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On Behalf Of Lemont, Stephen
Sent: Wednesday, December 17, 2014 3:50 PM
To: robert.n.cherry.civ@mail.mil
Cc: Joe_Robb@fws.gov; Skibinski, Joe N.
Subject: Preliminary Information Needs from the Army for JPG DU Impact Area Environmental Impact Statement

Bob,

Attached for the U.S. Army's consideration and action is a table listing the NRC's "Preliminary Information Needs" from the Army for our Jefferson Proving Ground (JPG) Depleted Uranium (DU) Impact Area Environmental Impact Statement (EIS). The information needs are listed by EIS section or review area. I assume that you will be distributing this email and the attachment to the other involved Army staff and to Leidos, Inc.

The attached preliminary information needs were identified by staff of the NRC and NRC's contractor, the Center for Nuclear Waste Regulatory Analyses (CNWRA), based on our initial review of the Army's Environmental Report (ER) and Decommissioning Plan (DP), and represent areas of additional information or information in the ER and DP requiring clarification which we will need for our EIS. In addition, the attached table identifies a number of reference documents in the ER or DP and other documents which are not readily available and which we therefore need to obtain from the Army.

Please note that these preliminary information needs do not represent formal NRC "Requests for Additional Information" (RAIs) from the Army, and no formal response to them is being requested from the Army at this time. These information needs are simply for the NRC and CNWRA staffs' discussion purposes with the Army and Leidos at our upcoming site meeting at JPG on January 12, 2015, starting at 8:30 AM; and of course, they are also to give the Army and Leidos a heads up on the issues we want to discuss and on information that may need to be gathered for our site meeting. For your information, the names and EIS roles/review subject areas of the NRC and CNWRA staff who will be attending our January 12th site meeting are provided at the end of this email.

Note, however, it would be of great benefit to us if the Army could provide copies of the requested references and other documents in advance of the January 12th meeting, if possible. Please provide those to me electronically, or in hardcopy if electronic versions cannot be made available. For the Army's convenience, the requested references/documents are highlighted in yellow in the attachment.

It is anticipated that formal RAIs will be sent to the Army by the NRC at some time after our site meeting. Where necessary, some of the RAIs may be similar to preliminary information needs listed in the attached table. In addition, other information may be requested in RAIs based on our further review and analysis of information presented the Army's ER and DP and of other documentation provided by the Army, as well as from what we learn in our site meeting with the Army and Leidos and in information gathering meetings we will be conducting with other Federal, State, local and private sector agencies and organizations during the week of January 12th.

Please contact me if you have any questions or need additional information. I look forward to meeting with you and other Army staff and with Leidos staff on January 12th.

Thanks,
Steve

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NRC and CNWRA JPG Site Meeting Participants, January 12, 2015

NRC
Stephen Lemont – EIS Project Manager
Jean Trefethen – EIS Assistant Project Manager
Lydia Chang – Chief, Environmental Review Branch, NRC

CNWRA
James Prikryl – Principal Investigator, Purpose and Need, Alternatives, Land Use, and Geology/Geochemistry
Pat LaPlante – Public and Occupational Health, Cumulative Impacts, Transportation, and Waste Management
Robert Lenhard – Soils
Amy Minor – Ecological Resources, Socioeconomics, Environmental Justice, and Visual and Scenic Resources
Gary Walter – Water Resources (Surface Water and Groundwater)

Preliminary Information Needs from the U.S. Army for the
U.S. Nuclear Regulatory Commission's (NRC's) Jefferson Proving Ground (JPG)
Depleted Uranium (DU) Impact Area Environmental Impact Statement (EIS)

EIS Section or Resource Area	Description of Information Needs
General	For any references/documents identified below as needed by the NRC from the Army, please provide those electronically if possible, or in hardcopy if electronic versions cannot be made available. Please provide these prior to the January 12, 2015, meeting at JPG, if possible. References/documents needed are highlighted in yellow below.
Purpose and Need	Provide additional information and justification to support the brief statement of the purpose and need in the Environmental Report (ER) to terminate NRC Materials License SUB-1435. Also provide additional information and justification for the discontinuation of the environmental monitoring program upon license termination. For example, the Army's purpose and need seems to be centered on the argument that the active Army mission ceased in 1995. However, this need may be outweighed by (1) the amount of DU remaining in the DU Impact Area, (2) the risk due to the presence of radioactive materials with long half-lives (e.g., uranium isotopes with half-lives greater than 100 years), and (3) the public's expressed concerns about the need to clean up the DU Impact Area and the cessation of environmental monitoring after license termination.
Reasonable Alternatives to the Proposed Action	1. At the NRC's scoping meeting held on December 3, 2014, in Madison, IN, and at previous public meetings held by the Army in 2008 and 2009 in the three counties where JPG is located, the public expressed the need for the Army to continue environmental monitoring to ensure public health and safety given the long life of DU radiological hazards. Therefore, a reasonable alternative to the Army's proposed action for the NRC to consider in detail in the EIS would be for the Army to continue environmental monitoring. Provide additional information on the costs and benefits of continued environmental monitoring at the present level and at reasonable reduced levels (i.e., on an annual basis and on a biennial [every 2-year] basis). This information would include the cost of collecting samples (e.g., groundwater, surface water, soil, and sediment), analyzing the samples, and reporting the results. 2. Provide clarification of the brief statement in the ER about the Army, State of Indiana, and public regarding the No-Action Alternative. That is, in Section 2.1.1 of the ER, the Army states that the No-Action Alternative (License Continuation) "may be inconsistent with the interests of the public, the State of Indiana, or the Army." Provides information to explain or support this statement. 3. Provide the Army's Remedial Investigation and Feasibility Study report(s), prepared under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or other program(s), which included (1) identification of

	chemical and radiological constituents and associated risks to human health and the environment from the DU Impact Area, and (2) identification and evaluation of alternatives for remediating the DU Impact Area.
Land Use	Provide information on any future land transactions in the area south of the firing line which are presently known, including information on the individual(s) and/or entity(ies) to which the land will be transferred and the planned use(s) for the land (if known).
Geology and Soils	A reference from the ER and Decommissioning Plan (DP) needed from the Army to support the EIS analysis of soil and water resources impacts is as follows: • U.S. Army. 2003a. The Training Range Site Characterization and Risk Screening Regional Range Study, Jefferson Proving Ground, Madison, Indiana. August.
Water Resources	1. Provide additional information concerning the selection of sorption coefficients (K_d's) used in the vadose zone modeling. Most of the conclusions about the potential for uranium migration in groundwater depend on the vadose zone modeling described in Appendix B of the ER. The uranium concentrations at the end of the 1,000-year compliance period are almost entirely determined by the value of the K_d derived for the shallow soil, rather than on the hydraulic conductivity of the soil layers, because the infiltration rate is fixed at 4 in/yr. The sensitivity analysis did not vary the K_d of the shallow soil layer, which was fixed at 189 mL/g based on one desorption test. Clarify why the K_d was not varied (such as by using the K_d's measured for the glacial till.) 2. Provide additional information on the results of vadose zone modeling beyond 1,000 years. Based on the K_d assumed in the vadose zone source term analysis, the travel time through the upper 2 feet of the soil is greater than 1,000 years, so little or no uranium leaches from the soil. If the time horizon for the analysis was greater than 1,000 years, the uranium flux would be greater, even at the K_d assumed in the analysis. 3. Provide input/output files for the groundwater modeling described in Appendix B of the ER and for the surface water flow, sediment, and DU fate and transport modeling described in Appendix E of the ER. 4. Provide information--e.g., reports and/or documents from the Army's Installation Restoration Program activities at JPG and more recent studies--on groundwater, surface water, soil, and sediment sampling for non-radiological (chemical) constituents from the DU Impact Area and other areas north of the firing line.

	5. Provide information (e.g., studies, reports, maps, aerial photographs) on karst features (e.g., sinkholes, caves, solution cavities) within and in the immediate vicinity of the DU Impact Area. 6. References from the ER and DP needed from the Army to support the EIS analysis of water resources impacts are as follows: • SAIC. 2006a. Fracture Trace Analysis. Submitted to U.S. Department of Army Installation Support Management Agency Aberdeen Proving Ground, Maryland. June. • SAIC. 2008. Well Construction and Surface Water Data Report. Prepared for U.S. Department of Army and U.S. Army Corps of Engineers under Contract DACW62-03-D-0003; DO CY07.
Cultural and Historic Resources	A reference from the ER needed from the Army to support the EIS analysis of cultural and historic resources impacts is as follows: • INANG, 2011. Integrated Cultural Resource Management Plan for the Jefferson Proving Ground/Jefferson Range, Indiana Air National Guard. Prepared for the Indiana Air National Guard and Air National Guard Readiness Center, National Guard Bureau through Air Force Center for Engineering and the Environment under USAMRAA Cooperative Agreement No. W81XWH-05-2-0050, Delivery Order No. 0009. January.
Public and Occupational Health	1. Clarify if/where the modeling of DU fate, transport, and dose also includes an evaluation of the chemical (non-radiological) risks of DU. Chemical hazards of DU are described in the Army's ER discussion of exposure pathways, but could not be located in the summary of modeling results. 2. Provide input/output files for the dose modeling described in the ER and DP to evaluate public and occupational health impacts of the Army's proposed action. 3. References from the ER and DP needed from the Army to support the EIS analysis of public and occupational health are as follows: • Williams, G.P., A.M. Hermes, A.J. Policastro, H.M. Hartmann, and D. Tomasko. 1998. Potential Health Impacts from Range Fires at Aberdeen Proving Ground. Report ANL/EAD/TM-79, Argonne National Laboratory, Argonne, Illinois. • U.S. Army. 2001. Controlled Burn Air Sampling Technical Report. Aberdeen Proving Ground. August.

	• SAIC. 2006a. Deer Tissue Sampling Results, Depleted Uranium Impact Area Site Characterization, Jefferson Proving Ground, Madison, Indiana. August. • SAIC. 2007a. Well Location Selection Report. Depleted Uranium Impact Area Site Characterization: Soil Verification, Surface Water Gauge Installation, Fracture Trace Analysis, and Electrical Imaging, Jefferson Proving Ground, Madison, Indiana. Final. Prepared for U.S. Department of Army Contract No. W912QR-04-D-0019. January.
Cumulative Impacts	1. Cumulative impact assessments are informed by a broad understanding of the regional conditions, as well as stakeholder (including State/local government) interest and feedback on various resource issues and trends. The Army's cumulative impact analysis in the ER did not identify any past, present, or reasonably foreseeable future actions that have impacted or would impact the same environmental resources as those impacted by the Army's proposed action. Identify and provide information on past, present, and reasonably foreseeable future actions that would need to be considered in a cumulative impact analysis in the NRC's EIS, e.g., as described in the Council on Environmental Quality's (CEQ's) guidance document, *Considering Cumulative Effects Under the National Environmental Policy Act*, January 1997 (http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf). For example, the types of actions and information that would need to be considered for potential applicability to the EIS cumulative impact analysis include, but may not be limited to the following: • Major projects and polluting industries in the area (e.g., coal-fired power plant) • Mineral extraction activities • Regional water sources, uses, projections • Other sources of radiation exposure in the area (actual and potential) • Known or potential sources of surface water or groundwater pollution upgradient of the DU Impact Area (e.g., other projects, industries, or activities) • Future development projections for the region, including land development, housing, new transportation infrastructure, etc. • Effect of maintaining JPG access restrictions on regional transportation • Land use plans for properties adjacent to the DU Impact Area and the JPG boundary • Regional air quality conditions • Potential chemical hazards information for JPG unexploded

	ordnance (UXO): ○ available hazard characterization and assessment documentation; ○ applicable regulatory authorities, programs, oversight/enforcement roles and responsibilities; ○ overall status of UXO-related actions including key past, present, and reasonably foreseeable future actions (e.g. Army, State, EPA); ○ potential long-term impacts 2. Provide information on the impacts to the environment (e.g., on land use, soils, groundwater, ecological resources, etc…) that would result from the incremental impacts of the proposed action when added to the impacts of other identified past, present, and reasonably foreseeable future actions on the same resources, e.g., as described in the CEQ guidance identified above. 3. A reference from the ER and DP needed from the Army to support the EIS analysis of cumulative impacts is as follows: • MWH (Montgomery Watson Harza). 2002. Draft Final Remedial Investigation, JPG. Prepared for USACE Louisville District under Contract DACW27-97-D-0015, Task Order 008. March.
Cost-Benefit Analysis	Provide information on the costs and benefits of detecting, removing, and disposing of DU contained in areas of the DU Impact Area where the bulk of DU was deposited during DU munitions testing. It is the NRC's understanding that the bulk of DU penetrators remaining within the DU Impact Area are located in a trench created by DU munitions testing along the 500 Center Line position. During the December 2, 2014, site visit, the Army's contractor indicated that about 90 percent of the remaining DU was contained within the 500 Center Line trench.