

June 20, 2006

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))

NRC STAFF RESPONSE TO MOTION FOR LEAVE TO WITHDRAW, AMEND AND
SUPPLEMENT CONTENTIONS BY SAVE THE VALLEY, INC.

INTRODUCTION

Pursuant to the Atomic Safety and Licensing Board's order of May 1, 2006, (Memorandum and Order (Scheduling Further Proceedings), May 1, 2006)), the U.S. Nuclear Regulatory Commission Staff ("Staff") hereby files its response to the motion for leave to withdraw, amend and supplement contentions ("Motion") submitted by Save the Valley, Inc. ("STV"). Motion For Leave to Withdraw, Amend, and Supplement Contentions of Save the Valley, Inc., (May 31, 2006). As discussed below, the Staff concludes that one of the amended and supplemented contentions and associated bases proposed by STV is admissible under 10 C.F.R. Part 2 regulations, while the others are not. Therefore, STV's motion should be granted in part and denied in part.

BACKGROUND

On May 25, 2005, the U.S. Army ("Licensee" or "Army") submitted a license amendment request to the NRC for an alternate schedule for submitting a decommissioning plan for its facility at Jefferson Proving Ground ("JPG") in Madison, Indiana, pursuant to 10 C.F.R. § 40.42(g)(2). See Letter and Attachments from Alan G. Wilson to Dr. Tom McLaughlin, dated May 25, 2005. The May 25 application included a Field Sampling Plan ("FSP") concerning site characterization activities and a Health and Safety Plan ("HASP"). *Id.* On June 27, 2005, the NRC published a *Federal Register* Notice advising that the Commission was considering

issuing a license amendment to the Army pursuant to 10 C.F.R. § 40.42(g)(2). *See Notice of Consideration of Amendment Request for an Alternate Decommissioning Schedule for the Department of the Army, U.S. Army Garrison, Rock Island Arsenal, Rock Island, IL, and Opportunity to Request a Hearing*, 70 Fed. Reg. 36964 (June 27, 2005). On November 16, 2005, the Army submitted Addenda to its May 25 application, consisting of a FSP Addendum and a HASP Addendum. *See Letter and Attachments from Corinne Shia to Tom McLaughlin*, dated November 16, 2005.

On November 23, 2005, STV filed a petition to intervene and request for a hearing. *See "Petition to Intervene and Request for Hearing of Save the Valley, Inc. November 23, 2005."* The Army responded to STV's petition on December 16, 2005, as did the Staff on December 19, 2005. *See "Army's Response to Save the Valley, Inc.'s Concerns and Contentions As Set Forth in its Petition to Intervene Filed Herein on November 23, 2005," December 16, 2005; "NRC Staff's Response to Petition to Intervene and Request for Hearing Filed by Save the Valley, Inc.," December 19, 2005.*

On February 2, 2006, the Board granted STV's hearing request and deferred the hearing pending completion of the Staff's technical review of the alternate schedule proposal. *See Memorandum and Order (Granting Hearing Request and Deferring Hearing)*, LBP-06-06, at 26 (Feb. 2, 2006). The Staff published the Environmental Assessment ("EA") related to this proposed action on March 6, 2006. This was followed with completion of the Safety Evaluation Report and issuance of the license amendment on April 27, 2006.

Pursuant to the Licensing Board's May 1, 2006 Order, STV was permitted to file a motion for leave to withdraw, to amend, or to supplement the contentions contained in its November 23, 2005 hearing request and/or the bases assigned for those contentions. *See Memorandum and Order (Scheduling Further Proceedings)* (May 1, 2006). In that order, STV was directed by the Licensing Board that "any endeavor either to add bases to existing

contentions or to advance new contentions must be accompanied by a demonstration that the endeavor is entirely based upon information contained in the EA or SER that was not previously available to the Petitioner.” *Id.* at 3. Further, “In the absence of such a demonstration, the sought amendment or addition will be summarily rejected.” *Id.* In response, STV filed a motion on May 31, 2006 to which the Staff’s response is addressed. See Motion.

DISCUSSION

The Staff objects in part and concurs in part regarding the admissibility of the amended and supplemented contentions filed by STV. Pursuant to the Board’s May 1, 2006 Order, the Staff only addresses the amended and supplemented contentions raised by STV while preserving the arguments made in the Staff’s December 19, 2005 filing.

I. Admissibility of Contentions

The Commission’s well-established process for both the amendment of contentions and the filing of new contentions based on new information was codified most recently in the updating of 10 C.F.R. Part 2. See 10 C.F.R. § 2.309(f)(2); *Changes to Adjudicatory Process*, 69 Fed. Reg. 2182, 2220-2221 (Jan. 14, 2004). As a general matter, the Commission has stated, “This agency does not look with favor on amended or new contentions filed after the initial filing.” *Dominion Nuclear Conn.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-36, 60 NRC 631, 636 (2004). The principle underlying the rules is that petitioners are “expected to raise issues as early as possible” and must “diligently uncover and apply all publicly available information to the prompt formulation of contentions.” *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1048, 1050 (1983). Under current Part 2, and except when the newly-available information prompting the new or amended contention comes from data or conclusions in certain NRC Staff documents, contentions may be amended or new contentions filed after the initial filing only with leave of the presiding officer

upon a showing that:

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(f)(2).¹

Finally, new and amended contentions that withstand the above analysis must still meet the admissibility requirements in 10 C.F.R. § 2.309(f)(1). This regulation requires a petitioner to:

- (i) Provide a specific statement of law or fact to be raised or controverted;
- (ii) Provide a brief explanation of the basis for the contention;
- (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
- (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue; and
- (vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if

¹ See also 10 C.F.R. § 2.309(c).

the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

10 C.F.R. § 2.309(f)(1). The Commission has emphasized that its rules on contention admissibility are "strict by design." *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), CLI-01-24, 54 NRC 349, 358 (2001). Failure to comply with any of the above requirements is grounds for dismissing a contention. *See Private Fuel Storage*, (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC, 318, 325 (1999). "Generalized suspicions" are proscribed (*See Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2)); CLI-03-17, 58 NRC 419, 424 (2003)), and, "neither mere speculation nor bare assertions alleging that a matter should be considered will suffice to allow the admission of a proffered contention." *La. Energy Services (LES)* (National Enrichment Facility), LBP-04-14, 60 NRC 40, 56 (2004); *aff'd* CLI-04-25, 60 NRC 223 (2004). Further, "Although licensing boards are to litigate 'contentions' rather than 'bases,' it has been recognized that 'the reach of a contention necessarily hinges upon its terms coupled with its stated bases.'" *LES*, LBP-04-14, 60 NRC at 57. It is against this background that STV's amended and supplemented contentions are weighed.

II. STV's New and Amended Contentions

Contention B-1: As filed, the FSP is not properly designed to obtain all of the verifiable data required for dose modeling and accurate assessment of the effects on exposure pathways of meteorological, geological, hydrological, animal, and human features specific to the JPG site and its surrounding area.

Staff Response to Contention B-1

The amended, clarified and supplemented bases offered by STV in support of Contention B-1 do not support its admissibility. Each contravenes the Licensing Board's requirement of a demonstration that the endeavor is entirely based upon information contained in the EA or SER that was not previously available to the Petitioner. *See* Memorandum and

Order (Scheduling Further Proceedings), at 3 (May 1, 2006). None of the bases proffered by STV in support of Contention B-1 meet this test because none are based on information in either the EA or SER.

Aside from this, STV's amended and supplemented contentions fail to meet the admissibility requirements in 10 C.F.R. § 2.309(f)(1)-(2). Therefore, as will be discussed below, each amended or supplemented basis offered by STV cannot support the admissibility of Contention B-1.

I. Basis

In its January 3, 2006 Reply, STV accepted the Army's representation in its response that background determinations will be made in areas (and, of course, from biota) "that have not been impacted by DU activities at JPG" and that background determinations will preferably include samples from off-site locations and time periods preceding DU use at JPG. Accordingly, the specific issues underlying this basis have been resolved by the additional information provided by the Army and it has been withdrawn. Nonetheless, since background determination affects so many other decisions to be made, and since the decisions have such long lasting implications (millions of years), STV's environmental risk modeling expert maintains that the selection of background data should be very conservative and the Army should not include any data that might have been affected by site DU activity. In particular, the evidence from J.J. Whicker, *et al.*, *From Dust to Dose: Effects of Forest Disturbance on Increased Inhalation Exposure*, Science of the Total Environment (2006), indicates that because of the controlled burns at the JPG site, probably no area within the JPG boundaries would be unaffected and uncontaminated by the DU that oxidized off the projectiles, as the air contamination during the burns is likely to have spread the U to the edges of the base and beyond. Thus, STV interprets the Army's representation in its Responses to replace the basic assumption in the FSP that areas within JPG site boundaries but away from the hot spots could be considered sufficiently uncontaminated to use in a composite "background" determination.

Staff Response to Basis (I)

The Staff understands this basis to be withdrawn. See Motion at 13. To the extent that the withdrawal is clarified and supplemented, the Staff contends that those portions cannot support the admissibility of Contention B-1 because they are not triggered by the EA or SER contrary to the Licensing Board's order. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). Further, the additional information offered by STV is not new

within the meaning of the regulation (See 10 C.F.R. § 2.309(f)(2)(i)-(ii)) because the information offered merely underscores the point STV has had ample opportunity to make: that background data selection should be conservative. See Motion at 13. Further, the clarified and supplemented information offered by STV fails to raise a genuine dispute of law or fact with the Army in that it merely offers the suggestion that “the selection of background data should be very conservative” (Motion at 13) without stating why the Army’s approach was deficient. See 10 C.F.R. § 2.309(f)(vi). Therefore, the clarifications in basis (l) cannot support the admissibility of Contention B-1.

m. Basis

Air remains a potential exposure pathway as evidenced by the air sampling requirements to be implemented for the field workers (Health and Safety Plan, Section 4.2.2.1) [HASP]. If short-term air exposure is a concern for the workers, long-term air exposure is a concern for residents in surrounding communities, as well as for animals living in the JPG ecosystem. Given the frequent burns that are used to clear brush at JPG, including in the DU Impact Area, conditions are prime for enhancing migration of soil-bound DU into the air. A recently published study provided solid evidence that fire does indeed increase the air migration pathway of soil uranium. Whicker et al studied air concentrations of uranium at the perimeter of the Los Alamos National Laboratory that were measured seasonally over a 10 year time period, including before and after fires, both wildfire and fires that were intentionally set (the equivalent of the JPG controlled burns). They found that the estimated dose due to U attached to particulate in the air at the perimeter of the Los Alamos National Laboratory property increased by approximately 15% after even a “moderate” controlled burn, and this increase was greater (38%) after a more intensive wildfire. Further, the contaminated particulate matter increased seasonally, being highest during the spring months when the snow has melted, the ground is bare, winds tend to be gusty (as is true in southern Indiana), and there is little vegetation covering the ground. See JJ Whicker, *et al.*, *From Dust to Dose: Effects of Forest Disturbance on Increased Inhalation Exposure*, Science of the Total Environment (2006).

Staff Response Basis (m)

Basis (m) cannot support the admissibility of Contention B-1 because it is not based on new information in the EA or SER, and, is an impermissible attempt to bolster a previously filed

basis. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). As supplemented, Basis (m) is nothing more than an attempt to revive a previous argument without reference to the EA or SER. Therefore it does not comport with the Licensing Board's instructions and should be summarily rejected. *Id.*

Aside from this, STV makes no showing that the additional information presented in Basis (m) is materially different from that previously available. See 10 C.F.R. § 2.309(f)(2)(ii). For this reason as well, it cannot support the admissibility of Contention B-1. *Id.*

Even if considered new information, Basis (m) also fails to raise a genuine issue of law or fact with the Licensee because it has nothing to say about the license amendment and attempts to use the latter to bootstrap an issue into the proceeding. See 10 C.F.R. § 2.309(f)(1)(vi). Controlled burns are conducted under the auspices of the U.S. Fish and Wildlife Service pursuant to the Big Oaks National Wildlife Refuge Fire Management Plan. See Wildland Fire Management Plan, Big Oaks National Wildlife Refuge (2006). Continuation of the burns will be unaffected by the five-year extension and therefore, the issue is outside of the scope of this proceeding. See 10 C.F.R. § 2.309(f)(1)(iii). For these reasons, Basis (m) cannot support the admissibility of Contention B-1.

n. Basis

In order to really do a site-specific environmental and human health risk assessment, understanding the fate and transport (F&T) of DU within the JPG ecosystem is critical. In order to develop such a model, standard eco-risk-associated field sampling practices specify samples from different parts of the ecosystem within the same proximate period of time and definitely within the same field season in order to identify the distribution of the contaminant (DU) at that time. Thus to truly model F&T within the JPG ecosystem within the same proximate period of time and definitely within the same field season in order to identify the distribution of the contaminant (DU) at that time. Further it is best to take multiple samples from these different locations over time. Thus, to truly model F&T within the JPG ecosystem (which is NOT the Yuma or Aberdeen Proving Ground ecosystem), a particular sample taken at a particular time should include all media and relevant biota and each of these media and biota should be sampled on multiple occasions. Ideally, samples

should also be taken under different types of field conditions, as appropriate for the changes that occur at the site of concern. For example, at a site that floods, as JPG does, samples should be taken from all media and biota at high flow (flood season) and low flow. Similarly, in a seasonal environment like JPG, samples should be taken from all media and biota in different seasons. When reproduction is seasonal for biota of potential concern, seasonal ~~samples should be taken~~

FL (2000), esp. at 77. Thus, the much more limited sampling described in section 6.3 of the FSP is deficient for purposes of adequate site characterization.

Staff response to Basis (n)

Basis (n) cannot support the admissibility of Contention B-1 because it impermissibly advances new information unaccompanied by a demonstration that the information is entirely based on that contained in the EA or SER in contravention of the Licensing Board's order. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). Basis (n) as clarified, makes no mention of the EA or SER and is an attempt to improve on an argument after the fact. Accordingly, Basis (n) cannot support the admissibility of Contention B-1. *Id.*

Aside from this, Basis (n) cannot support the admissibility of Contention B-1 because it is not new information within the meaning of the regulation that was not otherwise available to STV. See 10 C.F.R. § 2.309(f)(2)(i)-(ii). The Suter work cited by STV, was published in 2000 and therefore is not new information. See 10 C.F.R. § 2.309(f)(2)(i). Indeed, it appears that the Suter book was cited in STV's previous filing in support of other bases. See Petition to Intervene and Request for Hearing of Save the Valley, Inc., at 20 (Nov. 23, 2005). Further, even if considered new information, STV's citation to it, "See, e.g." (Motion at 15), indicates that it is not materially different from other available information. See 10 C.F.R. § 2.309(f)(2)(ii). For this reason as well, Basis (n) cannot support the admissibility of Contention B-1.

o. Basis

Although deer are not the most representative biota to sample, they are the only biota proposed for sampling by section 6.3 of the FSP. Nonetheless, when data from samples early and late in DU testing are not combined, it is evident that DU levels in even the deer are increasing. This result in deer clearly mandates sampling other, more

representative biota as well. Based on what little data is available, the bioaccumulation factors (BAFs) for vegetation and the aquatic filter feeders such as crayfish (both of which are eaten by higher animals and humans) are relatively high, on the order of 102 to 103 times as high as the BAFs for persistent, bioaccumulative, and toxic chemicals (PBTs) listed as being of concern by the U.S. EPA and the Persistent Organic Pollutants (POPs) Treaty. Clearly, vegetation and aquatic filter feeders are better indicators of DU migration into the eco-food chain than are deer and they should be sampled.

For example, the mean of the two clam data points, when compared to the mean of the surface water data provided in Table 2-1 indicate that the clams bioaccumulation factor (BAF) is approximately 900. This is the highest bioaccumulation rate determinable among the biota listed in Tables 2-1 and 2-2 on page 2-9 of the FSP. Since clams are also eaten by both wildlife (racoons and wading birds for example) and humans, clams are thus an important second species to include in the biotic sampling throughout the monitoring period. Additionally, the FSP proposes (and the Staff accepts on page 6 of the April SER) to sample other biota ONLY IF there is detectable levels of DU in the deer tissue, and will only do this in another sampling year. This proposal is directly contrary to what is considered to be "Best Practices" for sampling biota as part of an ecological assessment. See e.g., G.W. Suter II, et al., *Ecological Risk Assessment for Contaminated Sites*, CRC Press [Lewis Publishers], Boca Raton,, FL (2000), esp. at 77.

Staff Response to Basis (o)

Basis (o) cannot support the admissibility of Contention B-1 because as supplemented, it impermissibly seeks to advance a new basis that is not entirely based upon information contained in the EA or SER and that was not previously available to STV. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). STV is attempting to buttress its attack on the previously available section 6.3 of the FSP. Its brief reference to the SER does not meet the Licensing Board's requirement of a "demonstration that the endeavor is entirely based upon information contained in the EA and SER that was not previously available..." Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006).

Further, the information upon which STV relies, the Suter book, is not new information within the meaning of the regulation because it was published in 2000 and has apparently been previously cited by STV. See "Petition to Intervene and Request for Hearing of Save the Valley,

Inc., at 20 (Nov. 23, 2005). Therefore, Basis (o), as clarified, cannot support the admissibility of Contention B-1.

q. Basis

In its January 3, 2006 Reply, STV accepted the representation in the Army's Response that DU dissolution rates would be calculated in multiple soil types, so this part of this Basis is withdrawn. However, DU dissolution rates should also be calculated under different site-specific wetness and temperature regimes in order to measure accurately DU dissolution at JPG. Thus Table 4-1 and related text of the FSP are inadequate because they do not specify such multiple measurements. A recently published study of DU samples taken at Aberdeen Proving Ground demonstrates that some oxides of U are indeed relatively insoluble, and that U(VI) sorbs efficiently to soil. However, other U oxides are water soluble, and will wash out and through the soil. And, as clearly pointed out in this paper, U is not static in the environment, it changes valence state and interacts with other elements variably over time and space, given other changing parameters like moisture, soil content, and pH. See W. Dong, et. al., Sorption and Bioreduction of Hexavalent Uranium at a Military Facility by the Chesapeake Bay, Environmental Pollution (2006), 132-142, esp. at 142.

Staff Response to Basis (q)

Basis (q) cannot support the admissibility of Contention B-1 because as supplemented, it impermissibly seeks to advance a new basis that is not entirely based upon information contained in the EA or SER and that was not previously available to STV. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). STV is attempting to buttress its attack on the previously available Table 4-1 of the FSP and in doing so makes no mention of the EA or SER. Therefore, it cannot support the admissibility of Contention B-1. *Id.*

Further, STV makes no showing that the additional information presented in Basis (q) is materially different from that previously available. See 10 C.F.R. § 2.309(f)(2)(ii). For this reason as well, it cannot support the admissibility of Contention B-1. *Id.*

Even if the W. Dong Study is further considered, it fails to raise a material issue of law or fact with the Licensee with regard to FSP, Table 4-1. See 10 C.F.R. § 2.309(f)(1)(vi). The latter states that 24 penetrator samples will be collected and that, "The objective will be to establish a

corrosion/dissolution rate for the penetrators subject to the *environmental conditions specific to JPG.*” FSP at Table 4-1 (emphasis added). STV fails to explain why the study’s findings and the related assertion that specific wetness and temperature regime measurements must be taken (See Motion at 17) are in conflict with Table 4-1. See 10 C.F.R. § 2.309(f)(1)(vi).

D. Timeliness and Financial Assurance Contentions

The Staff addresses alternative Contentions D-1 and D-2 only to the extent that STV appears to attempt to potentially amend them in the event of an unfavorable ruling by the Licensing Board. See Motion at note 4. Raising these here, is contrary to the Licensing Board’s instructions that matters raised in STV’s motion only address information contained in the EA or SER and that was not previously available to STV. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). Therefore, the alternative Financial Assurance Contentions D-1 and D-2 should not be considered. *Id.*

E. Safety Evaluation Report Contentions

Contention E-1: The SER is clearly inadequate because it does not sufficiently address or resolve the Contentions and supporting Bases submitted by STV, as clarified and supplemented herein, to identify and describe relevant and significant deficiencies in the Army’s FSP.

Staff Response to Contention E-1

STV’s attack on the SER suffers from three fatal defects. First, it fails to recognize, “It is a well-established principle relative to safety-related matters, such as are implicated here, that the adequacy of the application, *not the adequacy of the staff’s review or evaluation, e.g., its SER*, is the focus for a proper contention.” *Private Fuel Storage (PFS)* (Independent Spent Fuel Storage Installation), LBP-01-03, 53 NRC 84, 97 (2001)(emphasis added); See *Pacific Gas and Electric Co.* (Independent Spent Fuel Storage Installation), LBP-03-11, 58 NRC 47, 66 (2003) (“By the same token, agency precedent also makes clear that what is not at issue in our proceedings is the adequacy of the manner in which the staff conducts its review of a technical/safety matter...)). What STV apparently misunderstood were the Licensing Board’s

instructions that it should address itself solely to information “*contained in*” the SER and not an attack *on* the SER. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006) (emphasis added).

Second, STV impermissibly attempts to use the SER to reroute its attack on the FSP and HASP while at the same time not demonstrating that it was responding to, or relying on, new information. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006); 10 C.F.R. § 2.309(f)(2)(i)-(ii). As will be discussed, STV proposes new bases on matters where the underlying issue has already been admitted (See Memorandum and Order (Granting Hearing Request and Deferring Hearing), LBP-06-06, at 21 (Feb. 2, 2006)), and where the Staff has not objected to its admission. See NRC Staff Response to Motion To Intervene And Request For Hearing Filed By Save The Valley, Inc., at 20; 23 (Dec. 19, 2005).

Finally, Contention E-1 relies on bases that fail 10 C.F.R. Part 2 pleading requirements. For these reasons, Contention E-1 is inadmissible.

a. Basis

The SER is premised on the assumption that the Army’s responses to the Staff’s January, 2006 Requests for Additional Information (“RAIs”) have addressed and resolved the deficiencies in the FSP identified and described by STV and, to some extent, the Staff as well. However, the Army’s RAI responses do not address in any meaningful way most of the deficiencies in the FSP and even the deficiencies which are addressed are not resolved. There is a disturbing disconnect between the SER discussion of the Army’s responses and the actual Army responses to the RAIs. The thrust of the SER discussion is what the Staff might wish the Army had responded, but certainly not what it did respond.

Staff Response to Basis (a)

Basis (a) is an impermissible attack on the SER and therefore cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

b. Basis

The Army's RAI responses do propose an alternative sequence and modified content for the collection of stream and cave gauging data and the modified content for collection of climate data. However, as explained further below, the new program is set forth without explanation or rationalization of how it will overcome the inadequacies of the original program. It is just an alternative data collection program.

Staff Response to Basis (b)

Basis (b) appears to address a basis previously admitted by the Licensing Board as Contention B-1, Basis (a), and in that respect, there is little new presented here. See Memorandum and Order (Granting Hearing Request and Deferring Hearing), LBP-06-06, at 21 (Feb. 2, 2006). Presented in this context, however, Basis (b) is offered in support of Contention E-1 that directly challenges the SER. Therefore, it cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

c. Basis

The alternative program described in RAI Response No. 1 does not correct the deficiencies of the program in the original FSP that are described in STV's Bases for Contention B-1, especially, but not exclusively, Basis a, which has been accepted as admissible by both the Staff and the Board. The timing of the initiation of the stream gauging is moved up to overlap with the timing of the well installations under the new calendar, as opposed to starting their well installation under the original FSP. However, the flaw in the original FSP is these two are perceived and implemented as though the data collected from the wells and the stream gauging are independent and unrelated with respect to the objectives of characterization. That perception and implementation will result in data that cannot be used to reliably characterize the site and therefore, cannot be used to reliably model the transport of uranium from the DU impact area.

Staff Response to Basis (c)

Basis (c) appears to address a basis previously admitted by the Licensing Board as Contention B-1, Basis (a) See Memorandum and Order (Granting Hearing Request and Deferring Hearing), LBP-06-06, at 21 (Feb. 2, 2006)) and to which the Staff did not previously

object. See NRC Staff Response to Motion To Intervene And Request For Hearing Filed By Save The Valley, Inc., at 20 (Dec. 19, 2005). Presented in this context, however, Basis (b) is offered in support of Contention E-1 that directly challenges the SER. Therefore, Basis (b) cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

d. Basis

As demonstrated in several of the bases supporting contention B-1, including the bases accepted as admissible by Staff to date, the locations of the well clusters should be located not only based on the results of the fracture analysis and EI survey, but also on the information that can be gained by stream gauging activities discussed in the Army's response to RAI No.1. This is a critical type of stream gauging is not part of the FSP, as acknowledged by the Army in its response to STV's Initial Contentions. The response to RAI Request 1 does not add such stream surveying to allow proper location of the wells or the stream gauging stations. It merely moves forward the time of the inadequate FSP stream gauging program such that it overlaps with an inadequate program for choosing well locations, a change that does not correct the inadequacy of either of those individual FSP characterization programs in any way.

Staff Response to Basis (d)

Basis (d) appears to address a basis previously admitted by the Licensing Board as Contention B-1, Basis (a) (See Memorandum and Order (Granting Hearing Request and Deferring Hearing), LBP-06-06, at 21 (Feb. 2, 2006)) and to which the Staff did not previously object. See NRC Staff Response to Intervene And Request For Hearing Filed By Save The Valley, Inc., at 20 (Dec. 19, 2005). Presented in support of Contention E-1 however, Basis (d) challenges the SER, and therefore, it cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

e. Basis

The Army's response to RAI No.2 is non-responsive to the request from NRC for information to justify why it will not be using a phased approach for determining the hydraulic properties of bedrock and unconfined sediment of the DU impact area at JPG. It is clear that the Army still intends to avoid collecting hydraulic property data, even

when it is possible to do so. This obstinate refusal to collect critical data needed to characterize the hydraulic properties of bedrock and unconfined sediment sediments, [means that] meaningful transport modeling is not possible and an adequate decommissioning plan cannot be developed.

Staff Response to Basis (e)

Basis (e) appears to address a matter previously admitted by the Licensing Board as Contention B-1, Basis (a) (See Memorandum and Order (Granting Hearing Request and Deferring Hearing), LBP-06-06, at 21 (Feb. 2, 2006) and to which the Staff did not previously object. See NRC Staff Response to Motion To Intervene And Request For Hearing Filed By Save The Valley, Inc., at 20 (Dec. 19, 2005). Here, however, Basis (e) is presented in support of Contention E-1 which directly challenges the SER. Therefore, Basis (e) cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

f. Basis

The activities enumerated by Army in response to RAI No.2 are *non sequitur* with respect to determining hydraulic properties. Fracture analysis, EI surveying, and soil verification individually and collectively will not determine the hydraulic properties of bedrock and/or the unconsolidated sediments. The one bone tossed by the Army, that a long term pumping test “ may be considered “ for “the aquifer” is both unresponsive and discloses a poor understanding of the site geology. The proper design of a long-term pumping test is inherently linked to a prior determination of the hydraulic properties of the materials being tested. A long-term pumping test has not been added to the FSP, only the assertion that it will be considered. There is a priori assumption that there is but a single aquifer in the area to be tested, an unlikely assumption for the geology of this site and one that would need to be critically evaluated rather than uncritically accepted by the site characterization program yet to be performed.

Staff Response to Basis (f)

Basis (f) appears to raise a basis addressed in Contention B-1, Bases (a) and (f) that were not opposed by the Staff (See NRC Staff Response to Petition to Intervene and Request For Hearing Filed By Save The Valley Inc., at 20, 23 (Dec. 19, 2005)), and in the case of

Basis (a), was subsequently admitted by the Licensing Board. See Memorandum and Order (Granting Hearing Request and Deferring Hearing), LBP-06-06, at 21 (Feb. 2, 2006). Because Basis (f) is raised here in support of Contention E-1, it is an impermissible attack on the SER and therefore cannot support its admissibility. See *PFS*, LBP-01-03, 53 NRC at 97.

g. Basis

The Army's response to NRC's third request for information is either non-responsive or represents a fundamental lack of understanding of hydrogeological processes. NRC requested a description of Army's approach to measuring, calculating or estimating recharge to groundwater at each water bearing unit. The Army responded by describing how it would measure discharge from groundwater to a stream at a particular point. These two elements of the hydrologic system are, of course, related but they are not equal or equivalent, nor is one a surrogate for the other. Quantifying the differences between these two elements for each water bearing unit and for all water bearing units is one of the fundamental tasks that must be completed as part of site characterization. One cannot quantify the difference without knowing the recharge as well as the discharge. In karst terrain, the relationship between groundwater recharge and discharge to surface water is further complicated where the karst drainage does not correspond in pattern or direction with the surface drainage. (Such discordant drainage patterns were documented at JPG sites 12 A, B, and C and must be conservatively be expected in the DU area also.) Thus, recharge to ground water that discharges somewhere other than the local stream drainage will be lost to the Army's stream gauge exercise entirely and the exercise will be measuring part of the water recharged somewhere else entirely.

Staff Response to Basis (g)

Basis (g) fails to raise a genuine dispute of law or fact and therefore cannot support the admissibility of Contention E-1. See 10 C.F.R. § 2.309(f)(1)(vi). STV fails to meet the requirement of identifying with some precision what portions of the Licensee's documents it is attacking. See *LES*, LBP-04-14, 60 NRC at 57. To the extent that Basis (g) is offered as a basis in support of an attack on the SER, it cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

h. Basis

Assuming as does the Army in its responses to RAI No. 3, that the discharge to a stream is equal to the recharge to any one, or all, water bearing unit(s) ensures a fundamental mischaracterization of site hydrogeology that will propagate through any transport model or decommissioning plan that relies upon such mischaracterization.

Staff Response to Basis (h)

To the extent that Basis (h) is an attack on the Staff's acceptance of RAI 3, it is an impermissible attack on the SER and therefore cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

i. Basis

The Staff did not direct RAIs to the Army and the SER does not address the fundamental deficiencies in the FSP identified and described by STV's regarding soil, air and biota sampling.

Staff response to Basis (i)

Basis (i) is an impermissible attack on the SER and therefore cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

j. Basis

For example, STV's sampling expert has been express, specific and insistent with respect to the adequacy of the FSP's biota sampling regime. See Contention B-1, Bases n and o. Furthermore, the professional standards for such a regime are clear. As summarized in G.W. Suter's recent and authoritative book, *Ecological Risk Assessment for Containment Sites*, at p. 77. the Rules for Sampling Biota are stated as follows (taken from page 77):

- Take enough samples to represent the variability of the site adequately.
- Sample endpoint taxa for which internal measures of exposure are useful.
- Sample organisms or parts of organisms that represent the food of assessment endpoint species.
- Take samples of biota and contaminated media at the same locations or on contamination gradients.
- Because chemical concentrations in organisms may vary seasonally, take samples from all sites at approximately the same time.

- Be aware of information that is lost when samples are composited.
Yet the SER effectively disregards totally the FSP's failure to comply with essentially all of these rules.

Staff Response to Basis (j)

Basis (j) is an impermissible attack on the SER and therefore cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97. This basis is also an attack on the FSP that is based on previously available information in the form of the Suter book. See 10 C.F.R. 2.309(f)(2)(i); See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006).

k. Basis

The SER also ignores the lessons which the Staff itself has previously said should be learned from past experience in decommissioning sites like JPG. In a document dated May 28, 2004, "NRC Regulatory Issue Summary of the License Termination Rule Analysis," nine issues were highlighted as being of concern to the NRC. Two of these issues are specifically applicable to the FSP but are ignored in the SER. These two issues (as summarized in the "Summary of Issues" on page 2 of 4 of RIS 2004-08) are issues 6 and 8:

(6) Realistic Exposure Scenarios: Clear guidance is needed for selecting more realistic scenarios to estimate potential doses to the public after termination of the license." Here, the FSP is being proposed to support a decommissioning plan where the DU will continue in place on site following decommissioning for perpetuity. Yet, the sampling activities proposed simply are not responsive to the indefinite temporal duration of the contamination.

(8) Measures to prevent future legacy sites by changes to licensee operations." The relevant issue here is summarized best on pages 9 and 10 of RIS 2004-08 Attachment 1 of the Summary of License Termination Rule Analysis:

NRC also evaluated the lessons-learned from decommissioning existing contaminated sites and identified specific risks, during facility operations, that could eventually lead to sites with decommissioning problems. NRC concluded that chronic releases and reporting deficiencies were two key operational risks.

Here the FSP is being proposed at a site where the existing monitoring program is known to be inadequate and where any past or future releases will be chronic because the contemplated decommissioning will not involve DU clean-up. Yet, the sampling activities proposed are effectively insensitive to the risk the NRC itself has recognized of the possible need to revisit decommissioning at

sites like JPG if the site has not been properly characterized and DU fate and transport over time accurately modeled, monitored and measured.

Staff Response to Basis (k)

Basis (k) is an impermissible attack on the SER and therefore cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

I. Basis

The inadequacies and insufficiencies of the Army's RAI Responses regarding the groundwater sampling activities in the FSP directly negate the SER which relies upon them. The inability of the FSP, even with the changes the Army promised the Staff, to characterize the site in a meaningful manner means that even after the 5-year extension, the Army will not yet be able to develop a reliable transport model for DU and will not be able to produce an acceptable decommissioning program. Further, there will, after yet another 5 years, be no confidence that the public is even being protected by an adequate monitoring system, one that is able to monitor effectively the movement of DU from the impact areas. Such a situation, the direct result of uncorrected deficiencies in the Army's proposed site characterization and monitoring activities, is neither "necessary to the effective conduct of decommissioning operations" nor "otherwise in the public interest."

Staff Response to Basis (l)

Basis (l) is an impermissible attack on the SER and therefore cannot support the admissibility of Contention E-1. See *PFS*, LBP-01-03, 53 NRC at 97.

Contention E-2

The SER is clearly inadequate because it does not sufficiently address or resolve the Contentions and supporting Bases submitted by STV to identify and describe relevant and significant deficiencies in the Army's HSP and their critical interrelationship to implementation of the Army's FSP.

Staff Response to Contention E-2

Contention E-2 is inadmissible because its assertion that, "The SER is clearly inadequate," (Motion at 39) constitutes an impermissible attack on that document. See *PFS*,

LBP-01-03, 53 NRC at 97. In its supporting bases, Contention E-2 relies on the purported inadequacy of the HASP relative to its treatment of UXO. As discussed more fully in the Staff's earlier response, the degree to which the HSP incorporates measures to deal with UXO is outside of the scope of this proceeding. See NRC Staff Response to Petition to Intervene and Request For Hearing Filed By Save The Valley Inc., at 35 (Dec. 19, 2005); 10 C.F.R. § 2.309(f)(1)(iii). In brief, it is because the controlling requirement under 10 C.F.R. § 40.42(g)(2) is that the alternative schedule "presents *no undue risk from radiation* to the public health and safety" and in this context, UXO does not constitute such a risk. Therefore, in focusing on UXO, Contention E-2 presents a matter that is outside of the scope of this proceeding. See 10 C.F.R. § 2.309(f)(1)(iii).

Separately, rather than address the Staff's conclusion relative to the HSP and UXO, STV uses it as pretext to launch an impermissible, renewed attack on the HSP that has no association with new information. See 10 C.F.R. § 2.309(f)(2)(i)-(ii). Finally, Contention E-2 asserts bases that do not satisfy NRC pleading requirements. See 10 C.F.R. § 2.309(f)(1)(v)-(vi). For these reasons, that will be more fully discussed below, Contention E-2 is inadmissible.

a. Basis

The SER expressly states, "The HSP dealt solely with worker protection in the DU impact area. As such, the staff made no findings regarding the HSP and did not rely on it to reach conclusions regarding the proposed license amendment."
(SER, page 4)

Staff Response to Basis (a)

Basis (a) cannot support the admissibility of Contention E-2 because by its express language, it is an impermissible attack on the SER. See PFS, LBP-01-03, 53 NRC at 97. To the extent that Basis (a) seeks to introduce UXO-related issues, it is also outside of the scope of this proceeding. See 10 C.F.R. §§ 40.42(g)(2); 2.309(f)(1)(iii). Finally, Basis (a) merely restates the

SER's conclusion relative to worker protection, and in doing so, fails to raise a genuine issue of law or fact (See 10 C.F.R. § 2.309(f)(1)(vi)). For these reasons, Basis (a) cannot support the admissibility of Contention E-2.

b. Basis

It is the stated opinion of STV's UXO expert that, as filed, the HASP simply does not apply the detailed guidance in EP 75-1-2 to develop detailed plans for UXO avoidance with respect to each of the principle field sampling activities described in the FSP. The subsequent addenda reference by the Army *may* correct this glaring deficiency in the HASP, but there is no way to determine at this time whether that will prove to be the case because these Addenda have to be filed. Consequently, in the opinion of STV's expert, the HASP is grossly deficient as it stands.

Staff Response to Basis (b)

Basis (b) cannot support the admissibility of Contention E-2 because STV has made no showing that it is relying on new information that is materially different from that previously available. See 10 C.F.R. § 2.309(f)(2)(i)-(ii). Instead, STV simply renews its attack on the previously available HASP without the slightest reference to new information. See 10 C.F.R. § 2.309(f)(2)(i)-(ii). Further STV seeks to raise an issue that is outside of the scope of this proceeding (See 10 C.F.R. §§ 40.42(g)(2); 2.309(f)(1)(iii)). Finally, in making a speculative reference to whether future Army addenda "may" address the matter raised, Basis (b) does not raise a genuine issue of law or fact. See 10 C.F.R. § 2.309(f)(1)(vi). Therefore, Basis (b) does not support the admissibility of Contention E-2.

c. Basis

It is also the opinion of STV's expert based on his personal experience, professional judgement, and knowledge of practices observed on other projects that inadequate planning which does not comply with EP 75-1-2 will delay the implementation and increase the cost of both HASP and FSP field activities. It is also likely to increase the risk of an accidental detonation which will not only endanger on-

site personnel but further delay and increase the cost of both the HASP and the FSP.

Staff Response to Basis (c)

Basis (c) does not support the admissibility of Contention E-2 because it impermissibly seeks to advance a new basis that is not *entirely* based upon information contained in the EA or SER. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006) (emphasis added). Similarly, STV makes no other attempt to show that it is relying on new information that is materially different from that previously available. See *id*; 10 C.F.R. § 2.309(f)(2)(i)-(ii). Finally, in addressing the adequacy of the HASP relative to UXO, Basis (c) presents a matter that is outside of the scope of this proceeding. See 10 C.F.R. §§ 40.42(g)(2); 2.309(f)(1)(iii). Therefore, Basis (c) cannot support the admissibility of Contention E-2.

d. Basis

The last bullet in Section 4.0 of the HASP expressly asserts that UXO is present at the site and that, "Site investigation plans will be adjusted, as appropriate and necessary, to ensure that the H&S of all field personnel are always protected." This type of statement shows an almost complete lack of knowledge and concern for UXO on the project. Accepted safety procedures on UXO sites require plans to be developed to safely perform sampling operations before beginning work, thereby minimizing the need to adjust the plans to maintain safety once sampling has begun.

There [has been] virtually no planning for UXO safety incorporated into the sampling procedures included in the FSP. As a result, the HSP contemplates unspecified *ad hoc* adjustments to site investigation activities contemplated in the FSP as needed to ensure safety of personnel.

Staff Response to Basis (d)

Basis (d) does not support the admissibility of Contention E-2 because it impermissibly seeks to advance a new basis that is not entirely based upon information contained in the EA or SER. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). In

Basis (d), STV makes no showing whatsoever that it is relying on new information that is materially different from that previously available (See 10 C.F.R. § 2.309(f)(2)(i)-(ii)) and instead renews a prior argument. Therefore, Basis (d) does not support the admissibility of Contention E-2.

e. Basis

In its now withdrawn 2003 POLA request, the Army cited UXO risk as an excuse to delay JPG DU site characterization indefinitely. In its currently pending 2005 request, the Army is now expressly stating in its HASP that will adjust the site investigation activities proposed in its FSP in unspecified ways in order to ensure the absolute safety of project personnel—a vague, *ad hoc* approach to integrating the HASP and the FSP which STV has harshly criticized but the SER does not reference let alone discuss. But, this vague, *ad hoc* approach to integrating the HASP and the FSP leaves completely unevaluated and necessarily unresolved whether the unspecified adjustments to planned site investigation activities which will be made by the Army to protect project personnel will also assure site characterization.

Staff Response to Basis (e)

Basis (e) cannot support the admissibility of Contention E-2 because it is an impermissible attack on the SER. See *PFS*, LBP-01-03, 53 NRC at 97. STV's assertions relative to the POLA are no more than restatements of the same argument (cite) that have very little to do with new information and for which STV does not attempt the merest showing. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006); 10 C.F.R. § 2.309(f)(2)(i)-(ii). For these reasons, Basis (e) also cannot support the admissibility of Contention E-2.

f. Basis

For example, suppose that site investigation activities identify a groundwater conduit at a location where UXO is present. Will the UXO be cleared and a sampling well drilled at that location? Will the initial location be avoided and a well drilled at another location found along that same conduit? Or, will a sampling well simply not be drilled in a potentially critical groundwater conduit? The SER

inexplicably and unjustifiably ignores this obvious and important issue.

Staff Response to Basis (f)

Basis (f) cannot support the admissibility of Contention E-2 because it is an impermissible attack on the SER. See *PFS*, LBP-01-03, 53 NRC at 97. Further, Basis (f) is an impermissible attempt to buttress an argument and has little foundation in new information. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). Finally, Basis (f) does not raise a genuine dispute with the Licensee (See 10 C.F.R. § 2.309(f)(1)(vi)) as much as it poses a series of speculative questions. Therefore, Basis (f) cannot support the admissibility of Contention E-2.

F. Environmental Assessment Contentions

1. Contention F-1: The reasoning and the assumptions supporting the EA's FONSI are faulty in significant respects.

Staff Response to Proposed Contention F-1

As a threshold matter, STV fails to raise a genuine dispute of law or fact with respect to the FONSI finding. See 10 C.F.R. § 2.309(f)(1)(vi). Throughout Contention F-1, STV narrowly focuses on the Staff's purported misunderstanding of NUREG/CR-6705 without stating, much less asserting why, or even if, this is fatal to the FONSI finding. While asserting that JPG is not "directly analogous" (Motion at 43) to the sites discussed in NUREG/CR-6705, STV does not explain why even slight differences may be significant. In this respect, the Licensing Board has stated, "[P]roviding any material or document as a basis for a contention, without setting forth an explanation of its significance, is inadequate to support the admission of a contention." *LES*, LBP-04-14, 60 NRC at 57 (citing *Fansteel* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 205 (2003)). What STV seemingly fails to understand, is that the Staff's reliance on

NUREG/CR-6705 was confined to the five-year period covered under the license amendment, not a permanent forecast. Seen in this light, Contention F-1 becomes an academic exercise in theorizing that does not take into account the scope of the Staff's action here.

Even if STV is found to have presented a genuine issue of law or fact, the Staff contends that Contention F-1 is admissible, but only on two of the bases proposed by STV. The remaining bases cannot support the admissibility of Contention F-1 because they fail to meet 10 C.F.R. Part 2 pleading requirements, are not based on new information, and do not comport with the Licensing Board's directive that added contentions must focus on information in the EA and SER. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). Based on this, the Staff concludes that two bases, as discussed below, can support the admissibility of Contention F-1 while the remaining bases cannot.

a. Basis

The EA considered two alternatives, the No-Action alternative and the requested 5-year extension for the decommissioning plan to perform the level of characterization needed to develop a transport model and the development of an adequate decommissioning plan. Although the extension would create some slightly higher impacts, it was selected because a) the impacts are perceived as minimal (if unquantified) and b) added characterization must be done before decommissioning can continue (EA, pages 3 and 4)

b. Basis

There are four principle threads of logic behind the interpretation of minimum radiological and nonradiological impacts that might occur as a result of a 5-year delay, described on page 3 of the EA. First, some monitoring wells of the current monitoring network were installed "near" the southwest corner of the DU impact area without radiological or nonradiological impacts. Second, the risk from exploding UXO is "insignificant." Third, the existing monitoring program has found "no DU." Fourth, NRC staff interprets NUREG/CR-6705 SAND2000-2554, Historical Case Analysis of Uranium Plume Attenuation, to indicate that the groundwater plumes of uranium would likely be too short to reach JPG boundaries and may have already reached their full extent. The assessment goes on to propose that in the unlikely event that a groundwater plume were to reach the JPG boundary, the existing

monitoring system would detect it and trigger corrective actions to reduce the DU concentrations to below the action level. The faulty logic of three of these four threads is transparent.

c. Basis

Thread One hypothesizes no radiological impacts from wells installed inside the DU impact area because earlier wells installed outside of the DU impact area did not have radiological impacts. Since there would be no DU contamination in the area of the earlier installations, there could be no radiological impacts associated with their installation. But that carries no significance by analog to installations of wells in an area where DU contamination is present. Thread Two is an assertion that is offered without supporting data or a quantification of what would constitute a significant risk were there a UXO explosion. Thread Three, an “even if” safety net of corrective action rely on the supposition that the monitoring program of the ERM is adequate to identify migrating DU from the DU impact area. The need for the characterization to be done during the five-year extension is the direct result of the inadequacy of that monitoring system and the existing site characterization. Any data from inadequate system cannot be relied upon to provide evidence of safety or lack of impact.

d. Basis

In offering Thread Four, NRC Staff simply lifts text from NUREG/CR-6705, without critical consideration what the data from that document actually mean and don't mean with respect to migration away from the DU Impact Area at JPG. There is very little data in the study that is at all relevant to JPG, and the data that are relevant do not support the conclusions asserted by NRC Staff in the EA.

Staff Response to Bases (a); (b); (c); (d)

To the extent that the foregoing are offered as bases in support of Contention F-1, they fail because although submitted under the guise of bases, Bases (a), (b), (c) and (d) are a series of “bare assertions” (*LES*, LBP-04-14, 60 NRC at 55) that fail to satisfy NRC pleading requirements. See 10 C.F.R. § 2.309(f)(1)(v)-(vi). Bases (a), (b), (c) and (d) constitute, in effect, impermissible “notice pleading with details to be filled in later.” *Millstone*, CLI-01-24, 54 NRC at 363 (quoting *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-99-11, 49 NRC 328, 338(1999)). Therefore bases (a); (b); (c); and (d) cannot support the admissibility of Contention F-1.

e. Basis

NUREG/CR-6705 evaluates groundwater uranium patterns in and around 32 individual source areas representing 26 locations. Summary information on these sites is provided in Table 5, pages 20 through 23 of this paper. None of the 32 is a DU weapons testing or use area. There are 6 natural uranium ore bodies from 4 sites. There is a single explosive site. There are two uranium mines. There are 23 sites from 19 uranium mill tailings operations around the United States. None of these sites is directly analogous to JPG.

Staff Response to Basis (e)

Basis (e) is inadmissible because it fails to raise a genuine issue of law or fact. See 10 C.F.R § 2.309(f)(1)(vi). STV never provides an explanation of why a site has to be “directly analogous to JPG” and further, why this is significant for the 5-year extension period. *Id.* Nor does STV connect the other general data in Basis (e) with anything of legal or factual significance in the EA. Essentially, STV provides general data and then fails to note that “it is not within the Board’s power to make assumptions of fact that favor the petitioner.” *LES*, LBP-04-14, 60 NRC at 56. Therefore, Basis (e) cannot support the admissibility of Contention F-1.

f. Basis

The sites that are most relevant to JPG are mill tailings sites in that they constitute uranium that has been placed in a setting for which uranium is likely not in chemical equilibrium with the placement area. However most of these sites exhibit characteristics and conditions that are far removed from JPG. Seventeen of the 23 mill tailing sites, representing 15 locations, are Type UMTRA (uranium mill tailing remediation action) sites. Six of the mill tailing sites, representing four locations, are Type II UMTRA sites. Type I sites are those that have been remediated with removal, relocation or isolation of the uranium-bearing wastes. For these sites one would expect less extensive and slower plume development than Type II sites where remediation has

yet to be remediated. The distance from the DU impact area to the Type I sites is 1.2 km and the distance to the Type II sites is 2.6 km. It is noted that there has been no removal or isolation of the uranium from the DU impact area at JPG.

Staff Response to Basis (f)

Basis (f) cannot support the admissibility of Contention F-1 because it fails to present a genuine issue of law or fact. See 10 C.F.R. § 2.309(f)(1)(vi). STV makes a series of general statements regarding plume travel between Type I and Type II sites but then neglects to tie this in any direct way with JPG in only speculating that “there has been no removal or isolation of the uranium from the DU impact area at JPG.” Motion at 44. Nor does STV mention why this is significant for the 5-year extension and why the EA is wrong. In essence, Basis (f) is an attempt to present general data to the Licensing Board in the hope that it will draw favorable inferences in favor of STV. See *LES*, LBP-04-14, 60 NRC at 56. Seen in this light, Basis (f) cannot support the admissibility of Contention F-1.

g. Basis

There are, moreover, other biases to the NUREG/CR-6705 data set that need [to]be considered with respect to JPG.

The sites analyzed for plume interpretation are overwhelmingly from arid or semi-arid areas, not the humid midcontinent. Seventeen of the sites are from Colorado, Utah, Arizona, Wyoming, New Mexico or the interior desert of Washington. The availability of precipitation to drive ground water flows is greatly restricted in such areas when compared to precipitation rates comparable to those at JPG. Only three of the locations in the study are from the Midwest; one each in Missouri, Pennsylvania, and Ohio. Each of these sites is UMTRA Type I, influenced by waste removal and isolation.

Only the two site[s] at the Weldon Springs location in Missouri are in a setting with carbonate bedrock (DOE), as is JPG. Carbonate bedrock may, but does not necessarily, show karst development. Based upon the pattern of uranium migration from the disposal areas, it does appear there is a karst element there and that pattern underscores the complexity of mapping uranium migration through karst networks. Even with a much greater density of wells than are postulated for JPG under the FSP and precisely known source areas, plumes are not well constrained and uranium concentrations are not distributed simply. The comment column of Table 5 (NUREG/CR-6705, p22) states for both of these sites, “Plume length is very approximate. [U] well data is very heterogeneous. Multiple plumes are observed. Very localized plume lengths with [U]>15 pCi/L (~45ppb) are only reported.” It is noted that the authors of NUREG/CR-6705 elected not to include or analyze data from the Savannah River Site (p.

15), a facility with karst geology that could serve as an analog for migration patterns at JPG.

Staff Response to Basis (g)

The Staff concludes that Basis (g) can support the admissibility of Contention F-1.

h. Basis

Simply lifting text from NUREG/CR-6705 is also subject to misinterpretation unless care is taken to understand the term “plume” as used in that paper. As used in this paper, plume does not represent the distance uranium has migrated downgradient from a source area. The term plume is used as shorthand for ‘maximum plume axial length,’ which in turn is defined as, the maximum distance between two points encompassing the farthest boundaries of the plume as constrained and/or permitted by the sampling well network in a particular site where measurable U concentrations in the range of 10-20 ppb have been obtained (NUREG/CR-6705, pp 18 & 19). As implemented, the maximum plume axial length reported in Table 5 often represents a distance not to concentrations of 10-20 ppb, but of many-fold higher concentrations. In one case, the “plume” was defined based on the boundaries of concentrations as high as 900-1000ppb. In a different type of inconsistency, NUREG/CR-6705 reports a “plume” length of 0.4 km at Maybell CO for a site at which the caretaker, DOE, reports it has never had water quality measured as part of the monitoring program. See Maybell, Colorado, Disposal Site Fact Sheet Nov-05, U.S.D.O.E., Office of Legacy Management, at p. 1, available at: http://www.lm.doe.gov/documents/sites/co/maybell/fact_sheet/maybell.pdf.

Staff Response to Basis (h)

Basis (h) does not support the admissibility of Contention F-1 because it is a disjointed, unfocused attack that lacks basis. See 10 C.F.R. § 2.309(f)(1)(v). Without support, STV asserts that the Staff has misinterpreted plume length due to a purported discrepancy between its definition and Table 5. STV never offers proof of such a misunderstanding or its relevance to the Staff’s finding that DU migration did not pose a significant environmental risk during the five-year period covered by the license amendment. See 10 C.F.R. § 2.309(f)(1)(vi). Further, STV’s assertion regarding the Maybell, Colorado site apparently fails to note the Reference section of NUREG/CR-6705 in which water sampling is noted. See NUREG/CR-6705 at 38 (note 97). At

bottom, Basis (h) is no more than a impermissible “generalized suspicion” masked as a basis.

See *Duke Energy Corp.*, CLI-03-17, 58 at 424. Therefore it cannot support the admissibility of Contention F-1.

i. Basis

Another limitation of the NUREG/CR-6705 paper is that its reported measurements are based on single “snap-shots” of the extent of contamination for the reported sites. There are no data and [there] is no discussion regarding the rate of plume expansion, and at no point does the paper suggest that the reported plumes are at maximum extent. The paper does expressly caution, however, about the temporal aspect of measuring plume lengths. On page 19, the paper says, “Note there is a general lack of temporal data for periods longer than 5 years for most sites.” The NRC Staff mistakenly takes this to mean that the maximum plume length develops in a few years, rather than giving a plain meaning to the caution that the reported plume lengths represent only how far the plumes have developed during their respective measurement periods, not their ultimate lengths.

Staff response to Basis (i)

Basis (i) cannot support the admissibility of Contention F-1 because it lacks basis.

See 10 C.F.R. § 2.309(f)(1)(v). The core of Basis (i) is the allegation that the Staff misunderstood maximum plume length. See Motion at 45-46. This assertion is unsupported by fact or expert opinion. See 10 C.F.R. § 2.309(f)(1)(v). What STV fails to appreciate, is that the Staff’s determination was limited to whether there would be a danger from DU migration during the extension period and not a prediction that it would reach its maximum plume length during that period.

In this respect, it is important to note what the EA said, and did not say with respect to NUREG/CR-6705. In citing NUREG/CR-6075 the EA noted,

[T]he combined effects of dispersion and chemical reaction are sufficient to arrest most uranium plumes before they move roughly a kilometer from the source. The natural life cycle of a uranium plume appears to involve an initial movement away from the source region that takes place within a few years and does not exceed 2 kilometers. Consequently, the Staff concludes that there is little likelihood that the groundwater plume containing DU from the impact area would reach

the boundary of the site during the 5-year period proposed by the Army. See Environmental Assessment Related to Issuance of License Amendment to U.S.N.R.C. Materials License No. SUB-1435, at 3 (Mar. 6, 2006)[ADAMS No. ML053130257].

What this statement is not, as STV would imply, is a forecast of the maximum plume length, but rather is a judgement that movement outside of the boundaries of JPG was unlikely during the pendency of the revised schedule. In sum, Basis (i) constitutes no more than a “bare assertion” constructed on an erroneous characterization of what the EA concluded. *LES*, LBP-04-14, 60 NRC at 55. Therefore Basis (i) cannot support the admissibility of Contention F-1.

j. Basis

The most critical element to the NUREG/CR-6705 study that was apparently not recognized by the NRC Staff, however, is that for most of the plumes, the actual downgradient migration limit for plume length is when the groundwater plume discharges into a surface body of water such as a river or pond. NUREG/CR-6705 shows the plume patterns for five sites at four locations in Figures 8-11. In four of the five cases, the groundwater plume has reached a maximum extent only because it terminates against a surface water body and delivers its uranium to that stream or river. Were the surface body further away, the plume would have been longer. This same pattern is documented at all sites for which appropriate data are available for the UMTRA sites as examined on the DOE website <http://www.lm.doe.gov/>.

Staff Response to Basis (j)

Basis (j) cannot support the admissibility of Contention F-1 because it lacks basis (See 10 C.F.R. § 2.309(f)(1)(v)) and fails to present a genuine issue of law or fact. See 10 C.F.R. § 2.309(f)(1)(vi). STV adduces no facts or expert opinion in support of the point of this basis, which is, that the Staff failed to recognize that many of the plumes depicted in the NUREG terminated against bodies of water. See 10 C.F.R. § 2.309(f)(1)(v). The sole source of STV’s assertion is merely that the Staff had a different view rather than any evidence that the Staff’s conclusion was unreasonable. *Id.* Similarly, even accepting STV’s assertion, STV does not

indicate why the Staff's determination governing a five-year period was erroneous. See 10 C.F.R. § 2.309(f)(1)(vi). Therefore, Basis (j), cannot support the admissibility of Contention F-1.

k. Basis

The ready transfer of dissolved uranium from matrix groundwater flow to a free-flowing body of water, as documented for the majority of NUREG/CR-6705 locations, is particularly problematic for JPG. Unlike most of the cases for the NUREG/CR-6705 study, where this transfer was to a surface water body, at JPG, this transfer is likeliest to occur into free-flowing water in the karst development. That water, although of course underground, flows in systems analogous to surface water streams, with comparable speed through as-yet uncharacterized flow networks. Thus, although the matrix-flow groundwater paths may be relatively short and slow until the karst network is reached, at that point migration rates will be dramatically faster, maybe kilometers per day, in directions that have not been established.

Staff Response Basis (k)

The Staff concludes that Basis (k) can support the admissibility of Contention F-1.

l. Basis

Finally, the NUREG/CR-6705 discussion of uranium geochemical controls and natural ore bodies has important implications that are unrecognized by the NRC Staff comments for areas downgradient and downstream of the DU impact. The Army and NRC Staff approach the DU problem from the standpoint of migration away from a relatively concentrated source, with a resulting plume that will disperse or attenuate with distance from that source. With a containment such as uranium, however, that is only one side of a two-edged sword. Ore bodies (concentrated uranium) develop in nature because geochemical boundaries create local areas where relatively dilute uranium is extracted from the passing water, causing uranium concentrations in the soils to build to extremely high concentrations. NUREG/CR-6705, Sections 2.0 and 2.2, pp1-7. The inherent implication of this is that even a dilute plume, one below the concentration of an action level, can build concentrations in soil or sediments that are problematic further along the transport path when geochemical conditions change.

Staff Response Basis (l)

Basis (l) cannot support the admissibility of Contention F-1 because it lacks basis (See 10 C.F.R. § 2.309(f)(1)(v)) and fails to present a genuine dispute of law or fact. See 10 C.F.R. § 2.309(f)(1)(vi). STV's description of the Staff's understanding of DU migration is based purely on conjecture. See 10 C.F.R. § 2.309(f)(1)(v). Absent from Basis (l), is an explanation of why, or even if, it contradicts the Staff's conclusion that DU migration during the five-year period with appropriate monitoring, does not pose a significant environmental impact. See 10 C.F.R. § 2.309(f)(1)(v). Therefore, it fails to raise a genuine issue of law or fact (See *id.*) and cannot support the admissibility of Contention F-1.

m. Basis

On page 3 in paragraph 3, the EA states that "no DU has been detected in the samples collected." This is inaccurate and misleading.

n. Basis

According to the FSP, Tables 2-1 and 2-2 (page 2-9 of the May 2005 Field Sampling Plan produced by SAIC), radiation was detected in the vegetation up to 3,4476 pCi/g with a mean of 627.5 pCi/g in 10 vegetation samples, and was detected in the vegetation root wash (soils accumulating under the vegetation and therefore the source of the radioactivity taken up by the plants) at levels as high as 14,258 pCi/g with an average of 2,868.8 pCi/g in 10 samples. (The source for these data was SEG 1995).

Staff Response to Basis n

STV misapprehends the EA while making an assertion that lacks basis and therefore cannot support the admissibility of Contention F-1. See 10 C.F.R. § 2.309(f)(1)(v). STV's assertion can be placed in perspective by citation to the full text of the EA: "As part of its current license obligations, [the] Army has been collecting semi-annual samples under its ERM Plan. To date, no DU has been detected in the samples collected." Environmental Assessment Related to Issuance of License Amendment to U.S.N.R.C. Materials License No. SUB-1435, at 3 (Mar. 6, 2006)[ADAMS No. ML053130257]. ERM test results are publicly available documents

which explicitly state that the purpose of ERM testing is to “ensure that depleted Uranium (DU), present within the DU Impact Area as a result of the Army’s past DU program, does not *pose a threat to human health and the environment through inadvertent or unanticipated release or migration*. See e.g. Radiation Monitoring Report For License SUB-1435 Jefferson Proving Ground (Dec. 2004) (emphasis added) [ADAMS No. ML0511101990].

This is a different form of sampling than that conducted under the FSP and to which STV refers, which, states on its face that it is used for a *scoping* survey in the DU impact area. See FSP, Table 2-1; 2-2. Consequently, Bases (m) and (n) consist of pure conjecture and are unresponsive of the admission of Contention F-1.

o. Basis

Biota are generally better indicators of contaminant releases and exposures over time. This is especially true in water, where, as discussed in RAGS Chapter 4 [EPA/540/1-89/002], concentrations in fast-flowing waters can be highly variable over time and space. JPG streams can be very fast flowing during and following rain events, as the karst topography lends itself to rapid rises in the water table and thus frequent flooding. As Suter says in Ecological Risk Assessment for Contaminated Sites, “the concentrations of chemicals in water may be highly variable over relatively short time periods. The resolution of temporal issues in aqueous sampling and data reduction must be based on the variability of the concentrations in the stream and toxicokinetics and toxicodynamics of the chemicals and receptors.” (Suter et al, page 79). At JPG, the surface sampling rate historically and as approved in the EA is effectively one sample every six months, which can not be expected to enable any resolution of contamination variability over time and space. Thus, the better estimates of whether DU is or has been present in surface water comes from aquatic bioaccumulators.

Staff Response to Basis (o)

Basis (o) cannot support the admissibility of Contention F-1 because it impermissibly seeks to advance a new basis that is not entirely based upon information contained in the EA or SER and that was not previously available to STV. See Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). STV is apparently attempting to improve on its attack on the FSP without a “demonstration that the endeavor is entirely based upon

information contained in the EA and SER that was not previously available...” Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). Therefore, on this ground alone, Basis (o) cannot support the admissibility of Contention F-1. *Id.*

Further, STV does not make the merest showing that the information upon which it relies is new within the meaning of the regulation. See 10 C.F.R. § 2.309(f)(2)(i). For this reason as well, Basis (o) cannot support the admissibility of Contention F-1.

p. Basis

In Table 2-2 of the FSP, freshwater clams represent the stationary bioaccumulators that provide good evidence for the presence of DU in both surface waters and the food chain. Freshwater clam samples (2 data points provided) are 0.774 and 0.334 pCi/g. The mean of the two clam data points, when compared to the mean of the surface water data provide in Table 2-1, indicates that the clams bioaccumulation factor (BAF) is approximately 900. This is the highest bioaccumulation rate reported among the biota listed in Tables 2-1 and 2-2 on page 2-9 of the FSP. Since clams are also eaten by both wildlife (racoons and wading birds, for example) and humans, the reported presence of bioaccumulating DU in them is potentially quite significant.

Staff Response to Basis (p)

Basis (p) cannot support the admissibility of Contention F-1 because it impermissibly seeks to advance a new basis without a “demonstration that the endeavor is entirely based upon information contained in the EA and SER that was not previously available...” Memorandum and Order (Scheduling Further Proceedings), at 3 (May 1, 2006). This basis is a supplemented attack on the FSP as well that is not based on anything new within the meaning of the regulation. See 10 C.F.R. § 2.309(f)(2)(i).

Aside from this, Basis (p) does not raise a material dispute of law or fact (See 10 C.F.R. § 2.309(f)(1)(vi) and merely suggests that the “reported presence of bioaccumulating DU” in some wildlife is “quite significant.” Motion at 48. Therefore Basis (p) cannot support the admissibility of Contention F-1.

q. Basis

Thus, the logic and data underlying the EA will simply not support its FONSI. While a FONSI may still be warranted for the POLA, the EA as drafted is simply insufficient to justify it.

Staff Response to Basis (q)

Basis (q) is an unparticularized assertion that does not meet 10 C.F.R. Part 2 pleading requirements. Therefore, it cannot support the admissibility of Contention F-1.

CONCLUSION

For the reasons set forth above, the Licensing Board should grant STV's motion with respect to Contention F-1, Bases (g) and (k) and all others should be rejected.

Respectfully submitted,

/RA/

Harry E. Wedewer
Counsel for the NRC Staff

Dated at Rockville, Maryland
this 20th day of June, 2006

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))	

NOTICE OF WITHDRAWAL

Notice is hereby given that effective June 20, 2006, undersigned counsel withdraws his appearance in the above-captioned proceeding. All mail and service lists should be amended to delete my name after that date.

Respectfully submitted,

/RA/

Patrick A. Moulding
Counsel for NRC Staff

Dated at Rockville, Maryland
this 20th day of June, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF RESPONSE TO MOTION FOR LEAVE TO WITHDRAW, AMEND AND SUPPLEMENT CONTENTIONS BY SAVE THE VALLEY, INC." and "NOTICE OF WITHDRAWAL" of Patrick A. Moulding in the above captioned proceeding have been served on the following by electronic mail, with copies deposited in the Nuclear Regulatory Commission's internal mail system, as indicated by a single asterisk, or sent by U.S. Mail, first class, as indicated by a double asterisk, this 20th day of June, 2006.

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