve ammunition, UXO, general training, lead, EMF, and wildfires.

Training Related Impacts. As training would continue by Legacy Forces at PTA, impacts from the training and munitions use would continue to affect the land. Existing types and quantities of ammunition and ordnance would continue to be used. The 105mm cannon and the 120mm mortar would not be used. As UXO would remain a potential presence, EOD specialists would continue to implement abatement procedures to minimize potential exposure of Legacy Forces to UXO during training. Potential UXO in the former Waikoloa Maneuver Area would remain and not be cleared as the proposed PTA Trail would not be

constructed. USARHAW would continue following existing SOPs to minimize the potential for spills or other harm to the environment resulting from training efforts. Legacy Forces would continue to train at PTA, which would distribute lead and other contaminants resulting from training from small ammunition firearms into retained firing range berms. The presence of these contaminants may further contaminate soils due to vehicle and equipment movement and soil deposition. Finally, continued use of Army land for training under No Action would prolong the threat of wildfires. The WFMP and its FMAs and wildland fire SOPs, all of which are designed to prevent and manage wildfires, would continue to be followed. These impacts from continued training at existing levels would remain a less than significant impact, and no new mitigation would be required.

Electromagnetic Fields. EMF sources would not be introduced to the installation or areas outside the installation under No Action, but existing sources of electromagnetic radiation as well as future projects containing EMF would remain a risk. SOPs would continue to be followed in order to prevent exposure to the public or the environment.