



STATE OF ALABAMA DEPARTMENT OF
PUBLIC HEALTH

Donald E. Williamson, MD
State Health Officer

September 28, 2000

Douglas M. Collins, Director
Division of Nuclear Materials Safety
Nuclear Regulatory Commission, Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW Suite 23T85
Atlanta, GA 30303-8931

Subject: Draft Environmental Assessment

Dear Mr. Collins:

I have reviewed the Draft Environmental Assessment, prepared in support of the Fort McClellan Pelham Range Burial Mound Remediation and Decommissioning Plan, dated Sep. 18, 2000. I concur with the finding that no significant environmental impact will result from the remediation and final decommissioning of the site.

I trust you will continue to keep this office informed as to the progress of the decommissioning as completion nears.

Sincerely,

A handwritten signature in black ink that reads "Kirksey E. Whatley".

Kirksey E. Whatley, Director
Office of Radiation Control

KEW/jtw



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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September 18, 2000

Kirksey E. Whatley, Director
Division of Radiation Control
State of Alabama
Department of Public Health
201 Monroe Street, Suite 700
Montgomery, AL 36104

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT

Dear Mr. Whatley:

Enclosed is the draft Environmental Assessment (EA) that has been prepared in support of the Fort McClellan Pelham Range Burial Mound Remediation and Decommissioning Plan. The conclusion of the EA is the Commission's finding that no significant environmental impact will result from the proposed decommissioning. The EA and Finding of No Significant Impact are provided for your review and comment.

If you have any comments on the proposed work or its environmental impact, please send them by October 20, 2000.

Sincerely,

Douglas M. Collins, Director
Division of Nuclear Materials Safety

Enclosure: Draft Environmental Assessment

SEP 20 2000

DIVISION OF NUCLEAR MATERIALS SAFETY, REGION II
ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT
RELATED TO THE APPROVAL OF THE REMEDIATION DECOMMISSIONING PLAN FOR
THE DEPARTMENT OF THE ARMY'S FORT MCCLELLAN PELHAM RANGE BURIAL MOUND
FORT MCCLELLAN, ALABAMA
LICENSE NO. 01-02861-05, DOCKET NO. 030-17584

The U.S. Nuclear Regulatory Commission (hereafter referred to as NRC staff) is considering approval of the Remediation (Decommissioning) Plan for the Department of the Army's Fort McClellan Pelham Range Burial Mound, Fort McClellan, Alabama, dated September 9, 1999. The Army is obligated to remediate the Fort McClellan site to meet the release criteria in 10 CFR 20, Subpart E (NRC, 1997).

1. SUMMARY AND CONCLUSIONS

Based on our evaluation of the Army's Fort McClellan Remediation (Decommissioning) Plan, NRC staff has determined that the proposed plan complies with NRC's public and occupational dose and effluent limits, and that authorizing the proposed activities would not be a major Federal action significantly affecting the quality of the human environment. NRC staff concludes that a Finding of No Significant Impact is justified and appropriate, and that an environmental impact statement is not required.

2. INTRODUCTION

On July 23, 1998, the Army's Material License No. 01-02861-05 was amended to include cesium 137 and cobalt 60 waste contained in a burial mound located at Rideout Field, Pelham Range, Area 24C at Fort McClellan, Alabama. The Pelham Range is located approximately 6 miles from the city of Anniston, Alabama. The closest surface water to the burial mound is Cane Creek, which is approximately 4,200 feet down gradient from the burial mound. Limited sampling of the creek was done by the Alabama Division of Radiation Control, no contamination was found. The groundwater will be evaluated after the mound is remediated to ensure that no contamination has occurred.

The Army requested this amendment based on a characterization study completed in January 1996. The study consisted of walkover surface scans, hole logging and sample analysis. The Army obtained 571 systematic random and biased samples and analyzed them for radiological parameters by gamma spectroscopy. The analysis supported the conclusion that the mound was contaminated with cesium 137 and cobalt 60 waste from previously licensed activities at the base.

The cobalt 60 concentration varied between 1.6 and 187 pCi/g for the surface samples and from 0 to 330 pCi/g for sub-surface samples. The cesium 137 samples varied from 0.2 to 179 pCi/g for the surface samples and from 0 to 12 pCi/g for the sub-surface samples. One sample contained an individual cobalt 60 spec with a mass of 0.0043 grams and an activity of 243,000 pCi.

The Pelham Range was used, among other uses, as a radiological training area for simulated large area radioactive contamination (fallout) from the surface detonation of a small yield nuclear

weapon. The training concept involved the raising and lowering of sealed radioactive sources. Students would then perform ground and aerial surveys to map the fallout pattern. This training occurred from the mid 1950s through May of 1973. The Army used locally fabricated cobalt 60 sources and higher activity commercially produced cesium 137 sources. An excessive number of leaking locally fabricated cobalt 60 sources contributed to the formation of the burial mound.

The Army Base Closure and Realignment Committee (BRAC) has identified Fort McClellan as an installation for closure. The remediation of the burial mound is one of several radiological issues that must be resolved prior to the termination of the materials license and final base closure.

3. PROPOSED ACTION

The Army is proposing to collect the radiologically contaminated materials from the Pelham Range burial mound. The Army intends to remediate the site to the NRC criteria for unrestricted use. The NRC criteria for unrestricted use is 25 mrem/year TEDE to the critical group. For the Pelham Range site, this was modeled for a residential family (i.e., the critical group) which occupies the land and operates it as a self-sustaining farm. The Army will use Allied Technology Group (ATG) as its contractor.

The Army modeled the future residential farm scenario using site specific environmental parameters to determine acceptable clean up levels. The contractor modeled the site conditions and occupancy scenarios using the Residual Radioactivity (RESRAD) computer code. The model calculated acceptable cleanup levels of 2.3 pCi/g of Co-60 and 9.2 pCi/g of Cs-137. These represent the maximum average acceptable contaminant levels that will meet the NRC's release criteria. In addition, the Army will operate under the concept of As Low As Reasonable Achievable (ALARA). After reviewing the site characterization data and considering the sensitivity of available field instrumentation, by applying ALARA, the predicted average concentrations after decommissioning will be approximately 0.1 pCi/g of Co-60 and approximately 0.1 pCi/g of Cs-137.

The general decommissioning outline is as follows:

1. Clear all brush from the burial mound area.
2. Reestablish the survey grid system.
3. Identify the contaminated areas within the remediation parameters.
4. Remove the soil/sand which contains the radioactivity above the accepted clean up levels.
5. Survey the area to ensure remediation was successful.
6. Remove any residual activity discovered after excavation.
7. Package and prepare radioactive material for shipment.
8. Complete the final survey of the remediated mound for release.
9. Ship radioactive material for disposal.

During the remediation process, the Army will obtain sufficient water samples to characterize the groundwater in the area to ensure that no contamination is present in the groundwater.

The Army will package and ship the radiologically contaminated material offsite to the Envirocare facility in Clive, UT. Envirocare is a licensed low-level waste disposal site. The Army

will perform a 100-percent surface survey of the remaining soil in and around the Pelham Range burial mound.

The Army expects to generate approximately 392 cubic meters (498 cubic yards) of low-level radioactive waste that will be shipped offsite for disposal. The Army's contractor plans to use roll-on, roll-off containers with hard covers for shipment to the disposal site. These containers will have six mil plastic liners. As the contractor fills each container, they will ready it for shipment. They will survey the exterior surfaces of each container and verify that they are free of loose surface contamination. In addition, the contractor will ensure that each container is covered and sealed before it leaves the site. These actions are necessary to prevent the spread of contaminated material during transport.

The Army plans to transport the sealed containers by truck to the nearby rail spur. At the rail spur, the Army will load the containers onto railcars for transport to the Envirocare disposal facility, in Clive, Utah. The Army and is committed to shipments complying with NRC and DOT package and shipping requirements.

The Army estimates that the maximum expected exposure rate on the exterior surface of the waste shipping containers is 0.5 milliroentgen/hour (mR/hr). The Army estimates that the maximum dose to the onsite worker from this proposed activity will be 0.03 millisieverts (mSv) [3 millirem (mrem)]. The Army estimates that the maximum dose to a member of the public from the transportation of this material will be less than 0.01 mSv (1 mrem).

4. THE NEED FOR THE PROPOSED ACTION

Fort McClellan is being closed under BRAC and will be turned over to the State of Alabama for unrestricted use. The proposed action is necessary to reduce residual contamination at the site to meet NRC's unrestricted release criteria.

5. ALTERNATIVE TO PROPOSED ACTION

The alternatives to the proposed action are releasing the area under a restricted release condition or taking no action.

The restricted release option under NRC guidelines would require the Army to implement institutional controls to limit the future land use for the decommissioned grounds. The intended future land use (and current use) is for training of Army National Guard troops. This training does and will include the use of tanks, which can disturb the contaminated area and lead to the spread of the contamination. The Army has decided that decommissioning the grounds to unrestricted release conditions would be a better and more cost effective approach.

Taking no action conflicts with NRC's requirement, in 10 CFR 40.42, of timely remediation at sites that have ceased NRC licensed operations. Although there is no immediate threat to the public health and safety from this site, not undertaking remediation, at this time, does not resolve the regulatory and potential long-term health and safety problems involved in storing this waste. No action now would delay remediation until some time in the future, when costs could be much higher than they are today. It is even possible that no disposal option will be available in the future if the current low-level radioactive waste disposal facilities are closed and no new ones are opened.

6. ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

There are limited potential short-term environmental impacts associated with the proposed decommissioning activities. These include the potential release to the environment, of airborne and liquid effluents, which may contain low levels of radioactive contamination during certain activities such as excavation, packaging, and waste transportation. There are also potential long-term (post-disposal) impacts associated with the Army's proposed disposal alternative. NRC regulation 10 CFR Part 20 specifies the maximum allowable amounts of radioactive materials that a licensee can release from a site in the form of either airborne or liquid effluents. The NRC will require the Army to comply with these regulations. The Army has established action levels that will ensure that effluent releases during decommissioning activities are below the levels allowed by Part 20.

The Army has committed to implementing a contamination monitoring and control program to detect and minimize the spread of contamination. Contamination monitoring will be accomplished by; (1) performing all site remediation work under a Radiation Work Permit system, (2) conducting routine radioactivity surveys, (3) use of access controls to prevent inadvertent personnel access to contaminated areas, (4) use of personal protection, (5) surveying and decontaminating all personnel, equipment and vehicles before they leave the work site, and (6) employee training.

The Army will minimize the potential for airborne effluent releases by having a water truck available to suppress dust during activities that could generate significant quantities of dust. Activities that could generate significant quantities of dust include the excavation of the waste, processing and packaging of the waste, and during conveyor system screening and sampling operations. The Army will implement an environmental air monitoring program. Specifically, they will collect air samples in the breathing zone of workers during work that may produce airborne contamination, and they will position low volume air samplers downwind of the work area.

If airborne activities exceed 50-percent of the Derived Airborne Concentration (DAC) from Appendix B of the Code of Federal Regulations (CFR) Title 10, Part 20, The Army will:

- (a) implement dust-control measures;
- (b) cease all work activities;
- (c) investigate the cause for the airborne activity;
- (d) document all findings and measurements;
- (e) implement corrective actions before proceeding with decommissioning activities.

There are no expected adverse impacts to air quality as a result of planned decommissioning activities. There will be a slight increase in dust emissions during the removal of the contaminated sand/soil, however the burial mound is in a remote area of the installation and will not have an adverse impact on the ambient air quality. The work is not expected to generate regulated air emission levels during the sampling and excavation of the burial mound. There is little likelihood that airborne radioactive material will be a problem on the range during any operation conducted for the remediation.

The maximum general area dose rate for the Pelham Range burial mound is 11.7 uR/hour at 1-meter above ground. All ATG site workers will wear personnel dosimetry devices. Based on ATG's calculations, the highest expected dose to an onsite worker is 30 mSv (3 mrem) (i.e., 11.7 uR/hour x 250 worker-hours). ATG will collect baseline and post decommissioning urine samples to monitor workers for internal exposures. The Army has determined that no immediate threat to public health and safety exists. ATG will monitor all potential exposure pathways, and exposure from each pathway will be kept as low as is reasonably achievable, during decommissioning activities.

Members of the public and non radiation Pelham Range workers are expected to receive less than 10 mSv (1mrem) from all exposure pathways as a result of decommissioning activities. The Pelham Range burial mound is not located in the flood plain of any stream or river. There are no wetlands located in the project area. There will be no water bodies diverted in order to decontaminate the burial mound. After remediation of the mound, the groundwater will be thoroughly evaluated to ensure that contamination has not occurred. Remediating the mound will serve to remove the source for any spread of contamination that could impact the groundwater. Therefore, removing the radioactive contaminated soil (the proposed action) will have a beneficial environmental impact on the groundwater. Any groundwater contamination issues will be addressed in a subsequent environmental review as part of licensing actions to release the site for unrestricted use.

This action will not have an adverse impact on future land use. Ft. McClellan has used the Pelham Range burial mound to store the radioactive contamination for several years. The removal of the radioactive contaminated soil will be a beneficial environmental impact.

The radioactive material will be packaged, handled and stored according to the appropriate health and safety procedures. Packaging contaminated soil shall conform to Department of Transportation (DOT) regulations and the disposal site requirements. The Army will ship the waste in accordance with all DOT, State and Low Level Radioactive Waste Compact Commission regulations.

There will be no significant/prolonged periods of increased noise levels. The decommissioning activities will generate some elevated sound levels for a 6-8 week period. The elevated noise will come from the operation of heavy machinery and electrical generators. The noise from these activities is not expected to significantly impact the wildlife or the general public.

There is no adverse impact expected on cultural resources. The project will consist of the sampling and removal of radiologically contaminated materials that the Army placed in the mound within the past few decades. The likelihood of encountering any artifacts in the area is remote.

8. AGENCIES AND INDIVIDUALS CONSULTED

This environmental assessment was prepared by NRC staff. No other sources were used beyond those referenced in this environmental assessment. NRC staff provided a draft of the environmental assessment to the Alabama State Department of Public Health, Division of Radiation Control and the Alabama Historical Commission for review. NRC staff also contacted the U.S. Fish and Wildlife Service to determine the potential impacts of the proposed action on

threatened and endangered species near the Pelham Range location. The agency reported that there are no threatened or endangered, proposed, or candidate species that will be impacted by the proposed work.

9. CONCLUSIONS

Based on its review, the NRC staff has concluded that there are no environmental impacts associated with the proposed action. These include direct, indirect and cumulative impacts. The NRC has determined that the proper action is to issue a Finding of No Significant Impact (FONSI) in the *Federal Register*.

10. FINDING OF NO SIGNIFICANT IMPACT

Pursuant to 10 CFR Part 51, NRC has prepared this environmental assessment related to the approval of the Army's Fort McClellan Pelham Range Burial Mound Remediation (Decommissioning) Plan. Based on this, NRC concludes that this federal action will not have any significant affect on the quality of the human environment and does not warrant the preparation of an environmental impact statement. Accordingly, a Finding of No Significant Impact is appropriate.

The documents related to this proposed action are publically available.

11. REFERENCES

NRC, "Radiological Criteria for License Termination", 10 CFR Part 20, Subpart E, 62 FR 139, July 21, 1997

NRC, "Multi-Agency Radiation Survey and Site Investigation Manual, (MARSSIM), NUREG-1575, December 1997

NRC, Draft "Manual for Conducting Radiological Surveys in Support of License Termination", NUREG/CR-5849, June 1992

NRC, "Guidelines for Decommissioning of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for By-product, Source or Special Nuclear Material", May 3, 1973

NRC, "NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees" March 1997

U.S. Army, Phase II, Burial Mound Decommissioning Plan, February 1999

U.S. Army, Draft Environmental Assessment For The Proposed Decommissioning of The Ft. McClellan Pelham Range Burial Mound, October 08, 1999