

September 21, 2007

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
U.S. ARMY)	Docket No. 40-8838-MLA
)	
(Jefferson Proving Ground Site))	

PREFILED REBUTTAL TESTIMONY OF JON M. PECKENPAUGH

1 Under penalty of perjury, I, Jon M. Peckenpaugh, declare as follows: I attest that
2 the factual statements herein are true and correct to the best of my knowledge,
3 information, and belief; and the opinions expressed herein are based on my best
4 professional judgment.

5 **Q.1. Please state your name.**

6 A.1. Jon M. Peckenpaugh.

7 **Q.2. Have you provided testimony previously in this case?**

8 A.2. Yes, this testimony is in addition to my prior testimony in this case. I
9 previously testified about issues including surface water, drilling, and hydrogeology and
10 also provided my professional qualifications. This testimony will now focus specifically
11 on responding to issues raised in the rebuttal testimonies of the STV witnesses.

12 **Q.3. Have you reviewed the rebuttal testimonies of the STV witnesses?**

13 A.3. Yes, I reviewed the rebuttal testimonies of Dr. Henshel, Mr. Norris, and
14 Mr. Pastorick.

15 **Response to Mr. Norris's Rebuttal Testimony**

16 **Q.4. Do you agree with all of Mr. Norris's rebuttal testimony?**

17 A.4. No, as explained below.

1 **Q.5. In A.011, Mr. Norris discusses groundwater assessment and hydraulic**
2 **conductivity. What is your opinion of this testimony?**

3 A.5. In A.011, Mr. Norris states that groundwater assessment requires that
4 hydraulic conductivity values be measured or computed now. However, the measuring
5 or computing of hydraulic conductivity may be optional and is not necessarily needed for
6 adequate site characterization. Even if the Army concludes it needs to measure or
7 compute the values, it does not need to do so immediately. The Army must complete
8 well installation and evaluate the groundwater system before they can even decide
9 whether or where to perform the aquifer tests that will be used to determine hydraulic
10 conductivity values. A conservative estimate of hydraulic conductivity may be made
11 instead and will provide for the information needed for a decommissioning plan.
12 Estimating the hydraulic conductivity is an acceptable practice.

13 **Q.6. At A.011, Mr. Norris implied that groundwater is removed from**
14 **consideration as a pathway. What is your opinion of this?**

15 A.6. The Field Sampling Plan (FSP) does not remove groundwater as a
16 pathway. For example, multiple wells have been installed under the FSP (Section 6.2).

17 **Q.7. In A.013, Mr. Norris states that if groundwater under and around the**
18 **site are part of the assessment, RESRAD cannot be used due to karst features of**
19 **the site. How does the FSP address this?**

20 A.7. The FSP allows for sufficient identification of the karst features so they may
21 be addressed properly at the decommissioning plan stage. The limitations on RESRAD
22 are a separate known issue. As stated before, groundwater is part of the assessment
23 and RESRAD may be used to address groundwater in areas without karst features.

24 The karst features are only a portion of the site, and procedures or dose
25 assessment models other than RESRAD can be used to calculate the dose estimates of
26 the potential DU in the water and soil where karst features exist. The purpose of the

1 FSP is to characterize the site by, for instance, identifying karst features. How RESRAD
2 is, or cannot be, used on the karst features is separate from the site characterization
3 provided by the FSP, and instead will likely be addressed in the decommissioning plan,
4 which is informed by the results of the FSP.

5 **Q.8. In A.013, Mr. Norris alleges that the Army and Staff had the**
6 **expectation that groundwater would not be part of the exposure assessment**
7 **because RESRAD was to be used for dose modeling. Please evaluate Mr. Norris's**
8 **statement.**

9 A.8. The Staff has always expected groundwater to be part of the exposure
10 assessment. The FSP clearly states that modeling will include site-specific data
11 gathered during the site characterization. (FSP Table 4.1). The fact that RESRAD was
12 offered in the FSP as part of the way to create the decommissioning plan for submission
13 in 2011 should not be read as eliminating groundwater from the exposure assessment.

14 **Q.9. In A.015, Mr. Norris claims the FSP presumes that if no DU is detected**
15 **along the boundary road system, then each hydrogeologic pathway for each**
16 **medium may be assumed to be zero. What is your opinion of this testimony?**

17 A.9. It appears that Mr. Norris assumes sampling will only occur along the
18 roadways. The FSP does not define any limit or boundary for sampling. Some sampling
19 is in the DU Impact Area; some sampling is outside. The FSP does not state that if no
20 DU is detected at the DU Impact Area boundary roads, then all sampling beyond the
21 road system is unnecessary.

22 For example, the FSP section 6.5.2.2 described how, for soil, the outer perimeter
23 would be analyzed and expanded beyond the DU Impact Area. For surface water, the
24 FSP in section 6.4.1 describes sampling locations outside of the DU Impact Area.

25 These sections of the FSP make it clear that the sampling was not just limited to
26 the boundary road system.

1 **Q.10. In A.017, Mr. Norris asserts that the FSP assumes, without**
2 **verification, that no deeper karst network exists. Is this assertion correct?**

3 A.10. No, while Mr. Norris admits that such an assumption is reasonable, the
4 FSP makes no such assumption; instead, it provides for a method to determine if karst
5 systems exist. When conduit monitoring well pairs are installed, each well pair will have
6 a shallow bedrock well and a deep bedrock well, as discussed in the FSP at 6-14 - 6-15.
7 The deep well provides a way to investigate if conduits such as deep karst features
8 exist.

9 **Q.11. In A.019, Mr. Norris states that the FSP does not provide for**
10 **characterization of any paleo-karst elements. What is your opinion of this?**

11 A.11. Mr. Norris is incorrect. As discussed above, the FSP provides for
12 characterization of deep (or as Mr. Norris says, "paleo") karst networks.

13 **Q.12. In A.023, Mr. Norris refers to surface water passing eastward off the**
14 **site in Big Creek. Is this correct?**

15 A.12. No, the surface water generally flows westward.

16 **Q.13. In A.018 and A.020, Mr. Norris alleges that it is necessary to perform**
17 **one or more seepage runs prior to the installation of additional characterization**
18 **wells. Do you agree with this?**

19 A.13. No, the four additional well locations will be placed according to fracture
20 trace analyses and electrical imaging, which is how the six previous well locations were
21 placed. These two methods are used to delineate potential conduits and preferred
22 groundwater pathways in the bedrock. Therefore, these methods provide adequate data
23 for selecting well site locations.

1 **Q.14. Further, Mr. Norris stated in A.020 that the gauging/location stations**
2 **must be relocated to correspond to the gaining and losing reaches of the streams.**
3 **Do you agree with this?**

4 A.14. No, relocation of the gauges would require developing new rating curves,
5 which would take approximately twelve months without any significant increase in data
6 quality.

7 **Q.15. Mr. Norris states in A.018 and A.021 that prior to the installation of**
8 **any additional monitoring wells, remote-sensing and on-the-ground/contact**
9 **geophysical programs should be instituted to locate karst features.**

10 A.15. No, the fracture trace analyses and electrical imaging used by the Army
11 were appropriate to locate potential conduits, such as karst features. Any additional
12 programs, such as remote-sensing, would be repetitive and unnecessary.

13 **Q.16. Mr. Norris in A.022 believes that an alternate drilling program is**
14 **necessary for better site characterization. Is this true?**

15 A.16. No, any additional data that might be provided are unnecessary. The
16 Army's existing drilling procedures where continuous cores of the bedrock are collected
17 will provide adequate characterization of the bedrock lithology.

18 **Rebuttal of Mr. Pastorick's Testimony**

19 **Q.17. Do you agree with all of Mr. Pastorick's testimony?**

20 A.17. No, as explained below.

21 **Q.18. At A.012, Mr. Pastorick states that placement of stream gauge**
22 **stations is compromised when they are placed near roads and culverts. Does**
23 **placing the stations near roads and culverts somehow compromise the stream**
24 **gauging stations?**

25 A.18. First, Mr. Pastorick is incorrect; not all steam gauging stations are near
26 culverts and roads (e.g., stations SGS-BC-02 and SGS-MF-02). Also, placing the

- 1 stream gauging stations near culverts and roads does not compromise the station
- 2 location or affect the data quality and usefulness.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
U.S. ARMY)	Docket No. 40-8838-MLA
)	
(Jefferson Proving Ground Site))	

PREFILED SUR-REBUTTAL TESTIMONY OF JON M. PECKENPAUGH

I, Jon M. Peckenpaugh, do declare under penalty of perjury that my statements in the foregoing testimony are true and correct to the best of my knowledge and belief.

/Original Signed By/

Jon M. Peckenpaugh

Executed at Rockville, MD
This 21st day of September, 2007.