Activity Specific Categorical Exclusion for U.S. Army Training Exercises and Simulations at the Hanford Site, Richland, Washington

1.0 BACKGROUND

Title 10, Part 1021 of the Code of Federal Regulations (10 CFR 1021), "National Environmental Policy Act Implementing Procedures," establishes procedures that the U.S. Department of Energy (DOE) uses to comply with section 102(2) of the National Environmental Policy Act (NEPA) of 1969 [42 U.S.C. 4332(2)] and the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500–1508).

10 CFR 1021.410, "Application of Categorical Exclusions," discusses classes of actions that normally do not require Environmental Assessments (EA) or Environmental Impact Statements (EIS). 10 CFR 1021, Subpart D, Appendices A and B list classes of actions that DOE has determined do not individually or cumulatively have significant effects on the human environment and are categorically excluded from the preparation of EAs or EISs. To conclude that a proposed action is categorically excluded, DOE must determine that the requirements of 10 CFR 1021.410 and the conditions that are "integral elements" as defined in 10 CFR 1021, Subpart D, Appendix B, are met.

The United States Army proposes to conduct training exercises and simulations in the 400 Area of the Hanford Site at the Fuels and Materials Examination Facility as described herein. This NEPA review provides the rationale for categorically excluding the Army's proposed action in accordance with DOE and CEQ procedures and regulations.

Three primary sources of information were used to prepare this activity-specific categorical exclusion. They include the *"Environmental Assessment – Northwest Aviation Operations 160th Special Operations Aviation Regiment Joint Base Lewis-McChord, Washington";* ORNL/TM-2000/289/ES-5048, *"Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft"*; and MSA-1404940, *"Ecological and Cultural Clearance for Army Helicopter use of the FMEF Portion of the 400 Area, Hanford Site (ECR-2014-401)."*

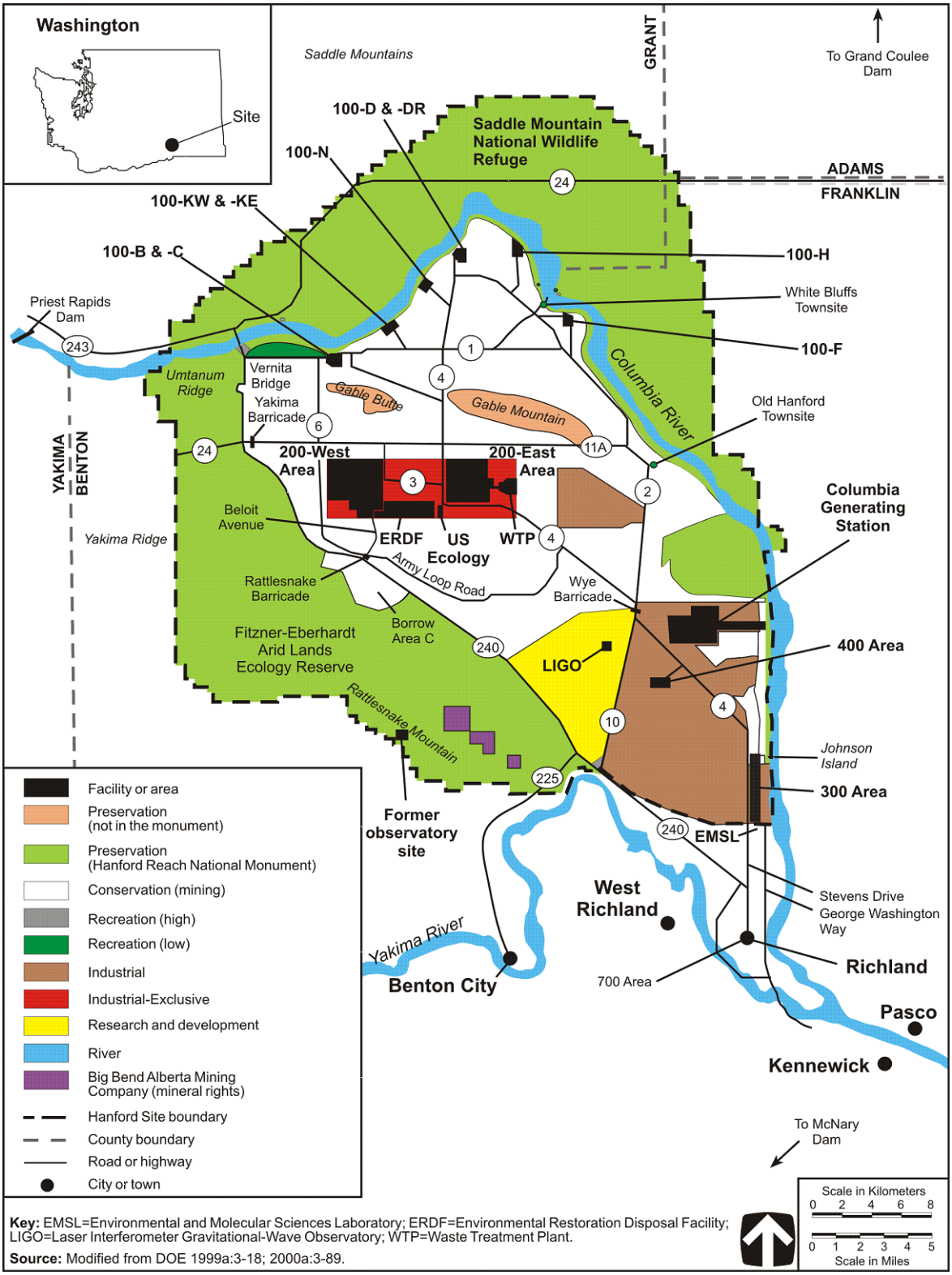
2.0 SITE DESCRIPTION

The 400 Area of the Hanford Site in Richland, Washington, is home primarily to the Fast Flux Test Facility (FFTF). The FFTF is a DOE owned, formerly operating, 400-megawatt liquid-metal cooled nuclear research and test reactor. The FFTF is located within a Property Protected Area (PPA) along with support buildings, structures, and infrastructures. In late 1993, DOE decided to cease operating the FFTF due to lack of economically viable missions and issued a shutdown order for the facility. Figure 1 shows the 400 Area and other prominent features of the Hanford Site.

The 400 Area also contains a multi-level, high-bay structure called the Fuels and Materials Examination Facility (FMEF). Although the FMEF was intended to support the FFTF and future Liquid-Metal Fast-Breeder Reactor Program, the FMEF was never used in this capacity. When the nation abandoned the breeder reactor program, FMEF was also left without a mission and remains unused and vacant today.

The Hanford Site Sludge Treatment Program will eventually remove radioactive sludge currently stored in containers within a water filled basin adjacent to the 100-KW Reactor in the 100 Area of the Hanford Site. In order to determine the best, safest, and most efficient way to remove the containerized sludge,

Figure 1. Map of Hanford Site Depicting Land Uses and Prominent Features



Key: EMSL=Environmental and Molecular Sciences Laboratory; ERDF=Environmental Restoration Disposal Facility; LIGO=Laser Interferometer Gravitational-Wave Observatory; WTP=Waste Treatment Plant.

Source: Modified from DOE 1999a:3-18; 2000a:3-89.

technology development and operator training is being conducted at a facility called the Maintenance and Storage Facility (MASF) in the 400 Area. MASF is a multi-purpose, high bay facility that was originally used to support the FFTF. Other facilities in the 400 Area that are currently in use include the Centralized Consolidation and Recycle Center (CCRC), Automotive Paint Shop, and Archaeological Artifacts Curation and Storage Facility. An Automotive Maintenance Shop and Hanford Fire Station were formerly located in the 400 Area, but have been shut down and relocated.

3.0 PROPOSED ACTION

The U.S. Army 4th Battalion of the 160th Special Operations Aviation Regiment (4-160th SOAR), referred to hereafter as "the Army," proposes to conduct helicopter training exercises and simulations at the FMEF. The MASF, CCRC, Automotive Paint Shop, Archaeological Artifacts Curation and Storage Facility, and former Automotive Maintenance Shop and Hanford Fire Station are in a designated "no fly" area.

The Army will conduct simulated combat assault infiltration/exfiltration training exercises and simulations at the FMEF utilizing CV-22 Osprey, MH-60 Blackhawk, MH-47 Chinook, or other helicopters approved by the Army. Figures 2, 3, 4, 5, and 6 depict the location of the FMEF and proposed training exercises and simulations; including helicopter ingress/egress routes, landing zones, and "no fly" areas.

Simulated "Fast Rope" training exercises to the roof of the FMEF are proposed; including limited personnel access on the roof as authorized by the DOE. Fast roping, also known as "Fast Rope Insertion Extraction System" (FRIES), is a technique for rapidly descending a thick rope. It is useful for deploying troops from a helicopter in places where the helicopter cannot touch down. Fast roping allows soldiers to respond to crises as a quick reaction force, conduct missions requiring stealth, and board vessels while at sea.

The Army will infiltrate the FMEF during a period of darkness on or around December 14-15, 2014, and conduct area reconnaissance in accordance with the Commander's Priority Intelligence requirements. Army companies A, B, C, and D (each approximately 150-200 soldiers) will complete a deliberate raid to clear the FMEF. This will involve a night insertion by helicopters (4 at most) near or above the FMEF; while observing the "no-fly" area and other flight restrictions as discussed herein.

The Army companies will move tactically to establish security positions and a support element. The Army companies will breach and assault the FMEF with the task of clearing it of enemy personnel. Once clear, the Army companies will consolidate, reorganize, and begin building a defense of the FMEF. During post operations, the Decontamination Reconnaissance Team will perform necessary tasks. After defeating a counter attack, the Army companies will move north to be extracted back to their point of origin, the Yakima Training Center. At darkness on or around December 18-19, 2014, the Army will exfiltrate and extract back to the Yakima Training Center. There is a potential for the Army to conduct similar training exercises and simulations at the FMEF up to three times per year into the foreseeable future; however, no commitments between the Army and DOE have been made at this time.

Future Army training exercises and simulations may be subject to additional NEPA screening, evaluation, and documentation; including additional cultural and ecological resource reviews, as deemed necessary by the DOE NEPA Compliance Officer. Also, Army training exercises and simulations are conducted in accordance with a Permit and Memorandum of Understanding executed between the Army and the Department of Energy – Richland Operations Office (DOE-RL).

Figure 2. Aerial Photograph of Hanford Site 400 Area and FMEF (Building 427)

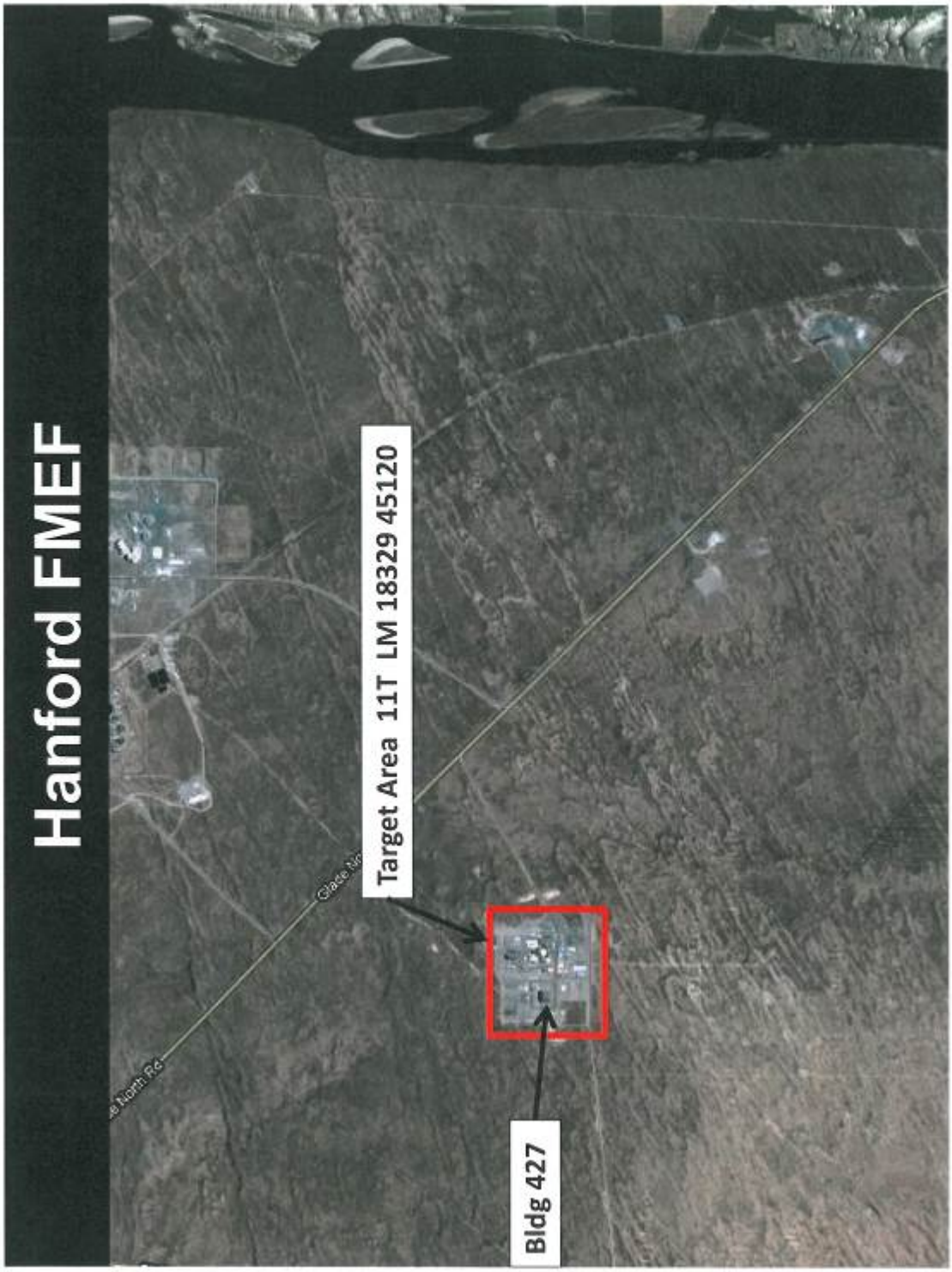


Figure 3. Aerial Photograph of FFTF and FMEF Including Site Coordinates and Elevations at 100, 300, and 500 meters from the FMEF

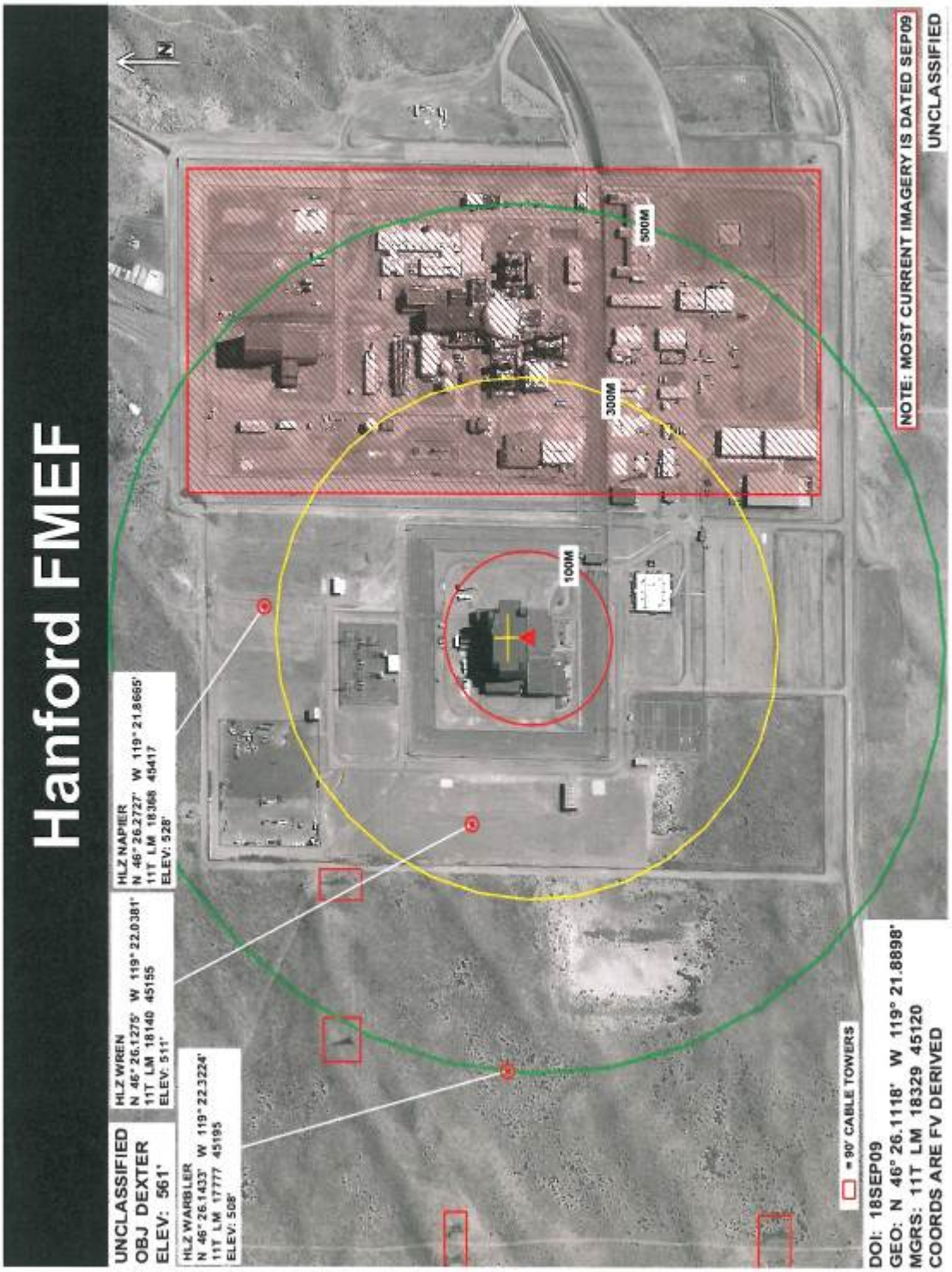


Figure 4. Army Training Exercise Helicopter Landing Zones and No-Fly Area

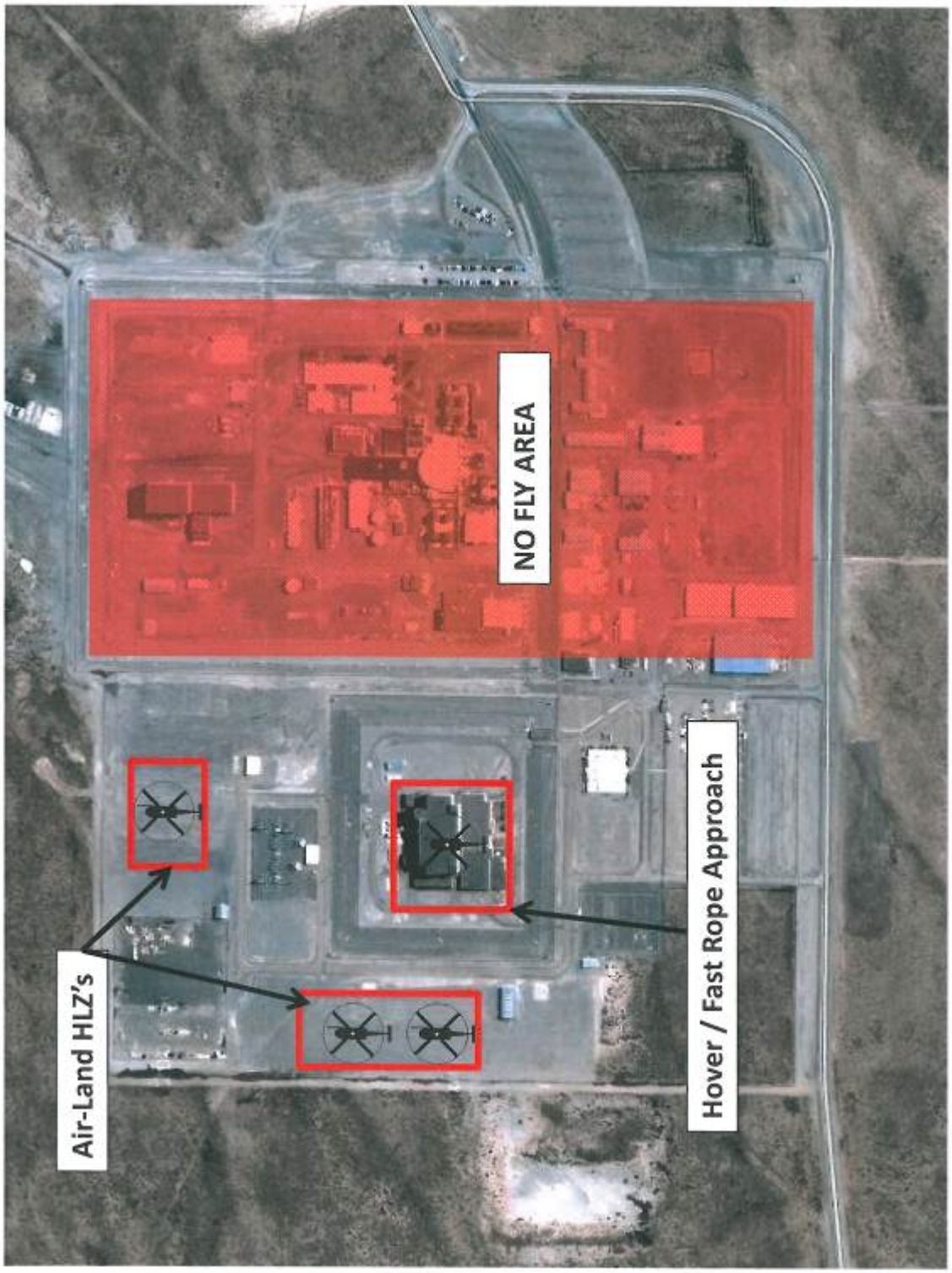
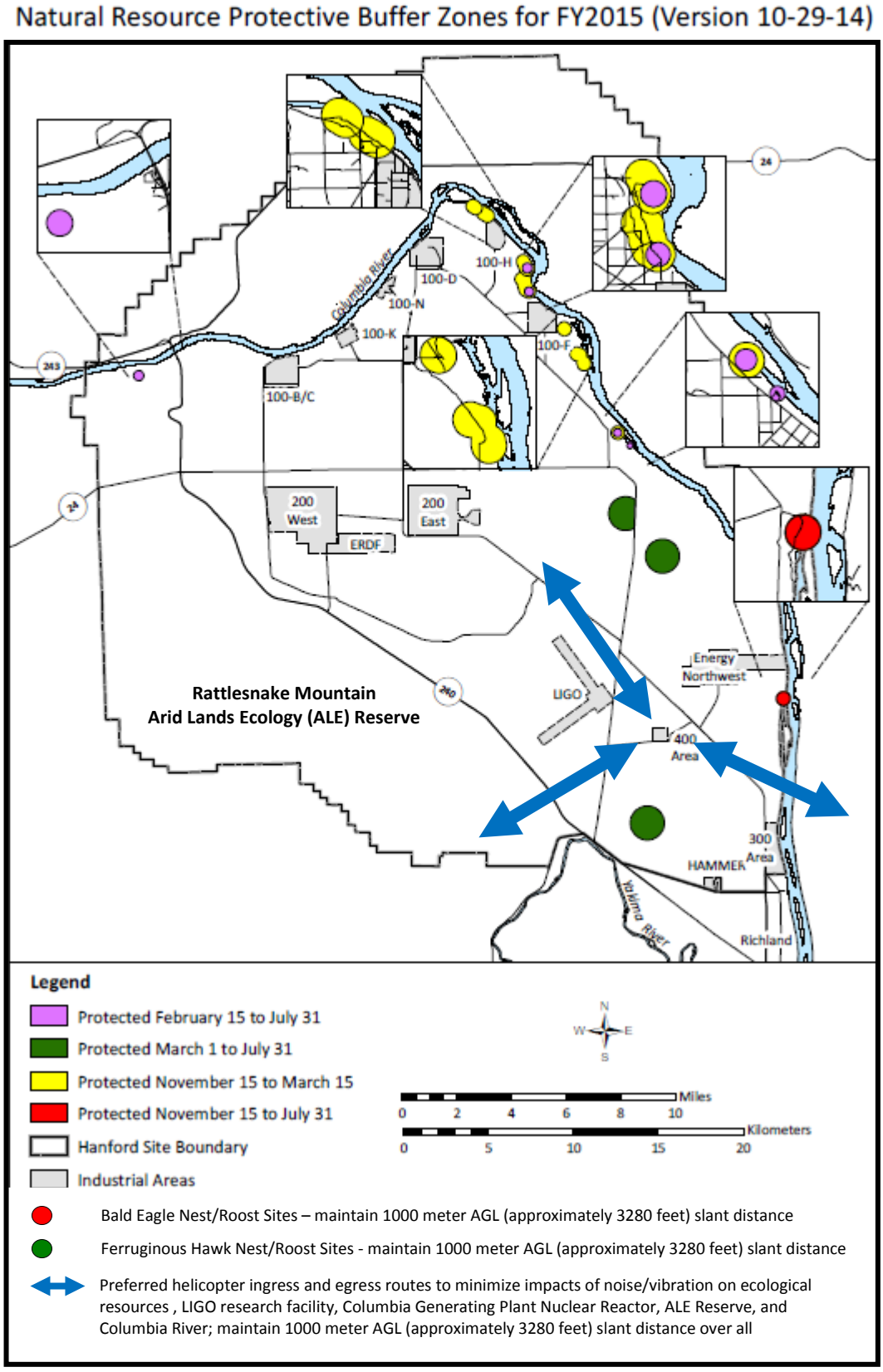


Figure 5. Aerial Photograph of FMEF and Surrounding Area

Figure 6. Proposed Ingress and Egress Routes for the Army Helicopters



The following are general details of the Army's proposed action to conduct training exercises and simulations at the FMEF:

- Hours of operations will be from point of darkness to point of light.

- The Army proposes to utilize both mechanical and explosive breaching techniques throughout the FMEF and surrounding project area. Mechanical breaching would consist of bolt cutters, hooligan tools, and similar types of equipment and will primarily be used on the perimeter fence and interior doors. This process will be closely monitored to ensure that no excessive damage will occur to the structures. With respect to explosive breaching, the Army will only use explosive breaching on predetermined and prebuilt doors on both the interior and exterior of the FMEF. These explosive sites will be closely monitored to insure that no excessive damage will occur to the FMEF structures.

- There will be a total of two school buses and approximately four 16-passenger vans that will be utilized to transport the Army's role players and observers from the Yakima Training Center and Hanford Site HAMMER Training Facility to the FMEF utilizing existing roads.

- The exact extraction point will be planned the night prior to each operation; however, each Army company will extract on the north side of the FMEF near the distribution hub.

- The Army proposes to conduct "Fast Roping" onto the roof and enter the FMEF.

- There will be approximately 10-15 observers each night and they will "shadow" the Army throughout the training exercises and simulations. The observers will either fly in on the helicopters or they will be pre-staged at the FMEF awaiting the arrival of the Army.

- The Army will utilize two buildings at the Hanford Site HAMMER Training Facility for billeting/hygiene and the FMEF (including the Administration Building) for setup in preparation for the training exercises and simulations.

- Tables 1 and 2 provide a listing of ammunition and weapons the Army proposes to use during the training exercises and simulations at the FMEF. Except for those weapons and devices that produce little or no sound (i.e., colored smoke, chalk filled grenades, shock tube, timed delay fuses, detonation cord, and igniters), noise levels for the weapons and devices may range from 130-170 decibels, depending upon weapon caliber or device. At these sound levels hearing damage is likely and hearing protection must be worn.

The Army will maintain FMEF in a safe condition without causing damage to the facility and will ensure that all operations are fully protective of human health, safety, and the environment.

With respect to the helicopter flight routes, the Army proposes to approach the Hanford Site from the Yakima Training Center (i.e., west/northwest of the Hanford Site). The Army plans to fly at an elevation of 300 to 500 feet above ground level (AGL) in non-restricted areas that do not require higher altitudes. The ability for the Army to have flexibility with respect to their approach each evening is conducive to experiences that represent "real world" situations enhancing the value of the training exercises and simulations. While acknowledged, the need to mitigate potential adverse effects to ecological resources

Table 1. Ammunition Plan

DODIC	NOMENCLATURE	QUANTITY
A111	7.62-MM LINK BLANK	10,800
AB09	CTG UTM 5.56-MM BLUE SINGLE	3,240
AB10	CTG UTM 5.56-MM RED SINGLE	3,240
AB16	CTG UTM 5.56-MM BLUE LKD	3,600
AB17	CTG UTM 5.56-MM RED LKD	3,600
G940	SMOKE, GREEN GRENADE	6
G945	SMOKE, YELLOW GRENADE	6
G982	SMOKE, WHITE PRACTICE	6
L305	SINGLE ILLUMINATION GREEN STAR PARA M195	6
L306	SINGLE ILLUMINATION RED STAR PARA M158	6
L307	SINGLE ILLUMINATION WHITE STAR PARA M159	6
M131	CAP BLASTING NON-ELECTRIC M7	5
M456	DETONATION CORD 1000 FT	250 FT
M670	FUSE BLAST TIME M700	250 FT
MN08	IGNITER TIME BLAST FUSE M81	40
X104	CTG 12 GA BREECHING FULL AUTO	6
X455	BOOSTER, SLIP ON PETN (MM30) 20 GRAM	35
X471	600 GR ECT	2
X604	DETONATOR ASSEMBLY NON-ELECTRIC	15
X605	40 FT SHOCK TUBE	30
X611	DETONATOR 2 M CLEAR MINI-TUBE	15
X643	C2 DATA SHEET	1 roll
X699	GRENADE, PRACTICE	34
X700	FLASH-BANG TRAINING	6
X701	FLASH-BANG BODY, INERT	6

Table 2. Weapons List

LIN	NSN	NSN Nomenclature	Common Nomenclature	OH
C06935	1005013820953	CARBINE, 5.56-MM M4A1	M4A1	1071
L69080	1010015572542	LAUNCHER, GRENADE	M320 Grenade Launcher	164
M02114	1015011646651	MORTAR, 81-MM SYSTEM	81-MM Mortar	4
M09009	1005011277510	MACHINE GUN, 5.56-MM M249	M249 SAW	88
M09509	1005014970347	MG 7.62: MK48 MOD 0	MK48 MOD 0	24
M09509	1005015394164	MACHINE GUN, 7.62-MM MK48	MK 48 MOD 1	18
M39331	1005015111250	MACHINE GUN, .50 CALIBER	M2 .50 Caliber	66
M67939	1010015862874	MORTAR, 60-MM	60-MM Mortar	12
M68405	1015012261672	MORTAR, 120-MM TOWED	120-MM Mortar	4
M86811	1010015223257	MG MK47 MOD 0 GRENADE	MK47 Grenade Launcher MG	28
M92454	1005015495837	MACHINE GUN, 7.62-MM	M240L	104
M92841	1005014123129	MACHINE GUN, 7.62-MM M240B	M240B	33
P98152	1005011182640	PISTOL, 9-MM AUTOMATIC	M9 9-MM Pistol	806
R05003	1005131197703	RIFLE, 7.62-MM	SCAR Heavy	168
R05009	1005015882913	RIFLE, SNIPER	Enhanced Sniper Rifle M2010	24
R45101	1015013141770	RIFLE RECOILLESS, 84-MM	Carl Gustav RAAWS	19
R45351	1005014692133	RIFLE SNIPER M107	XM107 .50 Caliber	24
R45601	1005015342841	RIFLE SNIPER M110	M110 Sniper Rifle	60
ZA056W	1005015719875	GLOCK 19, 9-MM, W/SIGHT	Glock 19 9-MM	15

and other considerations dictates that DOE identify areas that are restricted to Army helicopter operations (see Figures 4 and 6); including prescribed flight routes and minimum altitudes as discussed herein. Such restrictions will serve to mitigate potential hazards, public sensitivities to noise, and impacts to ecological resources. As occurs in "real world" tactics, there are often areas that are restricted or otherwise avoided; therefore, this approach satisfies the Army's need to mimic "real world" situations.

3.1 Use of FMEF by Other Military Units

The Army's proposed action involves use of the FMEF for training exercises and simulation up to three times per year. For the most part, it is expected that the Army's 4-160th SOAR would have exclusive use of the FMEF for training exercises and simulations. However, it is conceivable that other military units could request to use the FMEF for training exercises and simulations. The 4-160th SOAR would be responsible for scheduling Army training exercises and simulations at the FMEF conducted by other military units provided the annual training frequencies are not exceeded, the proper documentation has been approved by the DOE NEPA Compliance Officer, and approval is granted by the DOE-RL.

The Best Management Practices (BMPs) and mitigation measures discussed herein would apply to training activities by all military units using the FMEF for training exercises and simulations. Use of the FMEF for training exercises and simulation more than the annual frequencies or involving other facilities or proposed actions not addressed herein may require further assessment. Such assessment would include, but may not be limited to, potential impacts to natural, cultural, and ecological resources; including additional NEPA documentation, as determined by the DOE NEPA Compliance Officer.

3.2 Mitigation of Adverse Effects

The Army proposes mitigation of potentially adverse effects to the natural and human environment resulting from the proposed action. Mitigation strategies generally include the following, which are presented in the preferred order for implementation and are established in accordance with CEQ regulations.

- Avoid the impact altogether by stopping or modifying the proposed action.
- Minimize impacts by limiting the degree of magnitude of the action and its implementation.
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
- Reduce or eliminate the impact over time through use of preservation and maintenance operations during the life of the action.
- Compensate for the impact by replacing resources or providing substitute resources.

As part of the Proposed Action, the Army would implement appropriate BMPs that minimize impacts to the various resource areas. These BMPs include, but may not be limited to, such actions as following appropriate safety procedures, avoiding low-altitude flight above noise sensitive areas, washing weed propagules from helicopters, and doing fly-overs to check for people and wildlife before using landing zones.

Table 3 provides specific mitigation measures and Best Management Practices to avoid significant adverse impacts to cultural and ecological resources, and to minimize significant health and safety risks. These are discussed in more detail in Section 4.0. Also, the Appendix to this document contains a Risk Assessment Worksheet prepared by the Army. It should be noted that for all flight restrictions, the sudden onset of adverse weather conditions may require pilots to fly lower than specified to ensure the safety of the pilots and the people on the ground. All areas of restrictions should be clearly marked on flight maps/plans.

4.0 RESOURCE AREA DISCUSSION

4.1 Land Use

Past development in the 400 Area has resulted in the conversion of undeveloped lands for industrial use (i.e., construction of the FFTF, FMEF, MASF, and other DOE operations as previously discussed). Today, the 400 Area is largely abandoned with limited personnel occupancy and activities. Use of the FMEF for training exercises and simulations would allow existing, abandoned facilities to be available for beneficial use by the Army. Since selected helicopter landing zones at the FMEF are located away from populated areas, potential incompatibilities with adjacent properties would not be a concern. Use of the FMEF for the Army's proposed action to conduct helicopter training exercises and simulations is consistent with the Hanford Comprehensive Land Use Plan and associated "industrial" land use designation for the 400 Area.

4.2 Air Space Use and Safety

4.2.1 Accidents

Military activities conducted in airspace controlled by or under the jurisdiction of the FAA would follow FAA procedures for air traffic control planning, coordination, and services provided during defense activities and special military operations. These procedures deal with issues such as coordination and scheduling; communication; and altitude, speed, and separation of aircraft. The procedures are in place to prevent air collisions and other accidents. The Army also follows the provisions in Department of the Army Pamphlet 385-90, *"Army Aviation Accident Prevention Program*."

4.2.2 Fuel Spills

Fuel spills are defined as any measurable amount of fuel that reaches the ground prior to vaporization. Fuel spills may occur during refueling procedures, equipment malfunction, and in the event of an aircraft crash. Other than a catastrophic crash, which the Army does not consider reasonably foreseeable, the only likely source of a fuel spill would be during helicopter refueling operations or equipment malfunction. Since refueling operations will be performed at the Yakima Training Center and periodic maintenance is conducted to ensure helicopter operability, the likelihood of fuel spills on the Hanford Site is considered small. The Army would be responsible for cleaning up all fuel spills that occur on the Hanford Site as a result of the proposed action.

Table 3. Best Management Practices and Mitigation Measures by Resource Area

Resource Area	Best Management Practice	Additional Mitigation Measures
Land Use	• Where feasible, follow guidance in FAA Advisory Circular 91-36D, which recommends that pilots maintain a minimum altitude of 2,000 feet AGL when flying over noise sensitive areas, such as National Parks, NWRs, Waterfowl Production Areas, wilderness areas, and other areas where a quiet setting is a generally recognized feature or attribute of the land.	• None necessary. Army training exercises and simulations at FMEF consistent with Hanford Comprehensive Land-Use Plan for the 400 Area designating land for "Industrial" uses. • Pilots shall maintain a minimum altitude of 2,000 feet AGL when flying over the Columbia River and areas comprising the Hanford Reach National Monument and other sensitive areas including Gable Mountain, Gable Butte, Rattlesnake Mountain, Columbia River, Arid Lands Ecology Reserve, Umtanum Ridge/McGee Ranch, and Saddle Mountain National Wildlife Refuge. • All ground transportation of Army personnel should be by truck, van, or bus along established gravel and paved roadways; off-road transportation of Army personnel beyond the FMEF project area is prohibited. • Army personnel ground movement should only be in areas approved by the DOE-RL to avoid potential impacts to ecological (and cultural) resources.
Airspace Use	• Follow all safety procedures in applicable Army regulations to minimize the risks inherent in mission essential tasks. • Follow FAA provisions to avoid airspace use conflicts. • Coordinate use of the FMEF training area with the DOE-RL. • Ensure that one pilot stays focused outside the aircraft at all times when in flight to help avoid bird strikes. • Where feasible, follow guidance in Advisory Circular 91-36D, which recommends that pilots maintain a minimum altitude of 2,000 feet AGL when flying over areas such as NWRs and Waterfowl Production Areas, which typically have a high density of birds.	• The Army shall adhere to airspace use requirements and restrictions contained in the Permit (Contract No. R006-09PR-14942) and Memorandum of Understanding Concerning the FMEF. • Use of proposed flight patterns should be coordinated with appropriate Air Route Traffic Control Centers to avoid airspace use conflicts. Use of the proposed FMEF training area, including flight patterns over the Hanford Site, should be coordinated with the DOE-RL.
Noise	• Follow the Fly Friendly Program, which entails flying to and from training routes at a minimum elevation of 500 feet AGL, and avoiding populated areas and other noise sensitive receptors, provided the onset of adverse weather conditions does not make it unsafe to do so.	• Research being conducted at the LIGO Facility approximately 2.3 miles directly northwest of FMEF is sensitive to noise and vibration. Pilots shall avoid this area, if possible, and maintain a minimum altitude of 2000 feet AGL.
Cultural Resources	• No mitigation required in approved project area	• See minimum altitude requirements under "Land Use" when flying over traditional cultural properties (i.e., Gable Mountain, Gable Butte, and Rattlesnake Mountain). • All Army personnel must be directed to watch for cultural materials (e.g., bones, stone tools, mussel shell, cans, and bottles) during all work activities. If any cultural materials are encountered, work in the vicinity of the discovery must stop until a DOE-RL Cultural Resources Specialist has been notified, the significance of the find assessed, appropriate Tribes notified, and if necessary, arrangements made for mitigation of the find.
Recreation, Visual Resources, Wilderness, Wild and Scenic Rivers	• Where feasible, follow the guidance in Advisory Circular 91-36D, which recommends that pilots maintain a minimum altitude of 2,000 feet AGL when flying over wilderness areas and other noise sensitive areas.	• See minimum altitude requirements under "Land Use" when flying over the Columbia River.

Resource Area	Best Management Practice	Additional Mitigation Measures
Vegetation	• Before and after using landing zones on Hanford Site lands, thoroughly wash helicopters at Yakima Training Center to remove all soil and mud and avoid transporting propagules of weed species between the Yakima Training Center and Hanford Site lands.	• None necessary. The project area surrounding the FMEF is predominantly covered with asphalt and gravel with little vegetation other than sparse Russian thistle and cheatgrass. Areas are kept virtually vegetation free through the use of non-selective and selective herbicides.
Aquatic Resources and Fish	• No mitigation required in approved project area	• None necessary
Wildlife	• Ensure that one pilot stays focused outside the aircraft at all times when in flight to help avoid bird strikes. • Where feasible, follow the guidance in Advisory Circular 91-36D, which recommends that pilots maintain a minimum altitude of 2,000 feet AGL when flying over areas such as NWRs and Waterfowl Production Areas, which typically have a high density of birds.	• The FMEF shows high avian use and will require a nesting bird survey prior to any activities that are scheduled to occur between March 1 and August 15 at or on the facility. The Hanford Site Mission Support Contractor Public Safety and Resource Protection (PSRP) Program shall be contacted to schedule a nesting bird/wildlife use survey of the project area at least one week prior to work initiation. If one or more active nests and/or significant evidence of wildlife usage are found during this survey, then additional constraints or delays may be placed on the Army's proposed action. • During the active nesting and/or roosting periods, helicopter flights will need to maintain a 1000 meter (3280 feet) AGL "no fly" slant distance around protective buffer zones in order to limit disturbance and avoid nest abandonment by birds, which are protected under the Migratory Bird Treaty Act. Clearly label nesting and/or roosting areas on flight maps and plans to ensure that these areas are avoided. • In order to reduce the risk of bird strikes, especially during the March to May and late August through November time periods, it is recommended that radar be consulted prior to flight initiation and that one pilot be focused outside the aircraft for obstacle avoidance. • If any nesting birds (if not a nest, a pair of birds of the same species or a single bird that will not leave the area when disturbed) are encountered or suspected, or bird defensive behaviors (flying at workers, refusal to leave area, strident vocalizations) are observed within the project area, contact the MSA PSRP Program to evaluate the situation and provide guidance. • Especially during the winter months, Hanford elk are often seen along Washington State Highway 240, which increases the risk of a panicked animal entering automobile traffic. It is recommended that flights over this area are maintained at the highest practicable altitude. If elk or deer herds are seen during the helicopter overflight at any location on the Hanford Site, then efforts to increase the slant distance to 400 meters (1312 feet) AGL or greater should be taken. • The Federal Aviation Administration (FAA) recommends that pilots maintain a minimum altitude of 610 meters (2,000 feet) AGL in National Wildlife Refuge areas (i.e., Hanford Reach National Monument Lands; including Rattlesnake Mountain and Arid Lands Ecology Reserve). Such areas should be clearly labeled on flight maps/plans to ensure the minimum altitude is maintained.

Resource Area	Best Management Practice	Additional Mitigation Measures
NOTES: • AGL – Above Ground Level; NWR – National Wildlife Refuge; FMEF – Fuels and Material Examination Facility; DOE-RL – Department of Energy Richland Operations Office; FAA – Federal Aviation Administration; LIGO – Laser Interferometer Gravitational Wave Observatory • For all flight restrictions, the sudden onset of adverse weather conditions may require pilots to fly lower than specified to ensure the safety of the pilots and the people on the ground. • Best Management Practices based on "Environmental Assessment – Northwest Aviation Operations 160th Special Operations Aviation Regiment Joint Base Lewis-McChord, Washington," April 2012.		

4.2.3 Bird Aircraft Strikes

Collisions between aircraft and birds represent an airspace safety hazard. The most serious strikes for helicopters are windshield strikes, which have resulted in pilots experiencing confusion, disorientation, loss of communications, and aircraft control problems. Based on FAA statistics, over 90 percent of reported bird strikes occur at or below 915 meters (3,000 feet) AGL, although strikes at higher altitudes are common during bird migration, with ducks and geese frequently observed up to 2133 meters (7,000 feet) AGL. Approximately 75 percent of bird strikes occur below 152 meters (500 feet) AGL. Bird strike risks tend to be highest near areas where birds congregate and during certain times of the year when bird migration is prevalent. Section 4.6 discusses ecological resources further.

Establishment of approved flight routes to and from the FMEF and Yakima Training Center would potentially increase air traffic along these routes in the future, should other military units utilize them for DOE-RL approved training exercises and simulations at the FMEF. The increase in airspace use and air traffic would increase the potential for airspace use conflicts and the risks of air collisions, bird strikes, and other accidents. Adherence to established protocols for scheduling flights and de-conflicting airspace use, as well as flight safety protocols to minimize accident risks, would allow the FMEF to safely support the increased air traffic during Army training exercises and simulations.

4.3 Noise and Vibration

General day-night ambient noise level (DNL) estimates for various types of land use vary widely, from approximately 35 dBA in wilderness areas to a maximum of 85 to 90 dBA in the noisiest urban areas. Although a developed area, the 400 Area is largely abandoned with a few small Hanford Site operations that generate little noise. Therefore, the ambient background noise in the 400 Area is low.

The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978 (42 U.S. Code 4901-4918) requires federal agencies to conduct their programs in a manner that promotes an environment free of any noise that could jeopardize public health or welfare. Regulation and control of operational noise by the Army is covered in Army Regulation 200-1, "*Environmental Protection and Enhancement.*" This regulation addresses the requirements of the Noise Control Act of 1972 and the Quiet Communities Act of 1978.

The Laser Interferometer Gravitational Wave Observatory (LIGO) is located approximately 2.3 miles directly northwest of the FMEF. LIGO's mission is to directly observe gravitational waves of cosmic origin. This research is extremely sensitive to noise and vibration. Helicopter flight routes should avoid airspace near the LIGO Facility.

Noise generated by the Army aircraft would vary depending on the type of training and the altitude. Associated impacts would vary depending on how close the activity was to noise sensitive receptors. MH-47 Chinook and MH-60 Blackhawk helicopters can generate noise levels close to 100 dBA when flying at low altitudes, which is similar to noise levels generated by a gas lawn mower 3 feet away. Following FAA recommendations to fly over noise sensitive areas at a minimum altitude of 610 meters (2,000 feet) AGL would minimize potential noise and vibration effects on LIGO and other noise sensitive receptors.

Given the low number of aircraft operations conducted, it is not possible to generate "A-weighted" DNL noise contours for the proposed training. Instead, the maximum noise levels associated with the

training are presented. Table 4 lists maximum noise levels for the Army aircraft being used to conduct the proposed training activities (the CH-47D is comparable to the MH-47 Chinook helicopter and the UH-60 is comparable to the MH-60 Blackhawk helicopter). Adherence to "friendly" flying protocols will limit the likelihood that many people would be annoyed by aircraft noise, because pilots will avoid all populated areas, residences, and other signs of human presence.

Table 4. Maximum Noise Levels Generated by Army Helicopters Planned for Use in Training Exercises and Simulations at the FMEF

Altitude, Above Ground Level (AGL), Feet	Maximum Noise Level, dBA			Decibel Effect
	C-103	CH-47D (similar to MH-47 Chinook Helicopter)	UH-60 (similar to MH-60 Blackhawk Helicopter)	
200	100	98	91	100 dBA – 8 times as loud as 70 dBA, serious damage possible in 8-hour exposure, outboard motor, power mower, motorcycle, farm tractor, jackhammer, garbage truck
500	92	89	83	90 dBA – 4 times as loud as 70 dBA, likely damage in 8-hour exposure, power mower, motorcycle, printing press
1,000	85	83	76	80 dBA – twice as loud as 70 dBA, possible damage in 8-hour exposure, garbage disposal, dishwasher, average factory, freight train
2,000	77	77	69	70 dBA – base of comparison, upper 70's annoyingly loud to some, passenger car at 65 mph, living room music, vacuum cleaner
5,000	66	67	58	60 dBA – 50% as loud as 70 dBA, conversation in restaurant, office, background music
10,000	57	59	48	50 dBA – 25% as loud as 70 dBA, quiet suburb, conversation at home

Source: USACHPPM 2007; Temple University Department of Civil/Environmental Engineering (www.temple.edu/departments/CETP/environ10.html), and Federal Agency Review of Selected Airport Noise Analysis Issues, Federal Interagency Committee on Noise (August 1992).

4.4 Air Quality

Emissions by Army aircraft flying to and from the Yakima Training Center to conduct training exercises and simulations at the FMEF would be small in comparison to emissions from other private and commercial aircraft, as well as motor vehicles, industrial facilities, and other emission sources proximal to the 400 Area. The potential contribution of greenhouse gases to the atmosphere from the proposed action would be miniscule relative to existing atmospheric concentrations in the region.

Training exercises and simulations at the FMEF would not involve digging or any other type of on-the-ground soil disturbance. However, helicopters would land at designated landing zones, and during some training exercises would hover low to the ground near the FMEF. These activities would have the potential to cause some erosion of the soil through rotor wash, a phenomenon in which the wind produced by helicopter rotors dislodges and moves soil from the ground, kicking up dust. The greatest risk for this type of wind erosion would be during extended hovering in areas with fine soils, under dry conditions. Soils near the FMEF are predominantly covered by asphalt or crushed gravel and are less susceptible to erosion. Therefore, effects on soil and air quality would likely be minimal, restricted to localized areas, and would not be significant.

4.5 Cultural Resources

A cultural resources assessment of the proposed action was conducted by the MSA Cultural and Historic Resources Program on October 28, 2014 (ECR-2014-401). This assessment determined that all National Historic Preservation Act (NHPA) Section 106 requirements for this undertaking have been previously met including documentation, recordation, and mitigation through the "Hanford Site Historic District Treatment Plan" (DOE/RL-97-56).

The FMEF and associated Administration Building were determined to be contributing properties to the Hanford Site Historic District requiring no individual documentation. As required by DOE/RL-97-56, these properties have been recorded within the Hanford Site Historic Buildings Database. Even though these buildings were not selected for individual documentation, the contribution the FMEF made to the Cold War is described in Section 7, "Research and Development," of Chapter 2 of the *"History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990"* (DOE/RL-97-1047).

The FMEF (427 Building) was documented on an expanded Historic Properties Inventory Form and the Administrative Building (4868 Building) was documented on a standard Historic Properties Inventory Form. Copies of these forms are maintained in the Cultural Resources Records managed by MSA in Richland, Washington. Also, the contents of these building were evaluated on November 4, 2014 to identify artifacts that may have interpretive or educational value as exhibits within local, state, or national museums. Four items were tagged:

- 427-11/4-1 Special Nuclear Materials (SNM) Container (silver)
- 427-11/4-2 Special Nuclear Materials (SNM) Container (blue)
- 427-11/4-3 Training Manuals
- 427-11/4-4 Storage Tube Lid

Two additional items were collected without tagging including a sintering boat and a multi-line telephone. Two of the three display items in the Administration Building lobby were retagged. With these actions, all required mitigative measures necessary to allow for any proposed action at these buildings, up to and including demolition, have been met. The Army's proposed action to use these buildings for training exercises and simulations will not require any further NHPA Section 106 review and there will be no effect to cultural resources.

No impacts to cultural resources are anticipated if these stipulations are followed. If there are changes in the scope of activities that could result in disturbances outside of the description of the proposed action or outside the boundary of the Area of Potential Effect (APE), then a MSA Cultural Resources Specialists should be contacted and a request for cultural resources review submitted through the MSA Service Catalog to determine if additional cultural resources review should be conducted.

Although no impacts to cultural resources are anticipated, all Army personnel must be directed to watch for cultural materials (e.g., bones, stone tools, mussel shell, cans, and bottles) during all work activities. If any cultural materials are encountered, work in the vicinity of the discovery must stop until a Cultural Resources Specialist has been notified, the significance of the find assessed, appropriate Tribes notified, and if necessary, arrangements made for mitigation of the find.

4.6 Ecological Resources

Mission Support Alliance (MSA) Environmental Compliance staff performed several surveys of areas surrounding the FMEF in September and October 2014. In addition, MSA staff consulted with U.S. Fish and Wildlife Service staff about potential ecological impacts on the Hanford Reach National Monument portion of the Hanford site; and with Washington State Fish and Wildlife staff regarding recommended buffer areas for Eagle and Ferruginous Hawk nests/roosts.

4.6.1 Site Surveys

On September 23, 2014, a survey of the site was performed. The FMEF is unoccupied and is surrounded by paved roads. Except for the main entrance to the facility, gravel covered areas exist between the facility and the road; including surrounding areas. Vegetation consists of sporadic weeds including Russian thistle (*Salsola kali*) and cheat grass (*Bromus tectorum*) and a few horticultural juniper (*Juniperus* sp.) shrubs in the front of the building. The areas proposed for helicopter landing are gravel covered with little or no vegetation present. Wind generation (i.e., rotor wash) during helicopter takeoff and landing at the FMEF is unlikely to cause significant soil erosion or breakage of vegetation.

On September 25, 2014, the following bird species were observed at the FMEF and surrounding areas: European Starlings (*Sternus vulgaris*), House Sparrows (*Passer domesticus*), White Crowned Sparrows (*Zonotrichia leucophrys*), and a lone Rock Wren (*Salpinctes obsoletus*). On September 30, 2014, birds observed included European Starlings, House Sparrows, White Crowned Sparrows, Dark-eyed Juncos (*Junco hymalis*), and House Finches (*Carpodaucus mexicanus*). No additional wildlife was noted.

No plant or animal species protected under the Endangered Species Act, candidates for such protection, or species listed by the Washington State government as threatened or endangered were observed in the vicinity of the FMEF.

4.6.2 Bat Resources

On September 25, 2014, a bat monitor was placed in the northwest corner of the FMEF at coordinates E587144, N12139 (Location 1). This site was chosen because the back of FMEF has multiple doorways and storage areas that are potential areas for bat roosting. On September 30, 2014, the monitor was turned off and moved to the south Main entrance to FMEF (Location 2). The microphone was pointed at the overhang at the main entrance as it posed potential for roosting bats. The bat monitor was removed from the site on October 6, 2014. See Figure 7 for bat monitoring locations.

The bat monitoring tapes from the two sites on the FMEF were analyzed with the following results:

- 107 recordings were analyzed (76 from location 1 and 31 from location 2).
- A total of 26 bat calls were identified, 19 from the rear location and 7 from the front location.
- Of the calls identified, 23 were from silver-haired bats (*Lasionycteris noctivagans*) and 3 were from hoary bats (*Lasiurus cinereus*).

Both bat species are often solitary animals and may be migratory. The low number of calls recorded indicates that a few individuals, and not a colony, are present. It is unlikely that short term disturbance associated with the proposed action will impact this resource.

Figure 7. Bat Monitoring Locations

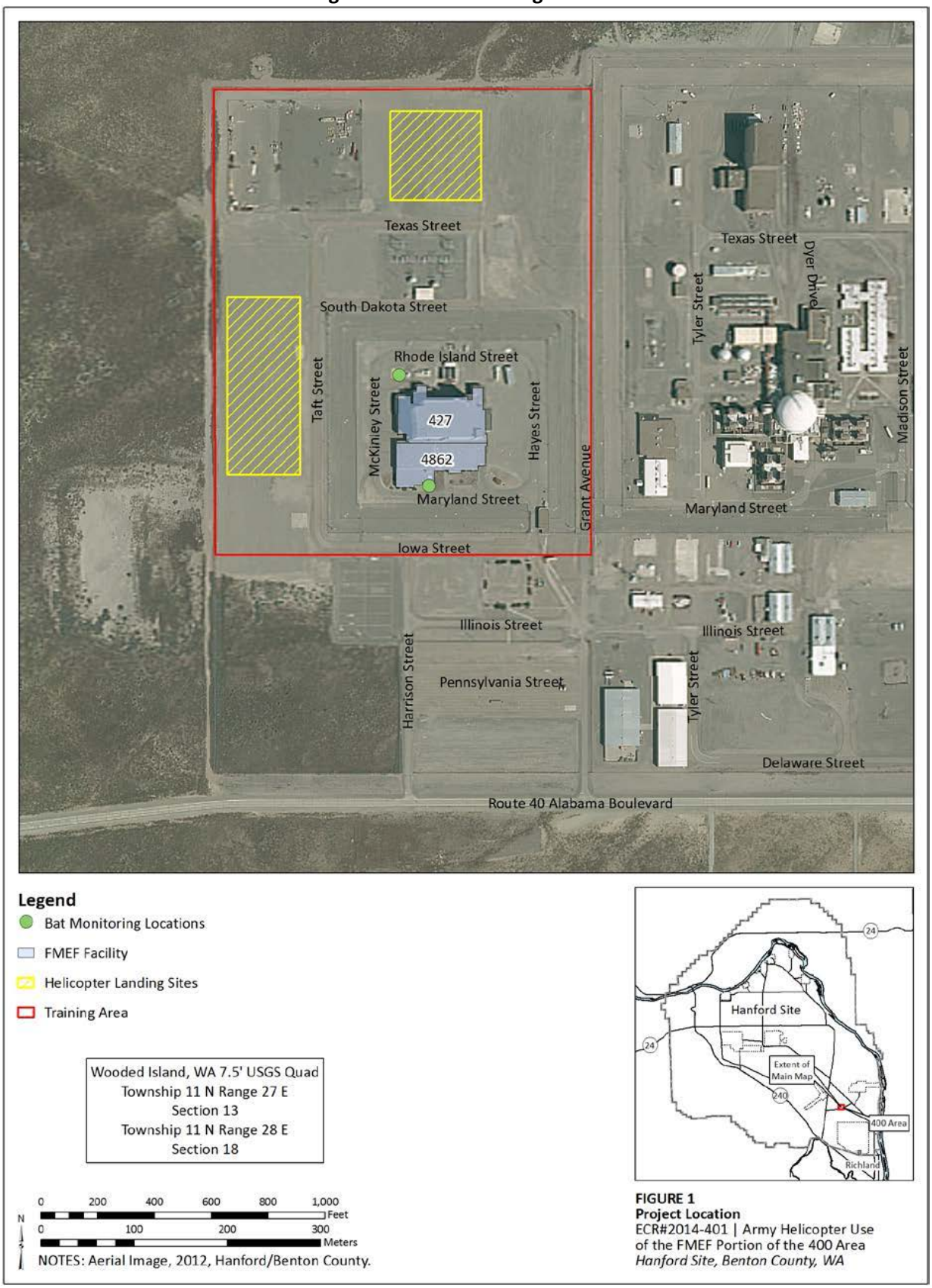


FIGURE 1
Project Location
ECR#2014-401 | Army Helicopter Use of the FMEF Portion of the 400 Area
Hanford Site, Benton County, WA

4.6.3 Avian Resources

The FMEF shows high avian use and will require a nesting bird survey prior to any activities that are scheduled to occur between March 1 and August 15 at or on the facility. During this survey, other signs of potential use by wildlife other than birds (most notably by bats) will be noted. The MSA Public Safety and Resource Protection (PSRP) Program shall be contacted to schedule a nesting bird/wildlife use survey of the project area at least one week prior to work initiation. If one or more active nests and/or significant evidence of wildlife usage are found during this survey, then additional constraints or delays may be placed on the Army's proposed action at the FMEF.

As shown on the Natural Resources Protective Buffer Zones Map depicted in Figure 8, the FMEF (i.e., 400 Area) is located in the general proximity of several protective buffer zones for Ferruginous Hawk (green areas) and Bald Eagle (red areas) nest sites. During the active nesting and/or roosting periods indicated on the map, helicopter flights will need to maintain a 1000-m (3280 feet) "no fly" slant distance around these protective buffer zones in order to limit disturbance and avoid nest abandonment by these birds, which are protected under the Migratory Bird Treaty Act. Figure 9 provides slant distance thresholds for behavioral effects on raptors from various aircraft.

Slant distance is a common measure of exposure relating the distance from the aircraft to the endpoint. This measure has two advantages. First, distance is sometimes a better predictor of wildlife response than sound pressure. Secondly, distance incorporates both the acoustic and visual stressors associated with overflights. Distance is often expressed in terms of slant distance. Slant distance is the hypotenuse of the right triangle that includes the altitude and lateral distance to the assessment endpoint (in this case the nest site). If the overflight is almost overhead, then the slant distance may be assumed to be equivalent to the altitude. If the altitude is low (e.g., 300 meters or below), then the lateral distance is a close approximation of the slant distance.

Based on the Air Force Bird Avoidance Model, the risk of nighttime bird strikes over the Hanford Site is low to moderate with the exception of the northeastern corner of the site along the Hanford Reach, which is classified as a severe risk area (i.e., the former Saddle Mountain National Wildlife Refuge). The Hanford Site is located along the Pacific Flyway and the Columbia River serves as a major resting area for migrating waterfowl. During spring and fall, a number of bird species, among them sand-hill cranes (*Grus canadensis*) and Canadian geese (*Branta canadensis*), fly over the site. In order to reduce the risk of bird strikes, especially during the March to May and late August through November time periods, it is recommended that radar be consulted prior to flight initiation and that one pilot be focused outside the aircraft for obstacle avoidance.

There is always the potential for birds to nest within the project area on the ground, on buildings, or equipment. The nesting season at the Hanford Site is typically from mid-March to mid-July. The active nests (containing eggs or young) of migratory birds are protected by the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA makes it illegal for people to "take" migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. Army personnel participating in the training exercises and simulations at the FMEF must be instructed to watch for nesting birds. If any nesting birds (if not a nest, a pair of birds of the same species or a single bird that will not leave the area when disturbed) are encountered or suspected, or bird defensive behaviors (flying at workers, refusal to leave area, strident vocalizations) are observed within the project area, contact the MSA PSRP Program to evaluate the situation and provide guidance.

Figure 8. Natural Resource Protective Buffer Zones at Hanford for FY 2015

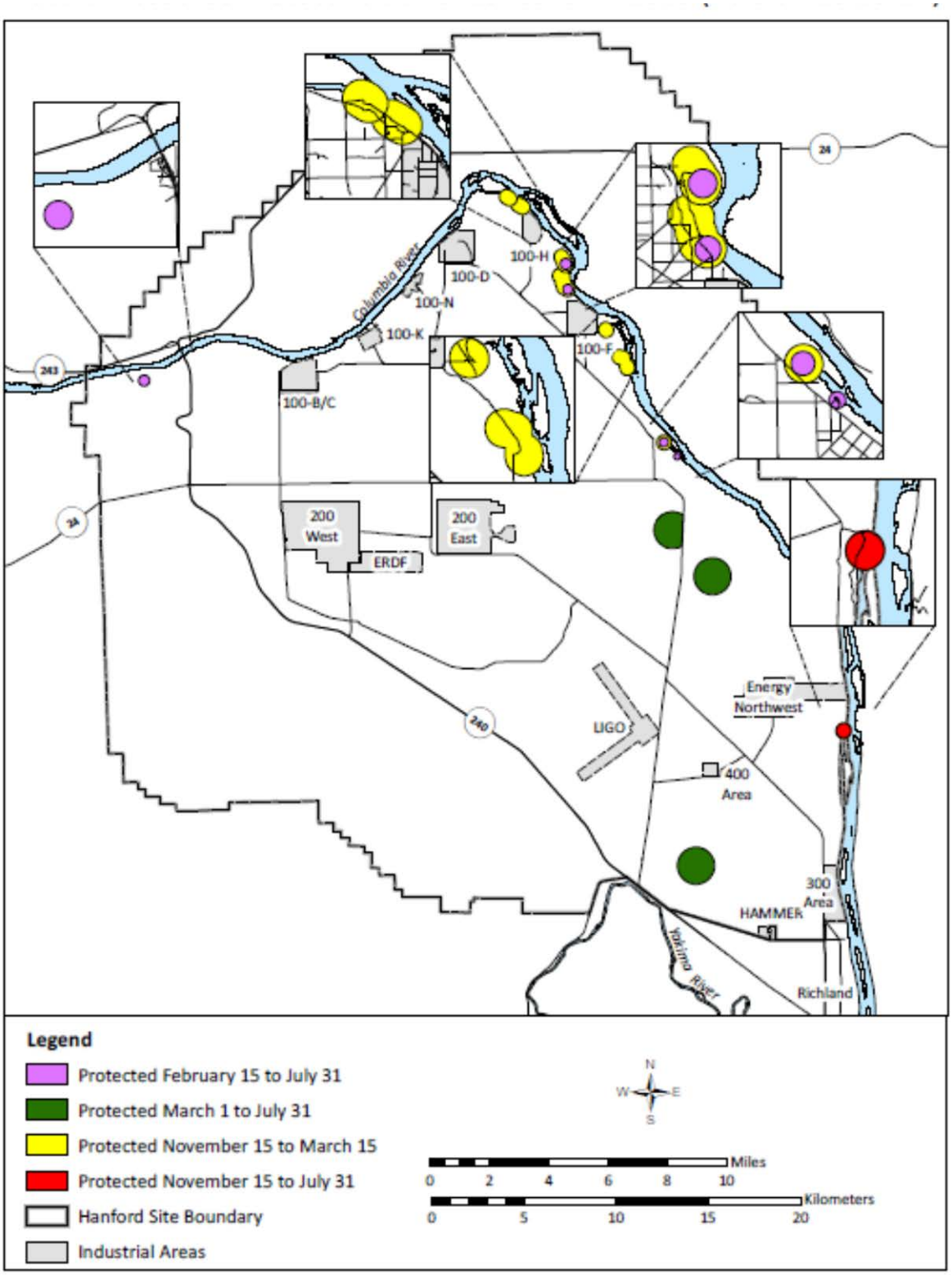
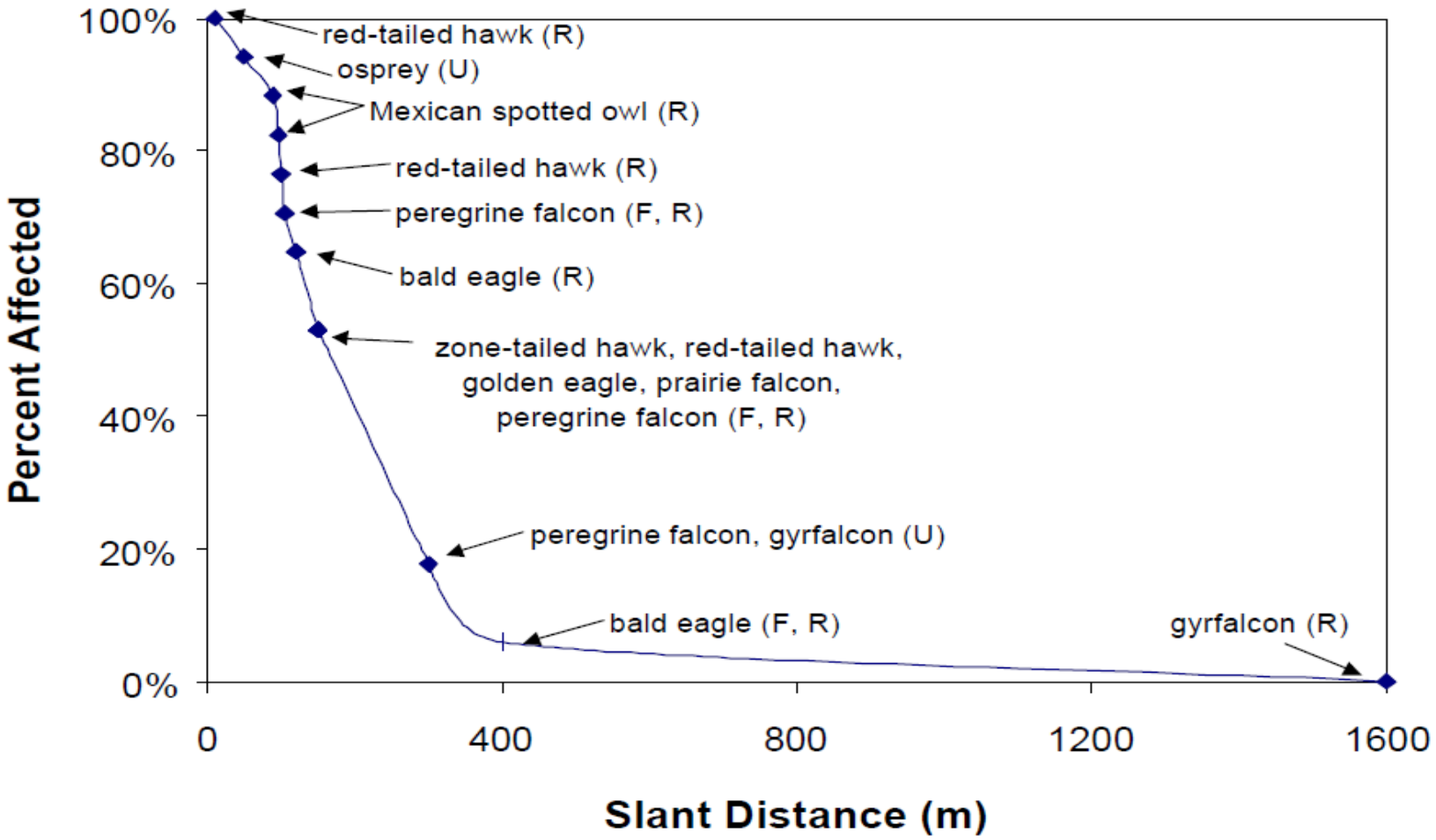


Figure 9. Slant distance thresholds for behavioral effects on raptors from aircraft (F-Fixed Wing, R-Rotary Wing, U-Unknown)



SOURCE: ORNL/TM-2000/289/ES-5048, "Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft

4.6.4 Large Mammals

Previous helicopter flights over the Hanford Site have been observed to induce a panic response in terrestrial mammals, especially elk (*Cervus canadensis*) and mule deer (Odocoileus hemionus). Especially during the winter months, Hanford elk are often seen along Washington State Highway 240, which increases the risk of a panicked animal entering automobile traffic. For this reason, it is recommended that flights over this area are maintained at the highest practicable altitude. If elk or deer herds are seen during the helicopter overflight at any location on the Hanford Site, then efforts to increase the slant distance to 400 meters (1312 feet) or greater should be taken. Figure 10 provides slant distance thresholds for behavioral effects on ungulates from various aircraft.

No adverse impacts are anticipated from the proposed action provided the recommendations herein are followed. If there are any changes in the scope of the proposed action that could result in disturbances outside of the description of this review, then a MSA Service Catalog Request should be completed for an additional ecological review to determine if a follow-up ecological resources clearance should be conducted.

4.7 Environmental Justice

Since the proposed training exercises and simulation; including helicopter routes and approaches to and from the FMEF and Yakima Training Center, do not occur disproportionately in areas with minority and/or low-income populations, disproportionate effects to these populations are not anticipated.

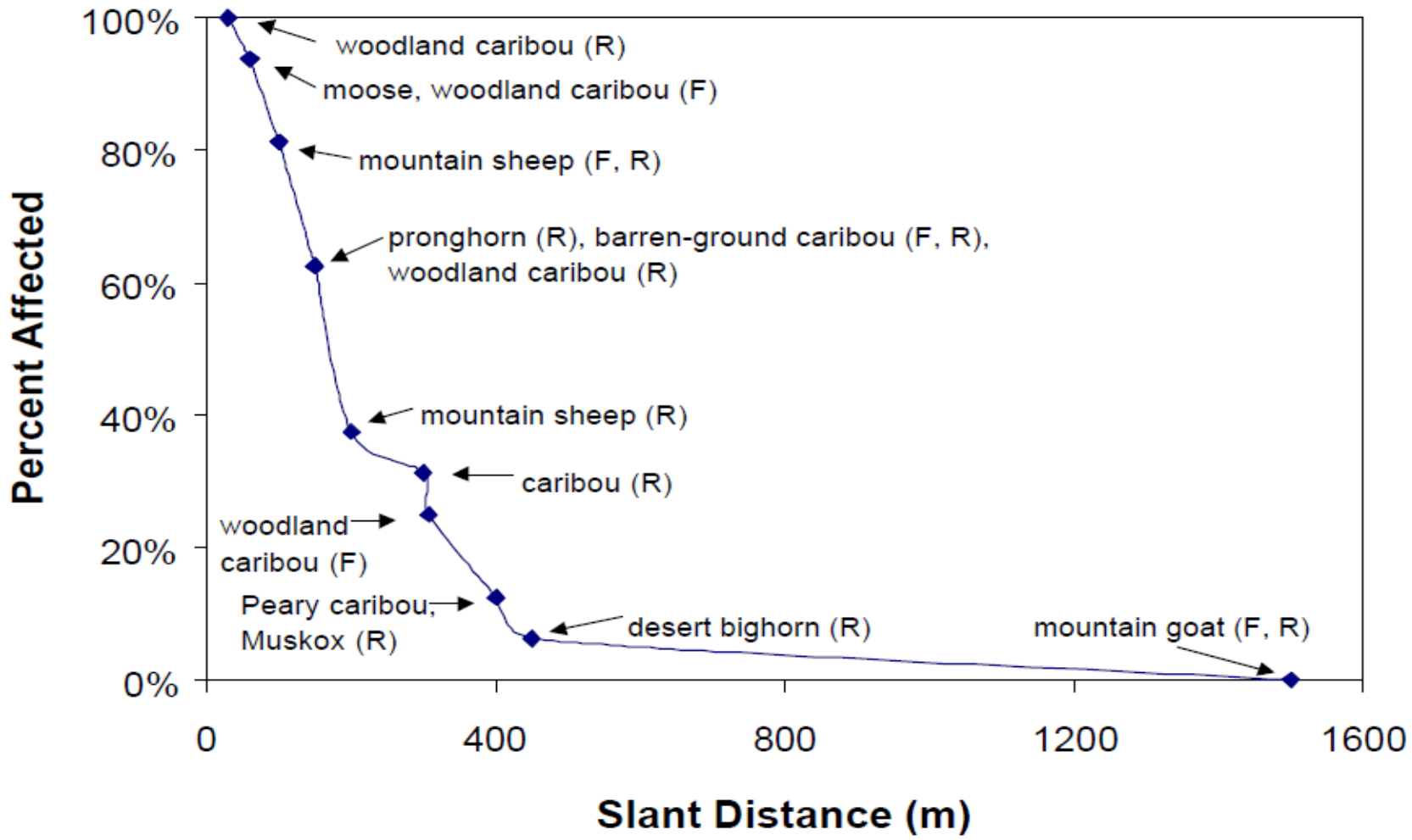
5.0 CONCLUSIONS

The Army's proposed action to conduct helicopter training exercises and simulations at the FMEF in the 400 Area will have no significant direct, indirect, or cumulative impacts on the quality of the natural or human environment, provided appropriate mitigation measures discussed herein are adhered to.

The use of land under the proposed action would be at the FMEF in the 400 Area of the Hanford Site that is designated for "industrial" land use by the Hanford Comprehensive Land Use Plan. Proposed helicopter landing zones are gravel covered and are located away from populated areas minimizing potential impacts on cultural and ecological resources, and air quality. Use of proposed helicopter flight routes would be coordinated with appropriate Air Traffic Control Centers to avoid airspace use conflicts, and all uses of the FMEF for proposed training exercises and simulations by the Army would be coordinated with the DOE-RL and other federal agencies, as applicable (e.g., U.S. Fish and Wildlife Service for flight routes over the Hanford Reach National Monument). Safety risks would be minimized by adhering to safety protocols detailed in applicable FAA regulations and Army procedures, and avoiding areas of severe bird strike risk, as discussed in Section 4.6.

Use of helicopters during training exercises and simulations would generate noise at decibel levels that are likely to cause some annoyance to populations in areas beneath or near flight routes, particular during proposed nighttime training events. Where possible, pilots would "fly friendly" to avoid populated areas when traveling to and from the FMEF and Yakima Training Center. Aircraft noise effects would not be significant, provided that helicopter pilots flying to and from the FMEF and Yakima Training Center maintain altitudes of 610 meters (2,000 feet) AGL or higher. Effects to visual resources would be infrequent and of short duration, consisting primarily of nighttime intrusions associated with helicopter navigation and spot lights.

Figure 10. Slant distance thresholds for behavioral effects on ungulates from aircraft (F-Fixed Wing, R-Rotary Wing, U-Unknown)



SOURCE: ORNL/TM-2000/289/ES-5048, "Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft"

The potential for release of fuel during training mishaps would present risks to soils, vegetation, aquatic habitats and species, and wildlife within the project area and along flight routes. However, given the low likelihood of fuel spills and the small quantity of fuel that could be released, these risks are minimal. Other potential effects to biological resources would include noise disturbances to wildlife. Based on the infrequency of the training exercises and simulations, and the limited duration of the aircraft noise, these effects would not be significant provided mitigation measures for protecting plant and animal species are implemented as discussed in Section 4.6.

Aircraft noise would not be loud enough to cause structural damage to historic structures, and at the proposed frequency of training exercises and simulations at the FMEF, would not alter the setting, feeling, or historic association of cultural resources. No historic properties, traditional cultural properties, sacred sites, or areas of contemporary traditional use are known to be present at the FMEF and proposed landing zones. Since minority and low income populations do not occur disproportionately beneath flight routes and/or approaches, and no substantial environmental or health impacts would be associated with the proposed action, disproportionate adverse effects to these populations would not occur.

The Army's proposed action could contribute to adverse effects on the environment that result from past, present, and future actions through increased noise and air traffic, increased bird airstrike risks, increased disturbance of wildlife, and increased risks for accidental contamination of natural resources in the region through releases of fuel. These adverse effects would not be significant provided appropriate mitigation measures discussed herein are implemented.

6.0 DETERMINATION

The Army's proposed action is addressed by 10 CFR 1021, Subpart D, Appendix B, Categorical Exclusion B1.2, "Training Exercises and Simulations" which covers:

"Training exercises and simulations (including, but not limited to, firing-range training, small-scale and short-duration force-on-force exercises, emergency response training, fire fighter and rescue training, and decontamination and spill cleanup training) conducted under appropriately controlled conditions and in accordance with applicable requirements."

The Army's proposed action to conduct training exercises and simulations at the FMEF in the 400 Area of the Hanford Site meets the requirements of 10 CFR 1021.410 and the conditions that are "integral elements" contained in 10 CFR 1021, Subpart D, Appendix B; therefore, the proposed action is categorically excluded and preparation of an EA or EIS is not warranted.

Approved on this 9th day of December, 2014.

Diori Kreske

Diori L. Kreske, DOE NEPA Compliance Officer
Environmental, Safety, and Quality Division
Department of Energy Richland Operations Office

APPENDIX

ARMY'S PROPOSED ACTION RISK ASSESSMENT WORKSHEET

ARMY RISK ASSESSMENT WORKSHEET

Task/Step of Mission Task	Hazard	Initial Risk Level	Control	How/Who Will Implement	Residual Risk Level
Field training	Loss of sensitive item	Medium	Hands on check of sensitive items will be enforced prior to all movements. All equipment will be tied down	HOW: SL maintain accountability of their elements sensitive items and ensure tie downs are to standard WHO: OIC/NCOIC/OCs	Low
Ricochet from floor boards	GSW from conducting ballistic breach with ammunition. When not executed at a downward 45-degree angle, not using ballistic mats for door breaching	Medium	Ensure Rangers understand 45-degree in which breaching must be conducted	HOW: Have Rangers conduct dry rehearsals during TLPs WHO: OIC/NCOIC/OCs	Low
Conduct field training	Eye injuries from debris or terrain	Medium	Rangers will wear approved eye protection and use M53 masks for eye protection	HOW: LAW Blue Book standards Ranger Fighting Uniform M53 Pro Mask WHO: OIC/NCOIC/OCs	Low
	Hearing loss	Low	Rangers will wear hearing protection at all times during training event	HOW: Additional sets of earplugs will be available WHO: OIC/NCOIC/OCs	Low
	Wildlife considerations	Low	Rangers will not interfere with any wildlife in the training area; a cease fire will be called in the event of animals moving through the land while training is occurring	HOW: RSO-OIC will brief range safety and wildlife concerns WHO: OIC/NCOIC/OCs	Low
	Heat casualty/cold weather injury	Medium	Observe a proper work to rest ratio for the climate conditions	HOW: Water cans will be located near platoon planning areas WHO: OIC/NCOIC/OCs	Low
		Medium	Ranges will hydrate before, during, and after training and will eat meals throughout the day; leaders will monitor for symptoms of weather injuries	HOW: Rangers will conduct all train IAW USASOC REG 385-1 dated 2008 WHO: OIC/NCOIC/OCs	Low
		Medium	Leaders will ensure the Rangers modify the uniform as necessary based on climate conditions without affecting mandatory PPE	HOW: Rangers will conduct all train IAW USASOC REG 385-1 dated 2008 WHO: OIC/NCOIC/OCs	Low
	Severe weather (storms, lightening, tornadoes)	Medium	Leaders will monitor all networks for storm warnings and follow wind/weather restrictions	HOW: A range OC will be located in the command post w/range control personnel WHO: OIC/NCOIC/OCs	Low
		Medium	In case of storm warning involving lightening, Rangers will be sent to a dispersal area away from any tall trees, structures, metal objects, and turn off radios	HOW: A range OC will be located in the command post w/range control personnel	Low

Task/Step of Mission Task	Hazard	Initial Risk Level	Control	How/Who Will Implement	Residual Risk Level
				WHO: OIC/NCOIC/OCs	
		Medium	In the event of extreme weather the unit will clear the training area and move to a safer location	HOW: A range OC will be located in the command post w/range control personnel WHO: OIC/NCOIC/OCs	Low
	Lifting/pulling injuries due to CASEVAC	Medium	Review proper casualty carrying techniques and emphasize proper form; no hoist MEDEVAC will be executed above 20-feet AGL	HOW: Ranger will be familiar with equipment before executing training; GFC/OIC will confirm during crew briefs/AMB WHO: OIC/NCOIC/OCs	Low
Firing of weapon	Injury by objects projected from muzzle when firing UTM	Medium	Rangers will use the UTM adapter (bolts) for each weapon system; Rangers will inspect ammunition prior to use to ensure that it is serviceable and the proper type	HOW: IAW SOPs and TMs RCT-350-10 WHO: OIC/NCOIC/OCs	Low
		Medium	Only UTM ammunition will be issued to Rangers during this training event	HOW: AHA and Ammo Point will only issue UTM for this training event WHO: Ammo NCO	Low
		High	All Rangers will wear all required PPE while utilizing UTM rounds	HOW: IAW REGT POLICY LETTER #7 and USASOC 385-1 Chapter 7 WHO: OIC	Medium
		Medium	Weapons will be on safe at all times when not engaging targets; all weapons will be cleared and visually inspected at the end of each iteration	HOW: Safety brief WHO: OIC	Low
		High	No Ranger will fire his weapon within 6 meters of another person; proper eye and hearing protection will be worn	HOW: Safety brief WHO: OIC/NCOIC/OCs	Medium
Conduct field training	Personal injury or equipment destruction due to pyrotechnics	High	Proper use of pyrotechnics during the exercise	HOW: Safety brief; IAW RTC 350-1	Medium
		Medium	Uniform will include flame resistant clothing	HOW: LDRs ensure Rangers have proper uniform before conducting training WHO: PL/PSG	Low
		Medium	Pyrotechnics sites are IAW with all safety guidelines	HOW: IAW AR 385-1 and RTC 350-1 WHO: ECG/OIC/Safeties/OCs/PL/PSG/TLs	Low
	Training area fires due to pyrotechnics	Medium	Placement of pyrotechnic devices avoid obvious flammable material; IOT reduce the risk of range fire	HOW: Safety brief; proper location of breaching points will be marked prior to training WHO: ECG	Low
		Medium	In the event of a fire OIC will stop all training and concentrate on fighting the fire using all available personnel	HOW: OCs and LDRs will maintain communication with OIC/NCOIC and fire extinguishers will be provided for use at training events	Low

Task/Step of Mission Task	Hazard	Initial Risk Level	Control	How/Who Will Implement	Residual Risk Level
				WHO: FCG/OIC/OCs/PL/PSG/SL/TL	
	Personal injury die to flash-bangs	Medium	Flash-bangs will only be handled by TL or above who completed flash-bang training within the past 6 months	HOW: Safety brief; IAW RTC 350-1 WHO: FCG/OIC/OCs/PL/PSG/SL/TL	Low
		Medium	Flash-bangs will not be thrown more than 1 meter into room; OPFOR positioned a minimum of 5 meters away from entry/exit	HOW: Safety brief; IAW RTC 350-1 WHO: FCG/OIC/OCs/PL/PSG/SL/TL	Low
		Medium	Flash-bangs usage will be limited to only the initial entry into a building or compound	HOW: Safety brief; IAW RTC 350-1 WHO: FCG/OIC/OCs/PL/PSG/SL/TL	Low
Conduct of field training	Personal injury/range fire due to smoke grenade	Medium	The use of smoke will be limited to smoke grenades (M14 type) for marking, signal, and concealment	HOW: Safety brief; IAW 385-1 and RTC 350-1 WHO: OIC/RSO/RL/PSG	Low
		Medium	Smoke grenades will not be utilized inside structures	HOW: Safety brief; IAW 385-1 and RTC 350-1 WHO: OIC/RSO/RL/PSG	Low
		Medium	Smoke grenades must be thrown a minimum of 25 meters away from PAX or equipment	HOW: Safety brief; IAW 385-1 and RTC 350-1 WHO: OIC/RSO/RL/PSG	Low
	Injury due to vehicle convoy operations	Medium	Drivers will have 6-8 hours of uninterrupted sleep prior to travel and will take breaks as prescribed in the convoy brief	HOW: Safety brief WHO: Convoy Leader (CL) and TC/Driver	Low
		Medium	Brief route, break plan, maximum speed, bump plan, communication plan, weather, safe vehicle operation, and emergency contingencies	HOW: Safety brief and Mission OPORD WHO: CL/ECG Leaders	Low
		Medium	All vehicles are PMCS'd prior to operation	HOW: ICs and Rangers will PMCS vehicles prior to training event WHO: CL/TC/Driver	Low
		Medium	Alcohol will not be consumed by either the driver or TC within 12 hours of departure	HOW: Safety brief WHO: CL/ECG/OIC/NCOIC	Low
		Medium	Drivers will rehearse evacuation routes prior to events	HOW: Safety brief WHO: CL/TC/Driver	Low
	Personal injury (IMT, tactical movement)	Medium	All personnel wear Mich/Ops CORE, eye protection, and gloves; Rangers receive a safety brief on the terrain and possible hazards	HOW: Inspection WHO: TL/SL/PSG/CO/ISG	Low
	Personal injury due to interaction of Ranger/OPFOR	Medium	ROE brief prior to the exercise execution; Rangers will be instructed on the appropriate EOF procedures	HOW: EXROE brief/safety brief WHO: ECG/OIC/OCs/PL/PSG	Low
FRIES	Injuries to Ranger	High	All Rangers will conduct FRIES tower training;	HOW: Companies will	Medium

Task/Step of Mission Task	Hazard	Initial Risk Level	Control	How/Who Will Implement	Residual Risk Level
	due to lack of training on FRIES tower		IAW RTC 350-6 prior to executing RW FRIES	complete Fast Rope Sustainment Training (FRST) within 72 hours prior to a FRIES operation WHO: CO CDR/CO ISG/PL/PSG	
Conduct field training	Personal injury die to interaction of Ranger/OPFOR	Medium	ECG will only issue orders that enhance the exercise with respect to individual safety	HOW: EXROE brief/safety brief WHO: ECG/OIC/OCs/PL/PSG	Low
		Medium	OPFOR will receive a separate ROE and OPORD brief to ensure proper behavior during exercise and EOF procedures	HOW: EXROE brief/safety brief WHO: ECG/OIC/OCs/PL/PSG	Low
	Personal injury (IMT, tactical movement)	Low	All personnel wear Mich, eye protection, and gloves; Rangers receive a safety brief on the terrain and possible hazards	HOW: Inspection WHO: TL/SL/PSG/CO ISG	Low
	Rotary wing aircraft crash	Medium	All Rangers will conduct aircraft familiarization and emergency procedures prior to conducting training	HOW: Rehearsals with aircraft WHO: PL/PSG	Medium
	FRIES	High	FRIES/SPIES masters will perform duties IAW RTC 350-6; fast rope masters and SPIES extraction master will maintain positive communications and coordination with aircrew to ensure proper exit of aircraft and exfil/pickup of SF; rope height will not exceed 30-feet for FRIES	HOW: Rehearsals with aircraft WHO: FRIES Master	Medium
		High	Rangers will wear eye protection when working around aircraft to prevent eye injury; Rangers will use safety line while riding in aircraft and wear approved helmet; Rangers will review emergency procedures as part of initial aircraft familiarization and safety briefing	HOW: PCC/PCI WHO: TL/SL/PSG/PL	Medium
		High	Rangers will conduct SLT with the aircraft prior to the operation; Rangers will be briefed on all key aircraft locations and actions; all Rangers will be equipped with NVGs while operating around aircraft; Rangers will move under direction of Crews/Instructors at all times	HOW: Rehearsals WHO: TL/SL/PSG/PL	medium
		High	Rangers will wear PPE for all night iterations; rope will be marked IAW Regt RTC 350-6; Rangers will maintain 3 points of contact with aircraft until the rope is in hand; at that time Rangers will transition to the rope	HOW: PCC/PCI WHO: TL/SL/PSG/PL	Medium
SOURCE: Mission/Task Description 2/75 TFT Company RAID JORTS 1-15; DD Form 2977, Jan 2014					