DEPARTMENT OF THE ARMY
U.S. ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5424

REPLY TO
ATTENTION OF

Operations, Remediation and Restoration

27 JUN 2001

Mr. Robert A. Nelson
U.S. Nuclear Regulatory Commission
Decommissioning Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
Washington, DC20555-0001

Dear Mr. Nelson:

To facilitate the termination of the Nuclear Regulatory Commission License No. SUB 1435 held by the U.S. Army Soldier and Biological Chemical Command for the Jefferson Proving Ground, in Madison, Indiana we are submitting a final decommissioning/license termination plan.

As discussed with you and your staff, we anticipate a submission of the supporting Environmental Report by the end of October 2001.

Ms. Joyce Kuykendall, SBCCOM Radiation Safety Officer, may be contacted for additional information at (410) 436-7118, facsimile (410) 436-4445 or by email at joyce.kuykendall@sbccom.apgea.army.mil.

I am forwarding copies of this letter to Commander, U.S. Army Materiel Command, AMCSF-P/AMCSF-SG, 5001 Eisenhower Avenue, Alexandria, VA 22333-01 and Commander, U.S. Army Center for Health Promotion and Preventive Medicine, MSHB-TS-OHP, Aberdeen Proving Ground, MD 21010-5400.

Sincerely,

JOHN M. FERRITER
Director, Operations, Remediation
and Restoration

Enclosure

U.S. Army Center for Health Promotion and Preventive Medicine

USCHPPM

LICENSE SUB-1435 TERMINATION STANDARD REVIEW PLAN
NO. 26-MA-5970-01
JEFFERSON PROVING GROUND
MADISON, INDIANA
JULY 2001

6/21/01

Readiness Thru Health

DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5403

REPLY TO
ATTENTION OF

LICENSE SUB-1435 TERMINATION STANDARD REVIEW PLAN
NO. 26-MA-5970-01
JEFFERSON PROVING GROUND
MADISON, INDIANA
JULY 2001

STANDARD REVIEW PLAN
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SECTION 1

INTRODUCTION/SUMMARY

1.1 Name and address of the licensee or owner of the site:

U.S. Army Soldier and Biological Chemical Command
ATTN: AMSSB-RCB-RS
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424

1.2 Location and address of the site:

Site information:	Local reporting activity:
Department of the Army	Newport Chemical Activity
U.S. Army Jefferson Proving Ground	ATTN: SCBNE-CO P.O. Box 121
Madison, IN 47250	Newport, IN 47966

1.3 Description of the site and immediate environs. Jefferson Proving Ground (JPG) is located in southeastern Indiana within parts of Jefferson, Ripley, and Jennings counties. The installation is rectangular in shape, approximately 18 miles long (north to south) and 5 miles wide (east to west). Major metropolitan areas include Louisville, Kentucky, approximately 45 miles southwest; Cincinnati, Ohio, approximately 75 miles northeast; and Indianapolis, Indiana approximately 85 miles north/northwest. Madison, Indiana, the closest major city, is approximately five miles south of JPG. The lands surrounding JPG are primarily farmlands, woodlands and rural residential. The topography of JPG is flat to rolling with most relief due to stream incision.

1.4 Summary of licensed activities that occurred at the site, the number and type of license(s); when the facility began and ceased using licensed material and the types and activities of licensed material authorized and used under the license(s): The JPG License number of concern is SUB-1435 (refer to Appendix E). It allowed for the production acceptance testing of munitions that contained depleted uranium (DU). This program was used to track firing, flight and trajectory-accuracy of kinetic energy weapons. There was no machining or processing of DU at post facilities. These test activities commenced in the mid 1980s and

terminated in September 1994. The Base Realignment and Closure (BRAC) Commission, established by the Secretary of Defense in May 1988, recommended the closure of JPG. This was mandated by Public Law 100-526 on 24 October 1988. In a letter dated 29 August 1994, an amendment to the JPG license was requested for possession of DU only (no other radionuclides were listed). JPG closed at the end of September 1995.

1.5 Nature and extent of contamination at the site: The nature of the contamination is uranium metal and oxides formed by weathering of metallic particles from DU contained in tank penetrator fragments. The DU Impact Area consists of approximately 2,000 acres within the 51,000 acre area north of the firing line. Within the 51,000 acres there are an estimated 1.5 million rounds of unexploded ordnance. The 2,000 acre DU Impact Area contains approximately 70,000 kilograms of DU and one of the largest concentrations of unexploded ordnance (UXO) at the site.

1.6 Decommissioning objective proposed by the licensee is: restricted use governed by institutional controls. Refer to Section 7, ALARA Analysis, for a detailed cost/benefit analysis.

1.7 Derived Concentration Guideline Levels (DCGLs) for the site:, DCGLs, referred to as release criteria, were established in the U.S. Nuclear Regulatory Commission (NRC) approved Environmental Radiation Monitoring Plan[1] (ERM). Efforts were made to maintain radiation exposures and releases As Low As Is Reasonably Achievable (ALARA) pursuant to 10 CFR 20.

SAMPLE MATRIX	LOCATION	RELEASE CRITERIA
SOIL	Perimeter and background	35 pCi/g
	Along lines of fire	100 pCi/g
WATER	All locations	0.15 pCi/ml

1.8 Summary of the ALARA evaluations performed: The estimated cost to remediate the DU (and UXO) area is on the order of hundreds of millions of dollars[2]. The cost of DU removal/

[1] U.S. Army Test and Evaluation Command, 12 July 1996, Environmental Radiation Monitoring Plan (ERM) at Jefferson Proving Ground (JPG).
[2] Final Study, Cleanup and Reuse Options, Contract No. DAAA09-92-C-0330, U.S. Army Jefferson Proving Ground, 15 October 1992, Mason and Hanger, Battelle Memorial Institute, Automation Research Systems, Limited.

remediation ranges to 6000 times greater than the present benefit of collective dose averted. Remediation of DU is not cost effective with present technology. A management commitment has been made to maintain radiation exposures to workers and the public ALARA. This commitment is reflected in site orientation training for entering the natural resource area, restrictions for entering the former firing area, and the required action of anyone who finds ordnance. (The appropriate action for finding ordnance is to keep hands-off, leave it in place, and report location to the main office). The primary safety concern is potential hazards from UXO. Throughout the license termination process, ALARA engineering and administrative controls will be evaluated and utilized to minimize collective and individual radiation exposures. Refer to Section 7 for a detailed evaluation.

1.9 Restrictions to limit doses (10 CFR Part 20.1403) and a summary of institutional controls and financial assurance: A facility perimeter fence with "No Trespassing" signs and inner locked-access road gates are in place and maintained to control access to the DU area and DU impact area. The DU Impact Area perimeter is identified as a restricted access area and includes "Caution - Radioactive Material" postings. In addition, key access for the locked barricades on access roads to the DU Impact Area is controlled in accordance with (IAW) the Memorandum of Agreement (MOA) (Refer to Appendix B). Key access is limited to authorized personnel, and quarterly lock and key inventories will be made of all issued keys. An environmental monitoring program was conducted to evaluate uranium concentration in soil, sediment, groundwater and surface water. Orientation training is required for JPG workers, visitors and users and local law enforcement agencies (see Appendix B). JPG staff and local law enforcement agencies may routinely patrol the perimeter and should report any unusual or suspect activity. Financial assurance is addressed via a Statement of Intent in Section 15.

1.10 Summary of public participation activities undertaken to comply with 10 CFR Part 20.1403(d): Public participation will be encouraged throughout the license termination process. Information will be maintained and available at the Madison City Library in Madison, IN and the Hanover College Library in Hanover, IN. Jefferson Proving Ground has a website available at http://jpg.sbccom.army.mil. The licensee staffs JPG with a U.S.

Army site team at Building 125 whose function is to monitor all activity on the installation and keep headquarters informed of all developments.

1.10.1 The JPG Restoration Advisory Board (RAB) meets periodically. The RAB is intended to represent a wide spectrum and cross-section of the local community. The RAB is the mechanism provided by the U.S. Army (DA) for community participation and input regarding issues that may be affected by license termination activities. The goal of the RAB is to ensure that the concerns of the community are identified and addressed to the extent possible through public participation. RAB meetings are published, and the public is notified through a mailing list, public notices, and summaries of public meetings. Verbatim minutes of all RAB meetings are provided to all RAB members and available in the JPG Administrative Record maintained at Hanover College, Hanover, IN.

1.10.2 Save The Valley (STV) is a non-profit volunteer organization which represents environmental and public interest matters in the Ohio River Valley between Lawrenceburg, IN, and Louisville, KY. The RAB notifies STV of periodic meetings in order to ensure public participation and input. STV maintains a website at http://www.oldmadison.com/stv.

1.11 Proposed initiation and completion dates of license termination: The installation ceased test activity on September 30, 1994 and closed on 29 September 1995. The license termination process is anticipated to encompass a period from the submittal of this plan (anticipated to be in calendar year 2001) and three years out (calendar year 2004).

1.12 Post remediation activities (such as groundwater monitoring) undertaken prior to requesting license termination: Although no DU remediation took place or is planned, surface and groundwater monitoring and soil and sediment monitoring were conducted IAW References 3[3] and 4[4]. No DU remediation was or is

[3] U.S. Army Center for Health Promotion and Preventive Medicine Standing Operating Procedure, 10 March 2000, Depleted Uranium Sampling Program Environmental Radiation Monitoring Program, Jefferson Proving Ground, Madison, IN.

[4] U.S. Army Test and Evaluation Command, 12 July 1996, Environmental Radiation Monitoring Plan (ERM) at Jefferson Proving Ground (JPG).

planned at the site because the dose estimation did not or does not justify any further action and the UXO was and is a prohibitive factor because of safety and cost reasons. Environmental monitoring will be continued until approval of the termination of the license. Upon license termination environmental monitoring will cease and the institutional controls will be implemented.

1.13 Statement that the licensee is requesting that its license be amended to incorporate the decommissioning plan: Amendment 10 of License SUB-1435 entails decommissioning at JPG, refer to Appendix E.

SECTION 2

FACILITY OPERATING HISTORY

2.1 License Number/Status/Authorized Activities.

2.1.1 Radionuclide(s) and maximum amount authorized and used: As authorized by NRC Materials License Number SUB-1435:

Radioactive Material	Chemical and/or Physical Form	Maximum Amount that Licensee May Possess
Uranium	Depleted uranium metal, alloy, and/or other forms	80,000 kilograms

2.1.2 Chemical form(s) of radionuclide(s) authorized and used under the current license: Depleted uranium metal, alloy, and/or other forms.

2.1.3 Detailed description of how the radionuclide(s) are currently being used: Authorized use is for possession only for license termination. The licensed material is located in the area north of the firing line, primarily in the Depleted Uranium Impact Area as DU penetrators and fragments.

2.1.4 The location of use and storage of radionuclide(s) authorized under the current license: The licensed material shall be kept onsite, for the purpose of license termination, in the restricted area known as DU Impact Area. This area is located north of the firing line.

2.1.5 A scale map of the site and environs showing the current locations of radionuclide use: Possession is authorized for the DU Impact Area. (Refer to Appendix C, Map 2).

2.1.6 Amendments to the license since the last license renewal: Amendment 10 is in effect. (Refer to Appendix E).

2.2 License History.

2.2.1 Radionuclides and maximum activities authorized: License SUB-1435 was limited to 80,000 kilograms of DU. All other licenses have been terminated or are no longer applicable to JPG.

2.2.2 Chemical form of radionuclide: Depleted uranium, metal, alloy and/or other forms.

2.2.3 Detailed description of how the radionuclides were used at the site: From the mid 1980s until 1994, accuracy testing of DU, the only radioactive material of concern for the License Termination Plan (LTP), in large caliber penetrator rounds was conducted at the JPG.

2.2.4 The locations of use and storage of the various radionuclides authorized under all previous licenses: Previous use did not affect the DU Impact Area. Previous use and storage is summarized in Reference 6[5]. NRC License Number 13-12416-01, for the use of scandium-46, was terminated in 1993. Other radionuclides were used under a general Army-wide license.

2.2.5 A scale drawing of the site area showing the previous locations of radionuclide use at the site: Refer to Appendix C, Map 3. The areas of previous use of concern were limited to Buildings 186, 205, 216, 223, and 227. (The map also identifies current use of Buildings, where appropriate). Note that the current licensed area, the DU Impact Area, was not affected by these previous operations.

2.3 Previous Decommissioning Activities. No previous remediation activity has occurred in the DU Impact Area. (While no formal remediation activity was conducted in the area north of the firing line, periodic retrieval of surface penetrators and fragments was conducted up to the time the facility was closed. Retrieved items were recycled).

2.4 Spills[5]. There is no historical or anecdotal evidence of spills or uncontrolled releases of licensed material in the DU Impact Area.

2.5 Prior on-site burials[5]. There is no historical or anecdotal evidence of on-site burial of licensed material within the DU Impact Area.

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5 Industrial Radiation Historical Data Review No. 27-83-3888-95, U.S. Army Jefferson Proving Ground, Madison, IN, 12-14 June 1995.

SECTION 3

FACILITY DESCRIPTION

3.1 Site Location and Description.

3.1.1 JPG is approximately 55,000 acres in area. There are approximately 51,000 acres north of the firing line and 4,000 acres south of the firing line. The DU Impact Area consists of approximately 2,000 acres within the 51,000 acre area north of the firing line.

3.1.2 The site is located in the State of Indiana within parts of north central Jefferson, southwestern Ripley, and southeastern Jennings counties. Refer to Appendix C, Map 1.

3.1.3 The nearest towns, communities and cities are:

Town/Community/City	Distance (miles)	Direction from site
Madison, IN	5	South
Louisville, KY	45	Southwest
Cincinnati, OH	75	Northeast
Indianapolis, IN	85	North/Northwest

3.1.4 The contours and features of the site are flat to gently rolling farmlands and woodlands. Most relief is due to stream incision.

3.1.5 The site is approximately 850 to 930 feet above mean sea level.

3.1.6 The site is primarily undeveloped and unimproved. Man-made features are limited. There is a road system suitable for off-road vehicles. A fence system is maintained around the perimeter of the area north of the firing line. A barricade system is maintained for the DU Impact Area. Several historic structures stand north of the firing line: Oakdale Schoolhouse, Old Timbers Lodge and four stone-arch bridges.

3.1.7 The property surrounding the site is predominantly farmlands, woodlands, and rural residential areas. Public water from a municipal system or deep wells is used by nearby communities or individuals.

3.1.8 Prominent water pathways on site are Big Creek, Graham Creek, Otter Creek, Harberts Creek, and several smaller creeks which are sub-basins of the Muscatatuck River, White River, and the Ohio River. Surface water drainage is generally from the northeast to the west and southwest. Old Timbers Lake, a man-made lake from the impoundment of Little Otter Creek, is the primary lake. Old Timber's Lake runs generally north to south and is located in the northeast portion of JPG. Krueger Lake, located in the southeastern corner of JPG, is a result of the impoundment of Harbert's Creek. Several smaller ponds are on the site. Refer to Appendix C, Map 4.

3.1.8 Detailed topography, locations of monitoring wells and sample points is summarized as follows: Refer to Appendix C, Map 5 for location.

Well	Sample Location
MW01	Southeast corner intersection of D-Road and Wonju Road (DU area east perimeter)
MW02	West side of Wonju Road, 1.1 mile north of A Road (DU area east perimeter)
MW03	East side of Wonju Road, 0.3 mile south of A Road (DU area east perimeter)
MW04	On South Perimeter Rd. (Southeast corner of JPG)
MW05	East side of Morgan Road, 0.1 mile south of Big Creek Bridge (No.13) (DU area west perimeter)
MW06	West side of Morgan Road, 0.4 mile south of C Road intersection (DU area west perimeter)
MW07	West side of Morgan Road at Oakdale Schoolhouse
MW08	South Perimeter Road (southwest corner of JPG)
MW09	North side of D Road, 0.2 mile east of Center Recovery Road intersection, directly north of Bridge No.22 (within DU range)
MW10	West side of Center Recovery Road, 0.5 mile north of D Road intersection (within DU range)
MW11	North side D-Road, 0.3 mile east of Morgan Road intersection (within DU range)

3.1.10 Location of the nearest residences and all significant facilities or activities near the site: there is an estimated population of 100 persons residing approximately one kilometer south of the firing line. The nearest community is Madison, IN. Current actions for areas south of the firing line include: Jefferson County, IN, uses about 200 acres as park land, the State of Indiana uses two buildings as a recycling center, the Madison, IN, Port Authority has purchased a building (Building 216) to house a train engine and some 17 miles of railroad right of way, the State of Indiana owns nine buildings

and approximately 36 acres as a highway maintenance facility and the lease of the remainder of the cantonment area to a private citizen from Dupont, IN. Anticipated actions include the transfer of the cantonment area to a private citizen from Dupont, IN, subsequent to environmental restoration.

3.1.11. A description of the facilities at the site: Productive reuse of JPG in accordance with sound environmental principles is the ultimate goal of JPG closure. A site management team and the U.S Fish and Wildlife Service have field offices at the site. Areas north of the firing line are used for Air National Guard training and as a wildlife refuge.

3.2 Population distribution.

3.2.1 A summary of current population is:

Current Population	Community	Compass Vector
31,813	Jefferson County(1)	NA
12,006	Madison, IN(2)	South
28,106	Jennings County(1)	NA
27,660	Ripley County(1)	NA
100	Installation	NA
0	DU Impact Area	NA
(1). Based on U.S. Census estimates for 1 July 1999 (CO-99-2)		
(2). Based on U.S. Census 1990 data		

3.2.2 Population is projected to remain relatively stable for the immediate JPG vicinity. Population growth rate estimates are less than one percent annually.

3.2.3 A list of minority populations by compass vectors:

Minority (non-white) Population/Percent	Community	Compass Vector
685/2.18	Jefferson County	NA
Within Jefferson County	Madison, IN	South
390/1.40	Jennings County	NA
122/0.45	Ripley County	NA
Not available	Installation	NA
0/0	Impact Area	NA

3.2.4 Demographic data by census block group to identify minority or low-income populations:

Poverty Statistic(1)	Community	Estimate/Percent
People of all ages	Jennings County	2640/9.9
People under age 18		1042/14.4
Related Children age 5-17		656/12.6
People of all ages	Jefferson County	3197/10.7
People under age 18		1183/15.4
Related Children age 5-17		765/13.6
People of all ages	Ripley County	2711/10.0
People under age 18		1118/14.5
Related Children age 5-17		828/14.6
(1) Based on U.S. Census estimates for July 1996		

3.3 Current/Future Land Use.

3.3.1 Current land uses of surrounding lands are farmland, woodland and rural residential. The intended use of JPG north of the firing line is for a protected and managed wildlife habitat (the Big Oaks National Wildlife Refuge was dedicated on 8 July 2000) administered by the U.S. Fish and Wildlife Service (USFWS) and the U.S. Air Force (USAF)/Indiana Air National Guard as an air to ground training range IAW the MOA (Refer to Appendix B). Intended use of the area south of the firing line is for transfer to a private citizen from Dupont, IN, subsequent to environmental restoration.

3.3.2 Future land uses are anticipated to remain the same for the foreseeable future.

3.4 Meteorology and Climatology.

3.4.1 General climate of the region: The climate of southeastern Indiana is variable due to the characteristic path of the low and high pressure systems affecting the area and the occasional mixing of warm, moist air from the Gulf of Mexico. Precipitation is categorized as non-seasonal and varies from year to year. The fall months are usually driest. The wettest month is typically May. The heaviest precipitation totals as well as the rains of the longest duration are associated with low-pressure systems that primarily move southwest to northeast through the Ohio Valley. Snowfall usually occurs from November through March. Snowfall amounts vary annually and monthly. Seasonal temperature extremes vary from 100 degrees Fahrenheit

(°F) or higher in the summer to 0 °F or lower in the winter. The typical last date of freezing temperature is late April and the typical onset of freezing temperature is late October. Average annual temperature is 54 °F.

3.4.2 Seasonal and annual frequencies of severe weather phenomena: Thunderstorms occurring as separate air mass cells or squall lines or widespread storms with high rainfall intensities and damaging winds are common during spring and summer months.

3.4.3 Weather-related radionuclide transmission parameters: Prevailing direction for surface winds is southerly with an average velocity of under ten miles per hour. Heavy fog, which could result in ground deposition of airborne radionuclides, occurs about 18 days annually.

3.4.4 Routine weather-related site deterioration parameters including precipitation intensity and duration, wind vectors, and temperature and pressure gradients: Parameters vary seasonally.

3.4.5 Extreme weather-related site deterioration parameters including tornados, water spouts, thunderstorms, hail, and extreme air pollution (from offsite sources): Southeastern Indiana is near the eastern boundary of "tornado alley". As such, JPG is occasionally subject to tornados during spring and summer months. Thunderstorms are common in spring and summer months. Air quality is generally good. Extreme air pollution from offsite sources is not a contributing factor to site air quality.

3.4.6 A description of the local (site) meteorology: Ranges or averages from the Madison, IN weather station data (1961-1990) are summarized as follows:

Temperature (°F)	Water Vapor	Precipitation (inches)	Fog (days)	Atmospheric Stability	Air Quality
44.2 to 64.9	Varies	43.85	18	Varies	Acceptable

3.4.7 The National Ambient Air Quality Standards Category of the area is "attainment area". An area may be an "attainment area" which is acceptable ambient air quality or "non-attainment area" which is unacceptable ambient air quality. Levels for criteria pollutants are acceptable for the JPG region of Indiana. JPG lies within State of Indiana Office of Air Management,

Indiana Department of Environmental Management air quality control region 083. This region was verified to be in compliance with air quality standards through the Office of Air Management [Commercial phone: (317) 233-0178]. Parameters monitored are criteria pollutants; particulates, nitrogen dioxide, sulfur dioxide, carbon monoxide, lead and ozone. Activity within the DU Impact Area does not adversely impact site or regional ambient air quality.

3.5 Geology and Seismology. JPG is on the western extension of a plunging anticline, the Cincinnati Arch. The site is within the Till Plains section of the Central Lowlands Province. Characteristics include till deposits capping a rolling limestone plateau with deep drainage cuts. JPG is underlain with deposits of windblown nonstratified silts and clays and further underlain by glacial till. Bedrock is characterized by thick layers of interbedded carbonate.[6] Since Indiana is in the middle of the continent it is relatively stable. The tectonic setting of Indiana has remained relatively stable for the last 650 million years as evidenced by relatively flat and undisturbed rocks. There are known karst formations within the JPG property boundaries, particularly north of the firing line and within the DU Impact Area. Historical earthquakes that have a magnitude of three or more within 200 miles of the site are as follows:

Date	Epicenter	Depth	Magnitude
13 April 00 at 10:54 PM CDT	15 miles (20 kilometers (km)) SSE of Crawfordsville, IN UTC 39.86N, 86.72W	5 km	3.6
9 November 1968	Dale, IL	Unknown	5.3
29 April 1899	Strongest at Shelbyville, IN and Jeffersonville, IN	Unknown	VI - VII on modified Mercalli scale

3.6 Surface Water Hydrology.

3.6.1 A description of the site drainage and surrounding fluvial features, including important water uses: Site drainage for the site stream corridors is primarily from the northeast to the west and southwest. Drainage for the creeks is well developed and usually consists of numerous tributaries[6]. Stream incision is the primary relief on the site and can be extreme. Seasonal variations in stream level can be extreme. The

[6] Department of the Army, Final Environmental Impact Statement, September 1995, Disposal and Reuse of the Jefferson Proving Ground, Madison, Indiana.

impoundment of Little Otter Creek and Harbert's Creek formed Old Timber's Lake and Krueger Lake, respectively. Both are used for recreational purposes. There is no significant commercial value associated with the water bodies.

3.6.2 Water resource data: Conservative default parameters were used for dose modeling. Refer to Appendix F.

3.6.3 Topographic map of the site that shows natural drainage and man-made features: Refer to Appendix C, Map 5.

3.6.4 A description of the surface water bodies at the site and surrounding areas, including the location, size, shape, and other hydrologic characteristics of streams, lakes, or coastal areas: The principal surface body of water is Old Timbers Lake in the northeast corner of the site at 165 acres. Krueger Lake is in the southeast portion of the site and has an area of eight acres. Several smaller ponds and impoundments are also present.

3.6.5 A description of existing and proposed water control structures or diversions (both upstream and downstream) that may influence the site: Existing water control structures are Little Otter Dam on Little Otter Creek which forms Old Timber's Lake and a dam on Harbert's Creek to form Krueger Lake. No other man-made water control structures are anticipated for the site. It has been noted that a growing beaver population has led to the creation of significant acreage of ponds and marsh areas, some within the DU Impact Area. This trend is expected to continue.

3.6.6 Flow-duration data for surface water bodies in the area: Peak flow occurs in the springtime reducing through summer and fall. Typical flow rate ranged from 25-50 cubic feet per second.

3.6.7 Map of the site and adjacent drainage areas identifying features such as drainage areas, surface gradients, and areas of flooding: Refer to Appendix C, Map 5. The site is generally well drained. Seasonal high water can occur.

3.6.8 An inventory (to include owner, location, type, and amount of use; source of supply; type of intake; and surface water quality) of all existing and planned surface water users, whose intakes could be adversely affected by migration of radionuclides from the site: The water at JPG is considered non-

potable[7]. Public water from the city of Madison, IN, is used. Users of surface water would be limited to recreational users. Environmental monitoring of surface water was conducted twice annually to determine whether DU contaminants were migrating outside the installation controlled area.

3.6.9 Topographic map and/or aerial photographs that delineate the 100-year floodplain: JPG is not within a 100 year floodplain.

3.6.10 A description of any man-made changes to the surface water hydrologic system that may influence the potential for flooding: There is little impact to the natural hydrologic system. Nearby off-post urban development and strip mining are limited. There is no commercial activity in the area north of the firing line that would greatly influence the flood potential.

3.7 Groundwater Hydrology.

3.7.1 Where appropriate, conservative default parameters were used for dose modeling and the saturated zone parameters, including, but not limited to potentially affected aquifers, the lateral extent, thickness, water-transmitting properties, recharge and discharge zones, groundwater flow directions and velocities, and other information that can be used to create an adequate conceptual model. Refer to Appendix F.

3.7.2 Descriptions for monitor wells, including location, elevation, screened intervals, depths, construction and completion details, and hydrogeologic units monitored. The description should include domestic, industrial and/or municipal wells or other monitoring devices, if applicable, and any construction and completion details for these devices, when available. A series of DU monitoring wells is present at JPG area north of the firing line. Refer to Appendix C, Map 5.

Location	Screened intervals	Depth (feet)
MW1	0.006 inch slot PVC screen 33.2 to 28.4 feet 0.006 inch slot PVC screen 13.1 to 8.3 feet	33.2
MW2	0.006 inch slot PVC screen 23.7 to 13.7 feet	23.7
MW3	0.006 inch slot PVC screen 42.8 to 32.8 feet	42.8

[7] JPG Final Draft Remedial Investigation Volume 1, Rust Environment and Infrastructure, July 1994.

MW4	0.006 inch slot PVC screen 28.5 to 23.0 feet 0.006 inch slot PVC screen 13.5 to 8.5 feet	28.5
MW5	0.006 inch slot PVC screen 33.4 to 23.4 feet	33.4
MW6	0.006 inch slot PVC screen 40.0 to 30.0 feet	40.0
MW7	0.006 inch slot PVC screen 53.7 to 43.7 feet	53.7
MW8	0.006 inch slot PVC screen 28.2 to 18.2 feet	28.2
MW9	38.2 to 18.2 feet	38.2
MW10	41.3 to 21.3 feet	41.3
MW11	41.9 to 11.9 feet	41.9

3.7.3 Physical parameters: For glacial tills groundwater movement is slow due to low hydraulic conductivity (2.89×10^{-5} to 8.40×10^{-5} cm/sec) and relatively flat hydraulic gradients. Small scale fracturing (typically 10 mm) and large scale fracturing (20 mm to over 630 mm) have been identified for typical JPG glacial tills. Typical threshold gradient is 0.07. For limestones and dolomites groundwater movement hydraulic conductivity ranged from 3.3×10^{-6} to 1.14×10^{-3} cm/sec.

3.7.4 Groundwater flow is roughly in the same direction as the surface water drainage (toward the west and southwest) since the underlying ground layers roughly follow the surface contours. Rate of movement is slow due to the low hydraulic conductivity of the underlying ground deposits.

3.7.5 Where appropriate, conservative default parameters were used for dose modeling and used for the unsaturated zone including the lateral extent and thickness of permeable and impermeable zones, potential conduits of anomalously high flux, and direction and velocity of unsaturated flow. Refer to Appendix F.

3.7.6 Information on all monitor stations including location and depth may be found in Section 3.7.2 and Appendix C, Map 5.

3.7.7 Where appropriate, conservative default parameters were used for dose modeling and used for physical parameters including the spatial and stratigraphic distribution of the total and effective porosity; water content variations with time; saturated hydraulic conductivity; characteristic relationships between water content, pressure head, and hydraulic conductivity; and hysteretic behavior during wetting and drying cycles. Refer to Appendix F.

3.7.8 Where appropriate, conservative default parameters were used for dose modeling and used for numerical analyses techniques used to characterize the unsaturated and saturated zones including the model type, justification, documentation, verification, calibration and other associated information. In addition, the description should include the input data, data generation or reduction techniques, and any modifications to these data. Refer to Appendix F.

3.7.9 Where appropriate, conservative default parameters were used for dose modeling and used for distribution coefficient for uranium. Refer to Appendix F.

3.8 Natural Resources. (Note: this information included to provide site characterization. The license termination process is focused on human health).

3.8.1 Natural resources occurring at or near the site: The site is approximately 75 per cent forested, primarily with hardwoods, and, to a lesser extent, coniferous trees. There is a variety of animal species. Hunting and fishing is permitted on selected areas north of the firing line but not in the DU Impact Area.

3.8.2 A description of potable, agricultural, or industrial ground or surface waters including information on resource type, occurrence, location, extent, net worth, recoverability, and current and projected use: Water used at the site is supplied by the Madison, IN municipal water supply system for areas south of the firing line and by other municipal water supply system(s) (i.e., Canaan Water Company) for areas off of the facility but north of the firing line. No drinking water wells or municipally supplied water is available north of the firing line on the facility.

3.8.3 A description of economic, marginally economic, or sub-economic known or identified natural resources: Fish and game. Any potential future exploitation of natural resources that would cause disruption is not anticipated. DU remediation considerations are limited, primarily due to UXO remediation costs and personnel safety during UXO clearing operations. The area north of the firing line (specifically the DU Impact Area) is part of a National Wildlife Refuge and not expected to have its natural resources developed.

3.8.4 Mineral, fuel, and hydrocarbon resources near and surrounding the site which, if exploited, would effect dose estimates: Any potential future exploitation of mineral, fuel, and hydrocarbon resources that would impact dose estimates is not anticipated.

3.9 Ecology/Endangered Species. (Note: This information included to provide site characterization. The license termination process is focused on human health).

3.9.1 A list of commercially or recreationally important invertebrate species known to occur within five kilometers of the site: None.

3.9.2 A list of all commercially important floral species known to occur within 5 km of the site: White oak, black walnut.

3.9.3 A list of commercially or recreationally important vertebrate animals known to occur within 5 km of the site: Whitetail deer, wild turkey, cottontail rabbit, wood duck, fox squirrel and eastern gray squirrel. Various indigenous and stocked fish, such as bass, bluegill, and catfish also occur.

3.9.4 Estimates of the relative abundance of both commercially and recreationally important game and nongame vertebrates: Whitetail deer harvests are estimated to be 500 to 850 annually.

3.9.5 A list of all endangered species at or within 5 km of the site: Endangered species as summarized by the Indiana Department of Natural Resources for the counties in which the JPG is located is as follows:

Name	County	Watch list
Vascular Plants		
Silky Dogwood	Jefferson	State
Swamp Sunflower	Jefferson	State
American Water-Pennywort	Jefferson	State
Broom Panic-Grass	Jefferson	State
Pursh Buttercup	Jefferson	State
Maryland Meadow Beauty	Jefferson	State
Weakstalk Bulrush	Jefferson/Ripley	State
Virginia Mallow	Jefferson	State
Running Buffalo Clover	Jefferson	State/Federal
Elliptical Rushfoil	Jennings/Ripley	State
Divided Toothwort	Jennings	State
Northern Bog Clubmoss	Jennings/Ripley	State
Climbing Fern	Jennings/Ripley	State
Thread-like Naiad	Jennings	State
Clingman Hedge-Nettle	Jennings	State
Illinois Blackberry	Ripley	State
Hypericum Gynmanthum	Ripley	State
Mussels		
Snuffbox and Sheepnose	Jefferson	State
Birds		
Name	County	Watch list
Bachman's Sparrow	Ripley/Jefferson	State
King Rail	Ripley/Jennings	State
Henslow's Sparrow	Jennings/Jefferson	State
Sedge Wren and Least Bittern	Jennings	State
Yellow Crowned Night Heron	Jennings	State
Osprey	Jennings	State
Loggerhead Shrike	Jefferson	State
Barn Owl	Jefferson	State

Name	County	Watch list
Mammals		
Northern River Otter	Ripley	State
Bobcat	Ripley/Jefferson	State
American Badger	Ripley/Jennings/Jefferson	State
Least Weasel	Jennings	State
Gray Bat	Jennings	State/Federal
Indian Bat or Social Myotis	Ripley/Jennings/Jefferson	State/Federal
Evening Bat	Jennings	State
Beetles		
Cave Beetle	Jefferson/Jennings	State
Amphibians		
Hellbender	Jefferson	State
Reptiles and Arthropods		
Kirtland's Snake	Jefferson/Jennings	State
Southeastern Crowned Snake	Jefferson	State
Pseudoscorpion	Jennings	State
Cave Spider	Jennings	State

SECTION 4

RADIOLOGICAL STATUS OF FACILITY

NOTE: It was determined that this section is not required for the scope of the intended license termination process as no remediation evolutions are anticipated.

SECTION 5

DOSE MODELING EVALUATIONS

5.1 Unrestricted release using screening criteria. It was determined that this section is not required for the intended license termination process. The license termination plan is intended for restricted release governed by institutional controls.

5.2 Unrestricted release using site-specific information. It was determined that this section is not required for the intended license termination process. The license termination plan is intended for restricted release governed by institutional controls.

5.3 Restricted release using site-specific information. Dose modeling assumptions, data, parameters and conclusions are presented in Appendix F.

5.4 Alternate release criteria. It was determined that this section is not required for the intended license termination process. The license termination plan is not intended to cover alternate release criteria.

SECTION 6

ALTERNATIVES CONSIDERED AND RATIONALE FOR CHOSEN ALTERNATIVE

6.1 Alternatives Considered. Three basic options were considered for the fate of the DU Impact Area: 1) take no action, 2) remediate DU, and 3) allow restricted use.

6.2 Rationale for chosen alternative. The restricted use scenario was chosen as the most viable alternative primarily for personnel safety concerns due to the presence of UXO and associated costs for remediation. Further, the cost benefit for dose averted exceeded the cost for DU remediation. This alternative was evaluated pursuant to 10 CFR 20 ALARA philosophy. A detailed evaluation is contained in Section 7, ALARA Analysis.

SECTION 7

ALARA ANALYSIS

7.1 A description of how to achieve a license termination goal below the dose limit: "Reasonably Achievable" is judged by considering the state of technology and the economics of improvements in relation to all the benefits from these improvements. In the case of JPG, technology is not to the point that the DU Impact Area can be remediated to unrestricted conditions in the presence of UXO. The UXO is of primary concern due to the potential personnel safety hazards. As demonstrated in NUREG-1727[9], the preferred method of compliance for JPG is to demonstrate that remediation to unrestricted release criteria is beyond consideration due to the extremely high costs of DU (and UXO) remediation as estimated by Mason and Hangar[8]. In this case, the estimate of benefit, to include costs that would be avoided if the site were to be released for unrestricted use, including calculation of site control and maintenance costs, are far outweighed by the cost of DU remediation.

7.2 A quantitative cost benefit analysis: SBCCOM is seeking to terminate NRC License SUB-1435 under restricted release. Using actual cost estimates for remediation of the area north of the firing line, the total costs for cleanup and remediation of DU (and UXO within the DU Impact Area) was $715,070,370[8].

7.3. A description of how costs were estimated: Methods set forth in NUREG-1727[9], Appendix D were used to estimate the desired beneficial effects of remediation of DU (and UXO within the DU Impact Area) versus the undesirable costs of the action was used.

7.3.1 The calculation of cost-benefit, the benefit estimated from a reduction in the residual radioactivity, is the monetary value of the collective averted dose to future occupants of the site. Equation 7-1 (from NUREG-1727[9] equation D8) was implemented to demonstrate that the cost to remediate far exceeds

[8] Final Study, Cleanup and Reuse Options, Contract No. DAAA09-92-C-0330, U.S. Army Jefferson Proving Ground, 15 October 1992, Mason and Hanger, Battelle Memorial Institute, Automation Research Systems, Limited.
[9] NUREG-1727, NMSS Decommissioning Standard Review Plan, U.S. Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards, September 2000.

the benefit of remediating the DU (and UXO within the DU Impact Area) remaining in the DU Impact Area. The DU Impact Area was evaluated using the resident farmer scenario. The resident farmer scenario was selected as the most prudently conservative, yet most unrealistic, as the land area in question also contains large quantities of UXO. Additionally, the dose used in the computation was the accepted 25 millirem per year (mrem/yr) (0.025 rem/yr) which is typically used in unrestricted release conditions.

Equation 7-1: (from Appendix D, NUREG-1727, Equation D8)

$$\frac{Conc}{DCGL_W} = \frac{Cost_t}{2000 \times P_D \times 0.025 \times F \times A} \times \frac{r+\lambda}{1-e^{-(r+\lambda)N}}$$

WHERE:

PARAMETER	DESCRIPTION/UNIT	VALUE	REFERENCE
$Cost_t$	Total cost (sum of costs as calculated for applicable parameters) ($)	Derived below	(a)
2000	Value of person-rem averted ($/person-rem)	2000	(b)
P_D	Population density of critical group (people/m^2)	3E-5	(c)
0.025	Annual Dose to an average member of the critical group from residual radioactivity at the $DCGL_W$ concentration (rem/yr) (25 mrem/yr)	0.025	(a)
F	Fraction of residual radioactivity removed by DU remediation action	0.5 or unity(1)	(d)
A	Area being evaluated (m^2) (5.576E7 ft^2 X 0.093 m^2/ft^2 = 5.19E6 m^2)	5.19E6	(d)
R	Monetary discount rate (yr^{-1})	0.03	(b)
Λ	Radioactive decay constant for U-238 (yr^{-1}) Where: λ=0.693/half-life U-238 =0.693/4.468E9 yr = 1.55E-10 yr^{-1}	1.55E-10	(Chart Of Nuclides/ derived)
N	Number of years over which the collective dose will be calculated (yr)	1000 (soil)	(b)

Note:
(a) NUREG-1727, Equation D3
(b) NUREG-1727, Table D2
(c) US Census Bureau via http://quickfacts.census.gov
(d) Mason and Hanger report Table G-2 (1 is no remedial actions)

Equation 7-2 (from NUREG-1727, Equation D3):

$$Cost_T = Cost_{ACC} + Cost_{TF} + Cost_{WDose} + Cost_{PDose} + Cost_X$$

WHERE:

The cost of non-radiological workplace accidents, $Cost_{ACC}$, (from NUREG-1727, Equation D5): $Cost_{ACC} = \$3{,}000{,}000 \times F_W \times T_A$

PARAMETER	DESCRIPTION/UNIT	VALUE	REFERENCE
3,000,000	Monetary value of a fatality equivalent to $2000 per person-rem ($)	3E6	(a)
F_W	Workplace accident fatality rate (Fatalities/hours worked)	4.2E-8	(b)
T_A	Worker time required for remediation (hr)	4E4	(c)

Note:
(a) NUREG-1727, Equation D5
(b) NUREG-1727, Table D2
(c) Mason and Hanger report Figure G-2

$Cost_{ACC} = \$3E6 \times 4.2E\text{-}8 \times 4E4 = \$5040$

AND WHERE:

The cost of traffic fatalities incurred during the transportation of waste, $Cost_{TF}$, (from NUREG-1727, Equation D6):

$Cost_{TF} = \$3{,}000{,}000 \times (V_A/V_{SHIP}) \times F_T \times D_T$

PARAMETER	DESCRIPTION/UNIT	VALUE	REFERENCE
3,000,000	Monetary value of a fatality equivalent to $2000 per person-rem ($)	3E6	(a)
V_A	Volume of waste produced (yd^3)	5162963	(b)
V_{SHIP}	Volume of waste in a truck shipment (yd^3)	10	(c)
F_T	Fatality rate per truck-kilometer traveled (Fatalities/truck-km)	3.8E-8	(d)
D_T	Distance traveled per shipment (km) (Roundtrip JPG to Barnwell, SC = 730 mi; 730 mi X 1.6 km/mi = 1168 km)	1168	Derived estimate

Note: (a) NUREG-1727, Equation D6
(b) Mason and Hanger report Table G-2
(c) Typical shipment data
(d) NUREG-1727, Table D2

$Cost_{TF} = \$3{,}000{,}000 \times (5162963/10) \times 3.8E\text{-}8 \times 1168 \approx \$68{,}700{,}000$

AND WHERE:

The Cost of DU remediation worker dose, $Cost_{WDose}$, (from NUREG-1727, Equation D7): $Cost_{WDose} = \$2{,}000 \times D_R \times T$

PARAMETER	DESCRIPTION/UNIT	VALUE	REFERENCE
2,000	Monetary value of a fatality equivalent to $2000 per person-rem ($/person-rem)	2000	(a)
D_R	Total effective dose equivalent rate to remediation workers (rem/hr) [(5 rem/yr)/(2080 hr/yr)] = 2.5E-3 rem/yr	2.5E-3	(b)
T	Time worked (site labor) to remediate the area (person-hours)	40,000	(c)

Note: (a) NUREG-1727, Table D2
(b) 10CFR20.1201
(c) Mason and Hanger report Figure G-2

$Cost_{WDose} = 2000 \times 2.5E\text{-}3 \times 4E4 = \$200{,}000$

AND WHERE:

The combined other costs, $Cost_x$, as detailed in the Mason & Hangar Report (from relevant parameters of NUREG-1727, Equation D3)			
PARAMETER	DESCRIPTION/UNIT	VALUE	REFERENCE
$Cost_x$	Monetary cost of remediation action (may include "mobilization" costs), transport, disposal, treatment and other costs as appropriate for the situation ($)	715,070,370	(a)
Note:	(a) Mason and Hanger report Table G-2		

Substituting the variables and default values, Equation 7-1 reduces as follows (note that if F=1 the result is 3020):

$$\frac{Conc}{DCGL} = \frac{(5040 + 68{,}700{,}000 + 200{,}000 + 715{,}070{,}370)}{2000 \times 3E-5 \times 0.025 \times 0.5 \times 5.19E6} \times \frac{0.03 + 1.55E-10}{1 - e^{-(0.03+1.55E-10)1000}} = 6040$$

7.4 The calculation demonstrates that the doses to the average member of the critical group are ALARA. This calculation assumes that the DU Impact Area is inhabited after all institutional controls have failed, hence the use of the average population density of Jefferson, Jennings and Ripley Counties, Indiana, and that the cost to remediate the DU Impact Area has neither increased nor decreased since the Mason and Hanger report[10] was published. (It was judged that the cost of remediation would be linear for varying depths. Therefore, if worst case scenario assumed four-foot soil depth, a two-foot soil depth would be half the cost). The residual radioactivity level that is ALARA occurs when the benefit of remediation equals the cost of remediation, i.e., when equation 7-1 is evaluated and the outcome is one. For the DU Impact Area (and the UXO within the DU Impact Area) the cost of remediation is 6040 times greater than the present benefit of collective dose averted; therefore, the residual radioactivity is ALARA. (While ALARA considerations were evaluated, the potential personnel safety concerns from UXO are the primary factor in not undertaking remedial activities).

[10] Final Study, Cleanup and Reuse Options, Contract No. DAAA09-92-C-0330, U.S. Army Jefferson Proving Ground, 15 October 1992, Mason and Hanger, Battelle Memorial Institute, Automation Research Systems, Limited.

SECTION 8

PLANNED DECOMMISIONING ACTIVITIES

NOTE: This section is not required for the intended license termination process. The license termination plan is not intended to include invasive DU remediation activities.

SECTION 9

PROJECT MANAGEMENT AND ORGANIZATION

9.1 License Termination Management Organization.

9.1.1 A description of the license termination organization including descriptions of the individual license termination project units within the license termination project organization:

9.1.1.1 U.S. Army Soldier and Biological Chemical Command (SBCCOM). The SBCCOM Safety Office will coordinate the LTP with the NRC (Indiana is within NRC Region III), the DA, and other agencies as deemed prudent by SBCCOM, such as the U.S. Environmental Protection Agency (EPA) (Indiana is within EPA Region 5), USFWS and USAF/Indiana Air National Guard; staff recommended changes and amendments with the same; consult with the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) on findings and recommendations provided to the appropriate agencies, as required; provide guidance and coordination between JPG, NRC, State agencies as required, USACHPPM, and DA Staff. [Mr. Paul Cloud, BRAC Environmental Coordinator, DSN 584-2381, commercial (410) 436-2381/Ms. Joyce Kuykendall, RSO, DSN 584-7118, commercial (410) 436-7118]

9.1.1.2 USACHPPM, Health Physics Program (HPP). Will develop the overall license termination plan for SBCCOM. Will assist in coordination and staffing of NRC license and non-NRC licensed concerns with DA, NRC and other agencies, as required, at the SBCCOM request.
[LTC Mark A. Melanson, DSN 584-3502, commercial (410) 436-3502]

9.1.1.3 USACHPPM, Radiologic, Classic, and Clinical Chemistry Division (RCCCD). Will manage the overall Radiochemistry Laboratory efforts as required. Provide technical assistance to HPP, and perform all necessary laboratory analyses for samples generated for this project. [Mr. Gary W. Wright, DSN 584-8235, commercial (410) 436-8235]

9.1.1.4 Los Alamos National Laboratory (LANL), Environmental Science Group. Performed initial studies, models, and reports to support license termination. Will provide support and data as required for ongoing license termination activities.

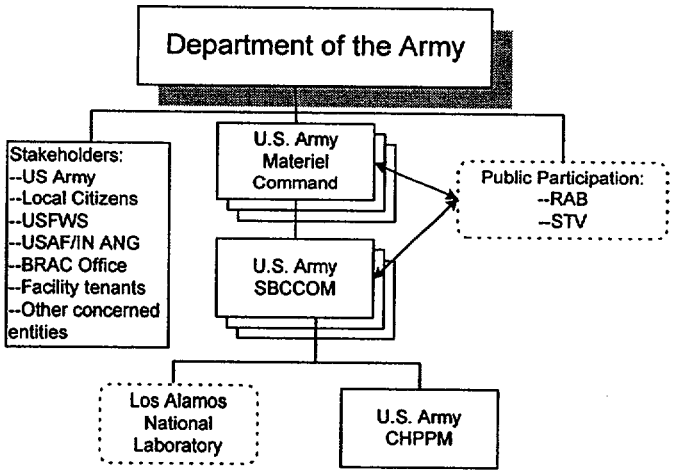
[Dr. Michael Ebinger, commercial (505)667-3147]

9.1.1.5 Stakeholders Various concerns which may use JPG, such as the DA, USFWS and the USAF, support, oversee, and maintain JPG are stakeholders. Other entities with direct concern are the U.S. Army SBCCOM BRAC Office, Save The Valley, citizens in surrounding communities, facility tenants, and various regulatory and non-regulatory agencies.

9.1.1.6 Public Participation Public participation, primarily through the Restoration Advisory Board and Save The Valley, encourages public input into the use of JPG. (Refer to Section 1.10 for a further discussion of public participation).

9.1.2 A description of the responsibilities of each LTP unit is as described in Section 9.1.1.

9.1.3 A description of the reporting hierarchy within the license termination project management organization including a chart or diagram: As the U.S. Army SBCCOM is the license holder, that organization has responsibility for oversight, development and execution for the license termination process and plans. Support organizations will report to SBCCOM. SBCCOM will follow the proper DA chain of command.



9.1.4 Safety will be the responsibility of all participants in the license termination process. Concerns and corrective actions should be resolved through the SBCCOM command.

9.2 Decommissioning Task Management. It was determined that this section is not required for the intended license termination process. The license termination plan activities are not anticipated to include DU remediation activities.

9.3 License Termination Management Positions and Qualifications.

9.3.1 SBCCOM Command. Will have ultimate responsibility to provide resources and institute corrective action, as required, for the license termination process.

9.3.2 Radiation Safety Officer (RSO). Will provide coordination and assistance with radiation safety issues. Will review sample data and recommend corrective actions, as required, to SBCCOM command. Will conduct or arrange to have conducted annual reviews and/or audits of activities and site policies as required. [Ms. Joyce Kuykendall, (410)436-7118, mailto:joyce.kuykendall@sbccom.apgea.army.mil]

9.3.3 USACHPPM, HPP. Will develop the overall license termination plan. Will conduct sampling to support environmental monitoring program to extent required or requested. May conduct training to support site orientation/general safety program at JPG. The HPP may provide other support as needed or requested.

9.3.4 USACHPPM, RCCCD. To the extent required will perform laboratory analyses for samples to support environmental monitoring program or other samples to support license termination.

9.3.5 LANL, Environmental Science Group. Performed initial studies, modeling, and reports to support license termination. Will provide support and data as required for ongoing license termination activities. [Dr. Michael Ebinger, commercial (505)667-3147]

9.3.6 Department of Air Force. Will conduct operations, utilize and maintain property IAW MOA. (See Appendix B).

9.3.7 USFWS. Will conduct operations, utilize and maintain property IAW MOA. (Refer to Appendix B).

9.4 Training. Orientation training will be provided to include DU safety training. Work specific training will be provided as appropriate. Training is outlined in the MOA Section III, 2, a (see Appendix B). DU and UXO training IAW the MOA has been provided to the USFWS and USAF/Indiana Air National Guard (June 2000).

9.5 Contractor Support. Contractors may be used to augment license termination efforts. Contractors will be provided site training and report to SBCCOM. Contractors will comply with radiation safety and license requirements.

SECTION 10

RADIATION SAFETY AND HEALTH PROGRAM DURING LICENSE TERMINATION

NOTE 1: It was determined that this section is not required for the scope of the intended license termination process as guidance should be available in a site specific health and safety plan.

NOTE 2: As stated in a Request for Additional Information document[11] to the NRC, dated May 2000, the resolution to item 15 concerning safety plans was: The Army does not intend to conduct any remediation in the DU Impact Area so there will be no remediation radiation safety plan. The Army implements a safety plan for onsite use. This plan will be implemented IAW the provisions of the MOA (Appendix B).

[11] Request for Additional Information on US Army Jefferson Proving Ground Site Decommissioning Plan, License SUB-1435, May 2000.

SECTION 11

ENVIRONMENTAL MONITORING AND CONTROL PROGRAM

NOTE 1: It was determined that this section is not required for the scope of the intended license termination process as no remediation activities or effluent releases are anticipated.

NOTE 2: Environmental ALARA Evaluation Program. Doses to the general public and occupational doses will be maintained ALARA pursuant to 10 CFR 20. Employees will be made aware of their responsibilities to the ALARA commitment through the DU Safety Training. Training has been provided to the USFWS and Air National Guard personnel (June 2000). In addition, the USFWS and Air National Guard personnel provide site orientation training to visitors of their respective areas north of the firing line.

SECTION 12

RADIOACTIVE WASTE MANAGEMENT PROGRAM

NOTE: It was determined that this section is not required for the intended license termination process as no DU remediation is anticipated to generate radioactive waste.

SECTION 13

QUALITY ASSURANCE PROGRAM

NOTE: It was determined that this section is not required for the scope of the intended license termination process as no remediation activities are anticipated to require collection of data and supporting quality assurance (QA) records for test equipment.

SECTION 14

DU IMPACT AREA RADIATION SURVEYS

NOTE 1: It was determined that this section is not required for the scope of the intended license termination process as no remediation evolutions are anticipated.

NOTE 2: An initial characterization survey was conducted by the Scientific Ecology Group in 1995[12]. An environmental monitoring program[13] is still being conducted for groundwater, sediment, soil and surface water as part of the current license requirements.

[12] Scientific Ecology Group, JPG DU Impact Area Scoping Survey Report, March 1995, Revision 0.

[13] U.S. Army Center for Health Promotion and Preventive Medicine Standing Operating Procedure, 10 March 2000, Depleted Uranium Sampling Program Environmental Radiation Monitoring Program, Jefferson Proving Ground, Madison, IN.

SECTION 15

FINANCIAL ASSURANCE

15.1 Cost Estimate. A reasonable estimate of annual costs to support license termination was developed. It is intended to be sufficient to allow an independent third party to assume responsibility for institutional controls and associated maintenance activities.

JPG License Termination Estimated Annual Institutional Control Costs	
Task/Activity/Component	Annual Cost ($)
Road Maintenance	17,500.00
Perimeter Mowing	20,000.00
Perimeter Fence Inspection	96,500.00
Fence Repair	10,000.00
Fence Sign Monitor/Replace	4,000.00
DU Impact Area Surveillance	12,500.00
DU Sign Monitor/Replace	2,000.00
Annual Total	162,500.00
Note: This would be the total funds estimated to be necessary by the U.S. Army should the MOA with the USAF and the USFWS be terminated. With the MOA in effect, estimated U.S. Army expenses are $15,000.00 per year.	

15.2 Certification Statement. It was determined that this section is not required for the scope of the intended license termination process.

15.3 Financial Assurance Mechanism. Statement of Intent. Refer to Appendix G. Because the Army is a government entity, it will satisfy the financial assurance requirement with a Statement of Intent.

SECTION 16

RESTRICTED USE/ALTERNATE CRITERIA

16.1 Restricted Use

16.1.1 Eligibility Demonstration. The risk assessment model used to estimate the radiological dose levels to an occasional user and resident farmer with and without institutional controls can be found in the JPG Risk Assessment[14] (Refer to Appendix F). A scenario was also tested which involves potential inhalation of DU particles as a result of fires on JPG lands. An ALARA analysis was performed in Section 7. The conclusion from the ALARA analysis is that the cost of remediation is significantly greater than the present benefit of collective dose averted, therefore, the residual radioactivity contained in the DU Impact Area is ALARA. IAW the restricted reuse termination exposure criteria with institutional controls, the license termination criteria, as established by the NRC, is satisfied.

16.1.2 Institutional Controls

16.1.2.1 Due to the UXO, the Firing Range is not suitable for commercial or residential development. A major portion of the area north of the Firing Line is used by the USFWS as the Big Oaks National Wildlife Refuge IAW the National Wildlife Administration Act of 1966 as amended (16 U.S.C 688) and other applicable laws. The USAF uses two smaller portions as bombing ranges. The purpose of implementing Institutional Controls is to prevent or reduce risks to human health and the environment while all parties are using the Firing Range. In order to control access to the DU Impact Area, physical and administrative controls are set forth in the MOA (refer to Appendix B) signed by the U.S. Army, USAF and the USFWS. These controls will be summarized in this section. Legal land use controls are not applicable here because the Firing Range, which contains the DU Impact Area, is not being transferred. Federal real property policy does not permit the creation of deed restrictions by a land holding agency, such as the U.S. Army.

[14] Evaluation of Jefferson Proving Ground for Restricted Release: Risk Assessment Supporting NRC License Termination, Revised 8 February 2001, Dr. Michael H. Ebinger, Los Alamos National Laboratory.

16.1.2.1.1 As stated in the MOA, public use levels will be low and will be limited to hunting, gathering, fishing, and guided tours as determined by the interim and comprehensive access plans developed by the FWS. The Interim Public Access Plan is included in the MOA (refer to Appendix B). The Interim Public Access Plan is binding and in effect until the Comprehensive Conservation Plan is completed at which time it will replace The Interim Public Access Plan. Visitors receive a safety briefing on the hazards found on the property and are required to sign an Acknowledgement of Danger: Release and Hold Harmless Agreement. Certain visitors require escorted access. The USAF will be responsible for patrolling and maintaining the perimeter fence and related infrastructure to ensure the overall security of the Firing Range. The perimeter fence infrastructure includes warning signs, the road system associated with the perimeter fence, and mowing the perimeter fence area.

16.1.2.1.2 Restrictions on use of groundwater: The Firing Range is not to be used for residential purposes to include, but not limited to, housing, day care facilities, schools (excluding onsite employee training) and assisted living facilities. The groundwater quality is considered suspect for use as drinking water. The groundwater at JPG is considered non-potable, and public water from the city of Madison, IN is used. Users of surface water will be limited to recreational use.

16.1.2.1.3 Restrictions to the DU Impact Area are in place to permit access for personnel conducting official business only. Such personnel will be escorted by trained Army and/or USFWS personnel. The 2000 acres that comprise the DU Impact Area are locked, barricaded, and marked with radiation warning signs. A facility perimeter fence with "No Trespassing" signs and inner locked access road gates are in place and maintained to control access to the DU area and DU Impact Area. The DU area perimeter is identified as a restricted access area and includes "Caution - Radioactive Material" postings. In addition, key access for the locked barricades on access roads to the DU Impact Area is controlled IAW the MOA (refer to Appendix B). Key access is limited to authorized personnel. Quarterly lock and key inventories will be made of all issued keys.

16.1.2.1.4 Restrictions on excavation: Due to personnel safety concerns from UXO, no entity may conduct any demolition, excavation, digging, drilling, or other disturbance

of the soil, ground, or groundwater, or use soil, ground, or groundwater for any purpose, in the area north of the Firing Line without the prior written approval of the Army.

16.1.2.2 A description of any detriments associated with the maintenance of the institutional controls: As currently outlined, institutional controls have limited public, safety, or environmental detriments.

16.1.2.3 A description of the restrictions on present and future landowners: The Army will retain ownership of the area north of the firing line (the "Firing Range" in the MOA). Restrictions on use of the DU Impact Area will be IAW the terms and conditions identified in the MOA. This MOA will be incorporated into the existing land use planning and management system used at SBCCOM to ensure effective tracking and management of these restrictions at the installation.

16.1.2.4 A description of the entities enforcing and their authority to enforce institutional control(s): U.S. Army as licensee and deed title holder of JPG site; USFWS and USAF/Indiana Air National Guard as caretakers; and county sheriffs and state law enforcement who routinely patrol the site. Enforcement of refuge trespass and other public use violations will be the primary responsibility of the commissioned Refuge Law Officers and cooperatively by the Indiana Conservation Officers and other law enforcement agencies. General trespass, poaching, and other violations will be cooperatively enforced by these agencies. Jurisdiction is concurrent among agencies. These parties control and monitor access to the site. Authorization is established by MOA (refer to Appendix B).

16.1.2.5 A discussion of the durability of the institutional control(s): the controls specified in the MOA will remain in place for the duration of the MOA which is twenty-five years from 19 May 2000, with the option to renew this MOA for additional ten year periods. Additionally, IAW Department of Defense (DoD) policy, the Army will conduct a review of the MOA and associated land use controls every five years.

16.1.2.6 A description of the activities that the entity with the authority to enforce the institutional control(s) will undertake to enforce the institutional control(s): legal action to the extent allowed by law may be pursued.

16.1.2.7 The manner in which the entity with the authority to enforce the institutional control(s) will be replaced if that entity is no longer able to enforce the institutional control(s) will be evaluated on a case by case basis. If the USFWS or the USAF fail to maintain adequate public access control for the Firing Range, the Army reserves the right to suspend their right of access IAW the MOA (Appendix B) to the Firing Range until appropriate corrective action is taken.

16.1.2.8 Institutional control(s) will remain in effect for the duration of the MOA or, in the event the MOA is terminated, the U.S. Army will be responsible to ensure these controls will remain in effect.

16.1.2.9 Corrective actions may be recommended to be undertaken by the USFWS, USAF or the SBCCOM RSO in the event the institutional control(s) fail. Such recommendations will be evaluated on a case-by-case basis.

16.1.2.10 A description of the records pertaining to the institutional controls, how and where they will be maintained and how the public will have access to the records: Inspection reports will be prepared and maintained by USFWS and provided to SBCCOM on a quarterly basis for archiving. Records pertaining to visitors (e.g., access permits, waivers of liability, Acknowledgements of Danger) will be maintained by the USFWS or the USAF as appropriate. The public will have access to records via request to SBCCOM or other appropriate agencies.

16.1.3 Site Maintenance. As is stated in the USAF Jefferson Range Access Plan, weekly inspections of the entire perimeter fence will be performed by range personnel and/or contractors. These inspections are not part of the inspection process for other environmental programs at JPG. All discrepancies will be reported so that any necessary repair action may be taken. If, during an inspection or through some other process, it becomes apparent that a land use control is being violated, appropriate installation officials should be notified immediately. These officials should take steps to ensure the integrity of the land use control is restored. If additional fencing, cleanup, or site security improvements are required due to past, present, or future Army activities, the Army will be responsible for the additional requirement. As stated in the Permits to USFWS and the USAF to Use Property Located on JPG, it

is understood that maintenance, repair, protection, and restoration of the premises and providing utilities and other services, shall be effective only insofar as they do not conflict with the MOA or any other agreement.

16.1.3.1 USAF Site Maintenance Requirements. The MOA, Enclosure 5, states that the USAF shall maintain applicable roads, road shoulders and low water crossings, as well as associated bridges and culverts. In addition, the USAF will maintain warning signs around the entire perimeter of the firing range as well as around the sub-munitions area west of Machine Gun Road and the former Open Detonation area. The USAF shall maintain the cultural resource properties of the Firing Range.

16.1.3.2 USFWS Site Maintenance Requirements. The FWS shall maintain all buildings, roads, road shoulders, bridges, low water crossings, and culverts, not maintained by the USAF, which are required for Refuge operations. FWS shall provide road maintenance sufficient for 4 x 4 vehicle access to the DU monitoring wells.

16.1.4 Obtaining Public Advice.

16.1.4.1 Public participation and input in the license termination process is pursued by distribution of information via a mailing list, announcements in local media and periodic RAB meetings. (Note: The RAB serves the function of a site-specific advisory board). The JPG mailing list was initially established by including members of the public in attendance at various JPG meetings between 1994 and 1995, regardless of which agency held the meeting (e.g., Army, NRC, FWS, Congressional). In 1995, a formal revision to the Army's JPG Community Relations Plan was conducted and a new mailing list was prepared at that time, to include the previous list, and this list is still in effect at this time.

16.1.4.2 A summary of this proposed action (i.e., license termination for restricted release) has been prepared and distributed to the public via the mailing list. The purpose of this summary was to provide a description of the proposed efforts and seek advice from the public on whether the provisions for institutional controls will provide reasonable assurance that the total effective dose will not exceed 25 mrem/yr (0.025 rem/yr) and whether the provisions for these institutional controls will

be enforceable and not impose an undue burden on the community or other affected parties. A thirty-day public comment period was provided, with the closure of this comment period coinciding with the February 2001 RAB meeting. Refer to Appendix H for ways to access the records of RAB meetings. Refer to Appendix I for a DU summary sheet distributed at the RAB meeting. Any comments received during this comment period, and the Army responses to these comments, will be summarized. The Army responses will include its rationale for incorporating, or not incorporating, the advice received from the public members of the community.

16.1.4.3 Any issues raised at the JPG RAB meetings concerning this license termination effort will be documented by the court reporter and these verbatim minutes will be included in the Administrative Record at the Hanover College, Hanover, IN, and also provided to the RAB members.

16.1.5 Dose Modeling and ALARA Demonstration. Dose modeling projections range from 2.5 mrem/yr (0.0025 rem/yr) for the controlled burn scenario to 4 mrem/yr (0.004 rem/yr) for the occasional user (e.g., institutional controls in place) to 63 mrem/yr[15] (0.063 rem/yr) for the resident farmer (e.g., institutional controls not in place). Further reduction would be cost prohibitive and may cause human and environmental harm. Institutional controls are in place to restrict unauthorized access to the site.

[15] Evaluation of Jefferson Proving Ground for Restricted Release: Risk Assessment Supporting NRC License Termination, Revised 8 February 2001, Dr. Michael H. Ebinger, Los Alamos National Laboratory.

APPENDIX A
REFERENCES

1. Nuclear Regulatory Guide 3.65, Standard Format and Content of Decommissioning Plans for Licensees Under 10 CFR 30, 40, and 70 (Draft CE 304-4 published 12/85) (Note: the guidance of this document was incorporated in NUREG-1727, September 2000).

2. NUREG-1727, NMSS Decommissioning Standard Review Plan, U.S. Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards, September 2000 (Note: this document was previously entitled "Radiological Criteria for License Termination Standard Review Plan, Draft, U.S. NRC Technical Conference Forum, Nuclear Materials Safety and Safeguards, 11 June 1999" and incorporates DG-4006).

3. U.S. Army Center for Health Promotion and Preventive Medicine Standing Operating Procedure, 10 March 2000, Depleted Uranium Sampling Program Environmental Radiation Monitoring Program, Jefferson Proving Ground, Madison, IN.

4. U.S. Army Test and Evaluation Command, 12 July 1996, Environmental Radiation Monitoring Plan (ERM) at Jefferson Proving Ground (JPG)

5. Interim Policy on Land Use Controls Associated with Environmental Restoration Activities, Department of Defense, Office of the Under Secretary of Defense, August 2000.

6. Industrial Radiation Historical Data Review No. 27-83-3888-95, U.S. Army JPG, Madison, IN, 12-14 June 1995.

7. 10 CFR 20, Chapter I, Nuclear Regulatory Commission, rev 2001.

8. Final Environmental Impact Statement, September 1995, Disposal and Reuse of the Jefferson Proving Ground, Madison, IN, Department of the Army.

9. NUREG-1505, August 1995, A Nonparametric Statistical Methodology for the Design and Analysis of Final Status

License Termination Standard Review Plan No. 26-MA-5970-01, Jefferson Proving Ground, Madison, IN, July 01

Decommissioning Surveys.

10. NUREG/CR-5512, October 1992, Residual Radioactive Contamination From Decommissioning.

11. Guidelines for U.S. Atomic Energy Commission Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors, June 1974.

12. Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, U.S. Nuclear Regulatory Commission, Division of Fuel Cycle and Material Safety, July 1982.

13. Draft Nuclear Regulatory Guide DG-8017, Radiological Criteria for Decommissioning - Dose Calculations and Surveys, September 22, 1995.

14. NUREG-1507, Minimum Detectable Concentrations With Typical Radiation Survey Instruments for Various Contaminants and Field Conditions, June 1998.

15. JPG Security Plan, 14 February 2000.

16. Final Study, Cleanup and Reuse Options, Contract No. DAAA09-92-C-0330, U.S. Army Jefferson Proving Ground, 15 October 1992, Mason and Hanger, Battelle Memorial Institute, Automation Research Systems, Limited.

17. Scientific Ecology Group, JPG DU Impact Area Scoping Survey Report, March 1995, Revision 0.

18. JPG Final Draft Remedial Investigation Volume 1, Rust Environment and Infrastructure, July 1994.

19. Evaluation of Jefferson Proving Ground for Restricted Release: Risk Assessment Supporting NRC License Termination, 19 December 2000, Revised 8 February 2001, Dr. Michael H. Ebinger, Los Alamos National Laboratory.

License Termination Standard Review Plan No. 26-MA-5970-01, Jefferson Proving Ground, Madison, IN, July 01

20. Potential Health Impacts from Range Fires at Aberdeen Proving Ground, Maryland, March, 1998, Argonne National Laboratory Report ANL/EAD/TM-79.

APPENDIX B

MEMORANDUM OF AGREEMENT

JEFFERSON PROVING GROUND FIRING RANGE MEMORANDUM OF AGREEMENT (MOA)

This is a Memorandum of Agreement (MOA) among the Department of the Army (Army), the Department of Air Force (Air Force), and the Department of the Interior-United States Fish and Wildlife Service (FWS), all hereafter collectively referred to as the "parties".

I. BACKGROUND AND PURPOSE

1. As a result of the Base Closure and Realignment Act (BRAC) of 1988, the Army's mission at Jefferson Proving Ground (JPG) terminated in September 1995. The JPG property consists of about 55,000 acres located in southeastern Indiana. It is composed of an approximate 4000-acre cantonment area and an approximate 51,000-acre firing range area (Firing Range). The purpose of this MOA is to establish the framework for authorizing the future use of the Firing Range by the U.S. Fish and Wildlife Service (FWS) and continued use by the Air Force. The cantonment area of JPG is being transferred under the BRAC process and is outside the scope of this agreement.

2. Due to unexploded ordnance (UXO), depleted uranium (DU) and other environmental contamination from past Army activities, the Firing Range area is not suitable for commercial or residential development. Despite the UXO and DU contamination, the Firing Range provides wildlife habitat of regional and national significance. In addition, portions of the Firing Range are being used by the Air Force as a bombing range (Bombing Range). The Bombing Range consists of an approximate 983-acre conventional bombing range and an approximate 50-acre laser bombing range, as well as large safety fans, when in use, for each range and associated air space (see map at Enclosure 1). These safety fans overlay significant portions of the Firing Range and are off limits to unauthorized personnel during flight operations involving training munitions or laser energy. The Air Force Bombing Range activities involve training munitions (i.e. an inert munition with a spotting charge) and laser energy, which have had no known significant adverse impact on the wildlife at the Firing Range. As a result of the unique property conditions associated with the Firing Range, the FWS is interested in establishing a National Wildlife

Refuge (Refuge) to preserve significant wildlife habitat values, and the Air Force requires continued use of the Bombing Range as a mission-essential training facility.

3. In order to support the establishment of the Refuge and the continued use of the Bombing Range, the Army agrees to the following:

a. The Army will grant the FWS a real estate permit for the entire Firing Range except for the Bombing Range and the Old Timbers Lodge and associated acreage (See Enclosure 2).

b. The Army will grant the Air Force a real estate permit for the Bombing Range and the Old Timbers Lodge and associated acreage (See Enclosure 3).

The FWS and the Air Force real estate permits will be subject to the terms and conditions set forth in this MOA.

4. The restoration requirements of this MOA and the permits issued under it are authorized by 10 U.S.C. § 2691.

II. OVER-ARCHING PRINCIPLES

The parties recognize the importance of having periodic meetings/conference calls, at least quarterly, among the Jefferson Proving Ground Commander, the Refuge Manager, and the Bombing Range Commander. The relationships between the parties will be governed by the following overarching principles:

1. The Army will consult and coordinate with the other parties to ensure that all Army activities (e.g., remediation activities, UXO demonstration projects, or other future activities) are consistent with Refuge and Bombing Range activities.

2. The FWS will consult and coordinate with the other parties to ensure that all Refuge activities (e.g., development of the interim public access plan, the comprehensive public access plan, the Comprehensive Conservation Plan, any modifications to a public access plan, reviews of requests to conduct non-FWS activities, refuge management activities, etc.) are consistent with Army and Bombing Range activities. The FWS specifically agrees that Refuge activities will be consistent with existing environmental conditions and will not otherwise increase the Army's environmental remediation costs.

3. The Air Force will consult and coordinate with the other parties to ensure that all Bombing Range activities (e.g., development of the site access plan (including any modifications to the site access plan), reviews of requests to conduct non-Air Force activities, training operations, etc.) are consistent with Army and FWS activities. The Air Force specifically agrees that Bombing Range activities will be consistent with existing environmental conditions and will not increase the Army's environmental remediation costs.

4. Except as otherwise provided in this MOA, all disputes between the parties relating to the terms and conditions of this MOA will be subject to the dispute resolution procedure set forth in Section VI.

III. ARMY RESPONSIBILITIES

1. Environmental Remediation.

a. The Army will provide the FWS and Air Force with baseline information concerning the environmental condition of the Firing Range utilizing such reports as The Final Study Cleanup and Reuse Options (Mason and Hanger Report 1992), the Environmental Sampling Plan for the Open Detonation Unit (1994), The Resource Conservation and Recovery Act Facility Assessment (1992), The Community Environmental Response Facilitation Act Report (1994), The Depleted Uranium Decommissioning Plan (Draft 1999), The Archives Search Report for Ordnance and Explosive Waste Chemical Warfare Materials (1995) and the Environmental Impact Statement for Disposal and Reuse (1995).

b. The Army will retain all authority, responsibility, and liability for remediation of all contamination resulting from past Army activities or present on the Firing Range on the date of this MOA, including UXO, DU, and other contamination. In addition, the Army is responsible for all remediation resulting from present and future site activities as set forth in paragraph III(3). Except as otherwise provided in this MOA, the FWS and Air Force shall not have authority, responsibility, or liability for remediation of UXO, DU, and other contamination (see paragraphs IV(3)(a) and (b), V(6))(a) and (b), and V(8)(b)). The Army shall not be responsible for any environmental requirements resulting from operation of the Refuge or the Bombing Range.

c. For purposes of the regulation proposed as 32 CFR 178, *Closed, Transferred, and Transferring Ranges Containing Military Munitions* (Range Rule), should it become a final rule, and any Department of Defense (DoD) Directive or Instruction relating to closed, transferred, or transferring ranges, to the extent any of them apply to the Firing Range, the Army will remain the "responsible DoD component". Unless otherwise required by the Range Rule or DoD Directive or Instruction, the designation of the Army as the "responsible DoD component" will not alter the parties' liabilities under this MOA.

d. The Army is pursuing a license termination under restricted release conditions for the current license issued by the U.S. Nuclear Regulatory Agency (NRC) for its possession of DU for decommissioning at the Firing Range. This license indicates the licensed material (*i.e.*, DU) is onsite in the area known as the "DU Impact Area", located in the southern portion of the Firing Range. The parties recognize the Army will be solely responsible for finalizing the NRC license termination and conducting any actions required by the License Termination Plan at the Firing Range.

2. UXO.

a. UXO Training Materials. The Army will provide training materials and initial UXO and DU safety training for FWS and Air Force personnel. The training materials will include general information regarding the types of munitions used at the Firing Range but are not intended to be an exhaustive/all inclusive listing. After the training, and based on training materials provided by the Army, the FWS and Air Force will be responsible for providing UXO and DU safety training to all of their respective personnel and visitors based on such training materials and knowledge of the FWS and the Air Force of local site conditions.

b. Emergency UXO Removal. If the FWS or Air Force discovers UXO which poses an imminent and substantial hazard to Refuge or Bombing Range operations (e.g., UXO has migrated to the surface of a roadway), the FWS or Air Force will immediately restrict access to the UXO site and notify the Army. The Army will provide for timely removal of UXO found which it determines to be an imminent and substantial hazard to Refuge or Bombing Range operations. The Army will not be required to remove UXO it determines does not pose an imminent and substantial hazard to Refuge or Bombing Range operations (See Enclosure 4 - UXO Response Standing Operating Procedures [SOP]).

c. Non-Emergency UXO Removal. The FWS and Air Force accept that there is no Army plan or budget authority to remove UXO in the Firing Range. However, the Army will make a good faith effort to request non-emergency UXO removal in connection with Army Reserve and/or Army National Guard training exercises to support Refuge or Bombing Range operations. Any type of non-emergency UXO removal in the Firing Range will be subject to the License Termination Plan as approved by the NRC. The FWS and Air Force recognize that any such Army support is contingent on the availability and timing of Army Reserve or Army National Guard exercises. To obtain Army non-emergency UXO removal support, the FWS and Air Force will follow these procedures:

(1) FWS Non-Emergency UXO Removal Support. The FWS will request non-emergency UXO removal support from the Army. To facilitate the support process, the FWS will incorporate building designs that minimize ground disturbance and will provide the Army a minimum 2-year advance notice of their request to complete non-emergency UXO removal. The Army will make a good faith effort to request UXO removal in connection with Army Reserve and/or Army National Guard Training exercises to support Refuge operations. If the Army is not able to obtain non-emergency UXO removal support as part of a training exercise, the FWS agrees to withdraw its request and terminate any plans/operations requiring non-emergency UXO support.

(2) Air Force Non-Emergency UXO Removal Support. The Air Force may request non-emergency UXO removal support from the Army in accordance with paragraph III 2. c. above or it may conduct its own non-emergency UXO removals. Any Air Force non-emergency UXO removals must be conducted by properly certified personnel and in accordance with Department of Defense Explosive Safety Board (DDESB) and all other applicable requirements. If the Air Force elects to conduct its own non-emergency UXO

removal action, the Army and FWS will have no responsibility for any costs resulting from the UXO removal action.

3. Future Site Activity.

The Army is specifically authorized to conduct the following activities on the Firing Range:

a. Army Environmental Restoration Activities. The Army is authorized to conduct environmental restoration and remediation activities to the extent required by law. For purposes of this MOA, environmental restoration and remediation include NRC license termination activities. The Army assumes no liability should its restoration and remediation activities interfere with FWS or Air Force operations.

b. UXO Removal Technology Demonstration Projects. The Army reserves the right to authorize UXO Removal Technology Demonstration Projects and other similar UXO related projects on the Firing Range.

c. Property Administration. The Army reserves the right to enter the property to conduct property administration activities (e.g., site inspections, etc.).

Any Army proposals to conduct other activities on the Refuge or Bombing Range will be processed in accordance with the terms and conditions of this MOA (see paragraph IV(4) or paragraph V(4)).

4. Future Property Transfer.

The Army will not transfer fee title or other property interests in the Firing Range without consulting with the FWS and Air Force. If in the future the Firing Range is determined suitable for transfer, the Army shall, to the extent legally authorized, provide the FWS and Air Force the right of first refusal on their respective property interests before conveying any property interests. If the Air Force no longer requires use of the Bombing Range and the property is no longer needed for other military purposes, the Army will offer the FWS a real estate permit for the Bombing Range subject to the same terms of this agreement or any other mutually agreeable terms.

5. Tort Claims.

The Army will be responsible for accepting and processing any tort claims for incidents arising out of UXO, DU, or any other conditions related to the Army's past, present, or future use of the Firing Range. The FWS and Air Force will cooperate in providing information relating to any such tort claims. Any liability on the part of parties will be determined in accordance with the Federal Torts Claim Act and other applicable laws.

IV. FWS RESPONSIBILITIES

1. National Wildlife Refuge.

a. The Refuge will be called Big Oaks National Wildlife Refuge. It will be managed as a unit of the National Wildlife Refuge System in accordance with the National Wildlife Refuge Administration Act of 1966 as amended (16 U.S.C. 668 et. seq.) and other applicable laws, regulations, and policies. Following the issuance of the real estate permit, the FWS will be responsible for all natural resource management decisions on the Refuge. As the Refuge includes the DU Impact Area, management of the Refuge will be subject to the License Termination Plan as approved by the NRC.

b. The FWS will develop a Comprehensive Conservation Plan (CCP) outlining its management plan for the Refuge. The CCP will provide natural resource management at a level typical of units of the National Wildlife Refuge System.

c. The FWS will conduct any National Environmental Policy Act (NEPA) analysis required to support establishment of the Refuge.

d. The FWS will be responsible for infrastructure maintenance and repairs as outlined in Enclosure 5 (FWS/Air Force Infrastructure Maintenance Responsibilities).

2. Site Security.

a. The FWS will be responsible for providing UXO, DU and environmental contamination Safety/Awareness Training to all Refuge personnel and visitors (see paragraph III.2.a. above). The FWS will develop an interim public access plan prior to the Army executing a real estate permit. After the interim public access plan, the FWS will develop a comprehensive public access plan that identifies appropriate public uses of the property and ensures that all visitors are provided UXO, DU and environmental contamination Safety/Awareness Training. The public access plan will include: (a) types of public use, (b) UXO, DU and environmental contamination Safety Training protocols (e.g., training materials, training rosters, and waivers), and (c) annual public use reporting requirements. The interim public access plan and the comprehensive public access plan and any revisions will be subject to Army approval.

b. The FWS will provide staffing at a level consistent with the safe operation of the Refuge. With the expectation of limited or no UXO cleanup in the future, public use levels will be low and may be limited to hunting, gathering, fishing, and guided tours as determined by the interim or comprehensive public access plan. All visitors will be escorted or receive a safety briefing on the hazards found on the property. If the FWS fails to maintain adequate public access control, the Army reserves the right to suspend the FWS's right of access to the Firing Range until such time as the FWS takes appropriate corrective action.

3. Environmental Remediation.

a. The FWS shall not be responsible for any environmental requirements related to the Army's past, present, or future activities at the Firing Range or the Air Force activities at the Bombing Range. However, the FWS will be responsible for all environmental compliance and remediation requirements resulting from operation of the Refuge.

b. The FWS shall not be responsible for remediation of UXO, DU, and other environmental contamination related to past, present, or future Army activities, or present on the Firing Range on the date of this MOA, or resulting from Air Force Bombing Range activities. If a FWS Refuge activity will result in increased remediation costs for the Army (e.g. UXO removal, fencing, or site remediation), the FWS shall terminate the activity.

c. The FWS will not undertake any Refuge activities that interfere with the Army environmental remediation program at the Firing Range.

4. Other Activities on the Refuge.

The FWS will be responsible for reviewing all requests to conduct non-FWS activities on the Refuge (i.e. requests from other organizations to conduct activities not otherwise authorized by the CCP); not otherwise allowed by this MOA. All requests for non-FWS activities on the Refuge will be reviewed in accordance with the National Wildlife Refuge Administration Act and other applicable laws, regulations, or policies. The interim or comprehensive public access plan will be revised as necessary to ensure that any approved non-FWS operations on the Refuge are conducted in a safe manner.

5. Tort Claims.

The FWS will be responsible for accepting and processing any tort claims for incidents arising out of its operation of the Refuge. The Army and Air Force will cooperate in providing information relating to any such tort claims. Any liability on the part of the parties will be determined in accordance with the Federal Torts Claim Act and other applicable laws.

V. AIR FORCE RESPONSIBILITIES

1. Air Force Bombing Range.

a. The Air Force will operate a Bombing Range which includes an approximate 50-acre laser bombing range, an approximate 983-acre conventional bombing range, and the Old Timbers Lodge with associated acreage of approximately 5 acres, which shall be excluded from the real estate permit for the Refuge. The bombing ranges, when in use, will have large safety fans that will be off limits for FWS personnel and visitors during flight operations involving training munitions or laser energy. While the safety fans overlay significant portions of the Firing Range,

their land area is included in the real estate permit for the Refuge. As the laser bombing range safety fan includes the DU Impact Area, management of the Bombing Range will be subject to the License Termination Plan as approved by the NRC. The Air Force will comply with Air Force Instruction 13-212, Test and Training Ranges, concerning range maintenance, ammunition, explosives, and dangerous articles (AEDA), and range residue cleanup/decontamination on the Bombing Range.

b. The Air Force will conduct any NEPA analysis required to support operation of the Bombing Range.

c. The Air Force will take the following actions to ensure that its operation of the Bombing Range is not inconsistent with the establishment of the Refuge:

(1) The Air Force will limit its total annual bombing sorties to 3000 sorties per year (including non- Air Force sorties). The Air Force is authorized to conduct 4000 sorties in any one-year period provided the additional sorties are conducted in accordance with applicable laws and regulations. The Air Force may only exceed the 3000 sorties per year cap once every three years. Any increase in sorties above these levels will be negotiated in good faith by the parties.

(2) The Air Force will provide wildfire suppression support on the Refuge for situations arising from Air Force actions or activities, as to be determined by the Bombing Range Commander and the FWS Refuge Manager.

2. Perimeter Fence/Road and Warning Signs.

a. The Air Force will be responsible for patrolling and maintaining the perimeter fence and related infrastructure to ensure the overall security of the Firing Range. The perimeter fence infrastructure includes warning signs, the road system associated with the perimeter fence, and mowing the perimeter fence area. The Army and FWS staff will report to the Air Force in a timely manner any damage to the perimeter fence that they observe in the course of performing their respective activities on the Firing Range.

b. The Air Force will maintain warning signs around the entire perimeter, the submunitions area west of Machine Gun Road, the DU area and the former Open Detonation area. If additional fencing, cleanup, or site security improvements are required due to past, present, or future Army activities, the Army will be responsible for the additional requirement. The Air Force agrees to negotiate in good faith regarding appropriate arrangements to assist the Army in meeting the new requirements.

3. Maintenance of Firing Range Infrastructure.

The FWS/Air Force infrastructure maintenance responsibilities are provided in Enclosure 5. The properties permitted to the Air Force (i.e., the Old Timbers Lodge and the four stone

arch bridges) shall be preserved in accordance with the Jefferson Proving Ground Cultural Resource Management Plan dated August 1996. The Army and Air Force will prepare an Interservice Support Agreement to cover the Army's historic preservation responsibilities for the Oakdale School House. If other infrastructure maintenance requirements are subsequently identified, the Air Force agrees to negotiate in good faith regarding appropriate arrangements to assist the Army in meeting the new requirements.

4. Other Bombing Range Activities.

The Air Force will be responsible for reviewing all requests to conduct non-Air Force operations (including Army and FWS requests) on the Bombing Range. All requests for non-Air Force operations on the Bombing Range will be reviewed in accordance with the provisions of Air Force Instruction 13-212 and the License Termination Plan as approved by the NRC. The comprehensive site access plan will be revised as necessary to ensure that any approved non-Air Force operations on the Bombing Range are conducted in a safe manner.

5. Site Security.

a. The Air Force will be responsible for providing UXO, DU and environmental contamination Safety/Awareness Training to all Bombing Range personnel and visitors. Prior to the Army executing a new real estate permit, the Air Force will develop a comprehensive site access plan that includes: (a) types of official use, (b) UXO, DU and environmental contamination Safety Training protocols (e.g., training materials, training rosters, and waivers), and (c) annual official use reporting requirements. The comprehensive site access plan and any revisions will be subject to Army approval.

b. The Air Force will provide staffing at a level consistent with the safe operation of the Bombing Range. It is anticipated that the Air Force access will consist primarily of Bombing Range personnel, support personnel, and official visitors. If the Air Force fails to maintain adequate access control, the Army reserves the right to suspend Air Force's right of access to the Firing Range until such time as the Air Force takes appropriate corrective action.

6. Environmental Remediation.

a. The Air Force shall not be responsible for any environmental requirements related to the Army's past, present, or future activities at the Firing Range or the FWS activities at the Refuge. However, the Air Force will be responsible for all environmental compliance and remediation requirements resulting from its operation of the Bombing Range.

b. The Air Force shall not be responsible for remediation of UXO, DU, and other environmental contamination related to past, present, or future Army activities, or present on the Firing Range on the date of this MOA (except as provided in paragraph V.8.b. below), or resulting from FWS Refuge activities. If an Air Force Bombing Range activity will result in increased environmental remediation costs for the Army (e.g. UXO removal, fencing, or site

remediation), the Air Force will be solely responsible for these increased costs or shall terminate the activity.

c. The Air Force will not conduct any Bombing Range activities that interfere with Army environmental remediation activities at the Firing Range.

7. Tort Claims.

The Air Force will be responsible for accepting and processing any tort claims for incidents arising out of its operation of the Bombing Range. The Army and FWS will cooperate in providing information relating to any such tort claims. Any liability on the part of the parties will be determined in accordance with the Federal Torts Claim Act and other applicable laws.

8. Existing Permit to the Air Force

a. Pending issuance of the new real estate permit (Enclosure 3), the existing permit between the Department of the Army and the Department of the Air Force, DACA 27-4-83-03, dated 23 July 1982, to use property on JPG will continue in effect without change. Upon the effective date of the new permit, the existing permit will terminate.

b. Nothing in this MOA will be construed to affect any liability or responsibility of the Air Force or Army established by the existing permit between the Department of the Army and the Department of the Air Force, DACA 27-4-83-03, dated 23 July 1982, or any prior permits between the Air Force and Army relating to the Firing Range.

9. Licensing to Indiana Air National Guard

The Air Force may grant a license to the Indiana Air National Guard to assume its rights and responsibilities under the real estate permit. Any such license may include and apply all the responsibilities of the Air Force under this MOA and the permit to the Indiana Air National Guard, excluding only the authority to amend this MOA or the real estate permit.

VI. DISPUTE RESOLUTION PROCEDURE

1. Except as otherwise provided in this MOA, all disputes between the parties relating to the terms and conditions of this MOA will be subject to the following dispute resolution procedures:

a. Informal - All parties to this agreement shall make reasonable efforts to informally resolve disputes at the Installation Commander, the Bombing Range Commander, and the Refuge Manager Level. If the parties can not resolve a dispute informally, any party may invoke dispute resolution procedures by requesting a Level I meeting. The request to invoke dispute resolution shall include a written summary of the dispute, the party's position, and any other information necessary to the resolution of the dispute. In the event that a dispute involves a matter of national significance, the parties may mutually agree to elevate the dispute directly to the Level II dispute

resolution process.

b. Level I - The Level I dispute resolution shall consist of a meeting/conference call among the Army Materiel Command (AMC) Point of Contact (POC), the FWS's Regional Office POC, and Air National Guard Readiness Center POC. Any agreed resolution shall be in writing and signed by all the parties. If agreement cannot be reached within 30 days, AMC shall state its position in writing and provide it to the other parties. Within 30 days of receipt of the AMC statement of position, the other parties may submit a written notice to AMC elevating this matter to Level II for resolution. If the matter is not elevated to Level II dispute resolution within 30 days, the other parties will be deemed to have agreed with the AMC statement of position.

c. Level II - The Level II dispute resolution shall consist of a meeting/conference among the Department of the Army (DA), HQ FWS POC, and HQ Air Force POC. The agreed resolution shall be in writing and signed by all the parties.

2. No resolution of a dispute under this provision shall result in a change to the MOA or to any permit issued pursuant to it unless the modification is executed in accordance with paragraph VIII below or the terms of the permit.

VII. FUNDING

Unless otherwise agreed, all parties will be solely responsible for funding their respective responsibilities under this Memorandum of Agreement. Nothing in this agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341.

VIII. EFFECTIVE DATE, MODIFICATION, AND TERMINATION

1. This agreement may be executed in multiple copies, each of which shall be considered an original document. This agreement shall take effect upon the date last executed by the parties, and shall remain in effect for 25 (twenty five) years. This agreement may be renewed for additional 10 (ten) year periods upon mutual agreement.

2. Modifications to this agreement may be submitted in writing by any party at any time and shall become effective upon the written acceptance of all the parties. Such modifications must be signed by the signatories hereto or their successors in office.

3. This agreement may be terminated by any party by providing a written 180 (one hundred eighty) day notice to the other parties. A decision to terminate this agreement is not subject to the dispute resolution provision of this MOA. In the event of termination, any Air Force and FWS built improvements will be disposed of following applicable disposal regulations.

IX. ENTIRE AGREEMENT

It is expressly understood and agreed that this written instrument and its enclosures when executed embody the entire agreement among the parties regarding the use of the Firing Range, and there are no understandings or agreements, verbal or otherwise, among the parties except as expressly set forth herein.

APPROVED BY:

PAUL W. JOHNSON
Deputy Assistant Secretary of the Army
(Installations and Housing)

Date 12 MAY 2000

JAMIE RAPPAPORT CLARK
Director
U.S. Fish and Wildlife Service

Date 5/15/00

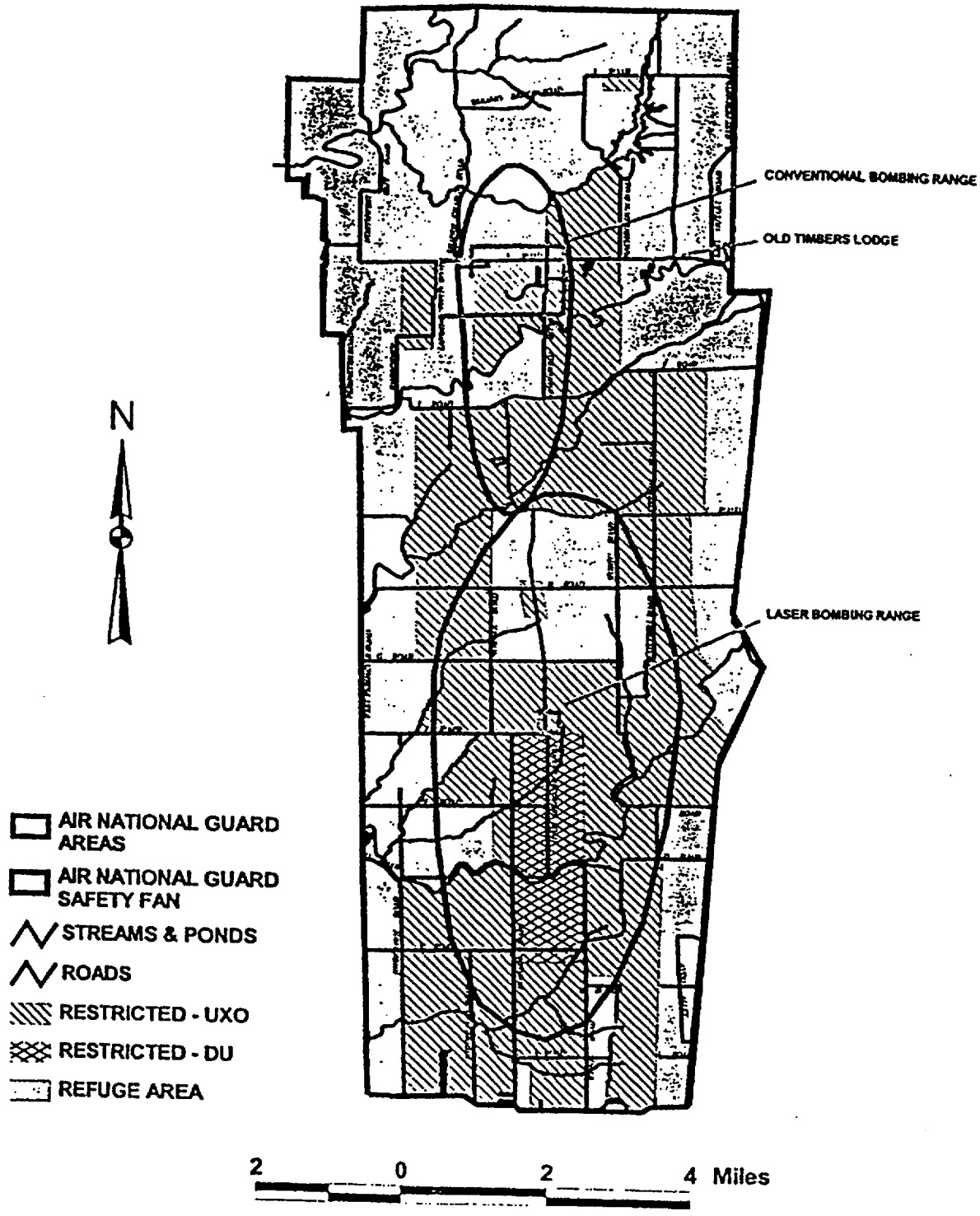
JIMMY G. DISHNER
Deputy Assistant Secretary
Of the Air Force (Installations)

Date 5/11/2000

Enclosures

1. Site Map
2. FWS Real Estate Permit
3. Air Force Real Estate Permit
4. UXO Response Standing Operating Procedures
5. FWS/Air Force Infrastructure Maintenance Responsibilities

JEFFERSON PROVING GROUND
SITE MAP



ENCLOSURE 2

NO._____

DEPARTMENT OF THE ARMY

PERMIT TO FISH AND WILDLIFE SERVICE

TO USE PROPERTY LOCATED ON JEFFERSON PROVING GROUND

THE SECRETARY OF THE ARMY, hereinafter referred to as the Secretary hereby grants to the United States Fish and Wildlife Service, hereinafter referred to as the grantee, a permit for the establishment of a National Wildlife Refuge at the Jefferson Proving Ground (JPG), over, across, in and upon the lands identified in Exhibit "A", attached hereto and made a part hereof, hereinafter referred to as the premises. The Secretary and the grantee are collectively hereinafter referred to as the "Parties".

THIS PERMIT is granted subject to the following conditions.

1. This permit is hereby granted for a term of twenty-five (25) years, with renewable ten (10) year periods upon mutual agreement of the Parties. This permit may be terminated earlier, by either the Secretary or grantee, by providing 180 days written notice.

2. The consideration given by the grantee is the management of the Property as a National Wildlife Refuge as well as the care and maintenance of the property as specified in the Memorandum of Agreement (MOA) attached hereto and made part of hereof..

3. All correspondence and notices to be given pursuant to this permit shall be addressed, if to the grantee , to _____, and if to the Secretary, to the District Engineer, Louisville District, _____ with a copy furnished to the JPG Commander, _____, or as may from time to time otherwise be directed by the parties. Notice shall be deemed to have been duly given if when enclosed in a properly sealed envelope or wrapper addressed as aforesaid, and deposited, postage prepaid, in a post office regularly maintained by the United States Postal Service.

4. The use and occupation of the premises shall be without cost or expense to the Department of the Army, and under the general supervision of the JPG Commander, and in accordance with the terms and conditions of the MOA, attached

hereto and made apart hereof. In the event of a conflict between the MOA and this permit, the MOA shall be the controlling instrument.

5. The grantee acknowledges that it has inspected the premises, knows its condition, and understands that same is granted without any representations or warranties whatsoever and without obligation on the part of the Department of the Army, except as provided in the MOA.

6. In accordance with the MOA, the grantee shall, at its own expense and without cost or expense to the Department of the Army, maintain and keep the premises at a level sufficient to support Refuge operations and in accordance with the tasks in Enclosure 5 of the MOA.

7. The Department of the Army shall not be responsible for providing utilities to the grantee and it shall be the grantee's responsibility for obtaining any utilities necessary for its use and occupation of the premises at no expense to the Department of the Army.

8. No additions or alterations of the premises shall be made without the prior written approval of the JPG commander.

9. On or before the expiration of this permit or the termination by either party, in accordance with paragraph one (1), the grantee shall vacate the premises, remove its property therefrom and restore the premises to a condition satisfactory to the JPG commander, ordinary wear and tear and damage beyond the control of the grantee excepted.

10. The grantee shall comply with all applicable Federal, state, interstate, and local laws and regulations wherein the premises are located.

11. The Army will provide the grantee with baseline information concerning the environmental condition of the premises in accordance with paragraph III 1 (a), of the MOA, documenting the known history of the property with regard to storage, release or disposal of hazardous substances on the property. Upon expiration or termination of this permit, the grantee shall, at its own expense and without cost or expense to the Department of the Army, document any storage, release or disposal of hazardous substances in excess of 40 CFR Part 373 reportable quantities and any petroleum products in excess of 55 gallons. A comparison of the two assessments will assist the Army in determining any environmental restoration requirements of the grantee. Any such requirements will be completed by the grantee in accordance with the Environmental Remediation provisions in the MOA and paragraph nine (9) of this permit.

12. It is understood that the requirements of this permit pertaining to maintenance, repair, protection, and restoration of the premises and providing utilities

and other services, shall be effective only insofar as they do not conflict with the MOA or any other agreement, pertaining to such matters made between local representatives of the Army and grantee in accordance with existing regulations.

13. Access to and use of JPG shall be controlled in accordance with the grantee's Site Access Plan that is attached hereto and is made apart hereof. The Army must first approve any variation from this Plan and a revised Site Access Plan shall be made part of this permit.

14. The grantee shall not use the Premises for the storage, treatment or disposal of non-Department of Defense owned hazardous or toxic materials, as defined in 10 U.S.C 2692, unless authorized under 10 U.S.C. and properly approved by the Government.

15. **NOTICE OF THE PRESENCE OF LEAD BASED PAINT AND COVENANT AGAINST THE USE OF THE PROPERTY FOR RESIDENTIAL PURPOSES.**

The grantee is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. For those buildings the grantee uses and occupies it shall comply with all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. The grantee shall restrict access (e.g., secure buildings to the extent practical, post warning signs, etc.) to all unoccupied buildings except those buildings located in UXO Restricted Areas (See Site Map at MOA Enclosure 1). The grantee shall restrict access to the UXO Restricted Areas in accordance with the Site Access Plan. The grantee shall not permit the use of any of the buildings or structures on the Property for residential habitation. Residential habitation does not include use of the Old Timbers Lodge for conference purposes including overnight visits on a non-permanent basis. The grantee assumes all lead based paint related liability arising from its use of the property.

16. **NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT:**

The grantee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos containing materials (ACM) has been found on the Property. The grantee acknowledges that it will inspect any building it proposes to occupy as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The grantee shall restrict access (e.g., secure buildings to the extent practical, post warning signs, etc.) to all unoccupied buildings except those buildings located in UXO Restricted Areas (See Site Map at MOA Enclosure 1). The grantee shall restrict access to the UXO Restricted Areas in accordance with the Site Access Plan. The grantee shall be deemed to have relied on its own judgment in assessing the condition of the property with respect to any asbestos hazards or concerns. The grantee covenants

and agrees that its use and occupancy of a building will be in compliance with all applicable laws relating to asbestos. The grantee assumes all asbestos related liability arising from its use of the property.

17. Prior to the start date of this Permit the grantee will provide a map with clear identification of the buildings it shall occupy. This map will be updated annually by the grantee.

THIS PERMIT is not subject to Title 10, United States Code, Section 2662, as amended.

IN WITNESS whereof, I have hereunto set my hand by authority of the Secretary of the Army, this _____ day of _____, _____.

_____

This permit is also executed by the grantee this _____ day of _____, _____.

_____

Interim Public Access Plan for the Proposed Big Oaks National Wildlife Refuge

Prepared by:
U. S. Fish and Wildlife Service

Lee Herzberger
Refuge Manager
Muscatatuck National Wildlife Refuge

Reviewed by:
Air National Guard

Maj. William Nolen
Commander
Jefferson Range

Approved by:
U. S. Army

Maj. Mark A. Welch
Commander
Jefferson Proving Ground

Introduction

Approximately 50,000 acres of the decommissioned military base known as Jefferson Proving Ground (JPG) is proposed for inclusion into the National Wildlife Refuge (NWR) System via a Memorandum of Agreement (MOA) with the U.S. Army (Army). The area will become Big Oaks NWR. The primary purposes for this overlay NWR are derived from 2 specific acts:

1) The Fish and Wildlife Act of 1956 [16 USC 742a-742j] as amended authorizes the Secretary of the Interior to acquire interests in property "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..."

2) The Endangered Species Act authorizes the Secretary of Interior to acquire interests in lands "to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened..." [16 USC 1534].

The mission of Big Oaks NWR derives from these two purposes and is "to preserve, conserve, and restore biodiversity and biological integrity for the benefit of present and future generations of Americans." There is also a potential for limited public use in areas designated for such activities. This Interim Public Access Plan (Plan) was developed to allow the Army to review and approve safety procedures prior to public use occurring on Big Oaks NWR. This Plan is in accordance with the terms and conditions of the MOA between the U. S. Fish and Wildlife Service (FWS), Army, and Air Force (AF), and in the event of a conflict between the MOA and this agreement, the MOA shall be the controlling document.

Much of the proposed Big Oaks NWR contains unexploded ordnance (UXO), depleted uranium (DU), and other contaminants. The existence of these contaminants causes safety, management and funding concerns specific to Big Oaks NWR. The FWS accepts that there is no Army plan or budget authority to remove UXO in the Firing Range. However, the Army has agreed to make a good faith effort to request UXO removal in connection with Army Reserve and/or Army National Guard training exercises to support refuge operations. To facilitate the support process, the FWS will incorporate building designs that minimize ground disturbance and will provide the Army a minimum 2-year advance notice of their request to complete UXO removal. If the Army is not able to obtain UXO removal support as part of a training exercise, the FWS agrees to withdraw its request and terminate any plans/operations requiring non-emergency UXO support.

In the central portion of JPG is an active 1,033-acre AF training area known as Jefferson Range. Jefferson Range is composed of a 983-acre air-to-ground bombing and strafing range and a 50-acre Precision Guided Munitions (PGM) range. Both the 983-acre range and the 50-acre range have associated safety fans that extend over a portion of the area proposed as Big Oaks NWR (Fig. 1). A composite footprint of approximately 5,100 acres supports the primary target area and a composite footprint of approximately 14,860 acres supports the PGM target area. During flight operations no personnel other than AF personnel will be allowed access inside the weapons footprints. The use of both footprints will be coordinated with the Refuge Manager through monthly scheduling or as necessary to meet mission requirements. When not in use, FWS personnel will have access to the safety footprints. Safety fans and other closed areas will be

barricaded as a precaution. The scheduling of public use on Big Oaks NWR that may conflict with AF activities will be coordinated through periodic meetings between the Refuge Manager and the AF Range Commander designed to eliminate conflicts and ensure safety.

In the event of an aircraft accident, the Jefferson Range Control Officer (RCO) will be the on-scene commander in charge until relieved by the appropriate military authority. Fire and medical support will be directed to the perimeter gate most advantageous to the crash site. Due to the dangers posed by military aircraft, no persons will be allowed access to a crash site until deemed appropriate by the on-scene official. The Jefferson Range Access Plan protocols concerning aircraft accidents will be adhered to by the FWS, and the Refuge Manager will coordinate and cooperatively work with the Jefferson RCO or other on-scene commander.

Safety Briefing Protocols

To ensure visitor safety, the Army will provide safety briefing materials that contain basic information on site history, the hazards of UXO, and the appropriate action when UXO or DU is encountered. The FWS will require all staff and visitors to undergo a safety briefing and will provide safety pamphlets containing this information and a map of Big Oaks NWR. FWS will also brief visitors on other hazards based on local site conditions. All Public Access Permits will be tracked by a permit number. An annual database will be maintained that records individual permit information (e.g., name, address, date of birth, date of safety briefing, etc.). An annual fee or daily fee will be charged for recreational use at Big Oaks NWR. Entrance fees will be waived for official duties conducted by contractors, FWS staff, AF staff, Army staff, and others designated by the Refuge Manager, but everyone will receive a safety briefing (AF visitors will receive briefings in accordance with the AF site access plan).

Entry Procedures

Visitors will check-in and undergo an appropriate safety briefing at the refuge office (presently in Building 125) and be issued a Public Access Permit. The visitor will then be given directions to the access gate controlled by a gate attendant. The gate location will be the sole access point for unescorted FWS visitors and is located adjacent to Gate 1a on the East Perimeter Road (Gate "1b"; Fig. 2). Visitor check-out will also occur at the refuge office. AF visitors, including Old Timbers Lodge guests, will be checked-in and out in accordance with the AF site access plan.

Types of Public Use

The FWS will provide staffing at a level consistent with the safe operation of the refuge. With the expectation of limited or no UXO cleanup in the future, public use levels will be low and limited to hunting, fishing, wildlife observation and photography, and guided tours (Table 1). Activities not covered within the Plan will not be allowed unless first reviewed and approved by the Army and declared compatible by the FWS.

Access

All public activities on the refuge will be controlled and limited within 2 zones identified in

consultation with the Army. These areas are 1) Limited Day Use Recreation and 2) Special Control Hunt Zones; a third zone would have no public access and would be considered closed to all types of entry except on established roads or under emergency conditions (Fig. 1). The Limited Day Use Zone will be used for hunting (deer and turkey), fishing (Old Timbers Lake), and limited opportunities for wildlife observation and photography, and guided (accompanied by FWS staff) environmental education and interpretation tours. The Special Control Hunt Zone will only have public access during a limited deer and turkey hunting season, and limited guided tours. All of these recreational units were previously used in the Army recreation program (Fig. 1).

Public use areas will be delineated by maps and by signs placed on their boundaries as required by NWR policies. Recreational opportunities during posted hours and periods will be available to the general public provided they have completed all necessary safety requirements, proper state licenses, appropriate permits for lottery seasons, and there are areas/staff available for the requested activity. Unescorted access will be limited to April through November (Table 1). Recreation units will have maximum capacity limits at any one time for all off-road visitor activities (Table 1, Fig. 1). Guided tours oriented toward environmental education, wildlife observation, interpretation, and the unique story of the property will be scheduled and completed without exposing the public participants to undue risk.

Protocols on How Public Use will be Monitored, Limited, and Controlled

Public access will be limited to specific days of the week and by seasonal periods (e.g., fishing, deer, and turkey seasons) (Table 1). The Army and the FWS will periodically reevaluate public access to determine if different limits are more appropriate.

The standard protocol for public access will be a check-in/check-out procedure to specific areas (e.g., Area 1, see Fig. 1) for those members of the public that have undergone a safety briefing. They will be allowed in areas identified as suitable for that type of activity (e.g., deer hunting in a Special Control Hunt Area; fishing in Old Timbers Lake). A daily entrance log/database will be kept of all public use on Big Oaks NWR. Information on types and locations of public use will be compiled in an annual report that will be distributed to the Army, AF and the FWS Region 3 Office.

Prior to unescorted public access occurring (June 3, 2000), the AF will install road barricades on the East Perimeter Road and the FWS will place closed area signs on these barricades to limit public access into interior areas of the refuge (Fig. 2). A total of 19 barricades will be placed around the periphery of the southern Special Control Hunt Zone. These barricades will be located at the point where all interior roads leave the East and West Perimeter Roads. The barricades on the West Perimeter Road will be in place by deer season (November 1, 2000). Other than during the limited deer and turkey hunts, these barricade gates will remain closed and locked at all times. FWS will control access into these areas during the annual turkey and deer hunts with the previously described protocols. Besides these hunt periods, only AF and FWS personnel or required contractors will be allowed access to these interior areas and the safety fan footprints. Closed area signs will also be placed alternating with the warning signs placed by the Army for closed access areas, especially for those areas adjacent to recreation units. Signs will

be placed on existing structures (i.e., fence posts, buildings, etc.), live trees, or on posts with weighted bases to avoid ground intrusion of sign posts.

As described in the MOA, the FWS will work closely with the AF on controlling visitor access and monitoring refuge visitors. The AF will be responsible for maintaining the perimeter fence and overall site security at JPG. The FWS will notify the AF of any damage to the perimeter fence in a timely manner.

The FWS will not tolerate individuals who violate safety regulations. For this reason, anyone who does not comply with safety regulations will forfeit his/her refuge access privileges as determined by the Refuge Manager or by a court of law. The FWS will also continue access restrictions made by the Army to specific individuals because of documented safety violations.

Enforcement of refuge trespass and other public use violations will be the primary responsibility of commissioned Refuge Law Enforcement Officers and cooperatively by Indiana Conservation Officers and other law enforcement agencies. General trespass, poaching, and other violations will be cooperatively enforced by these agencies. The FWS will meet with local law enforcement agencies and develop coordinated law enforcement strategies (these strategies will be in place by June 3, 2000) that will be coordinated with the AF. Procedures for obtaining law enforcement assistance will be based on legal jurisdiction where the incident occurs (e.g., in Ripley County the Ripley County Communication Supervisor will be contacted, likewise, in Jefferson or Jennings Counties the appropriate Communication Radio Dispatch Centers will be contacted). For emergency response situations, the cooperating agency will coordinate activities with a 24 hr point of contact (POC) listed in Attachment 1.

Fire suppression capabilities will be negotiated with a local Volunteer Fire Department and will be in place by June 3, 2000. The agreement will include protocols on suppression of wild fires and on-call assistance during prescribed fires. Protocols will instruct fire fighters to not leave roadways and to follow other Army safety directives. For fire department response after hours, the local fire department will be instructed to coordinate with the POC and to cut the lock on the gate most advantageous to their response. In this case, the fire department response will only occur if it is apparent that the fire could cause loss of life or property damage outside the perimeter fence.

Key Control

The AF will change all locks on the perimeter fence and will issue an appropriate number of perimeter and interior gate keys to the FWS for official use. These keys will be controlled in accordance with standard lock and key control protocols (Air National Guard 181st Fighter Wing Instruction 32-1003). All keys will be signed for on the Jefferson Range key control log. The FWS will inventory these keys quarterly in accordance with these key control protocols. The FWS will coordinate distribution of keys with law enforcement and emergency response agencies. The FWS will be responsible for the control of these keys. The party responsible for missing keys shall bear the cost for the re-coring of locks as applicable. The Jefferson Range Commander has the ultimate responsibility for lock and key control on the range and refuge.

Use of Refuge by Old Timber's Lodge (AF) Guests

The FWS will schedule priority refuge events for Old Timbers Lodge with the Jefferson Range AF Commander; at all other times the Old Timbers Lodge area will be off limits for refuge visitors. The refuge will allow Old Timbers Lodge guests access to refuge recreational activities on days/times those activities are available to the general public. Old Timbers Lodge guests must obtain a valid Big Oaks NWR Public Access Permit to participate in these activities and these guests must participate in an AF safety briefing. While on the refuge, all rules and regulations of the refuge will apply to Old Timbers Lodge guests.

Old Timbers Lodge guests must check-in and check-out at the refuge office to participate in recreational opportunities (e.g., fishing at Old Timbers Lake). If guests do not check-in, especially for fishing at Old Timbers Lake, they cannot be guaranteed the opportunity to participate in the recreational activity. For permitted deer or turkey hunts, Old Timbers Lodge guests must either have a valid state lottery permit for the specific hunt or participate in a reserved hunt drawing during the hunting season at the refuge office.

Table 1. Public use limits (use-days) for activities on Big Oaks NWR [a].

Activity	Description of where use will occur	Maximum one-time capacity	When allowed
Deer Hunting	See Public Access Map	423	November (6 days archery and 9 days gun)
Turkey Hunting	½ of the number hunters/area given on Public Access Map	212	April to Mid- May (15 Days)
Fishing	Max. 10 boats and Max. 40 on shore at Old Timbers Lake. No fishing allowed on any other body of water.	60 [b]	5 - 10 days per month; April through October
Wildlife Observation and Photography	½ of the number persons/area given on Public Access Map; only within Limited Day Use Zone	78 [b]	5 - 10 days per month; April through October
Guided tours (interpretation and environmental education)	Dependent on conveyances available and activity. By definition, accompanied by FWS staff.	12-50	By reservation

[a] Based on staff and funds available in FY 2000.

[b] Based on parking and trail availability

Attachment 1

24 Hour Contact List

Joseph R. Robb
Refuge Operations Specialist
Office: 812-273-0783
Home: 812-265-6633
Cell Phone: 812-498-1154

Donna Stanley
Refuge Law Enforcement Officer
Office: 812-522-4352
Home: 812-523-3414
Cell Phone: 812-528-1998

Stephen A. Miller
Refuge Operation Specialist
Office: 812-273-0783
Home: 812-358-4413
Cell Phone: 812-498-1155

Jason Lewis
Wildlife Biologist
Office: 812-273-0783
Home: 812-574-6015
Cell Phone: 812-498-1156

Teresa Vanosdol-Lewis
Wildlife Biologist
Office: 812-273-0783
Home: 812-574-6015
Cell Phone: 812-498-1157

ENCLOSURE 3

NO._____

DEPARTMENT OF THE ARMY

PERMIT TO THE DEPARTMENT OF THE AIR FORCE

TO USE PROPERTY LOCATED ON JEFFERSON PROVING GROUND

THE SECRETARY OF THE ARMY, hereinafter referred to as the Secretary hereby grants to the Department of the Air Force, hereinafter referred to as the grantee, a permit for the continued use of a Bombing Range at the Jefferson Proving Ground (JPG), over, across, in and upon the lands identified in Exhibit "A", attached hereto and made a part hereof, hereinafter referred to as the premises. The Secretary and the grantee are collectively hereinafter referred to as the "Parties".

THIS PERMIT is granted subject to the following conditions.

1. This permit is hereby granted for a term of twenty-five (25) years, with renewable ten (10) year periods upon mutual agreement of the Parties. This permit may be terminated earlier, by either the Secretary or grantee, by providing 180 days written notice.

2. The grantee agrees to the care and management of the property as specified in the Memorandum of Agreement (MOA) attached hereto and made a part hereof.

3. All correspondence and notices to be given pursuant to this permit shall be addressed, if to the grantee , to _____, and if to the Secretary, to the District Engineer, Louisville District, _____ with a copy furnished to the JPG Commander, _____, or as may from time to time otherwise be directed by the parties. Notice shall be deemed to have been duly given if when enclosed in a properly sealed envelope or wrapper addressed as aforesaid, and deposited, postage prepaid, in a post office regularly maintained by the United States Postal Service.

4. The use and occupation of the premises shall be without cost or expense to the Department of the Army, and under the general supervision of the JPG Commander, and in accordance with the terms and conditions of the MOA, attached hereto and made apart hereof. In the event of a conflict between the MOA and this permit, the MOA shall be the controlling instrument.

5. The grantee acknowledges that it has inspected the premises, knows its condition, and understands that same is granted without any representations or warranties whatsoever and without obligation on the part of the Department of the Army, except as provided in the MOA.

6. In accordance with the MOA, the grantee shall, at its own expense and without cost or expense to the Department of the Army, maintain and keep the premises at a level sufficient to support Bombing Range operations and in accordance with the tasks in Enclosure 5 of the MOA.

7. The Department of the Army shall not be responsible for providing utilities to the grantee and it shall be the grantee's responsibility for obtaining any utilities necessary for its use and occupation of the premises at no expense to the Department of the Army.

8. No additions or alterations of the premises shall be made without the prior written approval of the JPG commander.

9. On or before the expiration of this permit or the termination by either party, in accordance with paragraph one (1), the grantee shall vacate the premises, remove its property therefrom and restore the premises to a condition satisfactory to the JPG Commander, ordinary wear and tear and damage beyond the control of the grantee excepted.

10. The grantee shall comply with all applicable Federal, state, interstate, and local laws and regulations wherein the premises are located.

11. The Army will provide the grantee with baseline information concerning the environmental condition of the premises in accordance with paragraph III 1 (a), of the MOA, documenting the known history of the property with regard to storage, release or disposal of hazardous substances on the property. Upon expiration or termination of this permit, the grantee shall, at its own expense and without cost or expense to the Department of the Army, document any storage, release or disposal of hazardous substances in excess of 40 CFR Part 373 reportable quantities and any petroleum products in excess of 55 gallons. A comparison of the two assessments will assist the Army in determining any environmental restoration requirements of the grantee. Any such requirements will be completed by the grantee in accordance with the Environmental Remediation provisions in the MOA and paragraph nine (9) of this permit.

12. It is understood that the requirements of this permit pertaining to maintenance, repair, protection, and restoration of the premises and providing utilities and other services, shall be effective only insofar as they do not conflict with the MOA

or any other agreement pertaining to such matters made between local representatives of the Army and grantee in accordance with existing regulations.

13. Access to and use of JPG shall be controlled in accordance with the grantee's Site Access Plan that is attached hereto and is made a part hereof. The Army must first approve any variation from this Plan and a revised Site Access Plan shall be made part of this permit.

14. The grantee shall not use the Premises for the storage, treatment or disposal of non-Department of Defense owned hazardous or toxic materials, as defined in 10 U.S.C 2692, unless authorized under 10 U.S.C. and properly approved by the Government.

15. The grantee may grant a license to the Indiana Air National Guard to exercise its rights to use the premises subject to the terms of this permit.

16. **NOTICE OF THE PRESENCE OF LEAD BASED PAINT AND COVENANT AGAINST THE USE OF THE PROPERTY FOR RESIDENTIAL PURPOSES.**

The grantee is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. For those buildings the grantee uses and occupies it shall comply with all applicable federal, state and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. The grantee shall restrict access (e.g. secure buildings to extent practical, post warning signs, etc.) to all unoccupied buildings except those buildings located in the UXO Restricted Areas (see Site Map at MOA Enclosure 1). The grantee shall restrict access to the UXO Restricted Areas in accordance with the Site Access Plan. The grantee shall not permit the use of any of the buildings or structures on the Property for residential habitation. Residential habitation does not include use of the Old Timbers Lodge for conference purposes including overnight visits on a non-permanent basis. The grantee assumes all lead based paint related liability arising from its use of the Property.

17. **NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT:**

The grantee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos containing materials (ACM) has been found on the Property. The grantee acknowledges that it will inspect any building it will occupy as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The grantee will restrict access (e.g. secure buildings to the extent practical, post warning signs, etc.) to all unoccupied buildings except those buildings located in the UXO Restricted Areas (see Site Map at MOA Enclosure 1). The grantee shall restrict access to the UXO Restricted Areas in accordance with the Site Access Plan. The grantee shall be deemed to have relied solely on its own judgment in assessing the

condition of the Property with respect to any asbestos hazards or concerns. The grantee covenants and agrees that its use and occupancy of a building will be in compliance with all applicable laws relating to asbestos. The grantee assumes all asbestos related liability arising from its use of the Property.

18. This permit supercedes Permit No. DACA 27-4-83-03, dated 23 July 1982, as amended. Said Permit No. DACA 27-4-83-03 is hereby terminated, effective the date of execution of this permit.

THIS PERMIT is not subject to Title 10, United States Code, Section 2662, as amended.

IN WITNESS whereof, I have hereunto set my hand by authority of the Secretary of the Army, this _____ day of _____, _____.

_____

This permit is also executed by the grantee this _____ day of _____, _____.

_____

JEFFERSON RANGE ACCESS PLAN

(Revised 12 Apr 00)

Prepared by:
Air National Guard

Major William Nolen
Commander
Jefferson Range

Reviewed by:
U.S. Fish and Wildlife Service

Lee Herzberger
Refuge Manager
Muscatatuck National Wildlife Refuge

Approved by:
U.S. Army

Major Mark Welch
Commander
Jefferson Proving Ground

JEFFERSON RANGE ACCESS PLAN

This Operating Instruction will provide access procedures onto Jefferson Range. All access onto Jefferson Range and Old Timbers Lodge will be coordinated through Jefferson Range Operations Center (JROC).

Jefferson Range Operations Center (JROC) describes the range primary operations area. This area encompasses those buildings located at the intersection of Bomb Field and K roads. All access to the JROC is through Big Oaks National Wildlife Refuge.

Jefferson Range consists of 983 acres used as the primary training range. Geographical boundaries for this area illustrated in Attachment 1.

A 50 acre Precision Guided Munitions (PGM) target is located approximately 6nm south of the primary range. Geographical boundaries for this target are illustrated in Attachment 2.

Old Timbers Lodge and approximately 5 acres surrounding the lodge will be considered part of Jefferson Range for the purposes of this access plan.

Four gates allow access to the primary range. These gates are located as follows:

Intersection of Machine Gun and K roads
Intersection of Shape Charge and K roads
Intersection of Bethel Hole and J roads
Intersection of Cottrell and J roads

Range Personnel. All assigned personnel will be issued one key for perimeter gates and one key for range gates. Entry/Exit will be made through the gate most advantageous to their needs. Upon entry/exit the perimeter gate will be closed and locked.

Visitors. All visitors will coordinate range visits through the JROC. Visitors will be met at the appropriate perimeter gate and escorted to the JROC. Upon completion of visit, visitors will be escorted to appropriate gate for departure. There will be no unescorted visitors to and from Jefferson Range.

Contractors. Prior to any contractor performing duties on JPG real estate, coordination will be made through JROC and FWS office on all planned activities. Those contractors scheduled per Air Force (AF) requirements will be assigned a specific key for the duration of their activity. This key will be to an exclusive use lock located on the perimeter gate/interior gate nearest the planned activity and will only be utilized during duty hours.

Gate. All locks presently on all perimeter gates will be replaced by AF to ensure access by FWS, Army and AF personnel only. All locks will be changed prior to the issuance of a real estate license.

Fence. AF personnel and/or contractors will maintain the perimeter. Range personnel/contractors will perform weekly inspections of entire perimeter fence. All discrepancies will be reported so that any necessary repair action may be taken. FWS personnel are required to report any fence discrepancies to Jefferson Range NCOIC so the appropriate action may be taken. AF personnel or the designated contractor will perform fence repairs. Inspection documentation will include 1) date of inspection, 2) name of inspector, 3) description of damage, and 4) the location of the damage. Holes in the fence large enough to permit human access, damaged gates and missing " windchimes" of the creek barriers will be repaired within 72 hours of being documented. For every incident of damage a record shall be maintained documenting the action taken to make repairs. If any repairs take more than 72 hours, the Army shall be notified and milestones shall be given for completion of the repair.

Barricades. To ensure no trespass of the PGM target safety footprint and the interior of JPG, gate style barricades will be placed on all access roads into the footprint and interior areas. These barricades will be located at the point where all interior roads leave the East and West Perimeter Roads. Other than during the limited deer and turkey hunt, these barricade gates will remain closed and locked at all times. Only AF, Army and FWS personnel or required contractors will be allowed access to the footprint and interior areas of JPG. During the annual turkey and deer hunt, FWS will control access into these areas.

Key Control. All range personnel will be assigned 4 keys for range access. These keys include the perimeter gate keys, PGM target/interior road gate keys, range keys and building keys. Spare keys for these four series of keys will be kept in the JROC. All keys will be signed for on the Jefferson Range key control log. The FWS will be assigned the appropriate number of keys for distribution to FWS personnel. The FWS will be responsible for the control of these keys. The FWS will distribute the local law enforcement units perimeter gate keys from the FWS key allotment. The Army site staff will be issued 2 sets of keys and will be responsible for the control of these keys. Quarterly lock and key inventories will be made of all issued keys. In the event of a lost or missing key, the individual responsible for that key shall bear the cost for re-coring of applicable locks. Lock and Key Control guidance will be from 181st FW Instruction 32-1003. The Jefferson Range Commander has the ultimate responsibility for lock and key control on the range and refuge.

Safety Signs. The appropriate UXO safety signs will be maintained on the perimeter fence and gates. Gate numbers will be posted on all gates. Range and footprint gates will be posted with both Bombing Range and Laser Range danger signs. Radiation hazard signs will be maintained on DU field perimeter. Safety signs will be maintained on the west side of Machine Gun Road from K Road to Little Otter Creek.

Safety Brief. All visitors and contractors will receive a safety briefing from Jefferson Range Safety NCO. The safety brief will cover UXO, DU, driving hazards, flying operations and FWS operations. At no time will visitors or contractors be permitted to leave the JROC without first receiving an initial safety briefing.

Communications. Good communications between range, Army site staff and FWS personnel are a must to ensure a safe working environment for all concerned. The Range Operations Officer (ROO) will furnish FWS with a monthly flying schedule. The ROO will also inform FWS of any scheduled use of the PGM target. Use of this target will preclude any activity inside the safety footprint. All maintenance of the facilities will be coordinated with the Refuge Manager. At a minimum, monthly meetings will be conducted between the Refuge Manager and the Range Operations Officer to better facilitate a smooth work environment.

Weapons Safety Footprint. Two composite weapons safety footprints are associated with Jefferson Range. A composite footprint of approximately 5,100 acres supports the primary target area and a composite footprint of approximately 14,860 acres supports the PGM target area. During flight operations no personnel other than AF personnel will be allowed access inside the weapons footprints. The use of both footprints will be coordinated with the Refuge Manager through monthly scheduling or as necessary to meet mission requirements. When not in use, FWS personnel will have access to the safety footprints.

Emergency Response. Any emergency requiring an immediate response will be accomplished through the Ripley County Communication Supervisor. Emergency response personnel will be directed to Gate 8 for entrance and directions to the location of the emergency. AF personnel will provide escort to the incident location. Emergency response personnel will be informed of any hazards associated with the emergency. The Army site and staff and FWS will be notified of all needs for emergency response.

Aircraft Accident. In the event of an aircraft accident, the Range Control Officer (RCO) will be the on-scene commander until relieved by the appropriate authority. Emergency response will be through the Ripley County Communication Supervisor. Fire and medical support will be directed to the perimeter gate most advantageous to the crash site. Due to the dangers posed by military aircraft, no persons will be allowed access to a crash site until deemed appropriate by the on-scene commander. Access to an aircraft or pilot in a designated restricted area will be accomplished by the appropriate Jefferson Range vehicle. Only the necessary rescue personnel will be permitted access to any restricted area. Access to aircraft or pilot outside of a restricted area will be made by the appropriate vehicle for the situation. The Army site staff and FWS will be notified immediately of any aircraft mishap.

Fire Response. Request for fire response will be made through the Ripley County Communication Supervisor. Fire fighters will be directed to Gate 8 for entrance and directions to the fire. Fire fighters will not leave any roadway to fight fires per US Army directives. In the event of a need for fire department response after duty hours, the local fire department will be instructed to cut the lock on the gate most advantageous to their response. In this case, fire department response will only occur if it is apparent that the fire will cause life or property damage outside JPG. A complete list of AF and FWS contacts will be provided all local fire departments in the area. Attachment 4 lists the Jefferson Range contacts available on a 24 hour basis.

Law Enforcement Response. Request for law enforcement response will be made through the Ripley County Communication Supervisor or the appropriate law enforcement agency. Caller will state the nature of the emergency, location of the emergency and the most accessible gate to respond to the emergency. Local law enforcement units will have perimeter gate keys issued to them from the FWS key allotment. All local law enforcement units will be issued a 24 hour contact list of Jefferson Range personnel.

Old Timbers Lodge. Access to Old Timbers Lodge will be through Gate 1B. The sponsor that has reserved the lodge will contact Jefferson Range to arrange a time for key sign out and the required safety briefing. The sponsor and all guests will be required this safety brief. A single key to Gate 1B will be assigned the sponsor. The sponsor is responsible for the behavior and safe conduct of his/her guests. If the sponsor and/or guests wish to take part in recreational activities of Big Oaks NWR, those activities will fall under the rules and guidelines of the refuge. Use of Old Timbers Lodge does not guarantee hunting and fishing activities on the refuge. Attachment 3 depicts that area around the lodge to be maintained by the AF.

Attachment 4

24 Hour Contact List

Major Bill Nolen
Jefferson Range Commander
Office: 812-689-7295
Home: 317-738-2719
Cell Phone: 317-441-3653

Major Matt Sweeney
Jefferson Range Operations Officer
Office: 812-689-7295
Home: 812-988-6787
Cell Phone: 812-528-0974

Senior Master Sergeant Jim Bergdoll
Jefferson Range NCOIC
Office: 812-689-7295
Home: 812-265-2372

Master Sergeant Kerry Brinson
Jefferson Range Asst NCOIC
Office: 812-689-7295
Home: 812-839-3557

Master Sergeant Todd Bass
Jefferson Range Safety NCOIC
Office: 812-689-7295
Home: 812-265-2153

ENCLOSURE 4—North of the Firing Line
Unexploded Ordnance (UXO) Response
Standing Operating Procedure

1. PURPOSE: To establish procedures to support emergency management/disposition of UXO items in the Firing Range area at Jefferson Proving Ground (JPG).

2. OBJECTIVE: To prescribe an explicit course of action for the safe and efficient management of situations involving UXOs in the Firing Range area at JPG.

3. POLICY:

a. The Senior Explosive Ordnance Disposal (EOD) technician assumes primary responsibility for command and control of operations at the scene of a UXO.

b. Only EOD technicians may attempt to perform render-safe procedures (RSP) on UXO.

4. UXO OPERATIONAL PROCEDURES:

a. If the FWS or Air Force discovers UXO which poses an imminent and substantial hazard to Refuge or Bombing Range operations (e.g., UXO has migrated to the surface of a roadway), the FWS or Air Force will immediately:

(1) Restrict access to the UXO site,

(2) Cease all work, mark location of the item,

(3) Move all personnel away,

(4) Ensure that no one uses a two-way radio, and

(5) Notify the Army JPG Site Management Team if present at 812-273-2522/2551/6075. If the JPG Site Management Team is not

available, notify the Commander, Newport Chemical Depot at 765-245-4317.

b. Upon verification by the Commander, Newport Chemical Depot or the JPG Site Management Team that the UXO poses an imminent and substantial hazard to Refuge or Bombing Range operations, the Army shall notify the Fort Knox 703rd EOD Ordnance Company at 502-624-5631, and request disposal of the UXO item[1].

c. EOD personnel shall coordinate their activities and gain access to areas in the Firing Range area by contacting the Commander, Newport Chemical Depot at 765-245-4317 and Army JPG Site Management Team at 812-273-2522/2551/6075.

d. The Senior EOD Technician shall determine if the UXO item is inert. If an inert verification is not possible the munition shall be blown in place. If detonation in place is not possible, the Senior EOD Technician will determine whether it is appropriate to attempt a RSP or use other approved means to move the item to a more suitable location for safe disposal.

e. Until the item is disposed of, the Army at its discretion may impose additional access restrictions to the Firing Range area.

5. REVIEW: This SOP shall be reviewed annually. Any revisions/updates shall be provided to the FWS, Air Force, the 703rd Fort Knox EOD Ordnance Company, the Real Estate Division of the Louisville Corps of Engineers, and Newport Chemical Depot Commander or the Army JPG Site Management Team.

[1] The Army will not be required to remove UXO that the JPG Site Management Team determines does not pose an imminent and substantial hazard to Refuge or Bombing Range operations.

ENCLOSURE 5 – FWS/Air Force Infrastructure Maintenance Responsibilities

AIR FORCE

1. Air Force shall maintain all roads, road shoulders and low water crossings, as well as associated bridges and culverts, that are shaded in green on the map at Tab A, in accordance with Army Regulation 420-72.

2. The perimeter fence shall be patrolled and inspected weekly. Inspections shall be documented to include: 1) the date of inspection, 2) the name of the inspector(s), 3) a description of any damage observed, and 4) the location of the damage. Holes in the fence large enough to permit human access, damaged gates and missing "windchimes" of the creek barriers will be repaired within 72 hours of being documented. For every incident of damage a record shall be maintained documenting the action taken to make repairs. In extraordinary circumstances when a repair will take more than 72 hours to complete (e.g. storm damage), the Air Force shall notify the Army in writing and milestones shall be given for completion of the repair. The Air Force shall take action to remove tress that fall into/onto the fence. Grass and other vegetation, located between the perimeter fence and perimeter road, shall be mowed or otherwise controlled to assure capability for visual inspection of the perimeter fence from the perimeter road; such mowing shall be done twice annually, usually in the April-June and September-October timeframes.

3. All roads approaching the DU area shall be barricaded and marked with radiation warning signs. In addition the Air Force will maintain warning signs around the entire perimeter of the firing range as well as around the submunitions area west of Machine Gun Road and the former Open Detonation area.

4. The Air Force shall maintain the cultural resource properties of the Firing Range (i.e., four stone-arch bridges as well as the Old Timbers Lodge) in accordance with the Cultural Resources Management Plan (reference maintenance standards in Table III-1 at Tab B). A complete copy of the Cultural Resources Management Plan was mailed to the Air Force(i.e. Mr. Masse) in March, 2000.

FWS

1. The FWS shall maintain all buildings, roads, road shoulders, bridges, low water crossings, and culverts, not maintained by the Air Force, which are required for Refuge operations. The FWS shall maintain such facilities in accordance with Army Regulation 420-72. Prior to the start date of the Real Estate permit, the FWS will provide a map with clear identification of the roads, road shoulders, buildings, bridges, low water crossings and culverts that it shall maintain under terms of the real estate permit. This map will be

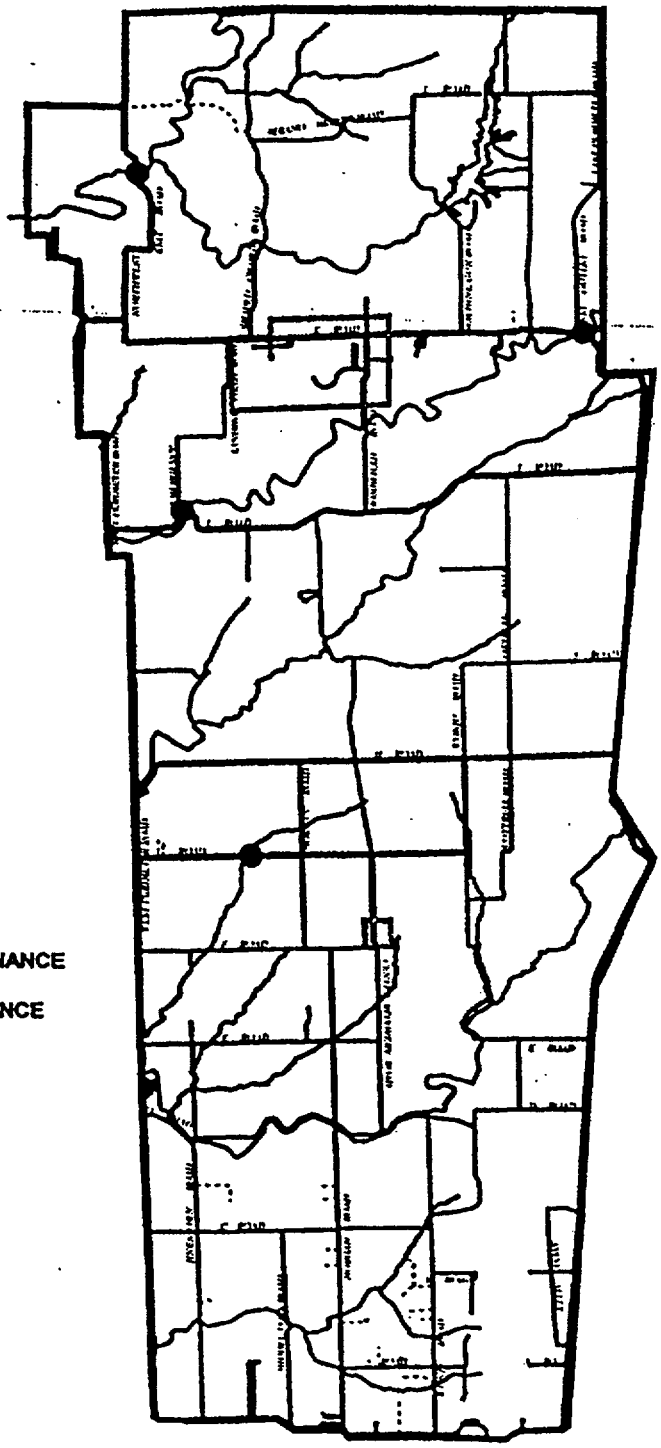
updated annually by the FWS to reflect their maintenance commitment for the next year. No later than December 1, 2000, the FWS will close all bridges in the Refuge footprint that are not required for Refuge operations or not maintained by the Air Force. The FWS shall provide access control signs on the east perimeter road between Gate 1B and K Road, as well as the minefield area on L Road.

2. FWS shall provide road maintenance sufficient for 4 x 4 vehicle access to the DU monitoring wells identified at Tab C.

3. FWS shall provide or negotiate and/or fund fire suppression, emergency medical response and local law enforcement agreements. Note that three different counties (i.e. Jefferson, Ripley, and Jennings) have different jurisdiction footprints in the firing range property.

4. The FWS shall pay a pro-rated share of the rent charged to the Army for the use of Building 125 and associated utilities beginning with the start date the real estate permit..

AIR NATIONAL GUARD
ROAD & BRIDGE MAINTENANCE



● ANG BRIDGE MAINTENANCE

ANG ROAD MAINTENANCE

Table III-1
Standards for Treatment of Significant Architectural Resources
after the Secretary's *Standards and Guidelines for Archeology and Historic Preservation* [48 FR 44716]

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Standards for Preservation

1. A property shall be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property shall be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property shall be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features shall be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. The existing condition of historic features shall be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material shall match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
8. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.

Rehabilitation is defined as the act or process of making possible an efficient compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

Standards for Rehabilitation

1. A property shall be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property shall be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historical properties, shall not be under taken.
4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and, where possible, materials. Replacement of missing features shall be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
8. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and shall be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Table III-1 (cont'd)

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Standards for Restoration

1. A property shall be used as it was historically or be given a new use which interprets the property and its restoration period.
2. Materials and features from the restoration period shall be retained and preserved. The removal of materials or alteration of features, spaces, and spatial relationships that characterize the period shall not be undertaken.
3. Each property shall be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate and conserve materials and features from the restoration period shall be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Materials, features, spaces, and finishes that characterize other historical periods shall be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the restoration period shall be preserved.
6. Deteriorated features from the restoration period shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and, where possible, materials.
7. Replacement of missing features from the restoration period shall be substantiated by documentary and physical evidence. A false sense of history shall not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
9. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.
10. Designs that were never executed historically shall not be constructed.

Reconstruction is defined as the act of process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

Standards for Reconstruction

1. Reconstruction shall be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure, or object in its historic location shall be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures shall be undertaken.
3. Reconstruction shall include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction shall be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property shall re-create the appearance of the non-surviving historic property in materials, design, color, and texture.
5. A reconstruction shall be clearly identified as a contemporary re-creation.
6. Designs that were never executed historically shall not be constructed.

The presence of hazardous materials and material residues may impact considerations for preservation and mitigation. Coordination will be required.

a. Continued Operations, Maintenance, and Repair

Maintenance and repair activities, to the greatest extent possible, should seek to preserve the integrity of historic properties. The Secretary's *Standards and Guidelines* for archeological and historic preservation offers general and useful guidelines for the treatment of significant buildings (see Table III-1). The maintenance levels for eligible buildings and structures under the control of the Army must provide the

JEFFERSON PROVING GROUND: DU SAMPLING
GROUNDWATER MONITORING WELLS