DOE/EA-1606

DRAFT

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED USE OF SAVANNAH RIVER SITE LANDS FOR MILITARY TRAINING

August 2011

U.S. DEPARTMENT OF ENERGY
SAVANNAH RIVER OPERATIONS OFFICE
SAVANNAH RIVER SITE

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LIST OF ACRONYMS AND ABBREVIATIONS

AQCR	Air Quality Control Region
BDR	Bobby Davis Range (formerly known as the Advanced Tactical Training Academy, the Advanced Tactical Training Area, or ATTA)
BE	Biological Evaluation
BMP	Best Management Practice
CBRN	Chemical, Biological, Radiological, or Nuclear
CBRNE	Chemical, Biological, Radiological, Nuclear, and Explosive Agents
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFP	CBRNE Enhanced Response Force Package
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CST	Civil Support Team
CSWTF	Central Sanitary Wastewater Treatment Facility
CWA	Clean Water Act
DHS	Department of Homeland Security
DOA-FG	Department of the Army – Fort Gordon
DOD	Department of Defense
DOE	Department of Energy
DOE-SR	Department of Energy – Savannah River Operations Office
DZ	Drop Zone
EA	Environmental Assessment
EO	Executive Order
FARP	Forward Arming and Refueling Point
FFA	Federal Facility Agreement
FMB	Fourmile Branch

FOB	Forward Operating Base
GA	Georgia
ha	hectare
IED	Improvised Explosive Device
IAG	Interagency Agreement
JSOP	Joint Standard Operating Procedures
kg	kilogram
km	kilometer
l	Liter
LMCP	Logistic Maintenance Collection Point
LTR	Lower Three Runs
LZ	Landing Zone
m	meter
MOU	Memorandum of Understanding
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_x	Nitrogen Oxides
N_2O	Nitrous Oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRHP	National Register of Historic Places
OPFOR	Opposing Forces
PM	Particulate Matter
POLs	Petroleum, Oils, and Lubricants
PPE	Personal Protection Equipment
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RCW	Red-cockaded Woodpecker
ROI	Region of Interest
ROM	Refueling On the Move
SC	South Carolina

SCDHEC	South Carolina Department of Health and Environmental Control
SCUBA	Self-Contained Underwater Breathing Apparatus
SO_2	Sulfur Dioxide
SPCC	Spill Prevention, Control, and Countermeasures
SRARP	Savannah River Archaeological Research Program
SREL	Savannah River Ecology Laboratory
SRNL	Savannah River National Laboratory
SRS	Savannah River Site
T&E	Threatened and Endangered
TMZ	Territorial Management Zone
TOC	Tactical Operations Center
TSD	Treatment/Storage/Disposal
UAV	Unmanned Aerial Vehicle
UMCP	Unit Maintenance Collection Point
UTR	Upper Three Runs
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS-SR	United States Forest Service – Savannah River
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compounds
WMD	Weapons of Mass Destruction
WSI-SRS	Wackenhut Services, Inc. – Savannah River Site Team

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) prepared this environmental assessment (EA) to evaluate potential environmental impacts of proposed and alternative actions regarding the United States Departments of Defense and Homeland Security (DOD and DHS, respectively) use of Savannah River Site (SRS) for military training purposes. Utilization of SRS by the Army would mitigate, in part, a critical training land shortfall, serve to help protect national security, and provide for the prudent multiple use of Federal property. In this National Environmental Policy Act (NEPA) review, the expression 'Army' will be used as an all inclusive term to denote DOD and DHS organizations (e.g., Army, Navy, Marine Corps, Air Force, Coast Guard, National Guard and Reserve units, other military organizations, and civilian employees, sponsors, and contractors associated with or attached to a branch of DOD or DHS) that may use SRS for training purposes.

1.1 Background

In response to the demands of contemporary and future military operating environments, Army training doctrine requires the use of large tracts of contiguous and noncontiguous training lands. However, due to factors such as urban encroachment and lack of resources to purchase additional acreage, the Army currently is experiencing a critical shortfall in training lands. This shortfall has been exacerbated by initiatives such as the Army Transformation, the 2005 Base Realignment and Closure, and the Army's Global Defense Posture Realignment. DOD has estimated that this shortfall in training land will have increased to approximately 5,000,000 acres [2,023,472 hectares (ha)] by 2011.

SRS is a 198,400-acre (80, 291 ha) DOE reservation located along the Savannah River in southwestern South Carolina (Figure 1-1). SRS was established in the early 1950s to produce materials for America's nuclear weapons program. As the Cold War came to an end, cleanup of the Cold War legacy became a more prominent part of the mission. Now, as that mission is maturing and the site looks to the future, SRS is committed to using the Site's workforce, knowledge, and assets to help the nation address its critical missions in environmental stewardship, clean energy, and national security.

SRS possesses large tracts of undeveloped land with road networks, terrain features, vegetative cover, and existing or proposed decommissioned facilities suitable for light infantry and other low-intensity tactical maneuver training activities. Additionally, SRS's central location relative to multiple Army bases (Figure 1-1) creates a unique training opportunity allowing functional groups from multiple bases to converge at SRS for joint training exercises. Use of SRS by the Army for military training purposes would, in part, mitigate the Army's immediate need for additional training lands.

In a Memorandum of Understanding (MOU) dated June 11, 2007, DOE and the Army established a framework for providing Army access to SRS for non-live-fire military tactical maneuver training (DOE 2007). This MOU was implemented under provisions of the Economy Act (31 United States Code [USC] 1535) by an Interagency Agreement

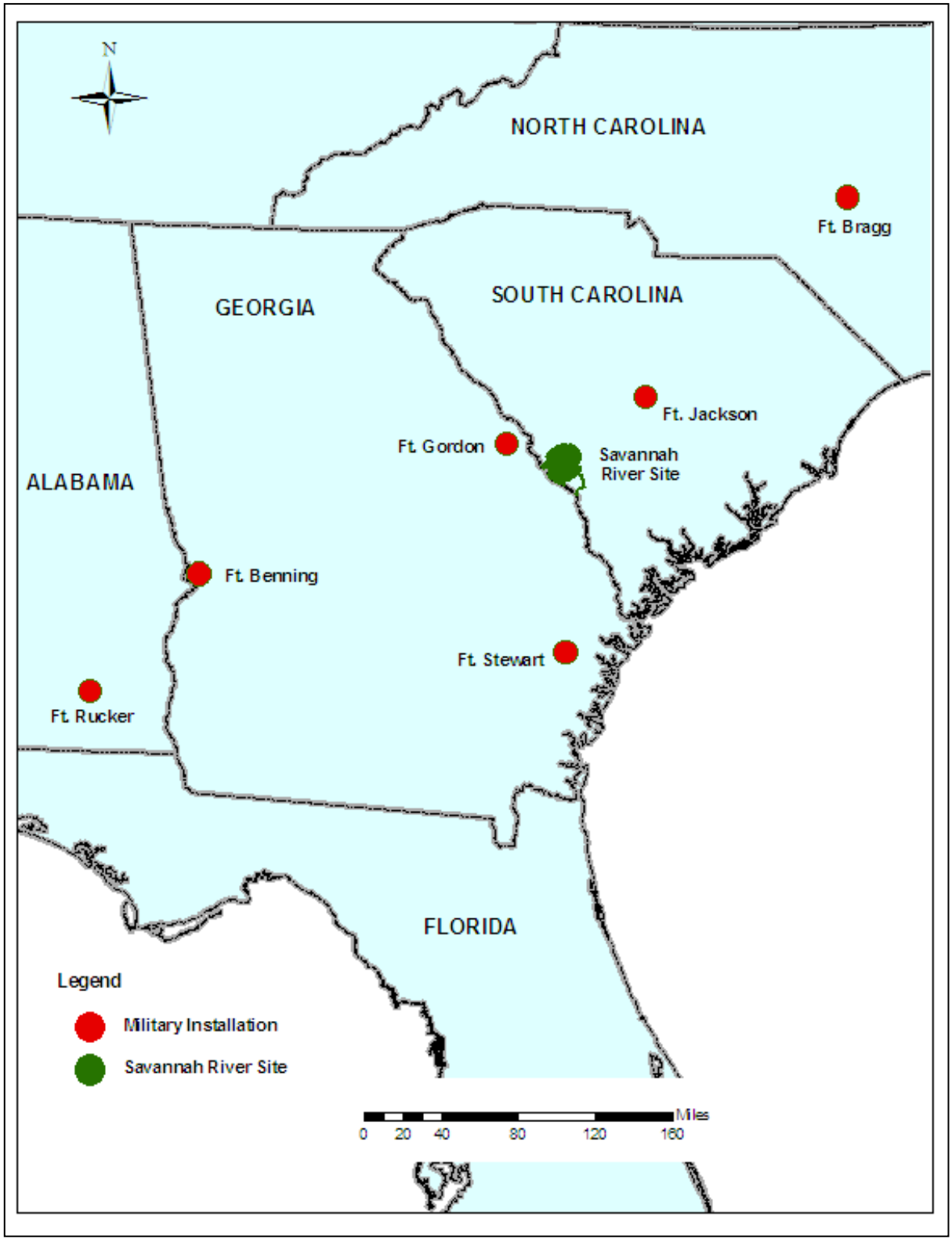

Figure 1-1. Location of SRS Relative to Major Army Installations in the Southeastern United States.

(IAG) entered into by DOE-Savannah River Operations Office (DOE-SR) and Department of the Army – Fort Gordon (DOA-FG) on September 4, 2009 (DOA 2009).

This EA was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321 *et seq*.); the requirements of the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); and DOE Regulations for implementing NEPA (10 CFR Part 1021). NEPA requires the assessment of potential consequences of Federal actions that may significantly impact or affect the quality of the human environment. Based on the potential for impacts described in this EA, DOE will either publish a finding of no significant impact or prepare an environmental impact statement.

1.2 Purpose and Need for Action

The primary mission of the Army is to provide the forces and capabilities necessary to maintain and protect the nation's security. In partial support of this mission, the Army requires suitable land area to conduct tactical maneuver training activities. There is currently a lack of sufficient land area for these training activities in the continental U.S. and the shortfall is growing. SRS possesses large tracts of undeveloped land suitable for military training. The purpose of the proposed action considered in this EA is to enable the Army to conduct low intensity, non-live-fire tactical maneuver training activities on SRS to support current and future Army mission requirements. The utilization of SRS by the Army would satisfy, in part, its need for additional land area to support its training mission.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action: Use of a Proposed Area of SRS for Non-Live-Fire Tactical Maneuver Training

The proposed action is for the Army to use specific areas of SRS for non-live-fire, tactical maneuver training purposes (Figure 2-1). Training activities would involve infantry-based non-live-fire offensive and/or defensive exercises, some in conjunction with air support. Special operation forces and infantry units ranging from squad to battalion size (up to 550 troops) would be involved in these training exercises.

The Army would conduct air combat and logistical support operations using fixed-wing, rotary-wing and tilt-rotor aircraft, in conjunction with certain infantry-based ground exercises. Aircraft would be limited to air space over the proposed Army training area and be prohibited from flying over SRS's administrative and industrial core and the Bobby Davis Range (BDR) (Figure 2-2).

As part of the proposed action, three permanent training facilities would be constructed and operated at SRS, two Forward Operating Bases (FOBs) and one parachute drop zone [DZ]. Proposed locations for these permanent training facilities are identified and considered in the EA (Figure 2-1).

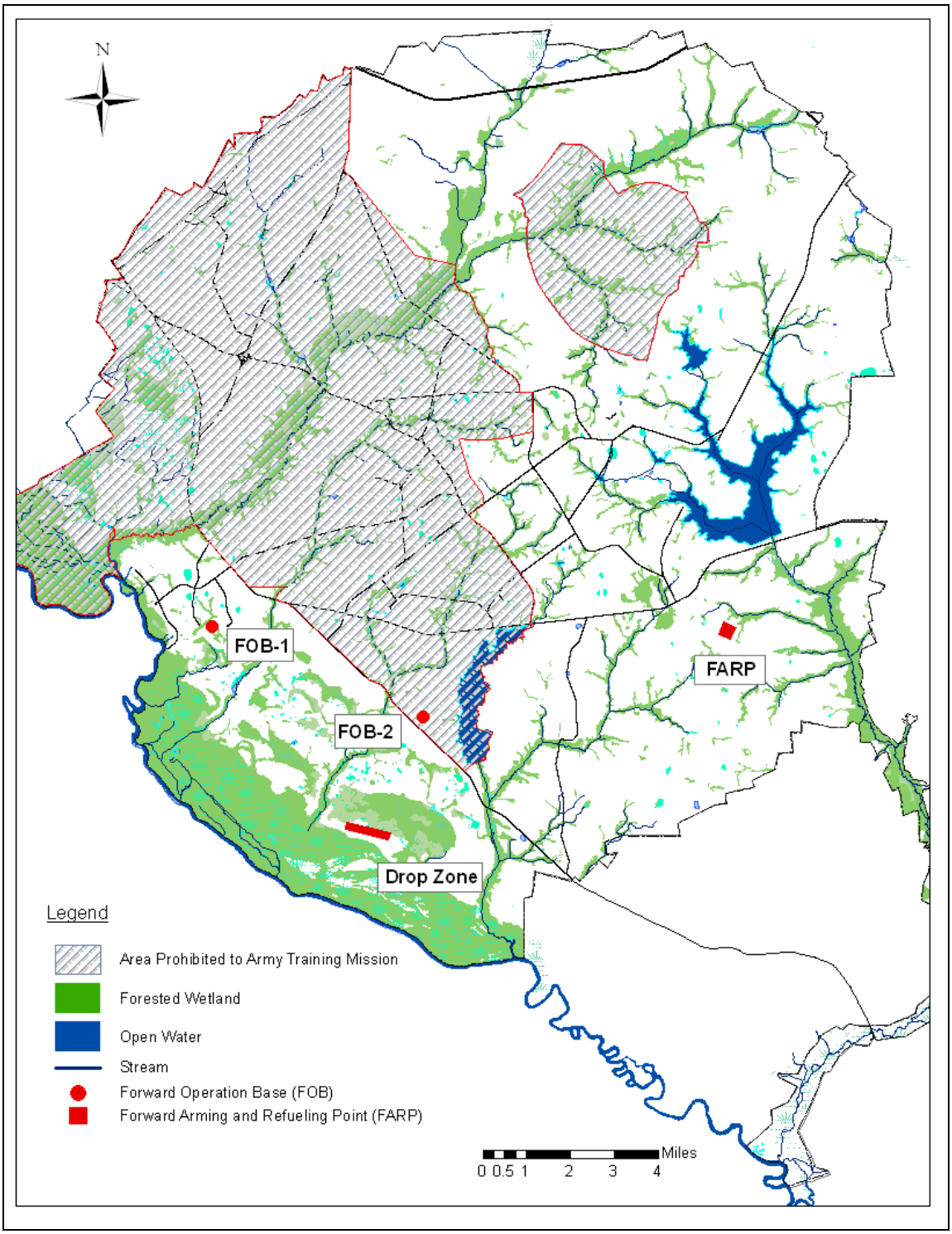

Figure 2-1. Areas Excluded from Army Training Mission and Proposed General Locations of Permanent Training Facilities (Forward Operating Bases (FOBs) and Proposed Drop Zone) on SRS.

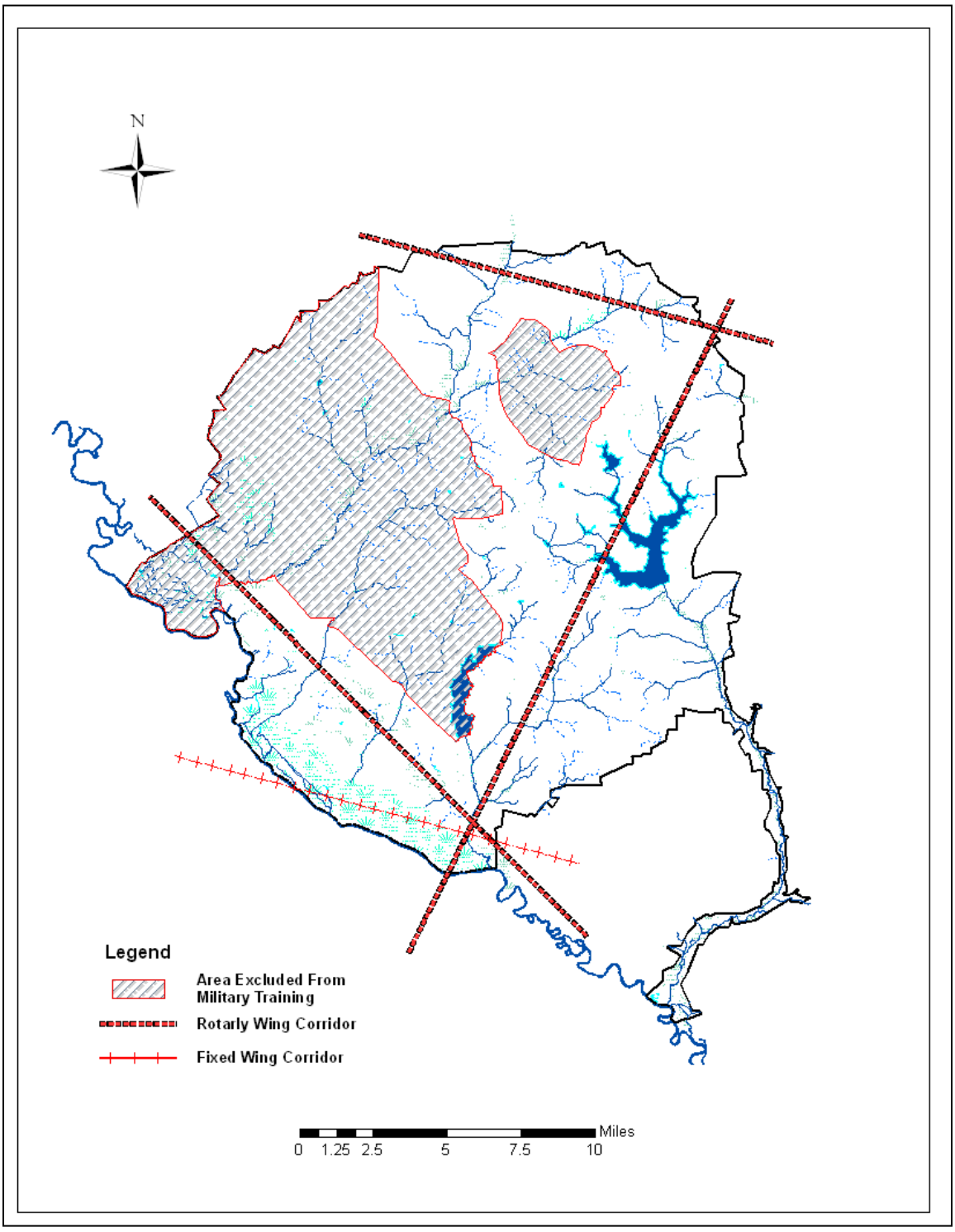

Figure 2-2. Proposed Flight Corridors for Fixed- and Rotary Wing Aircraft Entering and Leaving SRS Airspace.

In addition to the construction of new facilities, the Army also proposes to utilize selected existing SRS industrial facilities (after DOE decommissioning) for urban area and facility seizure operations. These existing facilities include structures within the D-Area powerhouse complex and the 681-1G Pumphouse on the Savannah River (Figure 2-3). D- and G-Area structures that could be used by the Army as part of the proposed action include:

- Primary substation (includes fenced yard and all enclosed structures).
- Secondary transformer station.
- Chemical feed systems.
- Powerhouse and associated maintenance facility.
- Storage buildings.
- Chlorine unloading and storage facility.
- Maintenance building.
- Welding shop.
- Fire water lines.
- Sanitary sewers.
- Transformers for domestic water system.
- Domestic water wells and storage tank.
- Upstream water pumphouse.

Other structures may be made available for use as training facilities after proper coordination between the Army and DOE, and appropriate NEPA review.

No tracked vehicles or live weapons fire would be allowed on SRS. Wheeled vehicles would be limited to existing roadways, bridges, utility rights-of-way, and cleared fields. To reduce the potential transport and/or introduction of noxious weeds to SRS, Army vehicles would be washed prior to their arrival at the site.

As described within this section and in Appendix A, selected tracts of land within the portion of SRS proposed for the Army's use would be off limits for some or all proposed training activities or would not be available at certain times due to environmental restrictions or land use conflicts with DOE missions.

With only a few specific exceptions, training activities would be prohibited on waste units identified in the SRS Federal Facility Agreement (FFA). For example, the Dunbarton Railyard may be used by the Army for unloading and loading of training vehicles, equipment, and supplies, even though it is listed as an a FFA waste unit. Also, training activities would be generally prohibited in L-Lake, PAR Pond, and manmade ponds in the vicinity of R-Reactor and PAR Pond. However, these water bodies may be crossed with vehicular and foot traffic using existing roads. Other exceptions also may include classroom use for lecture or presentation types of instruction, as well as specialized training sponsored by Savannah River National Laboratory (SRNL). DOE may consider other exceptions to training prohibitions in these and other areas on a case-by-case basis, provided DOE clearly demonstrates no significant impact to the human

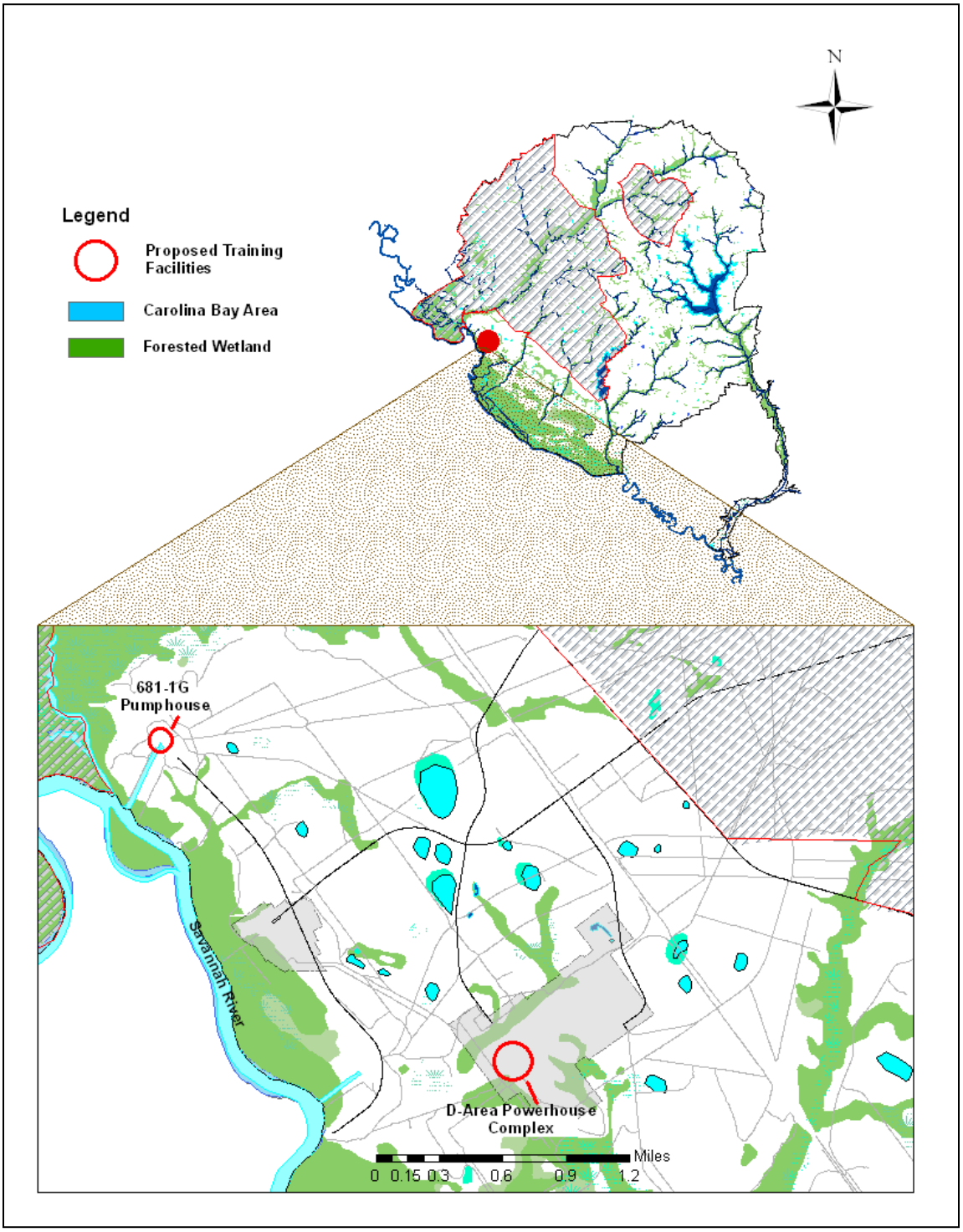

Figure 2-3. Location Map of D-Area Industrial Complex and 681-1G Pumphouse.

environment, determines no impact on waste management or remediation activities, and other protective measures deemed appropriate by DOE are taken.

Stream crossings (by dismounted infantry units only) would be allowed at selected locations pre-approved by DOE. No hardened stream crossings would be constructed at SRS. Most Army exercises could take place adjacent to, but not within, wetlands. Exercises related to refueling activities, FARP and Refueling on the Move (ROM) operations, would take place in locations remote from wetlands to ensure that these areas would not be affected by inadvertent fuel spills. Wheeled vehicles and foot traffic would be allowed to travel through wetlands on established roadways. Foot traffic would also pass through wetlands via firebreaks and along areas of high ground.

Wetland crossing routes and other site-specific restrictions regarding training near wetlands would be identified by DOE and the Army prior to the initiation of each exercise and provided to the training unit during SRS orientation briefings. Army ground maneuver units would not train within 200 feet (61 meters) of SRS streams or lakes. These units would be allowed to cross streams, but only along existing roadways and bridges or at stream crossing points approved by DOE.

The Army would not be allowed to conduct training exercises within selected environmentally sensitive areas such as Carolina bays, American bald eagle (*Haliaeetus leucocephalus*) territorial management zones (TMZs), rare plant ranges, cemeteries, closed or capped waste units, or contaminated areas. Training activities within red-cockaded woodpecker (RCW, *Picoides borealis)* management areas would be conducted in accordance with the 2009 Amendment to Savannah River Site Red-Cockaded Woodpecker Management Plan (USDA 2010).

Proposed training exercises would result in no direct wastewater discharges to State waters or stationary emission sources under the Clean Air Act. The Army would minimize potential leakage of petroleum products into the environment by implementing a Spill Prevention, Control, and Countermeasure (SPCC) Plan, including the regular inspection of vehicles and aircraft, conducting routine maintenance of equipment, and the use of drip pans when vehicles are at rest. Radiological, biological, or chemical test sources would be used during Army training activities infrequently and only in conjunction with force protection and weapons of mass destruction (WMD) related exercises. The use of these sources would be approved and monitored by DOE-SR and SRNL personnel. The only training activity which would necessitate the clearing of forestland (approximately 250 acres [101 ha]) would be the construction and operation of a DZ. Implementation of this training activity would require a site construction permit and possible coverage under SRS's National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit.

Prior to the scheduling and conduct of training events, DOE and the Army would evaluate proposed training exercises and areas. This evaluation would identify potential land use conflicts, such as the presence of sensitive environmental resources and/or controlled areas which would require avoidance.

Prior to the initiation of each training event, the Army would prepare a site-specific training plan designed to protect and sustain the human environment, and DOE would document site conditions of the training area. Subsequent to each training event, DOE would assess the training site and determine what actions would be required to mitigate any observed environmental damage. The Army would be responsible for restoring impacted SRS resources to their documented pre-training state and DOE would determine if the mitigation actions taken are adequate. The construction of permanent or semi-permanent training facilities (i.e., the DZ and FOBs) would not be allowed until DOE is assured by the Army that adequate funding is available for construction, maintenance, and environmental mitigation.

Guidelines, procedures, and processes governing the Army's use of SRS for the proposed military training mission are contained in the Joint Standard Operating Procedures (JSOP) developed by the DOE and the Army (see Appendix A). Military training activities initially would involve only small units located in well-defined, easily controlled areas. Using this approach, DOE would be able to test the effectiveness of the JSOP and other management systems and tools designed to protect the human environment and prevent Army interference with SRS missions. Larger scale training activities would be allowed only after these objectives have been met. DOE anticipates that the number and duration of Army training events at SRS over the period of a year would vary. The impacts of these multiple training events on SRS's environment and infrastructure would be monitored closely by DOE to protect the human environment and ensure DOE's ability to carry out its mission. Activities related to the transport and staging of troops outside of SRS are not part of the proposed action and therefore not considered in this EA. Redacted information in the JSOP consists of personally identifiable information, general military operational information, and emergency military and SRS information which DOE believes is not relevant to assessment of the impacts of the proposed action on the environment.

2.1.1 Non-Live-Fire Tactical Maneuver Training Activities

The proposed action is comprised of 26 training activities, numbered sequentially and described below. Other similar low intensity, non-live-fire, tactical maneuver training activities not specified in this EA would be considered to be within the bounds of this analysis, and would be subject to the planning process described in the JSOP (Appendix A) prior to each exercise.

2.1.1.1 Reconnaissance and Surveillance Operations

This training activity involves the acquisition of field data and intelligence regarding enemy forces, terrain, and routes. Equipment utilized would include wheeled tactical vehicles (e.g., the Stryker, high mobility multipurpose wheeled vehicles, all-terrain vehicles, motorcycles), unmanned aerial vehicles (UAVs), and helicopters. The UAVs may be launched from open fields, vehicles, roadways, or offsite locations. Less than 100 troops (mechanized and/or dismounted) would be involved in this activity. Blank ammunition and pyrotechnics may be used. Troops would be inserted into the field via

wheeled tactical vehicles, helicopters, and parachute. The land area required for this activity may be greater than 5.0 acres (2.0 ha), depending upon the training scenario implemented. As part of this training activity, units may need to cross streams and contiguous wetlands to navigate to other training areas. These crossings would involve dismounted troops only and be conducted at locations previously approved by DOE.

2.1.1.2 Temporary Forward Arming and Refueling Point

A FARP is a facility designed to rapidly rearm and refuel aircraft and vehicles during tactical combat operations, with a manpower requirement of 30-40 troops. Activities performed at a FARP would include minor crew-level aircraft/vehicle maintenance and major emergency repair work. Equipment utilized would include wheeled tactical vehicles, helicopters, generators, fuel bladders, tents, personal protection equipment (PPE) and portable toilets. Fuel and other supplies would be delivered to the FARP by fuel trucks and helicopters. The Army would minimize the leakage of petroleum products into the environment by implementing a SPCC Plan, including the regular inspection of vehicles and aircraft, conducting routine maintenance of equipment, and the use of drip pans when vehicles are at rest.

The Army is proposing to establish multiple temporary FARPs in previously cleared areas of SRS. A FARP may be located anywhere within the proposed Army training area as long as it is (a) accessible by road, (b) at least 200 feet (61 meters) from any stream, pond/lake, wetland, or groundwater well and (c) not within an area which is controlled or possesses selected sensitive environmental and/or cultural resources. One site proposed as a temporary FARP is a previously cleared area of 5.0-6.0 acres (2.0-2.4 ha) located along Road B-6, and is periodically used by the United States Forest Service-Savannah River (USFS-SR) as a heliport (Figure 2-4).

A temporary FARP would operate for less than two weeks, and would not require new facilities or changes in land use. Temporary FARPs can be operated in any open area that can accommodate both vehicle and helicopter access; road corridors are typically used to establish temporary FARPs.

2.1.1.3 Refuel on the Move Operations

This training activity would utilize 15-20 troops for the rapid road-side refueling of vehicles at a temporary refueling site. Equipment utilized would include wheeled tactical vehicles, generators, fuel bladders, PPE and portable toilets. Fuel would be delivered to the ROM site by Army trucks. The Army would minimize the leakage of petroleum products into the environment by implementing a SPCC Plan, including the regular inspection of vehicles and aircraft, conducting routine maintenance of equipment, and the use of drip pans when vehicles are at rest. A ROM operation may be located anywhere within the proposed Army training area as long as it is (a) accessible by road, (b) at least 200 feet (61 meters) from any stream, pond/lake, wetland, or groundwater well and (c) not within an area which is controlled or possesses selected sensitive environmental and/or cultural resources.

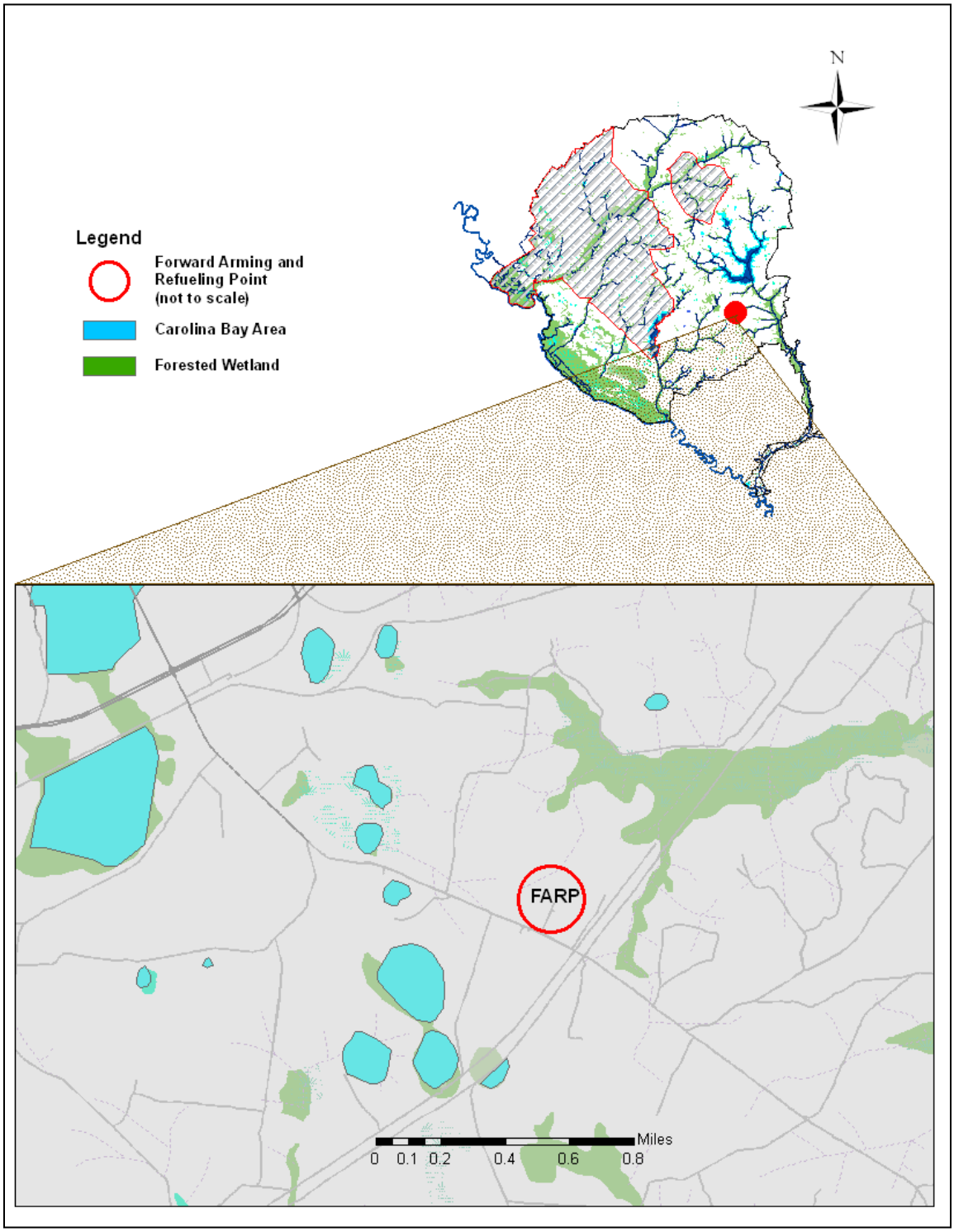

Figure 2-4. Location of a Proposed Temporary Forward Arming and Refueling Point (FARP) on SRS.

2.1.1.4 Mobile Resupply Operation

A Mobile Resupply Operation would use a team of 30-40 troops to establish a temporary combat support staging area for the stockpiling, loading, and unloading of ammunition and supplies used to support offensive air and ground operations. Equipment utilized would include helicopters for movement of sling-borne loads, wheeled tactical vehicles, forklifts, and portable toilets. Any cleared and level area of less than 5.0 acres (2.0 ha) with adequate access for wheeled vehicles and helicopters could support this exercise.

2.1.1.5 Chemical, Biological, Radiological, Nuclear Defense Operations

These training exercises would involve up to 300 troops in the preparation for and response to simulated chemical, biological, radiological, or nuclear (CBRN) attack, with an emphasis on detection, decontamination, field sanitation, and medical support activities. No radiological, biological, or chemical test sources would be utilized to alarm detection devices equipment during execution of this training activity unless approved and monitored by DOE-SR and SRNL. Equipment utilized would include wheeled tactical vehicles, trailers, generators, sprayers, PPE, water bladders, detection equipment, and portable toilets. Simulation may use blank ammunition, pyrotechnics, and obscurants. The scope of this training activity also would include exercises in camouflaging equipment. However, the Army would be prohibited from cutting or otherwise removing or harming SRS vegetation for camouflage purposes.

2.1.1.6 Convoy Operations

Convoy Operations would involve training 30-150 troops on the transport of troops and supplies to locations where helicopters cannot land, and would include defensive operations against ambush, improvised explosive devices (IEDs), or similar threat scenarios in field and urban environments. Equipment used in this exercise would include trucks and other wheeled tactical vehicles, pyrotechnics to simulate IEDs, and blank ammunition for simulated ambushes. This activity could be sited on any road within the proposed Army training area. The land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.7 Casualty Evacuation Operations

Casualty Evacuation training would use 30-150 troops for the removal and transport of casualties from the battlefield to medical facilities, and would include the establishment of casualty collection points and ambulance exchange points. Equipment used in this training exercise would include military ambulances and helicopters. Vehicles other than ambulances also may be used to simulate emergency aid vehicles. Blank ammunition and pyrotechnics may be used to simulate battlefield conditions. The space requirement for this activity would be less than 5.0 acres (2.0 ha).

2.1.1.8 Towed Field Artillery Operations

This training activity would involve up to 350 troops using towed field artillery pieces to provide fire support for forward combat forces. Equipment utilized would include wheeled tactical vehicles, fixed and rotary wing aircraft, towed cannon, blank ammunition, pyrotechnics to simulate artillery fire, and portable toilets. Artillery pieces would be towed or airlifted into the training area. The space requirement for this activity would be less than 5.0 acres (2.0 ha).

2.1.1.9 Tactical Operations Center

This training activity would involve the establishment of a Tactical Operations Center (TOC) as the temporary command and control hub for company, battalion and brigade size field operations. The TOC, which would be located safely away from the "forward line of battlefield operations" as defined by the training scenario, is where most of the planning, staff coordination, and monitoring of key events occurs. TOC training typically involves approximately 100 troops, for a maximum of two weeks. Battalion and brigade TOCs may relocate two to three times over a period of two weeks. Company TOCs are smaller with more frequent relocations. Equipment needed for this exercise would include wheeled tactical vehicles, helicopters, tents, generators, trailers, antennae, field kitchens, and portable toilets. Opposing forces using blank ammunition and pyrotechnics may be used to attempt the infiltration of TOC locations as part of the training exercise. The space requirement for this activity would be less than 5.0 acres (2.0 ha).

2.1.1.10 Forward Operating Base

This training activity would involve 150-250 troops in the establishment of a FOB, a secure, reinforced position away from the battle area designed to support tactical operations and repel enemy ground assault. A FOB typically consists of an assembly of gabions [collapsible wire mesh container and heavy duty fabric liner filled with sand (a.k.a. Hercules Engineering Solutions Consortium barriers)], concrete barriers, gates, watchtowers, bunkers, and other force protection infrastructure. Sand for fill would be acquired from onsite SRS quarries. FOB infrastructure may include a field hospital, command post, mess facilities, ammunition storage, tents, fuel points, and arms rooms. The space requirement for this activity would be less than 5.0 acres (2.0 ha). Equipment utilized would include wheeled tactical vehicles, tents, generators, trailers, antennae, field kitchen, blank ammunition, pyrotechnics to simulate artillery fire, and portable toilets.

The two candidate FOB sites considered in this EA are FOB-1 in the vicinity of the D-Area Powerhouse and FOB-2 on the site of decommissioned Gun Site 51 west of L-Lake (Figures 2-5 and 2-6, respectively). Construction of FOB-1 would occur after decommissioning of the D-Area industrial complex (projected for 2016).

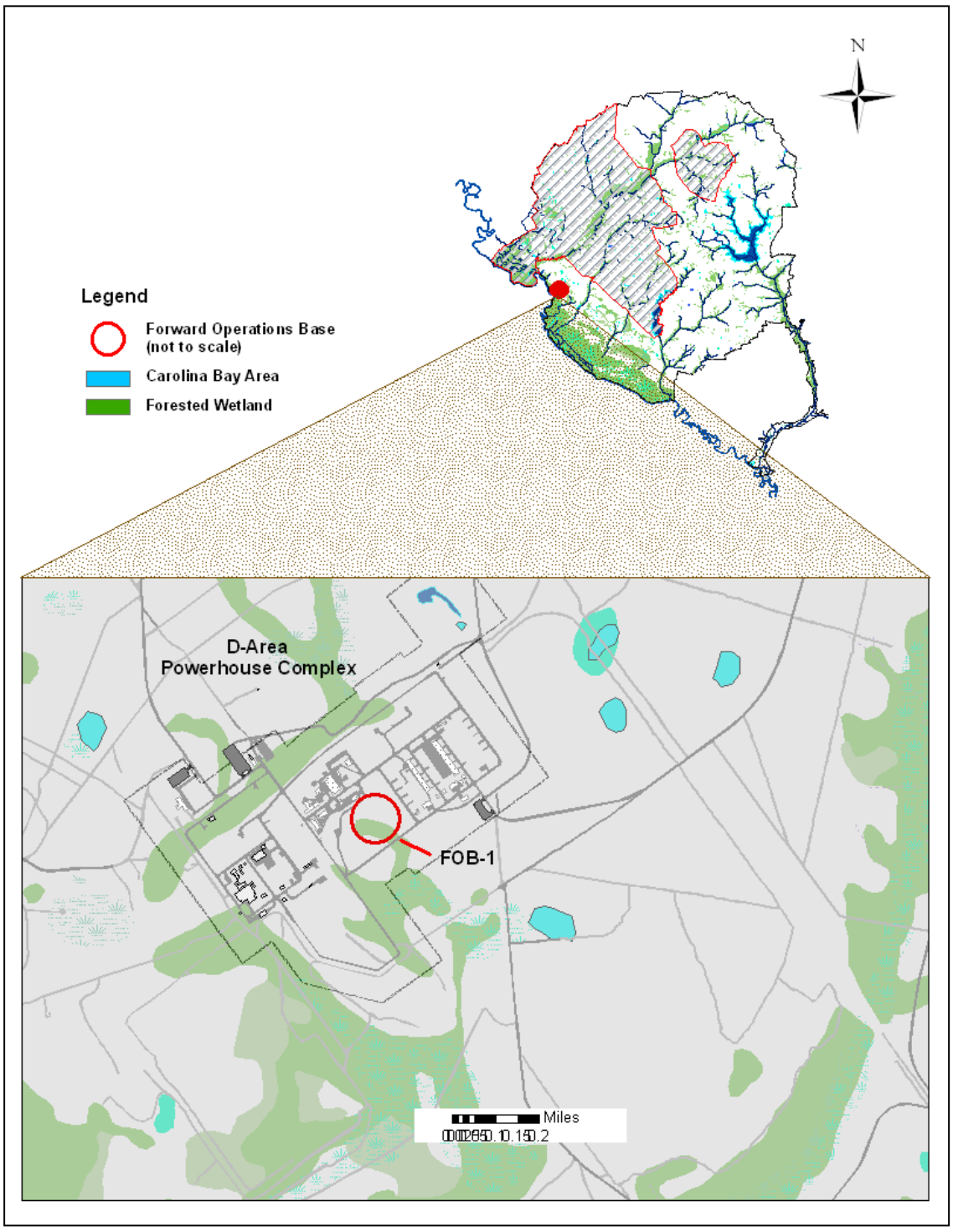

Figure 2-5. Location of the Proposed Permanent Forward Operation Base (FOB-1) in D-Area on SRS.

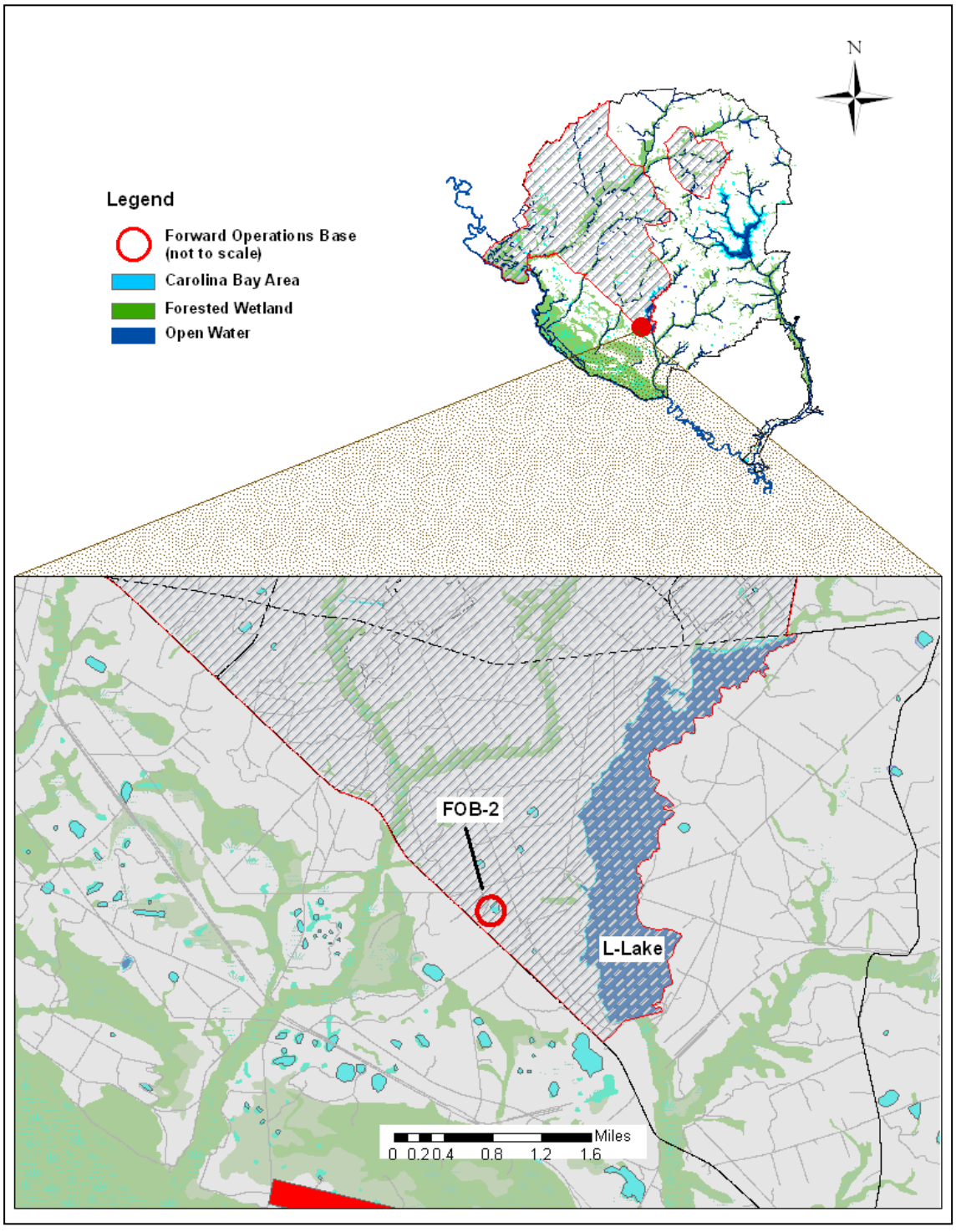

Figure 2-6. Location of the Proposed Forward Operation Base (FOB-2) Near L-Lake on SRS.

Implementation of this training activity would result in construction-related activities and a new training facility. There would be no change in land use because both FOB-1 and FOB-2 are proposed for construction on previously developed sites.

2.1.1.11 Security Operations

This training activity would involve 50-100 troops in the implementation of security-related activities in static locations, including securing prisoners-of-war, guarding command posts, and conducting foot patrols local to the static location. Equipment used would include wheeled tactical vehicles, tents, generators, portable toilets, blank ammunition, and pyrotechnics. The space requirement for this activity would be less than 5.0 acres (2.0 ha).

2.1.1.12 Defensive Operations

This training activity would involve 150-550 troops in the implementation of deliberate and hasty defensive operations. A deliberate defense is well-planned and coordinated as part of a permanent defensive network, and includes manmade obstacles such as concertina wire and surface laid inert training mines. Hasty defenses are organized while on the offense and in contact with the enemy or when contact is imminent and reaction time is limited. Examples of hasty defense operations include hastily laid surface mines, concertina wire, man-made obstacles, and pre-plotted Artillery Target Reference Points.

No trenches, foxholes or other forms of excavation would be involved in this training activity. Helicopters may be used in overwatch mode or to move troops to alternate locations. Equipment utilized would include wheeled tactical vehicles, helicopters, concertina wire, blank ammunition, pyrotechnics (training mines, simulated artillery fire, obscurants), and portable toilets. The land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.13 Opposing Forces Operations

Opposing Forces (OPFOR) operations would involve 30-50 troops in simulations of enemy-friendly contacts. Enemy threats include infantry, guerillas, insurgents, air attack, and simulated IEDs. Friendly forces include both defensive and offensive operations. Examples of OPFOR operations include emplacement of simulated IEDs, assault upon a convoy, assault on fixed positions such as FOBs and TOCs, simulated suicide bombers, and light infantry enemy elements placed in a defensive or offensive posture.

Equipment utilized would include wheeled tactical vehicles, civilian vehicles, helicopters, blank ammunition, pyrotechnics (simulated IEDs, simulated artillery fire, and obscurants), and portable toilets. The land requirement for this exercise would depend on the number of troops involved in the training scenario.

As part of this training activity, troops may need to cross streams and contiguous wetlands to navigate to other training areas. These crossings would involve dismounted troops and be conducted only at locations previously approved by DOE.

2.1.1.14 Unit Maintenance Collection Points (UMCP) and Logistic Maintenance Collection Points (LMCP)

A Unit Maintenance Collection Point (UMCP) is a temporary facility providing maintenance and basic repairs to wheeled tactical vehicles. A Logistic Maintenance Collection Point (LMCP) is a temporary facility providing logistical support (LMCP) to the same vehicles. This training activity would have troops establish UMCPs and LMCPs under field conditions.

During rapid moves, the UMCP would conduct only essential repairs and simple recovery of disabled or battle damaged equipment. A UMCP may also serve as an alternate command post or as a staging area where vehicles are positioned at a fixed location in preparation for an operation.

Equipment utilized would include wheeled tactical vehicles, specialized maintenance recovery vehicles, generators, tents, PPE, and portable toilets. A UMCP or LMCP may move two to three times during a two week training event. Up to 550 troops would be involved in this training activity.

2.1.1.15 Tactical Offensive Operations

Tactical Offensive Operations would involve the tactical movement of 50-550 mounted and/or dismounted infantry to attack enemy forces. Dismounted troops would move cross-country off-road and via unimproved roads and fire breaks when available. Mounted troops would move cross-country using roads. As part of this training activity, units may need to cross streams and contiguous wetlands to navigate to other training areas. These crossings would involve dismounted troops and be conducted only at locations previously approved by DOE. Equipment utilized would include wheeled tactical vehicles, aircraft, blank ammunition, pyrotechnics (simulated artillery fire, obscurants), and portable toilets. The land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.16 Movement and Assembly of Troops

This training activity would involve the administrative and tactical movement of 50-550 mounted and dismounted troops to assembly areas (see Section 2.1.1.17). Dismounted troops would move cross-country off-road and via unimproved roads and fire breaks when available. Mounted troops would move cross-country using roads. As part of this training activity, units may need to cross streams and contiguous wetlands to navigate to other training areas. These crossings would involve dismounted troops and be conducted only at locations previously approved by DOE. Equipment utilized would include wheeled tactical vehicles, aircraft, and portable toilets. The land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.17 Tactical Assembly Area Operations

This training activity would involve 50-550 troops in the establishment of an assembly area located “beyond the reach of light artillery,” as defined by the training scenario. The

tactical assembly area is where units can make final preparations, such as pre-combat checks and inspections, test fire weapons, perform minor equipment and vehicle maintenance, and eat and sleep before moving to the line of departure. Equipment utilized would include wheeled tactical vehicles, generators, aircraft, and portable toilets. The land requirement for this exercise would be less than 5.0 acres (2.0 ha).

2.1.1.18 Urban/Facility Seizure Operations

Urban/Facility Seizure Operations typically involve 25-100 troops from special operations units in close-quarter combat, forced entry, and facility seizure operations in an 'urban' environment. Equipment utilized would include wheeled tactical vehicles, aircraft, watercraft, portable toilets, blank ammunition and pyrotechnics (e.g., strand detonation cord). This training activity would be conducted within selected decommissioned industrial facilities located in D-Area (e.g., the powerhouse) and the 681-1G Pumphouse (Figure 2-3). However, the overall land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.19 Air-Land Operations

Air-Land Operations would involve approximately 30-550 troops in the insertion of troops and equipment by helicopters onto DZs, Landing Zones (LZs), and urban locations. In addition to traditional disembarking from a landed helicopter, troop insertion also may be accomplished by exiting from helicopters via rappelling, fast rope, specialized delivery/extraction harnesses, and ladders.

LZs used during this training activity must possess sufficient cleared area to accommodate helicopter landings. There are multiple cleared parcels of sufficient land area within the proposed Army training area which would be suitable for use as a LZ. These locations include sites previously clear-cut by USFS, sites used by USFS as heliports, and a number of decommissioned facility sites which have been cleared to their concrete slabs. Roads with sufficiently clear right-of-way could also serve as a LZ.

Equipment utilized would include helicopters, wheeled tactical vehicles, pyrotechnics (simulated artillery fire and obscurants), and portable toilets. This activity could be sited on any clear-cut area or road with sufficient cleared right-of-way to accommodate the use of helicopters. The overall land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.20 Air-Water Operations

Air-Water Operations would involve up to 50 troops in the insertion of troops and watercraft into the Savannah River by helicopter. Representative activities include helocast operations where rubber raiding craft are inserted into the river, assorted water craft activities, and self-contained underwater breathing apparatus (SCUBA) operations. In addition to water insertion operations on the river, there are related training and support activities which would take place onshore. Equipment utilized would include helicopters, military vehicles (support and retrieval), rubber watercraft, and SCUBA.

Subsurface detonation of pyrotechnics would be prohibited. However, blank weapons fire and pyrotechnics on the river's surface would be allowed. Expended ammunition residue such as brass, links, and other solid debris would be kept inside boats and aircraft to the extent practicable. There would be no discharges to State waters resulting from this training activity.

Air-water operations would be limited to approximately 11 miles (17 kilometers [km]) of the Savannah River and contiguous SRS shoreline in the general vicinity of D-Area (Figure 2-7). Within this corridor, the overall land requirement for this exercise would depend on the number of troops involved in the training scenario. Use of SRS streams, ponds, and surface impoundments for this training activity would be prohibited.

2.1.1.21 Airborne Operations

This training activity would involve 25-550 troops in the insertion of troops and equipment by parachute (static line or military free fall) onto a DZ. Minimum altitude for cargo and airborne operations would be 1,500 feet (457 meters). Equipment utilized would include helicopters, fixed-wing and tilt-rotor aircraft, military vehicles (for support and recovery of chutes), blank ammunition, pyrotechnics (simulated artillery fire, obscurants), and portable toilets. Implementation of this training activity would result in construction-related activities such as land clearing and grading, a change in land cover (forest to grassland), and a new DZ facility at the Water Gap site (Figure 2-8).

2.1.1.22 Air Support Operations

This training activity would involve 25-550 troops in the use of air resources for the movement or infiltration/exfiltration of troops (air assault), combat search and rescue missions, equipment delivery and pickup, surveillance and reconnaissance, radio retransmission, and close air support (air attack). Although this training activity primarily would involve airborne activity, there would be related ground based training and support activities.

Equipment utilized would include helicopters, fixed-wing and tilt-rotor aircraft, UAVs, wheeled tactical vehicles, and pyrotechnics (simulated artillery fire, obscurants). Certain actions would require an existing clearing large enough to accommodate the use of helicopters. However, the overall land requirement for this exercise would depend on the number of troops involved in the training scenario.

2.1.1.23 Tactical Communication Operations

Tactical Communications operations would involve up to 250 troops in electronic communications and transmission of data between onsite and offsite units using amplitude modulation/frequency modulation, microwave, satellite, and aerial radio

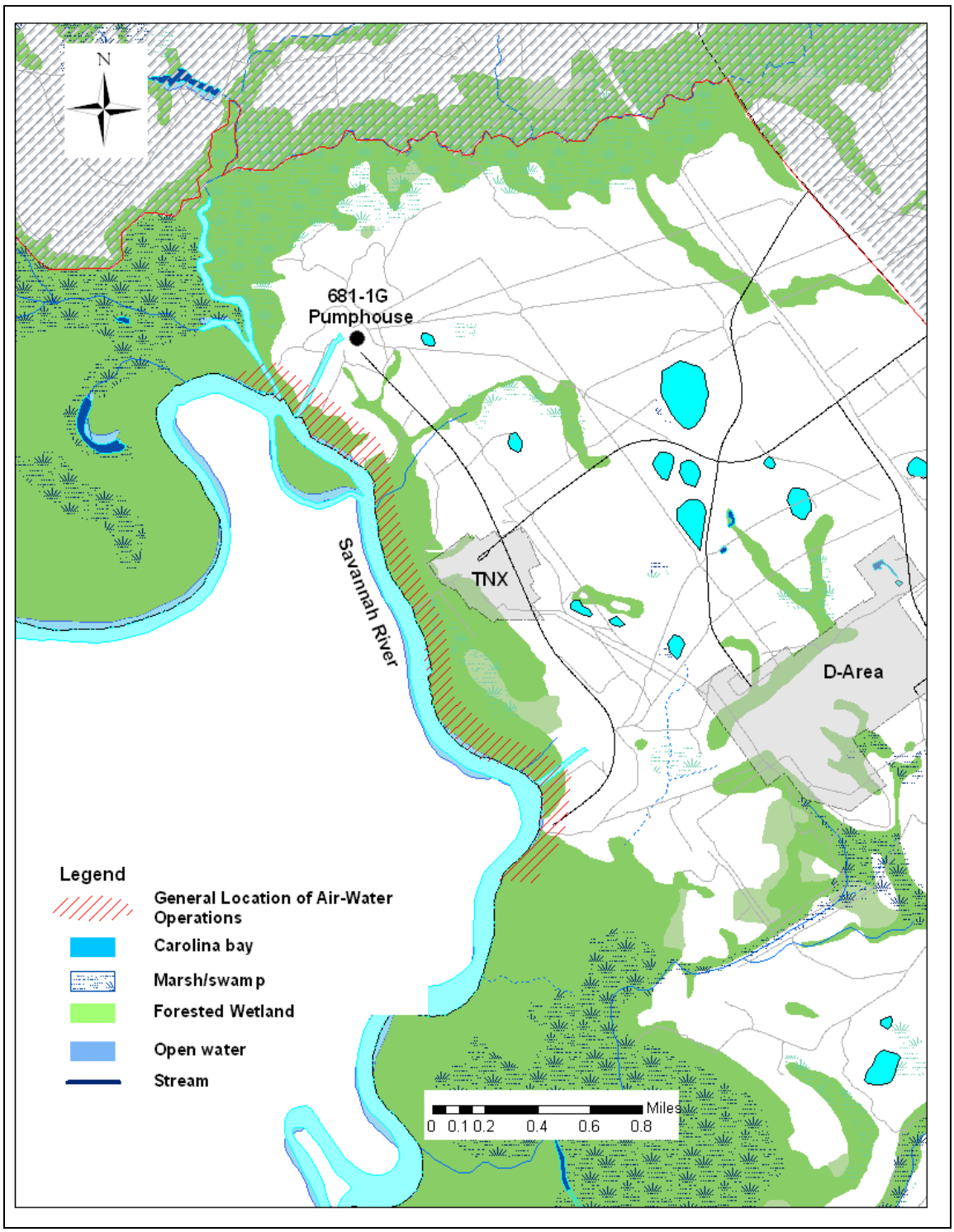

Figure 2-7. General Location Map of Proposed Air-Water Operations on the Savannah River and Contiguous SRS Shoreline.

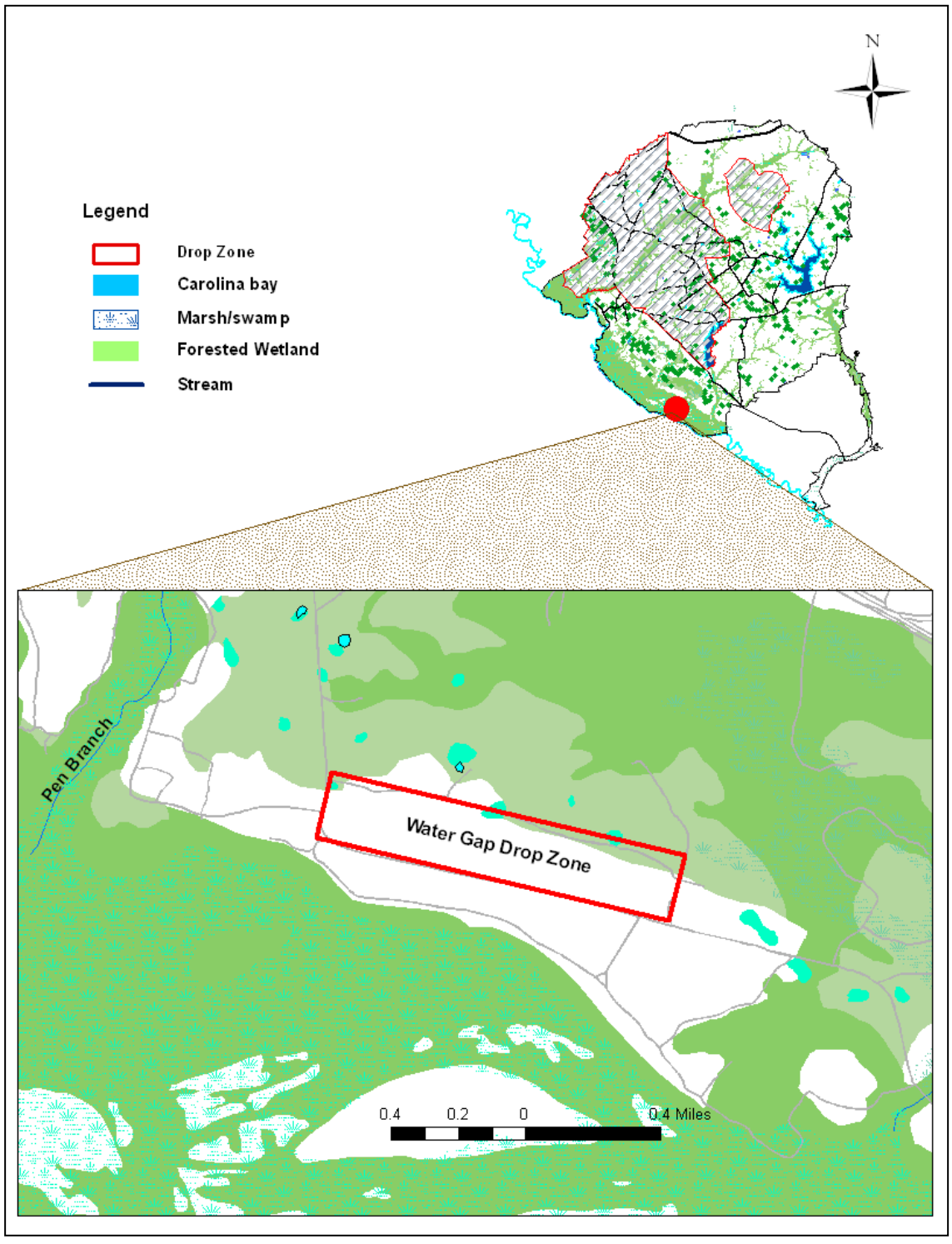

Figure 2-8. Location Map of the Proposed Permanent Water Gap Drop Zone.

retransmission via aircraft. Improperly planned electronic transmissions generated by this training activity could potentially interfere with SRS operations. The Army would coordinate with DOE to ensure that the frequency bands used do not interfere with SRS communications and operations. Electronic warfare (e.g., radio jamming) would not be conducted by the Army on SRS. There would be no interference with radio-tagged wildlife tracking activities conducted at SRS.

Equipment utilized would include ground and vehicle mounted antennas, aircraft, dishes, radio systems, cable, tents, generators, trailers, field kitchens, and portable toilets. The land requirement for this exercise would be less than 5.0 acres (2.0 ha).

2.1.1.24 Civil Support Team and Chemical, Biological, Radiological, Nuclear, and Explosive Agents Enhanced Response Force Package Operations

The Civil Support Team (CST) and the Chemical, Biological, Radiological, Nuclear, and Explosive Agents (CBRNE) Enhanced Response Force Package (CERFP) Operations training would involve up to 280 troops in specialized units responding to simulated manufacture of WMD agents or areas contaminated by simulated WMD agents. Activities performed by the CST would include establishment of an operational footprint, site characterization, sample collection, personnel decontamination, and analysis of simulated agents in a mobile laboratory. Activities performed by the CERFP would include establishment of an operational footprint, search and extraction of victims from a notionally contaminated zone, mass personnel decontamination, triage, and preparation for onward movement to medical facilities.

Equipment utilized would include wheeled vehicles (Suburban, Dually Pickups, and General Motors Corporation 6500 medium-duty trucks), closed cargo trailers, man-portable detection equipment, generators, personal protective equipment, personnel decontamination systems, and other related mission-essential equipment. Construction of a permanent rubble pile would be required to simulate a collapsed structure.

No radiological, biological, or chemical test sources would be utilized to alarm detection equipment during the conduct of this training activity, unless approved and monitored by DOE-SR and SRNL. The personnel decontamination process for both the CST and CERFP would involve clean water. The decontamination process would not differ between simulated chemical, biological, or radiological agents. Simulated agents would not contact the decontamination water. If DOE-SR and SRNL were to approve a chemical, biological, or radiological source for training use, the same decontamination process would be used as for the simulated agents. The Army would rely on DOE-SR and SRNL to monitor the used decontamination water for potential presence of the source, and to properly dispose of used decontamination water containing a source. Water used in this training exercise would come from SRS domestic water flush hydrants identified in the JSOP (Appendix A) or water derived from Water Purification Operations described in Section 2.1.1.25 of this EA.

The training location for this activity would vary from clear, undeveloped areas to an urban environment. The land and facility requirements for this type of exercise would depend on the objectives and number of troops involved in the training scenario.

2.1.1.25 Water Purification Operations

Water purification operations would involve up to 150 troops in the production of potable water using four processes: 1) coagulation and flocculation, 2) filtration, 3) reverse osmosis, and 4) disinfection. Chemicals utilized for disinfection purposes would include chlorine, ozone, and chlorine dioxide. Water purification units would provide clean drinking water to troops in the field, as well as clean water for simulated decontamination operations.

Raw surface water would be withdrawn only from the Savannah River. Gas, diesel, or electric pumps would be used to withdraw water for purification. Clean water would be stored in collapsible water tanks and/or distributed to the troops.

Equipment utilized would include purifiers, generators, pumps, hoses, water storage tanks/vessels, tank trucks, water trailers, tents, and aircraft. Chemical residues resulting from the water purification process would be collected by the Army and transported offsite for proper disposal. The land requirement for this exercise would be less than 5.0 acres (2.0 ha).

2.1.1.26 Helicopter Bucket Operations

Helicopter bucket training would involve the acquisition of water from the Savannah River using a bucket slung beneath a helicopter. The water would then be transported by the helicopter and released over ground or water targets. Targets must be pre-approved by DOE. Helicopter bucket operations would be conducted to reinforce the helicopter crew skills necessary to support State and Federal wildland fire-fighting efforts. This would be an airborne operation with minor land-based support elements. Land requirements for this activity would be less than 5.0 acres (2.0 ha). One to six helicopters and related support equipment (one fuel tanker per helicopter) would participate in this training activity, which would involve up to 25 troops. A temporary FARP would be used for refueling purposes, or fuel may be acquired from a local commercial airport.

2.2 'No Action' Alternative

The 'No Action' alternative represents the status-quo scenario. Under the 'No Action' alternative, the Army would not establish and conduct formal, long-term training missions at SRS. Consequently, the Army would not mitigate, at least in part, its training land shortfall in the continental U.S. In the past, SRS has supported periodic use by Special Operation Forces and other military units for limited, short-term, non-live-fire tactical training exercises. Prior to their advent, each of these training events were individually reviewed under NEPA and categorically excluded from further NEPA review. Under the 'No Action' alternative, DOE expects that this baseline level of military training at SRS would continue.

2.3 Alternatives Considered but Eliminated from Review

2.3.1 Alternative Action: Use of a Proposed Area of SRS for Non-Live-Fire Tactical Maneuver Training with Live Fire Tactical Training on Dedicated SRS Ranges.

This alternative action is the same as the proposed action described in Section 2.1, with the exception that the Army would conduct live fire training exercises on existing or new dedicated firing ranges on SRS. This alternative is not considered a viable option and was eliminated from review and consideration for the following reasons:

- The scope of the IAG between DOA-FG and DOE-SR covers tactical maneuver training and simulated weapons fire only. Other than possible future use of BDR, the conduct of Army live fire on SRS would present significant security and safety hazards and is not provided for in the IAG.

- SRS's protective force (Wackenhut Services Inc.-Savannah River Site Team [WSI-SRS]) uses the existing ranges at BDR to meet its live fire training needs. BDR has no excess capacity to accommodate Army training needs.

- Implementation of this alternative would necessitate the establishment of impact areas to accommodate the firing of dud producing munitions. The Army currently has a moratorium on establishing new duded impact areas on its own installations because it cannot ensure that such areas can be environmentally sustained. Establishing this type of land use on SRS would adversely impact the human environment and not provide for the prudent multiple use of Federal property.

2.3.2 Alternative Action: Use of Entire SRS for Non-Live-Fire Tactical Maneuver Training

This alternative action is the same as the proposed action described in Section 2.1, with the exception that the Army would conduct non-live-fire tactical maneuver training over the entire SRS. This alternative is not considered a viable option and would be eliminated from review and consideration for the following reasons:

- The administrative and industrial core of SRS possesses administrative and industrial complexes and multiple waste storage/treatment/disposal facilities. Army training in this area would significantly interfere with critical DOE missions and operations and create unsafe conditions for both Army and SRS personnel.

- Certain areas of SRS contain ecologically or culturally sensitive resources or contamination. Army training in these areas would adversely impact critical cultural/ecological resources or present human health issues relative to potential exposure to contaminants or pose a risk of damage to remedial systems/structures in place to effect environmental cleanup or prevent exposure to hazardous substances.

- SRS possesses multiple nuclear facilities and waste sites. Use of the entire SRS for military training may cause concern among the civilian community regarding the safety and integrity of these facilities.

2.3.3 Drop Zone Alternative Site Analysis

Six potential DZ sites were identified by the Army (Figure 2-9). However, four of these potential sites (i.e., North-1, North-2, Par Pond, and Road 9) were determined not to be viable due to their location in the Red-Cockaded Woodpecker (RCW) Management Area. A fifth potential site (Hog Barn) was found not to be viable due to the presence of an active seismic monitoring station. With the elimination of those five potential DZ sites, the location considered in this EA for construction and operation of a DZ is the Water Gap site (Figure 2-8).

3.0 AFFECTED ENVIRONMENT

The proposed action considered in this EA would occur within 120,320 acres (48,693 ha) of a predominately non-industrialized area of SRS outside of the site's administrative and industrial core and BDR (Figure 2-1). This section provides a description of the environmental attributes of the proposed Army training area. In describing the affected environment, emphasis would be placed on sites identified by the Army for the construction and operation of permanent training facilities (i.e., FOBs and DZ). Characterization of the affected environment is an important element of the NEPA process because it provides a baseline against which to evaluate potential environmental impacts of implementing the proposed action and 'no action' alternative considered in the EA.

3.1 Land Use

Forestland is the dominant land use within the proposed training area. This forestland consists of evergreen, deciduous, bottomland hardwood, and swamp forest types, as described by Wike et al. (2006). The majority of the proposed training activities would occur within predominately forested areas. Other land use types within the proposed training area include wetlands (i.e., swamps, marshes, bogs and similar areas), developed areas, scrub-shrub, waste sites, grassland, clear cut areas, and open water. Most of the wetlands are associated with floodplains, streams, Carolina bays, and impoundments (Figure 3-1). Developed landscapes within the proposed training area include the D-, P-, and R-Areas industrial complexes, roadways, railroad facilities, and other supporting infrastructure. These developed areas have been subjected to high levels of human activity and disturbance (Noah 1995). Grassland occurs primarily on power line rights-of-way and in a few forest openings. Throughout the proposed Army training area, there are tracts of land which have been recently logged and replanted. This transitional land-cover, which is classified as scrub-shrub, includes evergreen and deciduous shrubs and small trees 9.0 feet (2.7 meters) or less in height. Following is a discussion of land use on sites proposed for construction of FOBs and the DZ, as well as the sites proposed for urban/facility seizure training.

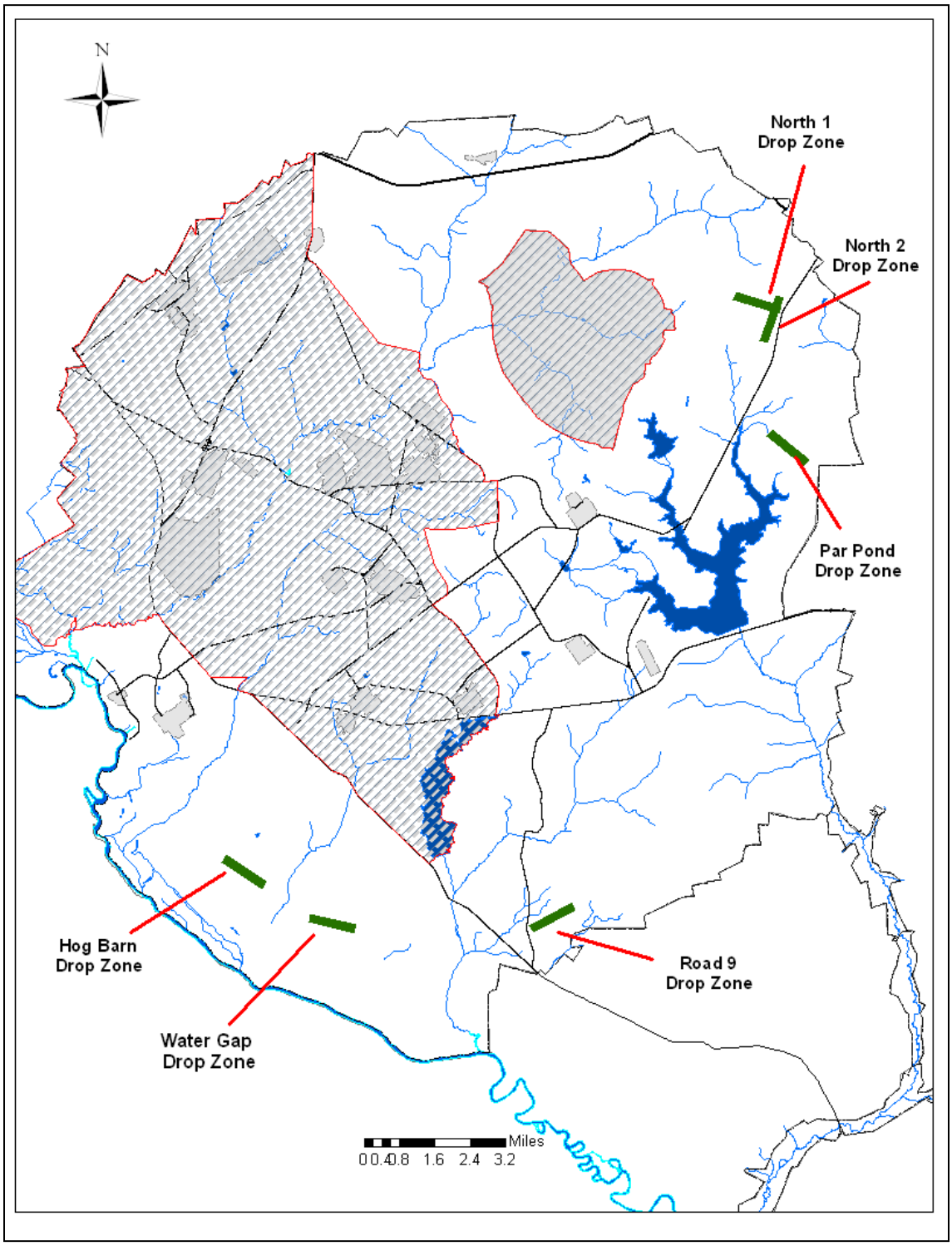

Figure 2-9. General Location Map of Potential Drop Zone Sites Identified on SRS.

3.1.1 Land Use on the Proposed Permanent FOB Sites

Two previously developed sites are being considered for the construction and operation of permanent FOB facilities. FOB-1 would be located in D-Area within the D-Area powerhouse industrial complex (Figure 2-5). FOB-2 would be located on the site of relic Gun Site 51 near L-Lake, just north of State Highway 125 (Figure 2-6). Land cover on this site consists of grass, concrete building foundations, and asphalt parking lots remaining from the previous gun site facility.

3.1.2 Land Use on the Water Gap DZ Site

The Water Gap site is proposed for construction and operation as a DZ on SRS. The 150-acre (61-ha) site is comprised of approximately 110 acres (45 ha) of loblolly and 40 acres (16 ha) of longleaf pine plantations (Figure 2-9). The loblolly plantation, planted in 1986, is densely stocked with trees varying in diameter from four to 12 inches (10-30 centimeters [cm]), and in height from 35-55 feet (11-17 m). Portions of the loblolly plantation contain a substantial laurel oak (*Q. laurifolia)* component. The longleaf plantation (planted in 2003) contains saplings 3-6 feet (1-2 m) in height, as well as a substantial broom sedge (*Andropogon virginicus*) component.

The area north of and contiguous to the northern boundary of the site is a forested wetland (Nelson 2010). Potentially limiting land uses for the Water Gap site is its use by the South Carolina Department of Natural Resources as a wildlife research area (study to be completed by fall of 2011) and the presence of previously detected, but not yet evaluated, cultural resources.

3.1.3 Land Use in the Immediate Vicinities of D-Area and the 681-1G Pumphouse

The immediate vicinities of D-Area and the 681-1G Pumphouse (Figure 2-3) comprise industrialized landscapes where the Army is proposing to conduct urban/facility seizure operations, as listed in Section 2.1. The D-Area powerhouse would be available for use by the Army after it has been decommissioned by DOE (projected 2012). A potentially limiting land use in D-Area is the presence of closed waste units and other controlled areas. Controlled areas are well documented and would be appropriately marked for avoidance during Army training events. (Figure 2-3) The pumphouse is available now, pending completion of certain environmental compliance requirements and protection of historical artifacts.

3.2 Meteorology and Climatology

Weather on SRS was described by Kilgo and Blake (2005) and Bauer et al. (1989), as follows. The SRS region possesses a humid subtropical climate characterized by extended hot summers and relatively short mild winters. Summer-like weather conditions typically last from May through September, with July and August normally being the hottest months. January and February are typically the coldest months. Precipitation in the region averages in excess of 47 inches per year. Spring and autumn seasons tend to be drier than the winter and summer seasons. Spring and summer

thunderstorms can be intense. The general meteorological and climatological data reported for SRS is representative of conditions present throughout the proposed Army training area.

3.3 Geology and Soils

SRS is situated primarily on the Aiken Plateau of the Upper Atlantic Coastal Plain physiographic region, approximately 25 miles (40 km) southeast of the Fall Line that separates the Atlantic Coastal Plan from the Piedmont physiographic province. The Aiken Plateau is highly dissected and characterized by broad, flat areas between streams and narrow, steep-sided valleys. There are several identified geologic faults on SRS, but none of these faults are considered to be capable, meaning that none of these faults, or associated faults, have moved at or near the surface within the past 35,000 years (DOE 2002). The physiography of the proposed Army training area is comprised of two major components: the Aiken Plateau and the alluvial terraces of the Savannah River floodplain. The Aiken Plateau, which dominates the proposed training area, ranges in elevation from 250 to 400 feet (76 to 122 meters) above mean sea level (msl). The alluvial terraces of the Savannah River occur below 250 feet (76 meters) msl.

Soils on SRS were described by Rogers (1990), as follows. Soils across the proposed Army training area are primarily sands and sandy loams, with sporadic clay layers overlying subsoil containing a mixture of sand, silt, and clay. These soils are gently sloping to moderately steep (0 to 10 percent grade) and present a slight erosion hazard. Soils on the uplands and on the bottomlands along major streams possess a nearly level grade. Soils in the small, narrow drainage valleys possess a steeper grade. Most of the upland soils are well drained to excessively drained. The well-drained soils have a thick, sandy surface layer that extends to a depth of 7.0 feet (2.1 meters) or more in some areas. The soils on bottomlands range from well drained to very poorly drained. Some soils on the abrupt slope breaks have dense, brittle subsoil. No prime farmland soils occur on SRS.

3.3.1 Soils and Topography on the Proposed Permanent FOB Sites

Soils on the proposed permanent FOB-1 site, which is located in D-Area adjacent to the D-Area powerhouse, are primarily Udorthents, which typically are found in developed, urbanized landscapes and consist mostly of well drained, compacted heterogeneous soil materials that are the spoil of excavations and major construction activities (Rogers 1990). There are no hydric soils present on this site. The immediate FOB-1 site is clear of structures and possesses a surface elevation of 140 feet (43 meters) above msl. Soils on the proposed permanent FOB-2 site are Orangeburg loamy sand (Rogers 1990). The area, which is the prior location of relic Gun Site 51, is level and possesses a surface elevation of 230 feet (70 meters) above msl.

3.3.2 Soils and Topography on the Proposed Water Gap DZ Site

The proposed Water Gap DZ site is located adjacent to the Savannah River floodplain. Soils on this site are predominately well drained Blanton and Lakeland sands. The

northern boundary of the site possesses hydric type soils (Fluvaquents). The site is generally flat, with topographic elevations ranging from 105 to 110 feet (32 to 34 meters) above msl (Nelson 2010; Rogers 1990).

3.4 Surface Hydrology

Surface water drainage in the region is dominated by the Savannah River, which forms the western boundary of SRS. The Savannah River receives drainage from five major tributaries which originate on or drain through SRS. These tributaries are Upper Three Runs (UTR), Fourmile Branch (FMB), Pen Branch, Steel Creek, and Lower Three Runs (LTR) (Figure 3-1). All of these streams drain proposed Army training areas. SRS also possesses two large manmade surface water impoundments, PAR Pond and L-Lake (Figure 3-1). Detailed descriptions of SRS surface water hydrology can be found in Wike et al. (2006). Groundwater resources are not considered in the EA because they would not be impacted by the proposed action.

The Savannah River is classified by the South Carolina Department of Health and Environmental Control (SCDHEC) as freshwater that is suitable for primary and secondary contact recreation, drinking after appropriate treatment, balanced native aquatic species development, and industrial and agricultural purposes. This same use classification is applicable to the five tributaries which originate on or drain through SRS.

SRS has six active SCDHEC NPDES permits for: 1) industrial wastewater, 2) industrial storm water, 3) construction storm water, 4) utility water, 5) no discharge (for land application of sludge from the CSWTF), and 6) pesticide application. With the exception of minor problems areas involving copper and fecal coliform bacteria which are not related to site operations, surface streams on SRS meet applicable SCDHEC water quality standards.

There are certain stream reaches and lakes which possess bottom sediments contaminated by past SRS operations. Some of these contaminated drainages are located within the proposed Army training area. Training would be closely monitored or prohibited in these areas.

3.4.1 Surface Hydrology on the Proposed Permanent FOB Sites

The FOB-1 site in D-Area is located adjacent to the Savannah River floodplain and runoff from this site is via a storm drainage system to an unnamed tributary of the Savannah River Swamp. The FOB-2 site is located within the Pen Branch watershed. Surface drainage from this site is west toward Pen Branch. No perennial or intermittent streams are present on either of these alternative FOB sites.

3.4.2 Surface Hydrology on the Water Gap DZ Site

The Water Gap site is located within the Savannah River Swamp drainage. Surface drainage from this site is south to the Savannah River Swamp. There are no perennial or intermittent streams present on this site.

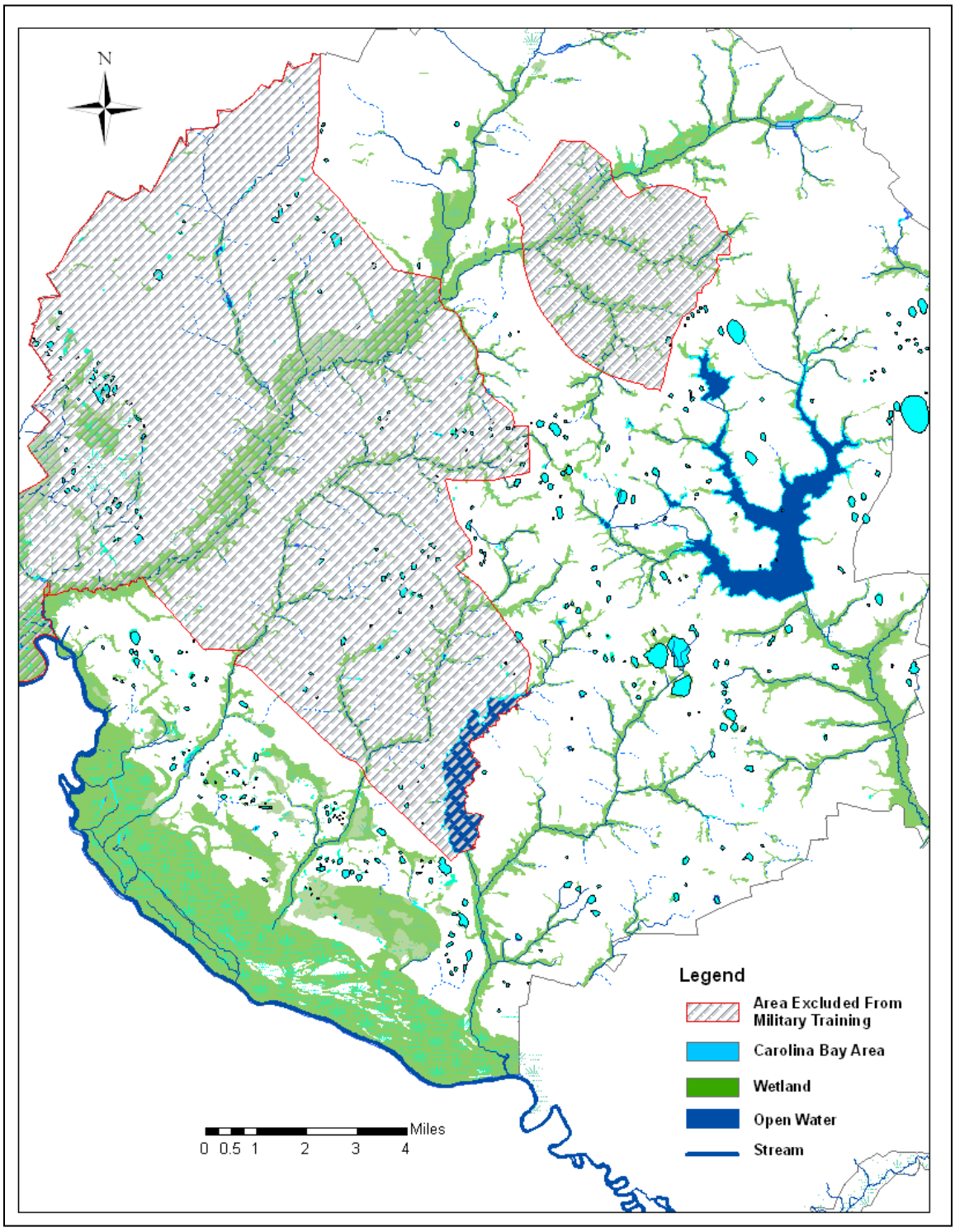

Figure 3-1. Aquatic and Wetland Resources on SRS.

3.4.3 Surface Hydrology in the Immediate Vicinities of D-Area and the 681-1G Pumphouse

The D-Area industrial complex is contiguous to the Savannah River floodplain. Surface drainage from this industrialized landscape flows via a storm drainage system to unnamed tributaries of the Savannah River Swamp. Surface drainage from the area of the 681-1G Pumphouse is into the Savannah River via the intake canal. There are no perennial or intermittent streams on either of these sites.

3.5 Air Quality

SRS is located near the center of the Augusta, Georgia (GA) – Aiken, South Carolina (SC) Interstate Air Quality Control Region (AQCR) No. 53. The U.S. Environmental Protection Agency (USEPA) currently classifies this AQCR as being in attainment with the National Ambient Air Quality Standards (NAAQS) for criteria air pollutants (40 CFR 81.311, 81.341).

SRS has two Clean Air Act Title V operating permits. The primary sources of air pollutants at SRS are biomass and oil-fired boilers in A-Area, the coal-fired boilers in D-Area, biomass-fired boilers in K-and L-Areas, diesel-powered equipment, the Defense Waste Processing Facility, soil vapor extractors, groundwater air strippers, and various other processing facilities. Other emissions and sources include fugitive particulates from coal handling, vehicles, controlled burning of forested areas, and temporary emissions from various construction-related activities (NRC 2005 and SRNS 2010). Monitoring results demonstrate that SRS-related air pollutant concentrations are in compliance with applicable Federal and State standards (SRNS 2010). Air quality conditions reported for SRS are representative of conditions within the proposed Army training area.

The USEPA anticipates issuing final 8-hour primary ozone and cumulative, seasonal secondary ozone standards by July 29, 2011. The current primary standard (0.075 parts per million [ppm]) may be reduced to the 0.060 - 0.070 ppm range. This reduction in the primary ozone standard may result in SRS being located in a nonattainment area.

3.6 Ecological Resources

The ecological resources of SRS are discussed in detail by Wike et al. (2006); documented conditions are as follows. Since 1950, when the land for SRS was acquired, natural resource management practices and natural succession outside of the developed administrative and industrial areas of the site have resulted in increased ecological complexity and diversity. As discussed in Section 3.1, SRS's terrestrial habitat is comprised primarily of forestland. However, over 20 percent of the site's surface area is covered by water, including wetlands, bottomland hardwoods, cypress-tupelo swamp forests, two large cooling water reservoirs, creeks and streams, and 299 isolated upland Carolina bays and wetland depressions (Figure 3-1). The biodiversity within SRS is extensive due to the variety of plant communities and mild climate. Scientists have documented the occurrence of 1,322 plant species from 151 taxonomic families on SRS.

Animal species known to inhabit SRS include 55 species of mammals, 255 species of birds, 60 species of reptiles, and 44 species of amphibians.

Five species which are afforded protection under the Federal Endangered Species Act (16 USC 1531 *et seq*.) are found on SRS and known to occur in the proposed Army training area. These threatened and endangered (T&E) species are the wood stork (*Mycteria americana*), RCW, shortnose sturgeon (*Acipenser brevirostrum*), smooth purple coneflower (*Echinacea laevigata*), and pondberry (*Lindera melissifolia*) (Wike et al. 2006). Additional descriptive information regarding T&E and other species on SRS can be found in the Biological Evaluation (BE) prepared for the proposed action (Appendix B).

3.6.1 Red-cockaded Woodpecker

The RCW is a territorial, non-migratory species. This species is known to be somewhat tolerant of noise and activity in its immediate vicinity, as evidenced by growing populations on numerous Army installations with intensive training activities.

There are multiple clusters of RCW cavity trees located throughout the proposed SRS Army training area. The RCW population at SRS numbered 50 active groups during the 2008 breeding season (USDA 2010). SRS has an active RCW management and monitoring program which follows the most current research and management recommendations from the U.S. Fish and Wildlife Service (USFWS) (USDA 2010). SRS possesses two natural resource management zones which are dedicated to RCW management (USDA 2010):

- Red-cockaded Woodpecker Management Area (RCWMA), which consists of 86,069 acres (34,832 ha). The protection of RCW habitat is the primary objective of this management area. Army training activities in this area would be subject to restrictions to avoid impacting the RCW and its habitat.
- Supplemental Red-cockaded Woodpecker Management Area (SRCWMA), which consists of 48,167 acres (19,493 ha). The objective of this management area is to create habitat for RCW recovery. Army training activities in this area would be subject to fewer restrictions than those implemented in the RCWMA.

All of the RCWMA and part of the SRCWMA lie within the proposed Army training area. RCW cavity trees are marked with a single yellow or white painted band or double white painted bands. Some of the RCW clusters are identified with signs depicting an RCW. The military may be held responsible for additional RCW monitoring to determine cause if the RCW population declines or fails to grow.

3.6.2 American Bald Eagle

Although the bald eagle has been de-listed from the Endangered Species Act (16 USC 1531 *et seq*.), it is still protected by the Migratory Bird Treaty Act (16 USC 703 *et seq*.) and the Bald and Golden Eagle Protection Act (16 USC 668-668d). SRS has a small breeding population of American bald eagles. It is believed that one to two pairs of

eagles breed annually at SRS. There are two established nesting sites on SRS: the Pen Branch site located west of L-Lake and the Eagle Bay site located in a cypress wetland south of Par Pond (Appendix B). Each nesting site is surrounded by a 6,560 feet (2,000 meters) wide TMZ buffer zone, with access restrictions from September 15 through June 1. AT SRS, breeding eagles typically begin nest building in late fall or early winter. Chicks typically fledge and leave the nest by late spring.

3.6.3 Aquatic Habitats

Aquatic habitat on SRS includes manmade ponds, Carolina bays, reservoirs, and tributaries of the Savannah River. The Savannah River is contiguous to SRS, forming its western boundary. There are more than 50 manmade impoundments throughout the site that support fish populations. Carolina bays, a type of wetland unique to the southeastern United States, are natural shallow depressions which can range from lakes to shallow marshes, herbaceous bogs, shrub bogs, or swamp forests. Among the 299 known or suspect Carolina bays found throughout SRS, fewer than 20 have permanent fish populations. Although fishing in SRS surface waters is prohibited, the contiguous Savannah River possesses both sport and commercial fisheries (DOE 1982). SRS wetlands, which are associated with floodplains, streams, Carolina bays, and impoundments, include vegetation such as bottomland hardwood, cypress-tupelo, emergent vegetation and swamp forest. The distributions of aquatic resources and wetlands on SRS are illustrated in Figure 3-1.

Most Army exercises could take place adjacent to, but not within, wetlands. Exercises related to refueling activities, FARP and Refueling on the Move (ROM) operations, would take place in locations remote from wetlands to ensure that these areas would not be affected by inadvertent fuel spills. Wheeled vehicles and foot traffic would be allowed to travel through wetlands on established roadways. Foot traffic may also pass through wetlands via firebreaks and along areas of high ground. The only exception would be wetlands contiguous to stream crossing points. The locations of proposed stream crossings would be pre-approved by DOE prior to the training event to ensure that no critical aquatic or wetland resources are impacted. As discussed in Section 2.1, stream crossings would be by dismounted troops only.

Many wetlands associated with major stream corridors on SRS are located within DOE Research Set-Asides which are managed by the University of Georgia's Savannah River Ecology Laboratory (SREL) (Figure 3-2). There are 30 research set-asides, 19 of which are located within the proposed Army training area. Two of these 19 set-asides, Rainbow Bay and Field 3-412/Ellenton Bay, are regularly visited by SRS researchers (Figure 3-2). Research set-asides represent specific habitats and research sites which are protected from most SRS site maintenance and forest management operations. The purpose for the research set-asides is for SRS to possess relatively undisturbed areas which can provide baseline environmental data for determining the effects of SRS operations (Davis and Janecek 1997). Utility right-of-ways, roads and fire breaks traverse these set-asides and USFS-SR vehicles regularly move through them on secondary dirt or gravel roads. Army training activities within these set-asides would be limited to light foot and vehicular traffic on existing roads and insertion of personnel by parachute if sufficient open land or

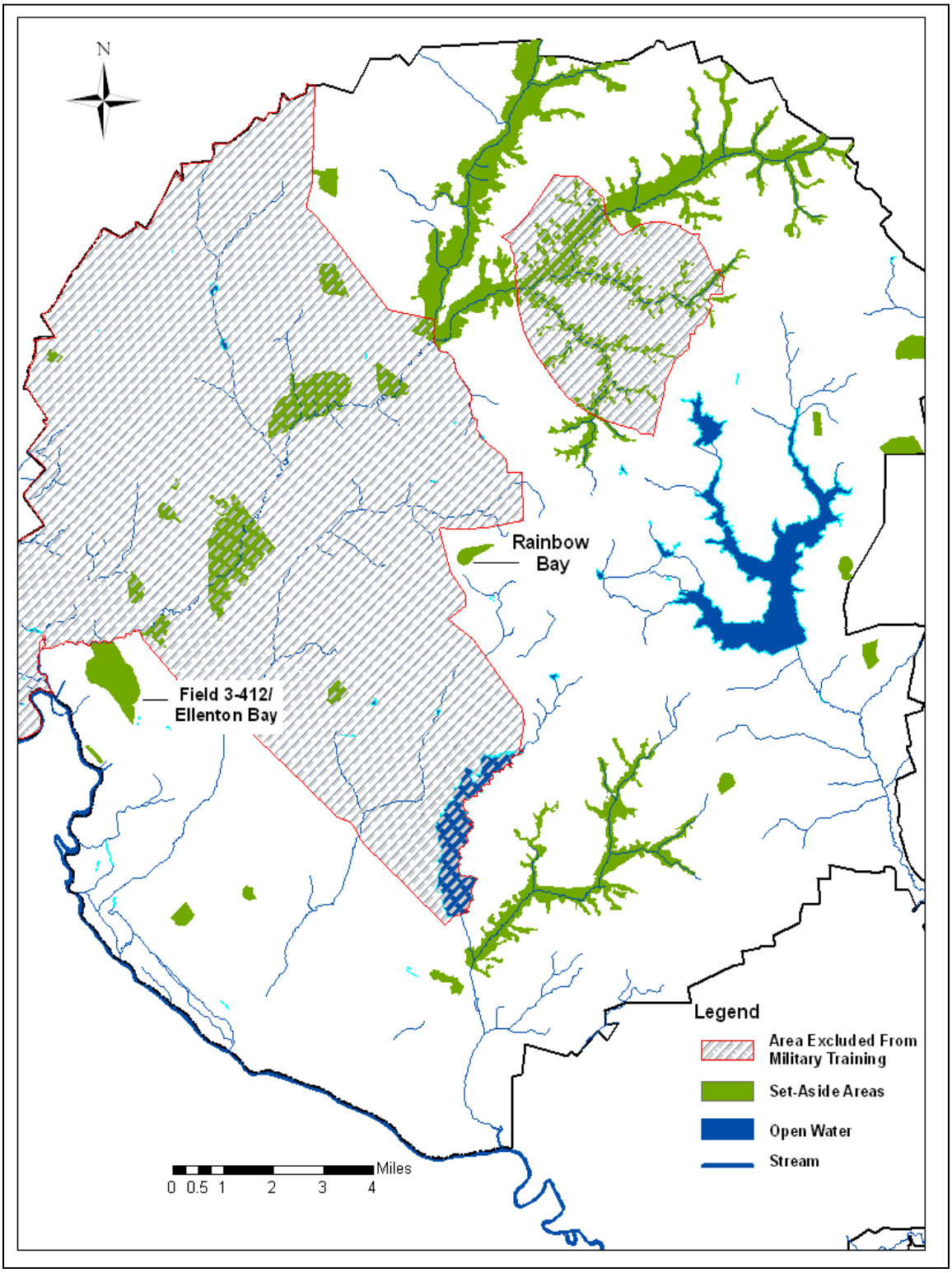

Figure 3-2. DOE Research Set-Asides on SRS.

road area is available. The Army and DOE would closely monitor training activities within the research set-asides to ensure that these valuable ecological resources are not adversely impacted.

3.6.4 Ecological Resources on the Alternative FOB Sites

The FOB-1 and FOB-2 sites are located in previously developed locations (D-Area and the relic Gun Site 51 site, respectively). There are no known T&E species or other environmentally sensitive resources such as streams, wetlands, and Carolina bays located within these sites (Appendix B).

3.6.5 Ecological Resources on the Water Gap DZ Site

The Water Gap DZ site is located within forestland within the Savannah River Swamp Management Area. There are no known T&E species or other sensitive ecological resources located within this site (Appendix B).

3.6.6 Ecological Resources in the Immediate Vicinities of D-Area and the 681-1G Pumphouse

The D-Area encompasses a developed industrialized landscape which possesses no known T&E species or other environmentally sensitive resources (Appendix B). The 681-1G Pumphouse is located along the Savannah River at the head of an intake canal. Wood storks may occasionally forage in area waters and shortnose sturgeon may be present within the Savannah River during spawning season (February through April) (Appendix B).

3.7 Archaeological, Cultural, and Historic Resources

Through a cooperative agreement, DOE and the South Carolina Institute of Archaeology and Anthropology (University of South Carolina) conduct the Savannah River Archaeological Research Program (SRARP) to provide services required by Federal law (including the National Historic Preservation Act [16 USC 470 *et seq*.]) for the protection and management of archaeological, cultural, and historical resources. To facilitate the management of these resources, SRS is divided into three zones based on an area's potential for containing sites of archaeological, cultural, or historical significance (SRARP 1989). Zones 1, 2, and 3 represent areas possessing high, moderate, and low potential (respectively) for significant archaeological or historical resources. High priority sites are typically located on elevated areas or bluffs adjacent to stream corridors and other wetlands.

Systematic surveys for archeological (historic and prehistoric) resources have been conducted on 32.7 percent of the SRS area available for survey, resulting in the identification of 1,878 sites recorded to date (SRARP 2009). Although most of these sites have not been formally evaluated for eligibility for listing in the National Register of Historic Places (NRHP), 67 sites have been identified as potentially eligible.

Most of the proposed Army training area possesses a low to moderate potential for significant archaeological and historical resources (Zones 2 and 3, respectively). As part of the site-specific screening process conducted prior to the advent of training activities, proposed training areas would be evaluated by the SRARP to determine the presence of any archaeological, cultural, or historical resources of potential interest or significance. If found to be present, appropriate mitigative actions would be implemented to protect or record these resources prior to commencement of training activities.

3.7.1 Archaeological, Cultural, and Historic Resources Within the Proposed Permanent FOB Sites

The FOB-1 and FOB-2 sites are located in previously developed areas (D-Area and relic Gun Site 51 site, respectively). Both of these sites possess a low potential for cultural resources because it is likely that any resources originally present were destroyed during construction-related activities.

3.7.2 Archaeological, Cultural and Historic Resources Within the Water Gap DZ Site

There are two known archaeological sites located within the preferred Water Gap DZ site, 38BR381 and 38BR382 (Moon 2010). Both are prehistoric and have lithic (stone) and pottery artifacts associated with them. Site 38BR381 has more potential for significance because it could possess intact subsurface deposits. Site 38BR382 contains a small scatter of artifacts adjacent to a road and may have been impacted by road construction. Beyond these two known sites, most of the site lies in Zone 2 and possesses a moderate potential for archaeological remains. However, along its southern border, the Water Gap site lies in Zone 1, which indicates an increased probability for significant archaeological deposits. A review of 1951 aerial photography indicates that historic farming activity on the Water Gap site was limited, thus increasing the likelihood for intact archaeological deposits. A comprehensive survey of the site (and possible mitigation of archaeological resources) would be required before construction of a DZ.

3.7.3 Archaeological, Cultural and Historic Resources Within D-Area and the Vicinity of the 681-1G Pumphouse

The developed industrial landscapes of the 681-1G Pumphouse and D-Area possess a low potential for significant archaeological resources because it is likely that any resources originally present were destroyed during construction-related activities. However, the 681-1G pumphouse is eligible for the NRHP as part of the Cold War District and many of the industrial facilities located within D-Area are also eligible for nomination as part of the SRS Historic District (King 2010). To date, none of these facilities have been nominated for inclusion in the NRHP.

3.8 SRS Noise Environment

Industrial operations in developed areas (e.g., vehicular traffic, industrial processes, cooling systems, transformers, engines, pumps, boilers, steam vents, paging systems),

general site activities in undeveloped areas (e.g., logging operations, vehicular and rail traffic), security-related activities (e.g., helicopter overflights, BDR live-fire range operations), and civilian road and rail traffic are the primary contributors to SRS's noise environment. Occasional overflights of commercial, civilian and military aircraft also contribute to the noise environment of SRS and surrounding areas. Silvicultural activities (e.g., logging operations) are common throughout the SRS region, both on and offsite. Most of the land area surrounding SRS is rural or undeveloped. It is expected that at the site boundary SRS-generated noises are either unheard or barely discernible above the background noise level of the general area.

3.9 Site Infrastructure

SRS possesses a well-developed site infrastructure. The site's road system includes more than 199 miles (320 km) of primary and more than 995 miles (1,602 km) of secondary roads (DOE 2002). Maximum vehicular weight loading for the site's gravel roads is approximately 80,000 pounds (36,199 kilograms [kg]). The source of potable water at SRS is groundwater which is treated at facilities in A- and B-Areas and distributed to other areas of the site via a 27-mile (43-km) pipeline system. Annual water consumption (primarily process water of groundwater origin) is approximately 470,000 million gallons (1.78 billion liters [l]), while the potable water production capacity at SRS is approximately 1.0 billion gallons (3.79 billion l) (DOE 1999).

Implementation of the proposed action would necessitate the Army's use of SRS roads, potable water, and sanitary wastewater treatment systems, as well as selected industrial facilities pending their decommissioning. SRS's road, water supply and wastewater treatment systems are designed to support a site population of approximately 20,000 persons. The current SRS workforce numbers less than 12,000 persons. SRS's infrastructure possesses significant excess capacity which would be available to meet the requirements of the proposed action.

3.10 Demographics and Socioeconomics

SRS is located approximately 15 miles (24 km) southeast of Augusta, Georgia and approximately 12 miles (19 km) south of Aiken, South Carolina. SRS's Region of Interest (ROI) is the four-county area of Columbia (GA), Richmond (GA), Aiken (SC), and Barnwell (SC); 90 percent of SRS employees reside in these four counties (DOE 2011). From 2000 to 2008, the ROI labor force increased by 9.7 percent, while the overall population increased by 7.0 percent (DOE 2011). The July 2009 unemployment rate in the ROI was 10 percent, which was lower than the 11 percent unemployment rate across the two-State area of South Carolina and Georgia (DOE 2011). In March 2011, SRS employed approximately 12,000 people, and had an annual budget of approximately $1.2 billion**.**

3.11 Environmental Justice

The 10-mile (16-km) radius surrounding the approximate midpoint of SRS encompasses parts of four counties, Richmond (GA), Burke (GA), Barnwell (SC), and Aiken (SC).

From 1990 to 2000, the total population of these counties increased by approximately 10 percent to 388,048; the minority population increased by approximately 28 percent to 175,866; and the low-income population increased by approximately 14 percent to 67,950 individuals.

Demographic data from the 2000 census show that the African-American population residing in the four-county area accounted for approximately 89 percent of the total minority population, while those of Latino or Hispanic origin comprised approximately five percent of the total minority population (DOE 2011). A detailed discussion of the racial and income characteristics of the SRS ROI can be found in DOE/EIS-0423 (DOE 2011).

3.12 Air Space

The air space over SRS is not restricted and is occasionally utilized by private, commercial and military aircraft. Training and security activities by WSI-SRS helicopters comprise the most frequent use of air space over SRS. The nearest commercial airport is Bush Field south of Augusta, GA, approximately 11 miles (17 km) northwest of the westernmost SRS boundary. The neighboring cities of Aiken and Barnwell have small airports which service private and small business aircraft.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

The proposed action considered in this EA involves non-live-fire tactical training activities to be conducted by the Army at SRS. Annually, the Army would submit a plan of proposed training events to DOE for review and approval. Prior to scheduling a training event, the Army would identify a location within SRS which meets training scenario requirements. This proposed training location would subsequently be screened by DOE and the Army for the presence of ecological and cultural resources and/or controlled areas which should be avoided. The proposed location would also be reviewed by DOE for any potential land use conflicts regarding existing or future SRS missions. As part of this screening process, existing conditions within the specific proposed training area would be documented or benchmarked by DOE to create an environmental baseline. DOE would use the environmental baseline to assess the effect(s) of training events on the human environment and assist in determining the efficacy of any applied best management practices (BMPs).

Before conducting a training event, the Army would prepare, and DOE would approve, a site-specific training plan designed to protect the human environment by avoiding selected ecological resources and implementing appropriate BMPs, and by resolving any identified site-related issues such as conflicts with land use and operations. During a training event, activities would be monitored by DOE and the Army to ensure implementation of the training plan. After completion of the training event, DOE and the Army would inspect the location to (a) ensure that all training debris has been removed, (b) identify and assess any resulting environmental or infrastructure damage and (c) determine the efficacy of applied BMPs. The Army would be responsible for mitigating

any resultant damage to SRS resources. DOE expects that the number and duration of training events each year would vary. While this variability would, in part, be a function of DOD demand to train on SRS, the most significant limiting factor would be SRS's ability to accommodate multiple military training events without enduring long-term environmental damage or disruption of site missions. Utilization of the above described site screening and field inspection processes would facilitate DOE's ability to monitor Army training activities and ensure that SRS's human environment does not sustain significant adverse impacts.

4.1 Training Activities

Potential environmental effects are assigned an impact level according to the following convention:

- Significant – the impact would possess the context and intensity as defined in Council on Environmental Quality regulations (40 CFR 1508.27).
- Moderate – the impact would be readily apparent, but not significant.
- Minor – the impact would be perceptible, but not readily apparent.
- Negligible – the impact would be less than minor and may not be perceptible.

Based on DOE's evaluation of the training scenarios, and on the planning and monitoring process described in the JSOP, the expected environmental impacts of the training activities associated with the proposed action are described below.

4.1.1 Air Quality

The primary source of air emissions for the proposed training activities would be engine exhaust from vehicles, aircraft, portable generators, and portable pumps. Emissions would include VOCs, carbon monoxide (CO), nitrogen oxides ($NO_{x)}$, sulfur dioxide ($SO_{2)}$, and PM. Other sources of air emissions would be training activities which generate fugitive dust such as helicopter rotor wash and vehicular traffic, obscurants, the combustion of primer and propellant during blank weapons fire, and the use of pyrotechnics. Emissions from these activities also would include VOCs and PM.

The generation of air emissions from internal combustion engines during most training events would be site-specific, short-lived and quickly dispersed into the atmosphere. Air emissions associated with aircraft and convoy-related operations would typically be generated over a larger geographic area. The resulting pollutant loadings would therefore be diffuse and quickly assimilated into the atmosphere. The release of VOCs and PM from blank weapons fire and pyrotechnics during training activities would be negligible due to the minimal amount of primer and propellant combusted. The generation of fugitive dust by vehicular and helicopter traffic would be site-specific, short-lived, and minimized by the application of BMPs where appropriate.

None of the air emissions generated by implementation of the proposed action would require permitting by SCDHEC. All generators would be "temporary or portable" internal combustion engines that meet the definition of "non-road engine" under 40 CFR

89 and therefore also would be exempt from Clean Air Act permitting. DOE anticipates that the impact of air emissions from the proposed action on air quality would be negligible and would not contravene criteria air pollutant standards.

4.1.2 Wetlands and Streams

Foot travel crossings of wetlands and streams are proposed in four training activities for approximately 30-550 troops per exercise, with the number depending on the training activity and the size of the training scenario. Crossing locations must have prior approval from DOE. No hardened stream crossings would be constructed at SRS, but the Army is allowed to utilize existing bridged and culverted road crossings. During these stream crossings, a temporary increase in stream turbidity, limited disturbance of bottom sediments, and trampling of wetland vegetation would occur. Macrofauna within these habitats would be temporarily displaced or disturbed but not otherwise impacted. Additionally, the potential exists for disturbance of river bottom sediments and wetlands at locations where troops come ashore after water insertion during Air-Water Operations (Section 2.1.1.20).

With certain qualifications, the Army would be allowed to train adjacent to, but not within, wetlands (see discussion in Sections 2.1 and 3.6). Training events which involve the storage or dispensing of petroleum, oils, and lubricants (POLs) (e.g., FARP and ROM-related activities) would not be conducted within 200 feet (61 meters) of any surface water body or ground water well. This latter buffer requirement, as well as the implementation of BMPs and procedures to prevent and rapidly respond to spills (e.g., catch basins for fuel bladders), would serve to protect area surface and groundwater resources. The Army would minimize leakage of petroleum products into the environment by implementing a SPCC Plan, including the regular inspection of vehicles and aircraft, conducting routine maintenance of equipment, and the use of drip pans when vehicles are at rest.

Neither discharges of dredged or fill material into wetlands and streams, nor construction of hardened crossings, is a component of the proposed action. DOE anticipates that the impact of proposed Army training activities on water quality in SRS streams and wetlands would be negligible to minor in magnitude. Likewise, DOE anticipates that the impact of proposed Army training activities on SRS stream and wetland habitats would be negligible to minor in magnitude.

4.1.3 Water Quality

Wastewater streams generated by proposed training activities are comprised of sanitary wastewater from portable toilets, grey water from field kitchens, and rinse water from decontamination exercises. Sanitary wastewater would be collected by an authorized contractor and transported to the SRS Central Sanitary Wastewater Treatment Facility (CSWTF) for treatment and disposition. Discharge of treated effluent from this facility is into FMB and the addition of the Army's waste stream to the CSWTF would not adversely impact plant capacity, operations, or permit compliance. Grey water generated by field kitchens and decontamination operations would be collected and, following

removal of any gross solids such as food scraps, be broadcast onto the ground surface or channeled into a shallow sump for infiltration into the soil column. Grey water would not be discharged into surface streams or wetlands and application sites would be rotated to prevent the saturation of the soil column.

The personnel decontamination process for both the CST and CERFP would involve only clean water. Clean rinse water generated during decontamination exercises would be broadcast onto the ground surface. No radiological, biological, or chemical test sources would be utilized to alarm detection equipment during the conduct of this training activity, unless approved and monitored by DOE-SR and SRNL. The personnel decontamination process for both the CST and CERFP would involve clean water. The decontamination process would not differ between simulated chemical, biological, or radiological agents. Simulated agents would not contact the decontamination water.

If DOE-SR and SRNL were to approve a chemical, biological, or radiological source for training use, the same decontamination process would be used as for the simulated agents. Water quality would not be affected because the sources would not come in contact with the decontamination water. However, the Army would rely on DOE-SR and SRNL to monitor the used decontamination water for potential presence of the source, and to properly dispose of used decontamination water containing a source.

Water-based training activities are likely to cause increases in turbidity due to wave action created by watercraft operation, and by the beaching of watercraft and troops exiting watercraft. Foot travel though streams and wetlands may cause temporary increases in turbidity at, and downstream of, the crossing location. The Army would implement erosion control BMPs during DZ construction to minimize sediment-laden runoff and subsequent impacts to water quality. Construction activities would require compliance with applicable construction stormwater regulations. The potential for rutting or soil erosion on road shoulders and unimproved roads that could cause sediment-laden runoff to reach streams would be mitigated by the Army through the implementation of BMPs to maintain soil integrity and prevent sediment runoff.

Training events which involve the storage or dispensing of POLs (e.g., FARP- and ROM-related activities) would not be conducted within 200 feet (61 meters) of any surface water body or groundwater well. This buffer requirement, as well as the implementation of BMPs and procedures to prevent and rapidly respond to spills (e.g., catch basins for fuel bladders), would serve to protect area surface and groundwater resources. The Army would minimize the leakage of petroleum products into the environment by implementing a SPCC Plan, including the regular inspection of vehicles and aircraft, conducting routine maintenance of equipment, and the use of drip pans when vehicles are at rest.

Direct discharges to surface or subsurface waters of the State are not a component of the proposed action. DOE anticipates that the impact of proposed Army training activities on SRS water quality would be negligible.

4.1.4 Terrestrial Productivity

The impact of the proposed action on terrestrial productivity would range from negligible to moderate, excluding construction and operation of the Water Gap DZ.

Construction of the proposed Water Gap DZ would require the clearing of approximately 185 acres (75 ha) of forestland and subsequent conversion of the site to grassland. The initial impact of forest clearing on the DZ site's terrestrial productivity would be moderate. Subsequent conversion of the site to grassland, however, would return it to natural production and partially mitigate this loss. DOE anticipates that the overall impact on terrestrial productivity at SRS would be minor due to the size of the DZ relative to the size of SRS. As previously discussed in Section 4.0, appropriate BMPs (e.g., erosion control) would be implemented as required to protect and sustain SRS's human environment.

Although the proposed FOBs would involve the construction and operation of permanent facilities, these bases would be established on previously developed sites with marginal terrestrial productivity. While construction of a FOB on this site would permanently remove it from natural production, DOE anticipates that the net impact on terrestrial productivity would be negligible due to previous activities.

The remaining training activities would require no permanent facilities or result in land use/cover changes, and would only minimally impact the terrestrial ecosystem. Minimal impacts would include trampling of surface vegetation by foot/vehicular traffic and limited compaction of soil in moderate to high traffic areas. Effects on vegetation and soil would be localized and temporary, with an anticipated natural recovery from potential adverse impacts following cessation of the training activity. DOE anticipates that the proposed action would have a negligible effect on terrestrial productivity.

4.1.5 Wildlife

Proposed Army training activities would increase the amount of human activity in the designated training area, including foot/vehicular/aircraft traffic, firing of small arms blank ammunition, and pyrotechnics simulating artillery fire and similar explosive-type sounds. The periodic increases in activity and noise associated with implementation of the proposed action would be expected to disturb area wildlife. These disturbances would be short-lived and limited to specific geographic areas or locations (excluding aircraft flight paths and convoy routes). DOE anticipates that the majority of affected wildlife would adapt by acclimating (negligible impact) or physically vacating the area and returning after cessation of the training event (minor impact). The Army would coordinate with DOE and the USFS to avoid wildlife disturbance that might jeopardize wildlife research projects.

The proposed Army training activities would result in the increased use of aircraft (primarily helicopters) on portions of SRS. DOE anticipates that avian mortality resulting from bird-aircraft strikes associated with the proposed increase in aircraft use would be negligible.

4.1.6 Archeological, Historical, and Cultural Resources

The Water Gap DZ (Section 2.1.1.21) is proposed for construction in an area possessing moderate to significant potential for archaeological resources. The DZ site is known to possess two potentially significant archaeological sites (see Section 3.7.3). A comprehensive survey of the site, and possible mitigation of archaeological resources, would be required prior to development of the site as a DZ. The impact of establishing the Water Gap DZ on SRS archaeological, cultural and historical resources would be minor because appropriate regulatory compliance activities would be completed prior to commencement of construction activities.

Previous industrial development activities during the 1950s-1960s at both FOB sites (Section 2.1.1.10) resulted in substantial soil disturbance, which would have destroyed any archeological or historical resources present at that time. Construction of the FOB sites would occur in these areas of previous disturbance, thereby avoiding impacts to archeological/historical resources.

DOE anticipates that impacts would be negligible to archeological/historical/cultural resources for the remaining 24 proposed training activities because they do not contain a land-disturbing component. DOE also anticipates that other training activities not specified in this EA but without a land disturbance component also would be considered to have negligible impacts on these resources.

4.1.7 SRS Infrastructure

A major premise of the proposed action is that Army units training on SRS would be self-sufficient. Specifically, these units would bring with them the resources necessary to sustain their operations and successfully complete assigned training missions. Implementation of the proposed action, however, would necessitate the Army's use of SRS infrastructure, including site roads, the potable water system, the waste water treatment system, and selected decommissioned industrial facilities. The existing SRS infrastructure possesses the capacity to support a site workforce of approximately 20,000 people. However, the 2011 workforce is approximately 12,000, so many components of the site's infrastructure (e.g., roads, potable water, waste water treatment) are underutilized and could easily accommodate the additional loading associated with the proposed action. DOE anticipates that the impacts of the proposed action on SRS's infrastructure would range from negligible to minor.

The Army would require potable water for human consumption and selected training activities (e.g., CBRN exercises). The Army would fill these water needs by utilizing SRS's potable water system. The quantity of water required would be insignificant compared to existing SRS usage and would not adversely impact site production capacity. The impacts of constructing and operating this water system were evaluated in DOE/EA-0943 (DOE 1994).

Portable toilets would be used by the Army to collect sanitary wastes. Sanitary waste water would be collected by an authorized contractor and transported to the CSWTF for

treatment and disposition. Discharge of treated effluent from this facility is into FMB and the addition of the Army's waste stream to the CSWTF would not adversely impact plant capacity, operations or permit compliance. DOE anticipates that the impacts of using the CSWTF to treat sanitary waste waters generated by the proposed action would be negligible. The impacts of constructing and operating the CSWTF were evaluated in DOE/EA-0878 (DOE 1993).

Debris and other residue generated during training activities would be collected by the Army and disposed of in an approved waste disposal facility (e.g., Three Rivers Solid Waste Authority Regional Waste Management Center). With the exception of the CSWTF, onsite waste treatment/storage/disposal (TSD) facilities would not be utilized or otherwise impacted by the proposed action. The environmental impacts of operating offsite TSD facilities are not considered in this EA.

Vehicular traffic associated with the proposed action would be infrequent and light (excluding periodic convoy traffic) and the associated potential for congestion and accidents would be minor. The use of site roads by military vehicles would be planned and monitored by DOE and the Army to ensure that vehicular weight restrictions (maximum 80,000 pounds [36,199 kg]) are not exceeded and that training activities would not interfere with DOE or other SRS missions. The integrity of unpaved roads used by the Army would be maintained by the use of appropriate BMPs. Any damage to site roads attributable to military use, such as rutting or erosion of gravel roads, pavement cracking, and road failure, would be repaired by the Army.

Electrical power required for the proposed action would be provided by the Army with portable generators. DOE anticipates that the proposed action would have no impact on SRS electrical resources.

As part of the proposed action, the Army would train on selected SRS facilities (D-Area industrial complex and 681-1G pumphouse) after they have been deactivated and decommissioned by DOE. Since DOE would no longer require or maintain these facilities, DOE anticipates that their use by the Army for military training purposes would not impact SRS infrastructure or operations.

As discussed in Section 4.0, the Army would coordinate the scheduling and siting of training events with DOE using a comprehensive up-front planning process. This planning process would be initiated 90 days prior to the date of the proposed training event. Consequently, DOE anticipates that the potential for the proposed action to interfere with normal SRS operations (e.g., road usage, silvicultural operations, ecological research projects, and site security) would be negligible.

4.1.8 Air Space

A portion of SRS airspace, as well as airspace of the surrounding area, would be used by aircraft in 19 of the 26 proposed training activities. The Army would conduct air combat and logistical support operations using fixed-wing, rotary-wing and tilt-rotor aircraft. Aircraft would be limited to air space over the proposed Army training area and be

prohibited from flying over SRS's administrative and industrial core, BDR, Southern Company's Plant Vogtle across the Savannah River from SRS, (Figure 2-2) and potentially other facilities. As required, the Army would communicate with DOE, Federal Aviation Administration and civilian air traffic controls to coordinate the use of site and regional air space and avoid interfering with WSI-SRS, commercial, and civilian air traffic. DOE anticipates that the impacts of the proposed action on regional air space would be temporary and range from negligible to moderate, depending on the number of flights and the number of aircraft used in the training exercise.

4.1.9 Noise

Aircraft, wheeled vehicles, watercraft, generators, pumps, troops, blank ammunition, and pyrotechnics would produce increased noise levels during the training exercises. Most of the land area surrounding SRS is rural or undeveloped. It is expected that the noise resulting from the proposed action (exclusive of aircraft-generated noise) would be barely discernable to human receptors in areas beyond the site boundary.

The noise of aircraft approaching and leaving SRS air space during this training activity would be most evident to offsite human and wildlife receptors located in the vicinity of the proposed flight paths. The proposed flight corridors for fixed- and rotary-wing aircraft entering and leaving SRS air space are shown in Figure 2-2. Based on noise modeling conducted by the Army, DOE anticipates that the resultant noise levels would be compatible with the surrounding noise environment and would not generate an incompatible noise zone (see Appendix C).

Although there would be potential for individual events to cause annoyance and generate complaints (moderate impact), DOE anticipates that the overall impact on the public of aircraft-generated noise associated with the proposed action would range from minor to moderate. DOE anticipates that noise-related impacts of the proposed action on SRS's workforce, most of which is located within the site's administrative/industrial core but outside of the proposed Army training area, would be temporary and range from negligible to minor.

4.1.10 Human Receptors

For most training activities, noise is the only factor potentially affecting human receptors. Any training noise that may be evident to SRS field personnel and individuals living or working near the SRS boundary is anticipated by DOE to be a minor, short-term, temporary, effect. However, noise generated by airborne operations training has the potential for individual events to cause annoyance and generate complaints (moderate impact).

The Army would utilize high energy microwave transmissions during tactical communications operations training. There are potential health risks associated with the use of high-powered radio frequencies. Training activities would avoid controlled areas, waste units, and areas of radiation-contaminated sediments.

The Army would implement appropriate BMPs to ensure the protection of human health. DOE anticipates that the proposed training activities are anticipated to have negligible effects on human receptors.

4.1.11 Socioeconomics

The Army's training mission at SRS would be managed by a small team (less than ten individuals) that would be based at Fort Gordon, Georgia. Team members would commute to SRS as required to support Army training activities. Army personnel would be utilized to establish or construct proposed temporary and permanent training facilities. Implementation of the proposed action would require no new employees. Although Army units training at SRS are expected to be self-sufficient, it is anticipated that they would contract with DOE for selected services such as potable water and the collection and disposal of sanitary waste water. The potential also exists that Army units could purchase supplies and services (e.g., lodging, food, fuel, construction materials) in communities surrounding SRS. The local economic impact is estimated at $600,000, based on four battalion-sized training groups per year. In comparison, SRS has an annual budget of approximately $1.2 billion and an approximate 12,000-member workforce. DOE anticipates that the socioeconomic impact of the proposed action on SRS's ROI would be negligible.

4.1.12 Federally Listed Threatened and Endangered Species and American Bald Eagle

The RCW, wood stork, shortnose sturgeon, pondberry, and smooth purple coneflower are the five Federally-listed species known to occur on SRS. Based on information provided by the Army in the Biological Evaluation (Appendix B), the USFWS concurs that the proposed action is not likely to adversely affect the species listed above (Appendix D). The American bald eagle, a former T&E species, is protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

4.1.12.1 Red-cockaded Woodpecker

No RCW clusters would be directly impacted by the proposed construction of permanent or temporary training facilities. The potential exists that tactical field exercises conducted in the general vicinity of these clusters could indirectly adversely impact individuals or their habitat. These adverse impacts would be avoided by the implementation of standard Army guidelines (as applicable) for training in RCW management areas (Robert et al. 1997):

- Military training activities would be prohibited within 200 feet (61 meters) of any RCW cavity tree.
- Dismounted troops could pass through a RCW cavity tree buffer zone but would not be allowed to maintain a presence within the buffer zone.
- Military vehicles would be prohibited from occupying a position or traversing within 200 feet (61 meters) of a marked cavity tree, unless on an existing road.

- No blank weapons fire or use of pyrotechnics would be allowed within 200 feet (61 meters) of RCW clusters.
- Troops would be provided RCW cluster locations and briefed on RCW training restrictions prior to their introduction into the field.

These guidelines have proven effective on numerous Army installations that support growing RCW populations. Assuming implementation of these protective measures, there are no aspects of the proposed action which would result in degradation or loss of this species' habitat or in the mortality of individuals, or otherwise comprise a violation of the Federal Endangered Species Act. The USFWS has determined that the proposed action is not likely to adversely affect RCWs (Appendix D).

4.1.12.2 Wood Stork

Wood storks forage in wetlands and shallow waters on SRS such as L-Lake, Savannah River Swamp, and Carolina bays, primarily from late June through September. There are no known wood stork nesting areas on SRS. Wood storks are highly mobile and if disturbed by training activities, would likely vacate the area and return after cessation of operations. There are no aspects of the proposed action which would result in degradation or loss of this species' habitat or in the mortality of individuals. The USFWS has determined that the proposed action is not likely to adversely affect wood storks (Appendix D).

4.1.12.3 Shortnose Sturgeon

The shortnose sturgeon is a rare anadromous fish known to spawn in the Savannah River in the vicinity of SRS. This spawning area is located upstream of the river segment which would be used for air-water training activities. These training events would not be conducted during the February through April spawning season. Any disturbance of the aquatic habitat resulting from the proposed action would be surficial and short-term and not adversely impact this species. There are no aspects of the proposed action which would result in the degradation or loss of this species' habitat or in the mortality of individuals. The USFWS has determined that the proposed action is not likely to adversely affect shortnose sturgeon (Appendix D).

4.1.12.4 Pondberry and Smooth Purple Coneflower

Pondberry is a deciduous shrub that can inhabit a variety of open to semi-wooded, seasonally flooded wetland habitats (DeLay et al., 1993; Kilgo and Blake 2005). On SRS, pondberry is known to occur at a single location on the margin of a wooded Carolina bay located within the southern portion of the proposed Army training area.

Smooth purple coneflower is a short-lived rhizomatous perennial that occurs in open dry oak woodlands, prairies, and along rights-of-way associated with these habitats (Kilgo and Blake 2005). There are three populations of smooth purple coneflower on SRS, two of which are located within the proposed Army training area (along Road 9 and Tennessee Road, respectively).

The Army would develop and implement site-specific training plans designed to protect these plant species during training events. These plans would identify and mark the location of these sensitive populations and establish protective buffers around them. Specifically, the Army would be prohibited from training with 200 feet (61 meters) of the Carolina bay which is the habitat for the pondberry or within 164 feet (50 meters) of the purple coneflower populations located in the vicinity of Road 9 and Tennessee Road. To reinforce these training restrictions, troops would receive instruction prior to their introduction into the field regarding the appearance and location of these sensitive plant species and the need to respect the protective buffers. With implementation of these protective measures, there would be no aspects of the proposed action which would result in the degradation or loss of these species' habitats or in the mortality of individuals. The USFWS has determined that the proposed action is not likely to adversely affect pondberry and smooth purple coneflower (Appendix D).

4.1.12.5 American Bald Eagle

The Eagle Bay site is located within the proposed Army training area. The Army would conduct no training activities within this latter TMZ. However, traffic (foot and vehicular) would be allowed along Road B and dismounted troops would be allowed to transit the TMZ when moving from one training area to another. Military aircraft would generally avoid using the airspace over the TMZ but, if required, would maintain a minimum altitude of 1,000 feet (305 meters). The proposed action would not adversely affect the viability of this species on SRS (Appendix B); this would be considered a negligible impact.

4.1.13 Environmental Justice

Noise generated by aircraft entering and leaving SRS airspace would be evident to minority and/or low-income populations residing in the vicinity of proposed flight paths. As discussed in Section 4.1.9, noise levels associated with aircraft traffic would be compatible with the surrounding environment and an incompatible noise zone would not be generated. Other potential environmental impacts associated with the proposed action (e.g., temporary increase in air pollution, land use changes) would be limited to specific areas of SRS and not evidenced beyond the site boundary. Air emissions would be short-lived, quickly dispersed, and not impact regional air quality, and there would be no discharges to State waters. Environmental resources such as air, land, water, and wildlife utilized by minority and/or low-income populations living in the vicinity of SRS would not be diminished or degraded by the proposed action. There would be no disproportionately high and adverse human health or environmental effects on minority and low-income populations within SRS's ROI.

4.1.14 Greenhouse Gas Emissions

Greenhouse gas emissions include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_20). The proposed action would result in no new stationary sources of greenhouse gases. There would be a nominal increase in aircraft and vehicular miles

flown and driven (respectively) due to training activities. DOE anticipates that the incremental increase in fuel consumption would not significantly impact the amount of fossil-fuel consumed regionally. DOE anticipates that any increase in greenhouse gas emissions attributable to the proposed action would have a negligible impact on ambient air quality and global climate change.

4.1.15 Human Health

DOE anticipates that impacts to human health and safety would be negligible due to the use of personal protective clothing and equipment and the implementation of appropriate planning and safety practices during the conduct of military training activities. In addition, the comprehensive planning process outlined in the JSOP would serve to protect the health and safety of both military and SRS personnel. This up-front planning process would ensure that the location and timing of Army activities do not interfere with SRS operations, thereby significantly reducing the potential for unexpected encounters. Additionally, Army exercises would not occur in areas where known health and safety hazards exist (e.g., active timber management activities and controlled sites, including radiologically contaminated areas).

4.1.16 Terrorism-Related Impacts

DOE does not believe that the presence of Army units at SRS would increase the probability of a terrorist attack on SRS or that the troops themselves would be an attractive target for such. Measures to ensure that the conduct of Army training activities are not co-opted to gain unauthorized access to SRS are described in the JSOP developed by DOE and the Army (Appendix A). Additionally, existing safeguards and security programs in place at SRS would prevent the successful implementation of terrorism-related activity should unauthorized access to the general site occur. DOE anticipates that the potential for the proposed action considered in this EA to result in terrorism-related activity or impacts at SRS would be negligible.

4.2 Cumulative Impacts

The CEQ regulations define cumulative impact as an impact on the human environment that results when the incremental effects of a proposed action are added to the impacts of other past, present, proposed, and other reasonably foreseeable future actions within given spatial and temporal boundaries (40 CFR 1500-1508). Other past, present, and foreseeable future SRS activities within the area of SRS proposed for Army training that could potentially interact cumulatively with the proposed action include silvicultural activities, maintenance of infrastructure, ecological research, and wildlife management activities, as well as possible undefined future missions. With the exception of noise, DOE anticipates that the direct and indirect effects of these activities, in combination with the direct and indirect effects of the proposed action, would result in a negligible cumulative impact on the human environment.

There would be no direct waste water discharges associated with the proposed action and the disposal of limited quantities of sanitary waste water via the CSWTF would have a

negligible cumulative affect on receiving water quality. DOE does not anticipate that the periodic land application of limited quantities of grey water generated by field kitchen operations would adversely impact (incrementally or cumulatively) the terrestrial ecosystem or underlying groundwater aquifer. With the application of appropriate BMPs during construction-related activities and training events, DOE anticipates that the potential for cumulative impacts on terrestrial resources, downstream water quality and wetland resources would be negligible. DOE anticipates that the potential for any air emissions resulting from the proposed action (e.g., equipment emissions, fugitive dust) to interact with other SRS air pollution sources, or have a cumulative effect on criteria air pollutant concentrations within SRS's airshed, would be negligible. Although the proposed action would result in a minor cumulative increase in SRS's noise environment, DOE anticipates that the incremental increase in noise associated with individual training events would be episodic and would not be considered a significant impact on the human environment. Although establishment of a DZ would result in site-specific terrestrial impacts (e.g., land use/cover changes, soil compaction, and displaced fauna), the land area affected would be small compared to the total acreage available on SRS and DOE anticipates that this activity would not adversely impact DOE's future development or use of SRS. DOE anticipates that the cumulative impact of these land use changes, in conjunction with other ongoing and proposed SRS mission operations, on terrestrial productivity would result in negligible cumulative effect on SRS and environs.

The conduct of military training activities at SRS would not adversely impact DOE's ability to comply with Federal or State environmental laws, regulations, or permit requirements. Multiple training exercises conducted simultaneously would produce negligible to minor adverse impacts of a temporary nature, excepting the permanent impacts described above. Through the JSOP planning process, DOE and the Army would seek to avoid multiple simulaneous training exercises. Such impacts would not be considered additive to produce significant adverse effects. In summary, DOE anticipates that the implementation of the proposed action at SRS would have an overall negligible cumulative impact on the human environment.

4.3 Adaptive Management

The traditional environmental management model used in most NEPA analyses has been called "predict, mitigate, and implement." Such a model depends on the accuracy of predicted impacts and the anticipated results of mitigation activities, and does not consider unforeseen changes in environmental conditions, inaccurate predictions, or previously unknown information. The concept of adaptive management adds "monitor and adapt" to the environmental management model, which can provide a mechanism to adapt or compensate for conditions unanticipated in the original NEPA analysis without entering into an additional NEPA review process.

The proposed action has been determined to not have a significant effect on the human environment. However, there are a number of factors related to SRS and the proposed action that necessitate development and implementation of an adaptive management plan, including the following:

- Political actions can change the SRS mission. An adaptive management plan provides a mechanism within the NEPA analysis process that allows evaluation of Army training impacts on a new or expanded SRS mission.

- NEPA analysis is based on environmental conditions at SRS at the time of the analysis. Unanticipated natural changes in environmental conditions could result in the previous impact determinations being invalid. Adaptive management provides a mechanism to reassess impact determinations relative to changing environmental conditions.

- Predicted impacts on the human environment could prove inaccurate; the magnitude of intensity of impact could be greater than anticipated in the NEPA analysis. Adaptive management provides a way to compare predicted and actual impacts, and to provide mitigation for unanticipated impacts.

- After the initial NEPA determination and during or after the execution of the proposed action, new or previously unavailable information could become known that would have influenced the original NEPA analysis, had it been known at that time. Adaptive management provides a mechanism to reassess the NEPA analysis using the "fresh" information.

- Unforeseen human activities can cause unanticipated changes in environmental conditions, magnitude or intensity of environmental impacts, and similar unexpected circumstances. Adaptive management allows additional NEPA analysis to compensate for unforeseen events.

The JSOP (Appendix A) provides a basis for adaptive management related to unforeseen impacts. SRS infrastructure and environmental resources (JSOP, Chapter 8) are mentioned in general terms. Detailed plans specific to the resource would be prepared and approved on an as-needed basis and according to a stand-alone adaptive management plan specific to the Army training proposed action.

4.4 Potential Impacts Related to Implementation of the 'No Action' Alternative

Implementation of the 'No Action' alternative would not significantly impact the human environment. Under this alternative, SRS would periodically be utilized by individual military units for limited, short-term, non-live-fire tactical training events. This baseline level of military training at SRS would continue, with each proposed training events being reviewed under NEPA on a case-by-case basis.

5.0 REGULATORY AND PERMITTING REQUIREMENTS CONSIDERED

DOE policy is to conduct its operations in compliance with all applicable Federal, State, and local laws and regulations, and Federal Executive Orders (EOs). Following is a

listing of selected statutes, regulations, and EOs that is applicable to the proposed action and alternatives considered in this EA.

5.1 National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.)

NEPA requires Federal agencies to evaluate the effect of proposed actions on the quality of the human environment. NEPA review should be conducted during the planning and decision-making stages of a project or proposed action and be completed prior to project implementation. DOE has prepared this EA in accordance with the requirements of NEPA, as implemented by CEQ and DOE NEPA regulations (40 CFR Parts 1500 – 1508 and 10 CFR Part 1021, respectively).

5.2 Federal Clean Water Act, as amended (33 USC 1251 et seq.)

The objectives of the Clean Water Act (CWA) are to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA prohibits the 'discharge of toxic pollutants in toxic amounts to navigable waters of the United States'. The Act also establishes guidelines and limitations for discharges from point and nonpoint sources and a permitting program known as the NPDES program. The USEPA has delegated primary enforcement authority for the CWA and the NPDES permitting program to SCDHEC for waters of the State.

5.3 South Carolina Pollution Control Act (SC Code Section 48-1-10 et seq., 1976)

In the State of South Carolina, SCDHEC is the agency authorized to issue, deny, revoke, suspend, or modify permits (Pollution Control Act, South Carolina Code Section 48-1-50(5), *Powers of the Department*).

5.4 South Carolina Standards for Stormwater Management and Sediment Reduction (SCDHEC Regulation R.72-300)

This SCDHEC regulation requires that stormwater management and sediment control plans must be approved by the State prior to engaging in any land disturbing activity related to residential, commercial, industrial, or institutional land use not otherwise exempted or waived. This approval authority has been delegated to SRS. Construction-related activities considered in this EA would be conducted in accordance with this regulation.

5.5 Endangered Species Act, as amended (16 USC 1531 et seq.)

The Endangered Species Act is intended to prevent the further decline of endangered and threatened species and to restore these species and their habitats. The Act also promotes biodiversity of genes, communities, and ecosystems. The proposed action considered in this EA would not adversely impact the species of concern (see Section 4.1.12). As part of the NEPA public review process, this EA and supporting BE were provided to the USFWS for their review and consultation. Based on information provided by the Army

in the Biological Evaluation (Appendix B), the USFWS has determined that the proposed action is not likely to adversely affect plants and animals known to occur on SRS that are protected by the Endangered Species Act (Appendix D).

5.6 National Historic Preservation Act, as amended (16 USC 470 et seq.)

The National Historic Preservation Act provides that sites possessing significant national historic value be placed on the National Register of Historic Places. If a particular Federal action impacts a historic property, consultation with the Advisory Council on Historic Preservation is required. This consultation usually leads to a Memorandum of Agreement describing mitigative actions that must be implemented to minimize adverse impacts to the historic property. Coordination with the State Historic Preservation Officer also ensures that potentially significant sites are properly identified and appropriate mitigation actions implemented.

5.7 Migratory Bird Treaty Act (16 USC 703 et seq.)

This Act makes it unlawful to pursue, hunt, take, capture, kill or sell selected birds, such as the American bald eagle. The statute does not discriminate between live or dead birds and also grants full protection to any bird parts, including feathers, eggs and nests. Over 800 species are currently on the list.

5.8 Bald and Golden Eagle Protection Act (16 USC 668-668d)

This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

5.9 Environmental Restoration and Waste Management Remediation/Cleanup

SRS was placed on the National Priority List (NPL) in December 1989, under the legislative authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986. The site was added to the NPL because there have been releases or threatened releases of hazardous substances, pollutants, or contaminants, which USEPA evaluated through a hazard ranking system on the likelihood that a release occurred, on the characteristics of the waste, and on the environment affected by the releases. Placement on the NPL indicated SRS warranted further investigation to assess the nature and extent of the public health and environmental risks associated with the releases, and to determine the appropriate remedial action(s), if any. DOE, USEPA Region 4, and SCDHEC–in accordance with Section 120 of CERCLA–entered into the Federal Facility Agreement (FFA), which became effective August 16, 1993, and which directs the comprehensive environmental remediation of the site. The FFA, which integrates CERCLA and Resource Conservation and Recovery Act (RCRA) requirements to achieve a comprehensive remediation of SRS, governs the corrective/remedial action

process, sets annual work priorities, and establishes milestones for activities. The agreement also coordinates administrative and public participation requirements.

SRS has 515 waste units in the Area Completion Projects program, including RCRA/CERCLA units, Site Evaluation Areas, and facilities covered under the SRS RCRA permit. At the end of FY10, 386 units were complete or in the remediation phase (373 complete and 13 in remediation).

The status of these units, and the potential for the presence of chemical or radiological contaminants, must be taken into account when planning for training that could involve them. CERCLA Records of Decision (and RCRA Hazardous Waste Permit modifications) may impose enforceable land use restrictions for some land areas and decommissioned facilities, which would require regulatory approval for their training use by the military; and waste units and facilities that have been identified (listed in the FFA Appendix C or G.1) as containing actual or potential contamination that may warrant cleanup action must be avoided.

5.10 Integrated Safety Management System (48 CFR 970.5223-1)

The Safety Management System requires that activities conducted on SRS be done so safely and that there is adequate protection for employees, the public, and the environment. This system requires that hazards associated with the action to be performed are identified and evaluated and that administrative and engineering controls be implemented to prevent or mitigate these hazards and any related accidents or unplanned releases or exposures.

5.11 Executive Order 11988 (Floodplain Management)

This EO directs Federal agencies to establish procedures to ensure that the potential effects of flood hazards and floodplain management are considered for any action undertaken. Impacts to floodplains are to be avoided to the extent practicable.

5.12 Executive Order 11990 (Protection of Wetlands)

This EO requires Federal agencies to avoid short- and long-term adverse impacts to wetlands whenever a practicable alternative exists.

5.13 Executive Order 12898 (Environmental Justice)

This EO requires Federal agencies to identify and address disproportionately high and adverse human health or environment effects of its programs, policies, or actions on minority and low-income populations.

5.14 Executive Order 13186 (Protection of Migratory Birds)

This EO requires Federal agencies to assess and mitigate the impacts of their actions on migratory birds and promote the conservation of migratory bird populations and their habitat.

5.15 Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management

This EO instructs Federal agencies to conduct their environmental, transportation, and energy-related activities in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. As part of this scope, Federal agencies are required to reduce their greenhouse gas emissions.

6.0 AGENCIES AND PERSONS CONSULTED

The United States Department of the Army, United States Department of Interior Fish and Wildlife Service, University of Georgia Savannah River Ecology Laboratory, University of South Carolina Savannah River Archaeological Research Program, United States Department of Agriculture Forest Service-Savannah River and the Savannah River National Laboratory were consulted during the preparation of this environmental assessment.

7.0 REFERENCES

Legislation

16 USC 703 *et seq*. Migratory Bird Treaty Act.

16 USC 668-668d. Bald and Golden Eagle Protection Act.

16 USC 1531 *et seq*. Endangered Species Act.

16 USC 470 *et seq*. National Historic Preservation Act.

31 USC 1535. Economy Act.

33 USC 1251 *et seq*. Federal Clean Water Act.

42 USC 4321 *et seq*. National Environmental Policy Act.

42 USC 9601 *et seq*. Comprehensive Environmental Response, Compensation, and Liability Act.

Regulations

10 CFR 1021, U.S. Department of Energy, National Environmental Policy Act Implementing Procedures.

40 CFR 1500-1508, Council on Environmental Quality, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

40 CFR 81.311, 81.341, U.S. Environmental Protection Agency, Designation of Areas for Air Quality Planning Purposes.

48 CFR 970.5223-1, U.S. Department of Energy, Integration of Environment, Safety, and Health Into Work Planning and Execution.

Executive Orders

Executive Order 11988. Floodplain Management.

Executive Order 11990. Protection of Wetlands.

Executive Order 12898. Environmental Justice.

Executive Order 13186. Protection of Migratory Birds.

Executive Order 13423. Strengthening Federal Environmental, Energy, and Transportation Management.

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APPENDIX A

JOINT STANDARD OPERATING PROCEDURES (JSOP) FOR MILITARY TRAINING AT THE SAVANNAH RIVER SITE

APPENDIX B

BIOLOGICAL EVALUATION FOR THE PROPOSED UNITED STATES ARMY MILITARY TRAINING ACTIVITIES ON THE SAVANNAH RIVER SITE

APPENDIX C

OPERATIONAL NOISE CONSULTATION NO. 52-EN-0D55-10 OPERATIONAL NOISE CONTOURS PROPOSED AVIATION ACTIVITY SAVANNAH RIVER SITE AIKEN, SOUTH CAROLINA 12 APRIL 2010

APPENDIX D

U.S. FISH AND WILDLIFE SERVICE CONCURRENCE LETTER REGARDING THE "NOT LIKELY TO ADVERSELY AFFECT" DETERMINATION OF THE BIOLOGICAL EVALUATION