RAS 14520

Army Skibinski Exh. # 3

U.S. NUCLEAR REGULATORY COMMISSION
In the Matter of U.S. ARMY (JEFFERSON PROVING GROUND)
Docket No. 40-8838-MLA Official Exhibit No. ARMY EXH. #3
OFFERED by (Applicant/Licensee) Intervenor _____
NRC Staff Other _____
IDENTIFIED on _____ Witness/Panel _____
Action Taken: ADMITTED REJECTED WITHDRAWN
Reporter/Clerk _____

Pre-filed Testimony and Sur-rebuttal Testimony of Army Witness Joseph N. Skibinski

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OFFICE OF SECRETARY
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Docket No. 40-8838-ML

TEMPLATE = SECY-028

SECY-02

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Alan S. Rosenthal, Chair
Dr. Paul B. Abramson
Dr. Richard F. Cole

In the Matter of	)	Docket No. 40-8838-MLA
	)	
U.S. ARMY	)	ASLBP No. 00-776-04-MLA
	)	
(Jefferson Proving Ground Site)	)	August 15, 2007
	)	

TESTIMONY OF JOSEPH N. SKIBINSKI

I. WITNESS BACKGROUND

Joseph N. Skibinski (JNS)

Q1. Please state your full name.

A1. (JNS) My name is Joseph N. Skibinski.

Q2. By whom are you employed and what is your position?

A2. (JNS) I work as an Environmental Chemist and Human Health Risk Assessor with Science Applications International Corporation (SAIC) in their Reston, Virginia office. Presently, I also serve as a Section Manager for SAIC that includes eight scientists and engineers with technical expertise including statistical analysis, human health and ecological risk assessment, and fate and transport simulation and optimization. SAIC acts as the Army's technical consultant and expert on selected tasks related to the planned decommissioning

of the U.S. Nuclear Regulatory Commission (NRC) materials license at the Jefferson Proving Ground (JPG).

Q3. Please summarize your professional and educational qualifications.

A3. (JNS) My professional and educational experience is summarized in the résumé attached to this testimony as Exhibit JNS 1. As a Project Manager, Environmental Chemist, and Human Health Risk Assessor, I have provided environmental expertise over the past 18 years to the Federal Government (U.S. Department of Defense [DOD], U.S. Department of Energy [DOE], and U.S. Environmental Protection Agency [EPA]) on hazardous, toxic, and radiological waste (HTRW) and munitions and explosives of concern (MEC) projects. Among the services provided are site characterization studies under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) (site inspections to Proposed Plans/Records of Decision [PPs/RODs]), conceptual site models (CSMs), fate and transport analyses, quality assurance/quality control (QA/QC) evaluations, data validation, data management, field investigations, and environmental compliance assessments.

This experience includes calculating risks and radiation doses, developing remedial goal options (RGOs), and conducting quantitative uncertainty analysis using Monte Carlo techniques in the evaluation of exposures of different receptor groups to chemicals and radionuclides in various media and food-chain pathways for projects at the Savannah River Site and East Fork Poplar Creek (part of the Oak Ridge Reservation).

In addition, I have analyzed the fate and transport of chemicals and radionuclides in air, surface water, sediments, soils, and groundwater using various modeling tools at several sites. My experience includes using the EPA's MINTEQA2 geochemical equilibrium model for metals at three sites and evaluating the transport of metals and uranium using the U.S. Geologic Survey (USGS) PHREEQC model for the DOE, Pantex Plant in Amarillo, Texas.

As part of my support to the DOE Pantex project, I supported the planning of the partition coefficient (K_d) study conducted for uranium transport in the alluvial soil. In total, I have led or supported more than 100 environmental studies ranging from preliminary assessments to multi-media, HTRW studies in simple and complex hydrogeologic environments.

I have been providing technical support to the Army's JPG facility since 2004. I have been the Project Manager for SAIC's work at JPG since February 2006. In this role, I oversee key technical staff located in Indianapolis, Indiana; St. Louis, Missouri; Harrisburg, Pennsylvania; Memphis, Tennessee; and Reston, Virginia. In addition, I work directly with Mr. Paul Cloud and Mr. Brooks Evens (U.S. Army Corps of Engineers [USACE]) on all aspects of SAIC's support to the characterization, environmental radiation monitoring, and decommissioning activities at JPG. I have visited the JPG Depleted Uranium (DU) Impact Area on two occasions and have personally examined a DU penetrator embedded in shallow surface soil in the DU Impact Area during the electrical imaging (EI) survey.

My academic credentials include a B.S. in chemistry. In addition, I attended an Advanced Course in Modeling Groundwater Contamination in Non-aqueous Phase Liquids taught by Dr. George Pinter (University of Vermont) in January 2003 and a MINTEQA2 Workshop taught by Dr. Jerry Allison (Allison Geoscience Consultants, Inc.) in June 2003.

Q4. What is the purpose of your testimony?

A4. (JNS) The purpose of my testimony is to address, on behalf of the Army, the lack of understanding of decommissioning objectives, regulations, and process, as well as certain misconceptions, misstatements, and technical flaws found in the testimonies of Ms. Diane Henshel and Mr. Charles Norris, which have been filed herein.

Q5. Have you reviewed the testimonies of Ms. Henshel and Mr. Norris filed in support of Save the Valley's (STV's) Contention B-2?

A5. (JNS) Yes, I have reviewed the testimony of Ms. Henshel, dated July 20, 2007, and the testimony of Mr. Norris, dated July 13, 2007.

Absence of Demonstrated and Documented Understanding of Decommissioning Objectives, Regulations, and Process

Q6. Do you agree or disagree with the testimonies of Ms. Henshel and Mr. Norris in regard to their general premise that the Army is not now gathering sufficient data to adequately support the anticipated Decommissioning Plan?

A6. (JNS) I disagree.

Q7. Please state the basis of your disagreement.

A7. (JNS) The testimonies provided by Ms. Henshel and Mr. Norris demonstrate their fundamental failure to understand the NRC's decommissioning objectives, regulations, and processes. The testimonies imply and state that a complete understanding of the site is necessary to identify fate and transport of DU in the environment at JPG and to validate the CSM. However, these statements do not reflect a clear understanding of the NRC requirements for developing an acceptable Decommissioning Plan. The characterization approach described in the FSP (SAIC 2005) and addenda (SAIC 2006a, 2006b, and 2007) was developed with the primary goal of obtaining data needed to support the radiological dose assessment specified in 10 Code of Federal Regulations (CFR) § 20.1403(b) and 10 CFR § 20.1403(e). The requirement includes determining whether or not the total effective dose equivalent (TEDE) from DU exposure is below the limits of 25 mrem/year, 100 mrem/year (if institutional controls fail), or 500 mrem/year (if institutional controls fail and specific provisions are met). The TEDE is to be assessed using the NRC's RESidual RADioactivity (RESRAD) model.

It is neither necessary nor desirable to complete site characterization to the degree described by Ms. Henshel and Mr. Norris to determine if the restricted release criteria are met. DU has been reliably detected in samples collected

near penetrators or fragments of penetrators and there is no indication that there is routine or widespread DU contamination outside the DU Impact Area. In addition, DU is less hazardous than natural uranium and since the dose conversion factors for U-234, U-235, and U-238 are essentially equal, the presence or absence of DU has little bearing on the results of the RESRAD modeling.

Moreover, the program described by the interveners is neither fiscally responsible nor required by NRC's regulations, and implementing several of the recommendations could jeopardize submitting a Decommissioning Plan in the required 5-year timeframe. Even for the recommendations that are feasible and safe to implement, the proposed program described by Mr. Norris and Ms. Henshel is projected to add several years to the existing program at a cost of at least double what the Army has programmed in its budget. This clearly is not a prudent strategy for the Army or a reasonable use of public funds at this site. Examples of this ill-conceived approach exceeding regulatory requirements are described by the interveners in Mr. Norris's A036, A037, and A041 and Ms. Henshel's A018 and A037.

Furthermore, the additional characterization recommended by STV (through the testimonies of Ms. Henshel and Mr. Norris) may result in "net public or environmental harm" as described in 10 CFR § 20.1403(a) due to the significant safety hazards posed by numerous unexploded ordnance (UXO) remaining throughout the DU Impact Area. The testimony of Mr. Norris in A024 (page 16, first bullet) indicates that for the Fracture Trace Analysis (FTA), all technology should be considered and the best method selected for the task and conditions. Among the technology he cites is ground penetrating radar (GPR). However, Mr. Norris has either not evaluated or does not understand the capability and limitations of this technologies in light of the site conditions at JPG, which includes an area laden with UXO. Had he evaluated GPR carefully, he would have realized this technology is not appropriate for JPG, since this active energy source could unintentionally detonate certain types of UXO. Therefore, this technology was ruled out immediately. The citation of technologies that are

not applicable to the site conditions calls in question the credibility of this testimony on this subject. In fact, SAIC considered a wide range of approaches and opted for the stereo-paired aerial photographs based on such factors as safety, technology status, complexity, relevance, and cost. SAIC eliminated GPR from the candidate list very early in the evaluation process based on potential safety concerns.

The Army has already agreed to perform the most accurate, protective, and scientifically defensible analysis for collecting data needed to conduct RESRAD modeling as described in the FSP (SAIC 2005) and addenda (SAIC 2006a, 2006b, and 2007). The approach is consistent with NRC guidance and standard methods used by industry for license decommissioning projects. Most importantly, the characterization and related activities supporting the Army's Decommissioning Plan will meet all NRC requirements when it is submitted in 2011.

Misunderstanding, Misinterpretation, and Misstatements of Army's Approach

Q8. In your opinion, is the testimony of either Ms. Henshel or Mr. Norris based on an accurate understanding of the Army's approach to site characterization?

A8. (JNS) No. In my opinion, neither testimony is based on an accurate understanding of the Army's approach.

Q9. Please state the basis of your opinion.

A9. (JNS) The pre-filed testimony of Mr. Norris and Ms. Henshel reflect repeated misunderstandings and misinterpretations of the Army's approach to site characterization. Moreover, these witnesses testifying on behalf of STV have, in many cases, either misstated or misinterpreted the Army's strategy and plans. As a result, the credibility and veracity of part or all of some testimony is questionable and biases their observations, critiques, and conclusions. Examples of these misunderstandings, misinterpretations, and misstatements are provided below. Further evidence of these flaws is provided in the

testimonies of Mr. Harry Anagnostopoulos, Mr. Michael Barta, Mr. Todd Eaby, and Mr. Stephen Snyder.

STV does not appear to understand the Army's phased and adaptable approach that is documented in the FSP (SAIC 2005) and addenda (SAIC 2006a, 2006b, and 2007). The FSP (SAIC 2005) clearly states that a "tiered, time-phase approach" was defined and that tasks subsequent to the first year "will be planned and detailed as addenda" to meet the NRC regulatory requirement of completing the Decommissioning Plan within the required 5-year timeframe. However, Mr. Norris spends a considerable amount of time critiquing the sediment and surface water sampling plans outlined in the FSP (SAIC 2005) without regard for the fact that these plans have not been formally defined (see Norris Q&A 062 – 075). These initial plans were defined with clear acknowledgment of the fact that the plans would be revised to reflect the "then current understanding" of the site, current technologies and methodologies, and related schedule and funding constraints. Therefore, this testimony and other testimony related to activities that have not yet been more clearly defined in FSP addenda are irrelevant to determining the adequacy of the FSP (SAIC 2005).

Ms. Henshel has misinterpreted the Army's overarching plan to generate sufficient data to support the Decommissioning Plan in 5 years. This plan includes a primary focus on data for determining if the decommissioning criteria are satisfied for potential human receptors and not for a complete biological characterization of the site. In Ms. Henshel's testimony on the biological sampling program in A012-A018, she inaccurately describes the program proposed in the FSP (SAIC 2005) and subsequent Addendum 1 (SAIC 2006a). The biota sampling program described in these two documents was designed to respond to NRC requests for deer sampling because of potential impacts to human receptors. The Army willingly included the option for additional biota sampling if there were indications of potential biological impacts. This latter data are not necessary to develop an acceptable Decommissioning Plan, but would have been collected to support further understanding of the potential biological impacts. Therefore, Ms. Henshel's assertions in A021 that a yet undefined fate

and transport model requires multi-species sampling reflects a misinterpretation of the FSP (SAIC 2005) and Addendum 1 (SAIC 2006a) first and foremost, as well as the NRC's requirements for decommissioning.

Technical Flaws Demonstrated Through Errors in Data Usage and Interpretation

Q10. Did you note any technical flaws in the testimony of either Ms. Henshel or Mr. Norris.

A10. (JNS) Yes, I did.

Q11. Would you please state what you found?

A11. (JNS) Errors in the data use and interpretation of the Army's results provide a technical flaw in STV's testimonies. In A028, Ms. Henshel indicates the deer sampling report is inadequate because it failed "...to meet specified accuracy in the chemical analysis of deer samples." Unfortunately, Ms. Henshel has confused accuracy with precision. Accuracy is defined as, "a measure of the closeness of an individual measurement or the average of a number of measurements to the true value" (USEPA 1998, attached AS Exhibit JNS #2). Precision is defined as, "a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions expressed generally in terms of the standard deviation" (USEPA 1998). Field duplicate samples are collected and analyzed to measure precision.

Furthermore, Ms. Henshel has misinterpreted Appendix A of the FSP (SAIC 2005) which states, "...the relative percent differences (RPD) between two positive results will be calculated and used as quality control indication of the field procedures, matrix effects, and precision of the analyses conducted." RPDs were not calculated for the field duplicate samples because there were no positive duplicate results that could be compared and calculated. Therefore, it is not clear why Ms. Henshel performed calculations when no calculations were warranted or feasible.

Mr. Norris, in A024, stated that glacial sediments, which overlie bedrock over much of the site, are "fractured, and traces of those fractures may have no

bearing on the deeper bedrock fractures of interest." His statement infers that these features would mislead a photo-geologic FTA, such as the one performed by the Army. He referenced a U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) study to lend credence to his statement. However, that referenced sentence actually reads, "*Small-scale fractures and sand lenses within the till contribute to the higher hydraulic conductivity.*" The context of his comment discusses the range of hydraulic conductivities measured in the fairly tight tills south of the firing line at JPG. Fractures of the scale discussed in the reference made by Mr. Norris (inches) are much smaller than those that would be identifiable by the photo-geologic FTA and are of secondary importance relative to the larger features that would be of interest in the analysis conducted by the Army.

In A030, Mr. Norris misinterprets a statement he extracted from Appendix B of the FSP (SAIC 2005) in which he alleges that the EI survey lines should have been oriented perpendicular to fracture traces. The statement he references actually states, "*The traverse should not be set up running parallel to subsurface utilities or other subsurface conductors.*" This statement was added to Appendix B primarily for avoiding highly conductive subsurface utilities, such as drinking water supply lines, that can complicate the interpretation of EI data. This clearly is an attempt to mislead someone who may not check references.

In summary, there has been a misinterpretation of the Army's plans and calculations performed inappropriately. The results presented in the testimony on these issues, therefore, are inaccurate and misleading to the Atomic Safety and Licensing Board Panel.

SUMMARY AND CONCLUSION

Q12. Please summarize your testimony with regard to Basis Item "q".

A12. (JNS) There is a general absence of demonstrated and documented understanding of decommissioning objectives, regulations, and process in the testimonies of both Ms. Henshel and Mr. Norris. This is compounded by their misunderstanding, misinterpretation, and misstatements pertaining to the Army's

approach to site characterization. Further, technical flaws in their testimonies have been demonstrated through errors in data usage and interpretation. These defects call in question the credibility of the opinions each express in her or his testimony concerning inadequacies in the FSP (SAIC 2005).

REFERENCES

Q13. In your testimony you referred to several documents. Would you specifically identify those documents?

A13. (HWA) Yes.

1. SAIC (Science Applications International Corporation). 2005. Field Sampling Plan. DU Impact Area Site Characterization, JPG, Madison, Indiana. Final. May. ADAMS ML051520319.

2. SAIC. 2006a. Field Sampling Plan Addendum 2, Depleted Uranium Impact Area Site Characterization – Soil Verification, Jefferson Proving Ground, Madison, Indiana. Final. July. ADAMS ML061930256.

3. SAIC. 2006b. Field Sampling Plan Addendum 3, Depleted Uranium Impact Area Site Characterization – Other Monitoring Equipment Installation, Other Monitoring (Precipitation, Cave, and Stream/Cave Spring Gauges), and Electrical Imaging Survey, Jefferson Proving Ground, Madison, Indiana. Final. July.

4. SAIC. 2007. Field Sampling Plan Addendum 4, Depleted Uranium Impact Area Site Characterization: Monitoring Well Installation Jefferson Proving Ground, Madison, Indiana. Final. January. ADAMS ML070220165.

5. USEPA (U.S. Environmental Protection Agency). 1998. EPA Guidance For Quality Assurance Project Plans – EPA QA/G-5, Appendix B (Glossary Of Quality Assurance And Related Terms). EPA/600/R-98/018. Office of Research and Development, Washington, D.C. February. Attached as Exhibit JNS #2.

Q14. Does that conclude your testimony?

A14. (JNS) Yes, it does.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Alan S. Rosenthal, Chair
Dr. Paul B. Abramson
Dr. Richard F. Cole

In the Matter of	)	Docket No. 40-8838-MLA
	)	
U.S. ARMY	)	ASLBP No. 00-776-04-MLA
	)	
(Jefferson Proving Ground Site)	)	August 15, 2007
	)	

AFFIDAVIT OF JOSEPH N. SKIBINSKI

County of Prince William)
State of Virginia)

I, Joseph N. Skibinski, being duly sworn according to law, depose and state the following:

1. I am an Environmental Chemist and Human Health Risk Assessor with Science Applications International Corporation (SAIC) in their Reston, Virginia office. I also serve as a Section Manager for SAIC that includes eight scientists and engineers with technical expertise including statistical analysis, human health and ecological risk assessment, and fate and transport simulation and optimization. My business address is 11251 Roger Bacon Drive, Reston, Virginia 20190.

2. I am providing testimony, dated August 15, 2007, on behalf of the U.S. Army, Licensee, in the above captioned proceeding, entitled "TESTIMONY OF JOSEPH N. SKIBINSKI."

3. The factual statements and opinions I express in the cited testimony are true and correct to the best of my personal knowledge and belief.

4. I declare under penalty of perjury that the foregoing is true and correct.

Further, the affiant sayeth not.

Joseph N. Skibinski

Subscribed and sworn to before me
this 15th day of August, 2007.

Christiana Kittrell
Notary Public

My commission expires 10/31/08
NRN# 298280

CHRISTIANA KITTRELL
NOTARY PUBLIC
Commonwealth of Virginia
My Commission Expires Oct. 31, 2008

SKIBINSKI TESTIMONY

EXHIBIT JNS #1

Résumé

JOSEPH N. SKIBINSKI

EDUCATION:

B.S., Chemistry, Shippensburg University, 1988

SECURITY CLEARANCE:

None

WORK SUMMARY:

Mr. Skibinski is an environmental chemist with more than 17 years of experience in management and support of hazardous waste site evaluations, removal actions, and environmental compliance assessments. He manages and supports Military Munitions Response Responses (MMRPs), Remedial Investigations/Feasibility Studies (RI/FSs) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Resource Conservation and Recovery Act (RCRA) Facility Investigations/Corrective Measures Studies (RFI/CMSs). Mr. Skibinski's experience includes human health risk assessments; environmental fate and transport assessments; quality assurance (QA) evaluations; data validation, management, and analysis; field investigations; and environmental compliance assessments. He is experienced in using and developing diverse software applications.

PROFESSIONAL EXPERIENCE:

February 2004 to present, Manager of Analysis, Automation, and Optimization Section, Division 827, Science Applications International Corporation (SAIC)

Mr. Skibinski manages a section that includes six full-time and two unscheduled professionals. The technical expertise within the section includes statistical analysis, human health and ecological risk assessment, and fate and transport modeling and optimization. The majority of the personnel are located in Reston, Virginia, but three staff are located in Augusta, Georgia; Memphis, Tennessee; and Waterbury, Vermont.

He is responsible for conducting annual performance reviews, planning and overseeing career development and mentoring, handling human resource issues, and hiring new personnel.

September 1989 to present, Environmental Chemist/Risk Assessor, SAIC

Mr. Skibinski is the Project Manager for the Jefferson Proving Ground (JPG), U.S. Nuclear Regulatory Commission (NRC) Permit Closure project. This is the first U.S. Department of Defense (DOD) request for a restricted release termination of a possession-only NRC license. This project currently includes three task orders executed under the U.S. Army Corps of Engineers (USACE), Louisville District's Hazardous, Toxic, and Radiologic Waste (HTRW) support contract cumulatively valued at $1.8M. He oversees key technical staff located in Indianapolis, Indiana; St. Louis, Missouri; Harrisburg, Pennsylvania; Memphis, Tennessee; and Reston, Virginia. In addition, he provides environmental chemistry and human health risk assessment support in analyzing the fate, transport, and effects of depleted uranium (DU). He is responsible for ensuring the development of all project deliverables such as the Field Sampling Plan (FSP) and Health and Safety Plan (HASP), which define the procedures needed to safely characterize the DU Impact Area at JPG; modify the Army's current environmental radiation monitoring (ERM) plan; and develop a defensible Decommissioning Plan.

Mr. Skibinski is the Deputy Project Manager and Technical Lead for the Range Condition Assessment (RCA) 5-Year Review at San Clemente Island, California. This project is the first 5-year RCA review performed for the Navy and includes an evaluation of the environmental condition of land-based operational ranges managed by Commander, Pacific Fleet (COMPACFLT). The project is executed under SAIC's Architect and Engineering (A-E) Services contract held with Naval Facilities Engineering Command (NAVFAC), Southwest. It includes attending meetings, preparing work plans, conducting an onsite visit and information review, sampling for munitions constituents on the operational ranges, and developing an RCA Report.

Mr. Skibinski is the Delivery Order (DO) Manager for Navy Range Sustainability and Environmental Program Management Support DO. This time and materials (T&M) DO with a capacity of $14.8M requires SAIC to provide range sustainability program

management support, other Navy environmental/operational readiness support, and maritime environmental compliance support. Mr. Skibinski is responsible for reporting progress monthly, ensuring tasks are completed in accordance with SAIC policies and standards for quality, and coordinating with other SAIC organizations performing work under the DO.

Mr. Skibinski is the Project Manager and Technical Lead for the RCA at Naval Surface Warfare Center – Dahlgren Laboratory (NSWC-DL), Dahlgren, Virginia. This project is the first RCA performed for Naval Sea Systems Command (NAVSEA) ranges. It includes attending meetings, preparing work plans, conducting an on-site visit and information review, and developing an RCA Report.

Mr. Skibinski is the Project Manager for the Site Inspection (SI) conducted for a Formerly Used Defense site (FUDS) located at Lockbourne Air Force Base (AFB), Lockbourne, Ohio. SAIC is providing the support to the following tasks as a subcontractor to GEO Consultants, LLC.: (1) Data Quality Objectives (DQOs), RI Work Plan, Sampling and Analysis Plan (SAP), and HASP; (2) Sample Analyses, Data Assessment, Data Validation, and Reporting; and (3) Data Evaluation/Fate and Transport/Risk Screening.

Mr. Skibinski was the Project Manager for the Range Sustainability Environmental Program Assessment (RSEPA) supporting the U.S. Navy's Chief of Naval Operations (N45). The project included the development of Revision 1 of the RSEPA Policy Implementation Manual. He supported a multi-disciplinary Navy workgroup in developing and prototype-testing Revision 0 of the RSEPA Policy Implementation Manual. Related to this support, he was the liaison between the Range Residue and Analysis Team (RRAT) and RSEPA development teams bringing consistency to the parallel efforts in matters relating to operational range site models (ORSMs), chemical sampling and analysis, risk assessment, and decision analysis. He supported the RCAs conducted at the Virginia Capes (VACAPES), Fallon, and Southern California (SOCAL) range training complexes, which included the determination of potential impacts of environmental regulations or encroachment threats on munitions use, range management, and training operations for each Navy asset in each range complex. In addition, he was one of two SAIC scientists who developed and conducted

training of Navy personnel in San Diego, California; La Plata, Maryland; and Honolulu, Hawaii. SAIC's project team was recognized by the Navy as follows, "Throughout the development of the RSEPA manual, SAIC has been very responsive to the Navy's needs. They have shown us they can develop sound engineering solutions for unique situations." Kelli A. Ackiewicz, Naval Facilities Engineering Command Headquarters.

Mr. Skibinski was the principal author of the Alabama Army Ammunition Plant (ALAAP) – Area B Soils, Surface Water, and Sediment Proposed Plan. This plan documents the decisions resulting from SAIC's work since the mid-1990s and earlier investigation and remedial actions.

Mr. Skibinski was the Project Manager for the analysis of land use controls as a component of ordnance and explosives removals at the Former Nansemond Ordnance Depot. In addition to managerial and administrative responsibilities, his role on the project included educating Federal, state, and local regulatory agencies as well as the stakeholders on the components used to develop land use controls (institutional controls, engineering controls, and educational programs); facilitating stakeholder involvement in the overall process and development of the land use controls; developing and presenting the methods and assumptions for assessing residual explosives safety risk; and presenting results during public meetings.

Mr. Skibinski implemented decision support tools for the *Economic and Environmental Analysis of Technologies to Treat Mercury and Dispose in a Waste Containment Facility* project conducted for the U.S. Environmental Protection Agency (EPA), Office of Research and Development. His role on this project included implementing the Expert Choice® (version 11) software tool to support the environmental analysis and conducting a Monte Carlo simulation using Crystal Ball® Pro (Version 4.0e) software to support the economic analysis. As a function of his role, he attended meetings with personnel from EPA and SAIC in June 2004 and January 2005 and prepared relevant sections of the draft (December 2004) and final reports (March 2005).

Mr. Skibinski was one of two trainers who conducted train-the-trainer training for Transportation Security Administration (TSA) managers in Indianapolis, Indiana (2 to 4 August 2004) and Arlington, Virginia (21 and 22 September 2004). Each class included

approximately 30 students. The training addressed the TSA's requirements for handling and management of voluntarily abandoned property (VAP) for airports of various sizes located across the United States.

Mr. Skibinski was the risk assessment subject matter expert for the Operational Risk Management Analysis (ORMA) that was prepared to support the Environmental Impact Statement (EIS) for the Navy's proposed Air-To-Ground Training at Avon Park Air Force Range (APAFR). This analysis evaluated the potential for acute and chronic injuries and fatalities to humans from residual unexploded ordnance (UXO) for all 15 land use scenarios. The analysis was conducted before using Air Force Instruction (AFI) 90-901, Operational Navy Instruction (OPNAV) 3500.9, and Military Standard (MIL-STD)-882D. The analysis was conducted for two aircraft delivery platforms, three target areas, and 11 weapon safety footprints (WSFs), which include all the required munitions, run-in headings, dive angles, delivery altitudes, and air speeds.

Mr. Skibinski supported the engineering evaluation/cost analyses (EE/CAs) as subcontractor to American Technologies, Inc. at two FUDS: Former Pole Mountain Target and Maneuver Area, Laramie, Wyoming and Camp Goodnews, Sandwich, Massachusetts. He led the ordnance and explosives risk impact analysis (OERIA) and supported the technical project planning (TPP) tasks on these projects.

Mr. Skibinski participated in the peer review of two protocols developed by contractors for the U.S. Army Engineering and Support Center, Huntsville (CEHNC). These protocols include life-cycle data management and footprint reduction. He provided input to CEHNC's contractor on principles to include in these protocols, attended a meeting to discuss the draft protocols, and developed a report to SAIC's prime contractor (American Technologies, Inc.).

Mr. Skibinski supported two tasks for the U.S. Navy, Commander-In-Chief, Atlantic Fleet (CINCLANTFLT): Ranges to Readiness Study (SAIC as subcontractor to SRS Technologies) and Technical Support for the Integrated Long-Range Planning Process. His support on these tasks was limited to the few instances where expertise in conducting range responses was needed.

Mr. Skibinski supported the assessment of fate and transport and potential human health effects resulting from a hypothetical spill of up to 175,000 kg of chemical

warfare materiel (CWM) from a stockpile in a west Asian theater of operation. The assessment considered potential human exposures resulting from a hypothetical spill of VX or GB. The assessment focused on the following events: evaporation of the spilled agent into the air, infiltration of agent spilled onto soil, infiltration of agent spilled onto concrete, movement of agent through an aquifer, and contamination of drinking water by agent spilled into a reservoir. Specifically, Mr. Skibinski was responsible for developing the conceptual site model (CSM) and assessing acute and short-term impacts to human health from direct and indirect exposures to VX, GB, and potential degradation products.

Mr. Skibinski was the technical lead in the development and demonstration of the Range Rule Risk Methodology (R3M)/Hazard Assessment Methods for UXO Response (HAMUR) for the U.S. Army Environmental Command (formerly U.S. Army Environmental Center). The following bullets summarize Mr. Skibinski's responsibilities on the R3M/HAMUR Project:

- The Interim R3M was developed in a collaborative effort with environmental regulators (Federal, State, and Tribal), public representatives, and representatives from other DOD agencies. Mr. Skibinski's responsibilities for this effort included writing sections of the Interim R3M, developing materials to focus discussions with the partners, preparing and making presentations for partnering meetings, and preparing minutes from partnering meetings and teleconferences.
- The Preliminary Validation consisted of simulating the decision-making process of the Interim R3M by training and testing two artificial groups. Support for this included preparing training materials, training the artificial groups, synthesizing data from range clearance operations, preparing test questions, conducting the tests, and writing parts of the Preliminary Validation Report.
- The Interim R3M was posted for public comment. Mr. Skibinski's role for this phase of the project included coordinating the development of the comment management website, tracking and responding to public comments, recommending changes to the Interim R3M, and reconciling the comments and revisions.

- Mr. Skibinski provided technical support and direction for the transformation of the Interim R3M into HAMUR, as well as the scoping and performance of the subsequent demonstration conducted using Fort Wingate Depot Activity UXO cleanup data.
- Mr. Skibinski also provided administrative support, which includes tracking schedules and budgets, writing monthly progress reports, working with subcontractors and other organizations within SAIC, and coordinating meetings.

Mr. Skibinski provided decision support using risk-based tools for the evaluation of what-if scenarios for items processed in the Pine Bluff Chemical Disposal Facility (PBCDF). PBCDF is one of seven incinerators built or planned for destroying the U.S. chemical agent stockpile and related items. Site managers used the what-if scenarios to refine a wide variety of operational parameters and procedures relating to primary and secondary items processed in the PBCDF. The what-if scenarios were conducted rapidly using a custom-built database-driven tool. The tool facilitated the use of advanced fate and transport models to assess human health and ecological health effects based on the incinerator stack emissions.

Mr. Skibinski has supported the human health risk assessment team on over 40 RI/FS and RFI/CMS projects. His involvement included the development of spreadsheet models that project potential risks and RGOs, including quantitative uncertainty analysis using Monte Carlo techniques. He used these models to evaluate exposures of different receptor groups to various chemicals and radionuclides in soil, surface water, sediment, groundwater, and food-chain pathways (including produce, beef, dairy, and fish consumption). In addition to the spreadsheet models, Mr. Skibinski used EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model to evaluate lead exposures in children and estimate target cleanup levels in soil and groundwater. Mr. Skibinski estimated risks from the implementation of several proposed remedial alternatives. Mr. Skibinski supported risk assessments on the following projects: A-Area Burning Rubble Pits RI/RFI/Baseline Risk Assessment (BRA), Savannah River Site; Alabama Army Ammunition Plant RI/FS; Anniston Army Depot - Southeast Industrial Area RI/FS; C-Area Burning Rubble Pits RI/RFI/BRA, Savannah River Site; Central Shops Burning/Rubble Pits Scoping Package, Savannah River Site; Chemicals, Metals,

and Pesticides Pit RI/RFI/BRA, Savannah River Site; Detroit Arsenal Tank Plant RI/FS; DOE Y-12 East Fork Poplar Creek RI/FS/Environmental Impact Statement (EIS); Fernald Environmental Restoration Management Corporation (FERMCO) – Operable Unit 5; Fire Department Hose Training Facility, RI/RFI/BRA, Savannah River Site; Ford Building Seepage Basin Scoping Package, Savannah River Site; Ford Building Waste Unit, RI/RFI/BRA, Savannah River Site; Fort McClellan RI/FS; Fort Benjamin Harrison Environmental Investigation; Fort Sheridan RI/FS; Fort Wayne ANGB Site Inspection (SI); Gowen Field ANGB SI; H-Area Retention Basin Focused Feasibility Study (FFS), Savannah River Site; Joe Foss Field RI; Juncos Landfill RI; Hill AFB RI; Lowry AFB RI; Toledo Express Airport SI; Miscellaneous Chemical Basin/Metals Burning Pit RI/RFI/BRA, Savannah River Site; Newport Chemical Depot – Little Raccoon Creek RFI, Newport, Indiana; L, P, and R Bingham Pump Outage Isolated Hazardous Material Units Approved Standardized Corrective Action Design (ASCAD™) Report; Savanna Army Depot Lower Post RI; Savanna Army Depot Upper Post RI; Savanna Army Depot Sites 20, 73, and 178 RI; Savanna Army Depot Plant Area RI; TNX RI/RFI/BRA, Savannah River Site; Tooele Army Depot – North Area Group B Suspected Releases Solid Waste Management Units (SWMUs) Phase II RFI; Tooele Army Depot – North Area Group C Suspected Releases SWMUs Phase II RFI; Tooele Army Depot – South Area Phase II RFI Group 3 Suspected Releases SWMUs; U.S. Coast Guard (USCG) Support Center, Kodiak Island RFI/CMS; West Valley Demonstration Project EIS; Whidbey Island-Contract Task Order 54 RI; Wright-Patterson AFB Operable Unit-3 RI; and, Whidbey Island-Contract Task Order 42 RI.

Mr. Skibinski developed materials for the Uncertainty Analysis Training Course for EPA personnel to train other EPA risk assessors and risk managers. Mr. Skibinski worked in collaboration with the EPA's and SAIC's experts on uncertainty analysis to prepare the course materials. In addition, Mr. Skibinski conducted a literature review. The information obtained from the collaborative effort as well as the information obtained from the literature review was presented on slides in Microsoft Powerpoint®.

Mr. Skibinski developed software components, provided technical support to other developers, and trained staff to support these efforts. This software includes in-house programs that are used to conduct statistical analyses, data screening, and

human health and ecological risk assessment calculations for internal use and a program that performs risk assessment calculations for use by a commercial client. He used Microsoft Visual Basic for Excel® as the development platform while other developers used Microsoft FoxPro®. The system was developed to perform human health risk assessment calculations for internal use to generate tables that comply with EPA's Risk Assessment Guidance for Superfund (RAGS) Part D required formats. The other internal program provides different outputs, depending upon the requirements and needs of the project. The program developed for the commercial client supports the reporting requirements of their RCRA Subpart X Permit with the state.

For the Fort Meade UXO Survey Data Analysis – BRAC Parcel, Mr. Skibinski provided managerial and technical support. Mr. Skibinski assisted the project manager in tracking schedules and budgets, planning meetings, and writing progress reports. During the field program, he conducted QA surveillances and provided technical oversight for the subcontractor conducting the UXO survey. He also was responsible for developing and running the risk assessment spreadsheet model, which was used to determine risks associated with exposure to UXO. He was responsible for designing a second spreadsheet model that included a quantitative uncertainty analysis using Monte Carlo techniques.

For the Fort Benjamin Harrison UXO Survey/Surface Clearance, Mr. Skibinski provided technical support and oversight. He was involved in designing the UXO survey and surface clearances. In addition, he conducted QA surveillances and provided technical oversight for the subcontractor conducting the work. He was also one of the primary authors of the Explosives Safety Submittal and the report.

The majority of the data/statistical analyses Mr. Skibinski has conducted have been background comparisons using different statistical techniques (e.g., upper tolerance limit comparisons, Student's t-tests, Mann-Whitney tests). Several investigations where statistical analyses were conducted include: Fort Wayne ANGB SI; Gowen Field ANGB SI (Phases I and II); Toledo Express Airport SI; Tooele Army Depot – North Area Group B Suspected Release SWMUs Phase II RFI; and Vint Hill Farms Station SI. In addition, he was responsible for designing and developing software that completes statistical analyses and data screening required for human and ecological

risk assessment and site investigations. This software was used to conduct data analyses for the Detroit Arsenal Tank Plant RI/FS, Fort Benjamin Harrison Environmental Investigation, Fort Sheridan DOD Operable Unit RI/FS, Fort McClellan RI/FS, and multiple projects still conducted at Anniston Army Depot, Savanna Army Depot, and Newport Chemical Depot.

For the CERCLA 5-Year Review conducted for Louisiana Army Ammunition Plant, Mr. Skibinski conducted a statistical trend analysis to identify groundwater contaminant concentration trends over time (1980 through 1994) and to evaluate the effectiveness of interim remedial actions on groundwater quality. This evaluation was the subject of two published papers.

Mr. Skibinski has analyzed the fate and transport of chemicals and radionuclides in air, surface water, sediments, soils, and groundwater. The primary emphasis of the assessments has been mobility and degradation in vadose and saturated zone soils to support investigation conclusions and remedial action recommendations. Mr. Skibinski has conducted fate and transport assessments for a variety of contaminants at several sites in Germany and for the Springfield ANGB SI. He also has modeled emissions and dispersion (using EPA's SCREEN2 model) of fugitive dust and volatile emissions resulting from proposed remedial actions at the U.S. Department of Energy (DOE) Y-12 Facility, East Fork Poplar Creek (EFPC), Oak Ridge, Tennessee and for the development of a RCRA Subpart X Permit for a commercial waste handler in Utah. Using MINTEQA2, Mr. Skibinski performed geochemical equilibrium modeling for the Alabama Army Ammunition Plant RI/FS, EFPC RI, and the Fort Benjamin Harrison EI. For the Newport Army Ammunition Plant RFI/CMS, Mr. Skibinski used the International Ground Water Modeling Center's Summers Model to develop soil cleanup levels with consideration of groundwater protection. For the DOE, Pantex Plant in Amarillo, Texas, Mr. Skibinski evaluated the transport of metals and uranium using the U.S. Geologic Survey (USGS) PHREEQC model and Los Alamos National Laboratory's Finite Element Heat and Mass Transfer (FEHM) Code. He developed and presented a 2-day course for the BWXT-Pantex Project Manager regarding Fate and Transport Modeling of Metals in Unsaturated Soil. The course included a basic chemistry refresher (e.g., precipitation/dissolution reactions, reduction/oxidation, ion exchange, complexation, and

adsorption/desorption processes) and a tutorial describing how to use the PHREEQC and FEHM models.

Mr. Skibinski has contributed to and overseen the development of work plans, sampling plans, and QA plans, and has served as SAIC's interface with analytical laboratories. For the plans, he selected analytical methods for soil, sediment, surface water, and groundwater analyses of inorganic and organic contaminants using the EPA's Methods for Chemical Analysis of Water and Wastes and Test Methods for Evaluating Solid Waste (SW 846). He has assisted in the preparation of planning documents and cost proposals for the following contracts: USACE-Baltimore District: HTRW Branch, USAEC (Army Total Environmental Program [ATEPs] and Environmental Services Program Support [ESPS] contracts), and the Hazardous Waste Remedial Actions Program (HAZWRAP). He has assisted in the preparation of several plans and conducted laboratory audits for the USAEC program using U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) Quality Assurance Program (PAM 11-41) and Guidelines for the Implementation of ER 1110-1-263. He also is familiar with analytical methods prepared by the German Institute of Norms used for sample analyses under contract with the USACE-Europe District.

Mr. Skibinski's experience with environmental monitoring data also includes the evaluation of analytical data for nonconformance under the EPA Contract Laboratory Program (CLP) for inorganic (CLP SOW 7/88 and 3/90) and organic analyses (CLP SOW 2/88 and 3/90) and tentatively identified compound (TIC) evaluations. He has validated environmental data quality for several investigations: Buckley ANGB RI; Fort Wayne ANGB SI; General Mitchell International Airport RI; Gowen Field ANGB Site Inspection Addendum; Joe Foss Field ANGB RI; Hill AFB RI; Lowry AFB RI; Toledo Express Airport SI; Utah Testing and Training Range, Hill AFB, North Range Sites SI; and Wright-Patterson AFB Underground Storage Tank (UST) Investigation. The TIC evaluations were conducted for the Wright-Patterson AFB SI and Toledo Express Airport SI. These evaluations consisted of classifying the compounds detected as either laboratory contaminants, degradation products of source material compounds, non-target compound list compounds in source material, or as naturally occurring compounds.

Mr. Skibinski has managed environmental quality data for the following investigations: Buckley ANGB Phase II RI; Fort McClellan SI; Fort Wayne ANGB SI; General Mitchell International Airport RI; Gowen Field ANGB SI Addendum; Hill AFB RI; Joe Foss Field ANGB RI; Juncos Landfill RI, Juncos, Puerto Rico; Lowry AFB RI; Toledo Express Airport Suspected Floating Product Investigation; Toledo Express Airport SI; USCG Support Center, Kodiak Island RFI/CMS; Utah Testing and Training Range, Hill AFB, North Range Sites SI; and Wright-Patterson AFB SI. In addition, Mr. Skibinski has provided major technical direction for the creation of the sample tracking system and data/sample management activities. This system is a Microsoft® FoxPro for Windows based program to print sample labels and chain-of-custody (CoC) forms in the field, track samples through the laboratories, create data presentation tables, and statistically manipulate data for use in risk assessment and other technical evaluations.

Mr. Skibinski has written data management plans for the following USAEC investigations: Anniston Army Depot – Chemical Storage Area RI/FS; Fort McClellan RI/FS; Newport Army Ammunition Plant RFI; Louisiana Army Ammunition Plant 5-Year Review; Newport Army Ammunition Plant RFI/CMS; Tooele Army Depot – North Area Group B Suspected Release SWMUs Phase II RFI; and Tooele Army Depot – South Area Phase II RFI Group 3 Suspected Releases SWMUs.

Mr. Skibinski is an experienced field chemist and has expertise in the following areas: supervision of hollow-stem auger drilling operations, dual-wall reverse air percussion hammer drilling operations, and wire-line rock coring; subsurface soil sampling using a standard split-spoon sampler, shallow soil sampling using core-barrels with sleeves, and soil sampling from UST excavation pits; monitoring well installation, development, and purging; aquifer characterization using a rising head well test; sampling UST contents for removal actions; and UXO surveys. Mr. Skibinski has participated in the sampling of surface water, sediment, soil, and groundwater as well as sample preparation, handling, documentation, and shipping at the following sites: Fairchild AFB RI/FS; Fort George G. Meade UXO Survey Data Analysis – BRAC Parcel; Gowen Field ANGB Phase II – SI; Newport Chemical Depot – Little Raccoon Creek RFI; Seneca Army Depot UST Closure; Toledo Express Airport SI; Tooele Army Depot – North Area Group B Suspected Release SWMUs Phase II RFI; Tooele Army Depot –

North Area Group C Suspected Release SWMUs Phase II RFI; Tooele Army Depot – South Area Phase II RFI Group 3 Suspected Releases SWMUs; U.S. Coast Guard Support Center, Kodiak, Alaska RFI/CMS; and, Walter Reed Army Medical Center SI.

Mr. Skibinski has participated in environmental compliance assessments (ECAS) conducted for the USCOE. These assessments included environmental compliance assessments at Army facilities with 17 Federal regulations (e.g., Clean Water Act, Safe Drinking Water Act, CERCLA), Army Regulation (AR) 200-1, and state laws. He participated in ECAS at the following facilities: Cameron Station, Virginia; Fort Meyer, Virginia; Fort Monroe, Virginia; and United States Military Academy, West Point, New York.

COMPUTER PROFICIENCY:

Mr. Skibinski is proficient in the use of the following software programs/operating systems:

- Decisioneering Crystal Ball® Pro (version 4.0)
- Expert Choice® (version 11)
- Microsoft® Windows and Office 2003
- Pallisade @Risk (version 3.0)

MISCELLANEOUS:

- Presenter *Demonstration of a Method to Assess Explosives Safety Risk* and *Selecting And Implementing Interim Land Use Controls At The Former Nansemond Ordnance Depot* on 5 September 2002 at the UXO/Countermine 2002 Forum that was held in Orlando, Florida.
- Co-author "Using Machine Learning to Complement and Extend the Accuracy of UXO Discrimination Beyond the Best Reported Results of the Jefferson Proving Ground Technology Demonstration," Society for Modeling and Simulation International's Advanced Technology Simulation Conference, San Diego, California, April 2002. Other authors include Larry M. Deschaine (SAIC & Chalmers Univ. of Tech); Richard A. Hoover and Janardan J. Patel (SAIC); Frank

D. Francone (Chalmers Univ. of Tech. & Register Machine Learning Technologies); and M. J. Ades.

- Co-presenter of *Underlying Logic Of Developing Risk-Based Methods For UXO/Countermine Programs* at the UXO/Countermine Forum 2001 that was held in New Orleans, LA in April 2001.
- Presented *Risk Assessment, Decision Analysis, and Public Outreach: Pieces of the OE Response Puzzle* at the Severn Trent Laboratories 2nd Annual Louisville Meeting, 5 June 2001.
- One of four people on the Range Rule Risk Methodology team winning SAIC's Annual Environmental Excellence Award, 2000.
- Presenter, "Probabilistic Risk Assessment of Exposure to UXO - Fort George G. Meade, Maryland," AMEREM '96 International Conference on "The World of Electromagnetics", Albuquerque, New Mexico, 28 May 1996.
- Co-author, "Contaminated Army Site Object of Novel Analysis," National Defense Journal, 1995.
- Co-author, "Statistical Trend Analysis of Groundwater at Louisiana Army Ammunition Plant," Hazardous Materials Control Resources Institute's Superfund Conference Proceedings, 1994.

CUSTOMERS:

- Hazardous Waste Remedial Actions Program (HAZWRAP)
- U.S. Army Environmental Command (USAEC)
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- U.S. Department of Energy (DOE)
- U.S. Navy
- Westinghouse Savannah River Company, Savannah River Site, Aiken, South Carolina (WSRC)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:

Alan S. Rosenthal, Chair
Dr. Paul B. Abramson
Dr. Richard F. Cole

In the Matter of	)	Docket No. 40-8838-MLA
	)	
U.S. ARMY	)	ASLBP No. 00-776-04-MLA
	)	
(Jefferson Proving Ground Site)	)	September 24, 2007
	)	

PREFILED WRITTEN REPLY AND SUR-REBUTTAL TESTIMONY OF
JOSEPH N. SKIBINSKI
IN RESPONSE TO PREFILED REBUTTAL TESTIMONIES
OF INTERVENORS OF SAVE THE VALLEY, INC.

Q1. Please state your full name.

A1. *(JNS) My name is Joseph N. Skibinski and I have been Project Manager for SAIC's work at Jefferson Proving Ground (JPG) since February 2006.*

Q2. What is the purpose of your testimony?

A2. *(JNS) This Reply and Sur-Rebuttal is submitted on behalf of all the members of the Army's contractor staff in response to the Rebuttal Testimonies of Dr. Diane Henshel and Mr. Charles Norris, which were filed on September 17, 2007. The Army's contractor staff also includes the following witnesses: Mr. Harold W. Anagnostopoulos, Mr. Michael L. Barta, Mr. Todd D. Eaby, and Mr. Stephen M. Snyder. As the Rebuttal Testimonies submitted by Save the Valley, Inc. included a testimony provided by Mr. James Pastorick, the Army's contractor staff also includes Mr. Seth Stephenson. My testimony is based in part on information provided to me by the SAIC and subcontractor staff working under my direction and supervision.*

Q3. Have you and the other members of the Army's contractor staff reviewed the rebuttal testimony by Dr. Diane Henshel about Deer Sampling Study results and whether more biota sampling is required?

A3. *(JNS) Yes, the staff and I have reviewed her rebuttal testimony dated September 18, 2007. The following questions and answers summarize our main points in response to her rebuttal.*

Q4. Do you and the staff agree or disagree with her opinions and conclusions regarding the adequacy of the deer sampling study?

A4. *(JNS) We disagree. The deer sampling study met its stated objectives. While Dr. Henshel in A.19 continues to allege that no true background deer can be collected at JPG, the central point is the absence of depleted uranium (DU) in the deer samples. There was no indication of DU in ANY of the deer samples. The purpose of the study was to determine if hunters could be at risk from consuming deer potentially contaminated with DU. Given that no DU was detected in any of the deer collected from many different areas at JPG, both at and close to the DU Impact Area as well as many miles away, her focus on whether the background deer were truly representative of background and whether separate exposure populations exist does not matter. Furthermore, uranium is ubiquitous in the environment and is expected to be present in deer. If, however, DU uptake were occurring, we would have found greater total uranium concentrations and isotopic uranium ratios consistent with DU in the deer tissues. This did not occur.*

Also in A.20, she alleges that the Army is overlooking other potential human food. The mass of the turkey meat or squirrel meat consumed per individual hunter would be less than the mass of deer meat consumed because the muscle weights of the three animal species differ. Also, Indiana Hunting and Fish regulations and the Big Oaks National Wildlife hunting limitations state that hunters can take four deer per year, one wild turkey per year, and a daily maximum of five squirrels during available public use days (see http://www.fws.gov/midwest/bigoaks/ bonwrhunting.htm for calendars and additional details). Squirrel hunting was limited to 24 days during 2007. Also, Big Oaks National Wildlife Refuge can accommodate 420 deer hunters, but only 72 squirrel hunter slots are allocated by lottery. Given the combination of greater muscle mass of deer than squirrel and the number of hunting days, hunters are more likely to consume larger amounts of deer tissue than squirrel tissue.

While Hoosiers may eat fish and crayfish, they are not permitted to do so at JPG in any waters associated with the DU Impact Area. Also, one type of shellfish harvesting (i.e., mussels) has been illegal in Indiana since 1991 (www.in.gov/dnr/fishwild/fish). Last, in A23, Dr. Henshel makes misleading comments about what is stated in the Deer Sampling Report that there were "no detections (which there were)." In fact, the report presents detections of the radionuclide isotopes used in calculation of the isotopic ratio and concluded DU was not present in any samples.

Q5. Do you agree or disagree with her opinions and conclusions regarding assessment of environmental and ecological risk?

A5. *(JNS) We disagree. Ecological risk assessment is not required for the Decommissioning Plan. Furthermore, comments concerning an Environmental Report and an Environmental Impact Statement (EIS) associated with National Environmental Policy Act (NEPA) are not applicable to this hearing. Last, the Army communicates as required with the NRC Staff during annual meetings. When there are concerns about some phase of the process, such as potential concerns about environmental or ecological risks, the NRC Staff has issued requests for additional information (RAIs). In conclusion, the Army's FSP and Addenda have complied with existing requirements and NRC Staff's requests to date. The Army will continue to involve NRC Staff in decisions concerning the FSP Addenda to develop an adequate and sufficient Decommissioning Plan.*

Q6. Do you have any clarifications to add concerning her opinions about the absence of cave fauna being attributed by her to the presence of DU?

A6. *(JNS) Yes. Lewis et al. (2002) states that, "The reason for the absence of fauna remains unknown, but groundwater contamination should be entertained as a cause. In particular, caves in the depleted uranium area appear to have low population densities of stygobiont aquatic species, but quantitative sampling would have to be performed to ascertain this." However, we observe that the absence of cave fauna could be due to the presence of DU; however, it could also be attributed to a number of different variables to include climate, habitability, varying water levels, size, and accessibility.*

Q7. What general observations can you and the other members of the contractor staff serving as witnesses make regarding the rebuttal testimony in the areas of radiation safety and radiochemistry?

A7. *(JNS) The rebuttal testimony does not appear to add any significant new technical information in these areas. STV continues to debate issues regarding the U-238 to U-234 ratios in certain samples, and claims that DU is present in these samples, without providing a technical basis for that claim or for the continued debate. STV continues to call for more sensitive laboratory analytical techniques for the detection of DU in environmental samples, while failing to establish definitely why the lack of such techniques will render the future Decommissioning Plan ineffective, and while failing to acknowledge that the migration of DU can be reliably identified with existing analytical methods (when the level of total uranium exceeds that expected in the natural background). STV continues to call for an air sampling program for DU, while failing to acknowledge the fact that a campaign of air sampling for airborne DU during controlled burns was already conducted at JPG, and that the results of such air sampling were negative for DU.*

Q8. Since the reply and sur-rebuttal testimony has been administratively limited in its length, are there any further aspects of Mr. Norris' or Dr. Henshel's rebuttal testimony that must be addressed concerning DU ratios, laboratory analysis methods, and air sampling?

A8. *(JNS) Yes. In Mr. Norris's item A.23, he points out that sample results were expressed as a percentage of DU in a United Nations Environment Programme (UNEP) report (UNEP, 2003). That is correct, but it is important to point out that these estimates were made using the U-238:U-235 ratio, and that the U-235 mass in a sample was determined by UNEP using non-standard, highly modified inductively coupled plasma-mass spectrometry (ICP-MS) techniques that include pre-concentration of the samples. Our radiation expert (Mr. Anagnostopoulos) has verified that there are no readily available commercial laboratories in the U.S. that the Army can use to replicate UNEP's results. The costs of such analysis are also unknown.*

Mr. Norris also uses sample BWH03 in Tables E-2 and E-5 of the UNEP report to suggest that significant DU was found in the sample by ICP-MS techniques, while remaining unidentified by alpha spectroscopy techniques. That is incorrect. The second full paragraph on page 189 of the UNEP report clearly indicates that alpha spectroscopy did identify the presence of DU in sample BWH03, and that the presence was confirmed by ICP-MS. Again, UNEP utilized highly specialized alpha spectroscopy techniques, and the UNEP data cannot be directly compared to routine JPG Environmental Radiation Monitoring (ERM) program results.

In Dr. Henshel's item A.11, she uses a colorful, but faulty analogy. We would suggest that if a box of marbles were dropped on the ground, most of the marbles would remain in the immediate area, and some might roll some distance away from the box. If we reliably determine that we can see the individual marbles with a flashlight on the ground near the dropping point, then we have confidence that we can use that same flashlight to find marbles that might have rolled away.

In Dr. Henshel's item A.13, she provides a numerical comparison of natural uranium (NU), DU, and enriched uranium (EU) that we could not follow. When it comes to doses to critical members of the exposed population, the specific activity of the radionuclides is not the determining factor; the dose conversion factor (as provided in Federal Guidance Report No. 11) is. As our radiation expert testified earlier, U-234, U-235, and U-238 all have very similar dose conversion factors. The dose per unit intake for an amount of natural uranium or the same amount of DU is nearly equal. As a result, it is the total amount of uranium that is present that drives the dose. My earlier testimony was correct in stating that the % contribution from DU has little bearing on the dose estimate.

In Dr. Henshel's item A.30, she asserts that federally employed workers "do indeed spend entire working years in and near the controlled burn areas at JPG, and these workers are the ones who monitor the burns and make sure they stay controlled." On September 20, 2007, Mr. Anagnostopoulos spoke with Dr. Joe Robb of the U.S. Fish and Wildlife Service at JPG. Dr. Robb indicated that controlled burns of the DU Impact Area occur about once every three years, that the entire area does not burn, and that the DU trench area never burns (highest concentrations of DU penetrators). The burn area is black for about 1 week, until grass and shrubs begin to return. Using highly conservative assumptions, Dr. Robb and Mr. Anagnostopoulos estimated that a member of his staff has no more than 20 hours of exposure in a year to the smoke and potential dust from the DU Impact Area and its immediate surrounding area. That is 1 percent of a working year. In Dr. Henshel's item A.29, she claims that "he [Anagnostopoulos] recognizes that burning can have (and has been demonstrated to have) a significant effect on the amount of DU dust re-suspended in air, and that this increase in DU-contaminated dust can be detected at a distance that goes well beyond the distance from the DU Area to the boundaries of JPG." Mr. Anagnostopoulos could not find such a claim in his earlier rebuttal testimony. Mr. Anagnostopoulos also believes that his rebuttal testimony clearly and directly refutes Dr. Henshel's statement, as she attributed it to him. In Dr. Henshel's item A.29, she also claims that airborne DU dust was detected

at the boundaries of Los Alamos National Laboratory (LANL) and that the dose to an individual at LANL could be almost ½ of the regulatory limit of 25 mrem. Mr. Anagnostopoulos re-examined the "Dust to Dose" paper and did not see any indications of the detection of DU dust at the boundaries of LANL. In fact, the paper seems to indicate that air samplers that detected an increase were established with 30-meter spacing on transects in or immediately adjacent to the burned areas. Dr. Henshel's rebuttal fails to address the highly conservative assumptions used in the LANL study and the significant differences in the physical nature of the DU contaminant at JPG, as he pointed out in his earlier testimony. In addition, that 14 mrem was for a worst-case source-term estimate at LANL, and for occupational workers who occupy the burned areas for 2,000 hours per year. This clearly is not a reasonable assumption for controlled burns of the DU impact area at JPG.

In A.30 Dr. Henshel uses another analogy that is useful to the Army's position. We concur that, under certain circumstances, the airborne contaminants in a plume can fail to disperse as expected. This would be highly unusual, however, in the case where a large surface-area fire is causing the plume, as heat rises (causing turbulence over a wide area). Also, using the drip of dye in a flowing stream analogy of Dr. Henshel, if no dye were detected near the point of release in the stream, over many years of monitoring, why would one continue to claim that the dye pathway is a concern and require an extensive monitoring program?

Q9. Could you summarize, in general, your reaction to the hydrogeologic and hydrologic aspects of Mr. Norris' rebuttal testimony?

A9. (JNS) Yes. In general, all arguments, objections, and concerns raised by Mr. Norris have been adequately addressed by myself and my staff in the previously submitted testimonies. We will comment on the greatest concerns we have regarding Mr. Norris's rebuttal testimony:

1. Mr. Snyder, in A.38 of his testimony suggested that Mr. Norris is quickly scanning literature and may not have personal experience with the methods he is proposing. In his rebuttal testimony, Mr. Norris referenced of a paper by Mr. Richard Hoover, former geophysicist with Science Application International Corporation (SAIC), in which Mr. Norris suggests that Mr. Hoover supports the use of Ground Penetrating Radar (GPR) for investigations such as the one at JPG in karst terrain. However, Hoover (p. 7) clearly states that GPR's depth of penetration is extremely limited in karst areas. The example

provided by Mr. Hoover shows a depth of penetration to 0.6 meters (1.8 feet), while Mr. Norris is concerned about finding deep karst systems, presumably below 50 or 100 feet. The electrical imaging (EI) survey conducted at JPG achieves that goal with a penetration depth of approximately 150 feet.

2. Mr. Norris continues to raise concerns about the use of EI, which the Army used in tandem with aerial photo fracture trace analysis to select characterization well locations to intersect solution-enhanced groundwater flow paths. Mr. Norris admits to gaining a better understanding of the expected EI results after reading Mr. Snyder's and Mr. Eaby's testimonies, and then tries to refocus the concern that EI may only detect conduits plugged with clay (A.021). EI is able to detect and determine the locations of portions of the aquifer that have differing electrical resistivity. Karst aquifers are very effectively surveyed by this method, because much of the aquifer is composed of solid blocks of rock that have a very low ability to transmit groundwater (these are the areas with very high electrical resistivity). Groundwater flows in a karst aquifer around these impermeable solid blocks of rock in cracks (joints, fractures, faults, bedding plane discontinuities). As the water migrates, it slowly dissolves the carbonate minerals in the rock, leaving behind insoluble silt and clay, and creates a void (open conduit). All of these conditions (fractures, silts and clays, and open voids) have low electrical resistivity properties, and can be detected by EI. All of these conditions are important to investigate with respect to characterization of groundwater migration through the aquifer, and are evaluated through the installation of wells.

Mr. Norris chastises the Army and criticizes the FSP for assuming, not demonstrating, various components of the conceptual site model (A.017). In his summary of that answer, he states that "Each of these assumptions may be a reasonable starting point for a conceptual site model...but that they must be challenged and tested...and that is what this FSP does not do." We believe the most appropriate challenge is to conduct the tasks laid out in the FSP, evaluate the data, make adjustments to the conceptual site model, make amendments to the FSP, and carry out those additional tasks until questions concerning site characterization needed to develop the Decommissioning Plan are resolved. The data available are evaluated, a set of assumptions are formed, and the experiment or, in this case characterization efforts, are designed to collect the data to validate or invalidate the assumptions. In this manner, we are able to test and demonstrate the components of the site conceptual model.

Mr. Norris has made the assumption that a "deep" karst network may be present without any demonstration that it is present (A019) where Mr. Norris mentions "...the possibility that drainage through karst systems at depths..." with no demonstration, only a possibility that it exists. We have not eliminated, nor denied the potential for a "deeper" karst network or component to the aquifer. We have appropriately designed the FSP to evaluate this potential and, if determined by the FSP activities to be potentially present, the results will suggest the need for further evaluation.

Mr. Norris goes further in A019 to discuss two other sites where he is working and states that "Shallow, contemporary karst development is occurring in these fractured carbonates, as is occurring at JPG..." and sites where "...paleo-karst sinkholes in fractured Silurian Dolomites that occur immediately below the glacial sediments..." are present. Both of his examples discuss karst features "shallow" and "immediately below the glacial sediments" just like observed at JPG, but none of this suggests or supports the presence of a "deeper" karst network. Mr. Norris's examples from his other work are suggestive of a shallow karst network, not the deep karst network that he is suggesting (without basis) at JPG

To further support Mr. Norris' opinion that a deeper karst network is present in A019 he discusses groundwater stage data provided in ERM monitoring reports and, using that data, he makes the statement that "Water levels recorded in MW-09 as part of the ERM program routinely show elevations that are approximately 10 feet below the water elevation in adjacent Big Creek." The ERM data do not provide sufficient information to complete this evaluation. The ERM reports do not present surface water elevations. We do not know where the surface water elevations from Big Creek came from and can only assume that Mr. Norris picked these elevations from U.S. Geological Survey (USGS) ground surface topographic elevation contours. Surface water elevations picked in this manner could have significant error. MW-09 has been identified as a low-yielding well and, during the ERM program, the wells are purged prior to the sample water level measurements; therefore, the water elevations that are being used by Mr. Norris might not be representative of static conditions which are necessary when completing these types of evaluations. Adding to the potential error in Mr. Norris' evaluation is the recognized potential for error that is suspected to be present in the referenced elevations presently available for the existing wells at the site, which is the reason that SAIC is planning to have all of the site wells re-surveyed by a licensed surveyor as part of the ongoing investigation. Using water elevations under static conditions and using accurate

surveyed reference elevations is absolutely critical to these types of evaluations, which is what is planned for in the FSP efforts.

Furthermore, MW-09 is a relatively shallow well approximately 40 feet deep, and hardly represents a deeper karst system that would go undetected by the currently proposed investigation. The wells being installed by SAIC are designed to provide evaluation of both the shallow and "deeper" sections of the aquifer by having pairs of wells set in both "shallow" and "deep" bedrock as well as several overburden wells. This will enable the evaluation of a "deeper" karst network, if present, and evaluation of head potentials for determining the potential for deep or downward flow. One of the well-pairs proposed in the FSP Addendum 4 (Number 8) is located within several hundred feet of MW-09 and will provide additional evaluation in of that area. Mr. Norris fails to demonstrate that a "deeper" karst network is present. The FSP and Addenda will provide an adequate evaluation of this potential, for the purpose of decommissioning.

SAIC generally agrees with the potential value of some of the data collection studies mentioned by Mr. Norris. Those, and other studies not mentioned by Mr. Norris, have been considered, conceptualized, and depending on the results of the studies in progress, will be recommended and implemented. An example of such is the seepage run survey that Mr. Norris mentions is necessary in A.018, A.020, and A.022. SAIC has agreed that this survey would potentially provide useful information; however, it would not be necessary or useful for the location of the characterization wells proposed in the FSP and its current addenda.

Q10. Is your staff aware of the Engineering Pamphlet (EP) 75-1-2, or the "bible," as Mr. Pastorick calls it?

A10. ***(JNS)*** *Yes. The Army and SAIC are well aware of EP 75-1-2. Not only do we follow the procedures specified in this document, but we also use other regulations and guidance documents that are required by the U.S. Army Corps of Engineers (USACE) such as: Engineering Manual (EM) 385-1-1, Safety and Health Requirements Manual; Engineer Regulation (ER) 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste and Ordnance and Explosive Waste Activities. SAIC also has our own Health and Safety Procedure, Environmental Compliance & Health and Safety (EC&HS) Procedure No. 120 – UXO/OE/CWM Safety, which we are required to follow, not only at JPG, but on all sites that we conduct field work that has the possibility of munitions and explosives of concern*

(MEC) and unexploded ordnance (UXO). This procedure was developed using both the USACE regulations and other U.S. Department of Defense (DOD) regulations. With this being said, SAIC understands the hazards associated with environmental sampling within the DU area and it has established the necessary precautions for conducting work safely.

UXO hazard is the number one priority when working at JPG. The life and safety of all field personnel is the main concern with this work. According to historical records from JPG, it is estimated that there are approximately 85 items of UXO (with high explosive [HE] filler) per acre within the DU and immediately surrounding area at JPG. These numbers do not include other types of UXO with incendiaries, spotting charges, or other non-HE hazards. Given these estimates of UXO density, the prudent approach to protect field personnel is to conduct the intrusive site characterization activities on or near roadways and to limit activities occurring off-roads to the extent possible. As with the stream gauging stations, all of the areas that the stream gauging station are located have a "free of MEC hazard" area and paths to these locations have been marked.

Q.11. Does this conclude your testimony?

A.11. Yes, it does.

I affirm, under the penalty of perjury, that the foregoing testimony is true to the best of my knowledge, information, and belief.

Joseph N. Skibinski

County of ~~Prince William~~ Fairfax)
State of Virginia)
Subscribed and sworn to before me this ~~15th day of August, 2007~~. 24TH OF SEPTEMBER, 2007

Z. Kirman-Turner
Notary Public
Notary Reg # 704342
My commission expires 07/31/2010

ZERRIN KIRMAN-TURNER
Notary Public
Commonwealth of Virginia
My Commission Expires Jul 31, 2010

The aforesaid Sur-rebuttal Testimony is respectfully submitted by the U. S. Army on this 25th day of September, 2007.

Frederick P. Kopp
Counsel for the U. S. Army